



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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Your file - Votre référence
3BM-CAP0810

August 16, 2018

Our file - Notre référence
CIDM#1225474

Ida Porter
Licensing Administrator
Nunavut Water Board
P.O. Box 119
Gjoa Haven, NU, X0B 1J0

Re: Crown-Indigenous Relations and Northern Affairs Canada's comments on the Government of Nunavut – Community and Government Service's renewal application for water licence #3BM-CAP0810 – Hamlet of Cape Dorset

Dear Ms. Porter,

Thank you for your July 16, 2018 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 renewal 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 Indian Affairs and Northern Development Act*.

CIRNAC appreciates the opportunity to participate in this review. 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

Canada 

Technical Review Memorandum

To: Ida Porter, Licensing Administrator, Nunavut Water Board

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

Date: August 16, 2018

Re: Review of Renewal Application for Type B Water Licence 3BM-CAP0810

Applicant: Government of Nunavut - Community and Government Services
Project: Hamlet of Cape Dorset
Region: Qikiqtani

A. BACKGROUND

On July 16, 2018, the Nunavut Water Board (NWB) provided notification of Government of Nunavut - Community and Government Services' (GN-CGS) submission of a renewal application for Type B water licence 3BM-CAP0810 for the Hamlet of Cape Dorset.

The Hamlet of Cape Dorset has an expired licence for Municipal Undertakings for the use of 192 cubic meters of water per day and for the deposit of waste.

Water is drawn from Tee Lake and pumped through a pipeline to reservoirs at the truck fill station. The Hamlet uses trucks for both delivering water and collecting sewage. The Three-Tier sewage Lagoon and the Emergency Lagoon are the sewage disposal facilities for the community.

Solid wastes in the Hamlet are segregated with bulky materials and metals disposed of at the metal dump and other waste including household waste brought to the landfill.

The NWB requested interested parties review the application and make representations by August 16, 2018.

B. RESULTS OF REVIEW

Crown-Indigenous and Relations Northern Affairs Canada (CIRNAC) Water Resources has read the documentation provided with this application and found it to be incomplete, incoherent and generally of poor quality. The applicant has a long history of not providing updated plans and reports as required by their expired licence, inspector's

directions and inspection reports. Any renewed licence should therefore not be issued before they have submitted the minimum requirements for a water licence application including a spill contingency plan.

On behalf of CIRNAC, the following comments and recommendations are provided for the Board's consideration.

1. Spill Contingency Plan

Reference:

- Solid waste Operation and Maintenance Plan, Hamlet of Cape Dorset, May 2014, Section 10
- Operation and Maintenance Procedure for the Existing Sewage Lagoons, Hamlet of Cape Dorset, May 2016, Sections 4-6
- Email correspondence between Assol Kubeisinova (NWB technical advisor) and Bhabesh Roy (GN-CGS municipal planning engineer), July 16, 2018

Comment:

The applicant has not provided a stand-alone Spill Contingency Plan, a document necessary for every water licence application.

The applicant does have Spill Contingency Plans included as subsections in two Operation and Maintenance (O&M) plans. They are not consistent and this will lead to confusion. For example, the response steps in the event of a spill are different, so an operator may mix-up the steps. It is primordial that the instructions in the event of such an emergency be simple, clear and consistent. If a Spill Contingency Plan section is to be included in O&M plans, it needs to be the same in every plan.

Of the two Spill Contingency Plans submitted, the Solid Waste O&M Plan is the better organized of the two. In order to fulfil the requirement of submitting a stand-alone plan, it is presumed the applicant copy the Spill Contingency Plan section into a separate document. The following comments are deficiencies noted that should be addressed, should this route be chosen.

- 10.3 Contacts and Regulatory Authorities: There is no contact information for the SAO or Foreman. As well, it states that the Foreman is responsible for initiating the Spill Contingency Plan, which is incorrect. The first person who notices the spill should be the one to initiate action.
- 10.3 Distribution List: Andrew Keim Inspector, AANDC should be replaced with Manager of Field Operations, CIRNAC
- 10.6 Hydrocarbon Spills: This section includes three subsections for spills on land, in water and on snow/ice that have 11 steps, 10 of which are identical. The document would be simpler and clearer with a single general 11 step response to spills, with precisions on the small differences in response according to land, water or snow provided after.
- 10.9 Spill kit Locations: The plan needs to indicate where the spill kits are, not where they should be.

- 10.11 Off-site Resources: Aboriginal and Northern Affairs Canada (AANDC) (867)-669-2761 should be replace with Crown-Indigenous Relations and Northern Affairs (867) 975-4295.
- Appendix B: Only half of the spill reporting form has been reproduced. The entire form should be included.

Recommendation:

CIRNAC recommends the applicant submit an adequate Spill Contingency Plan prior to any licence being issued. If the applicant chooses to reproduce the Spill Contingency Plan in its O&M plans, these sections need to be identical to each other and to the stand-alone Spill Contingency Plan.

2. Water sources

Reference:

- Water Licence Inspection Form, Indigenous and Northern Affairs Canada, May 17, 2017
- Email correspondence between Assol Kubeisinova (NWB technical advisor) and Bhabesh Roy (GN-CGS municipal planning engineer), July 16, 2018

Comment:

The inspection report notes that Ice Lake had been identified as a secondary raw water source to be used in case of emergencies. If this is still the case, the applicant should include it in the application so that they would not be contravening the Nunavut Waters and Nunavut Surface Rights Tribunal Act if they need to withdraw water from Ice Lake.

The applicant's reply to the NWB's request for more precisions was "Tee Lake is the main water source." This does not answer the question as to whether a secondary emergency water source is considered.

Recommendation:

The applicant should be required to answer if Ice Lake is being considered as a secondary emergency water source. If so, they should provide the lake's location on a map, its known characteristics and an estimate of how much water would be required for the emergencies.

3. Sewage treatment

Reference:

- Operation and Maintenance Procedure for the Existing Sewage Lagoons, Hamlet of Cape Dorset, May 2016
- Water Licence Inspection Form, Indigenous and Northern Affairs Canada, May 17, 2017
- 2016 Annual Report for the Hamlet of Cape Dorset, GN-CGS, January 2017
- RE: Cape Dorset Wastewater Treatment Schedule, GN-CGS, November 17, 2016

Comment:

Presently the Three-Tier sewage Lagoon and the Emergency Lagoon are the sewage disposal facilities for the community. The O&M Procedure for the Existing Sewage Lagoons explains operations with an appropriate amount of detail. However, the Three-Tier lagoon has a history of failing to meet the water quality effluent limits and the Emergency does not have the capacity to manage the community production of effluent.

Concern about the Three-Tier facility has been raised by the Mayor of Cape Dorset in a letter issued to Indigenous and Northern Affairs Canada on July 20, 2016. In the letter the mayor outlines his concern on the effects this may have on the harvesting of clams and fish, the financial burden this lagoon has on the community, and the incapacity of the lagoon to properly treat sewage.

Furthermore, the Department of Health, Government of Nunavut has also issued a letter to Indigenous Affairs and Northern Development outlining the effluent entering the ocean exceeds both the Canadian Shellfish Sanitation Effluent Criteria for faecal coliforms and the Northwest Territories Guidelines for the Discharge of Treated Municipal Wastewater (1992). The applicant's reply to the NWB's request for more precisions was "The structural stability of the existing lagoons is the priority. We have installed two overflow pipes at the lower berm so that over flow could easily take place maintaining 1 m free board. We are also decanting emergency Lagoon on weekly basis during winter time. The situation has been compromised using Tim Brown's letter to INAC. We are pushing forward the new WWTP and new Solid waste Management projects as earliest as possible. This does not answer the question and the letter referenced that was sent to INAC also does not answer the question posed by the NWB.

The 2016 Annual Report states that studies were being undertaken to help address the problem; a Feasibility Study of possible options by Stantec and a Wetland Efficiency Study by Dalhousie. We were unable to find these studies on the NWB registry. The Feasibility Study is mentioned again in a letter from GN-CGS, which includes a schedule.

This application needs to include up to date information on the efforts taken to meet discharge criteria including results of the Feasibility Study, and how the tasks in Table 1 of the GN-CGS letter have been completed. According to this table, "Design and Regulatory Approvals" are estimated to start in August 2018.

Recommendation:

CIRNAC recommends the applicant be required to provide an update on process of installing adequate sewage treatment in the Hamlet, and a schedule for the next steps. If a design is available it should be included in the application so it can be considered in the same time. Also any letters being referenced should be included in the application package.

4. 2007 P-Lake sewage lagoon

Reference:

- Project Proposal for Hamlet of Cape Dorset Environmental Facilities under Water Licence #3BM-CAP0810 Type B, Bhabesh Roy, May 2016
- Application for Water Licence Amendment # 1 of Hamlet of Cape Dorset, Licence # 3BM-CAP 0810, GN-CGS, May 2016

Comment:

The P-Lake sewage lagoon was built in 2007 and was never commissioned or used because it is not water tight. The applicant has requested that it be removed from any renewed water licence.

Infrastructure that is to be abandoned needs to be reclaimed before it can be removed from a licence.

Recommendation:

CIRNAC recommends that the 2007 P-Lake lagoon remain under any renewed water licence until such time as it has been reclaimed. The applicant should be required to submit an abandonment and reclamation plan that includes a schedule.

5. Sludge monitoring

Reference:

- Operation and Maintenance Procedure for the Existing Sewage Lagoons, Hamlet of Cape Dorset, May 2016

Comment:

Section 3.4.5 of the O&M Procedure for the Existing Sewage Lagoons is on sludge monitoring and recommends a study approximately every 10 years to determine the need and frequency for sludge removal. Over time, sludge accumulation reduces the capacity of lagoons, and since lagoon capacity is an issue in Cape Dorset, sludge monitoring is particularly relevant.

Information on when sludge was last removed, when the last study was done and its results would be helpful in determining if sludge monitoring should explicitly be included in any renewed licence.

Recommendation:

CIRNAC recommends that the applicant provide information on its sludge monitoring and management efforts.

6. Quality Assurance/Quality Control Plan

Reference:

- Cape Dorset Sewage Lagoon Quality Assurance/Quality Control Plan, Hamlet of Cape Dorset, May 2016

- Cape Dorset Nunavut Groundwater Monitoring Operations and Maintenance Manual, AMEC Earth & Environmental, July 2011
- Licence 3BM-CAP0810 – Cape Dorset, Nunavut, Nunavut Water Board, March 2008

Comment:

Information on quality assurance/quality control (QA/QC) procedures is scattered across many plans and not consistent between plans. As with, the different Spill Contingency Plan sections, this will lead to confusion. An example is the requirement for duplicates in the Groundwater Monitoring O&M Manual, but not in the Sewage Lagoon QA/QC Plan.

Though the QA/QC plan title includes “Sewage Lagoon”, the actual plan covers more than just the sewage lagoons, as described in section 1.4, scope of work. Removing “Sewage Lagoon” from the title would allow a modified version of this plan to fulfill the requirement of a QA/QC plan, and avoid the necessity of creating QA/QC plans for the other sampling locations.

Deficiencies noted in the plan include:

- Section 2.2.1 Monitoring Stations: Stations associated with 2007 P-Lake Sewage Lagoon have been omitted from the table, but one of the other stations is missing; P-20 (Monitoring well located down gradient of the Solid Waste Disposal Facilities)
- Section 2.4 Quality Assurance and Quality Control Program: This section should include the necessity for duplicate samples. If blanks are also to be used, a field blank should be taken, and trip blanks could be taken as a third priority.
- Appendix A Site Plan: The site plan is missing the locations of stations CAP-1, CAP-2, CAP-18, CAP-19 and CAP-20.
- Laboratory Accreditation & Supporting Documentation: The CALA certification provided expired 3 years ago.
- Appendix D Guide Lines for Water and Wastewater Sampling: The appendix includes a section on drinking water sampling which is not relevant to the water licence. The wastewater sampling section refers to stations from another licence, and the timing of the sampling does not match the requirements of the licence, or section 2.2.3.1.
- Appendix E Lab Support Letter: The letter included references another QA/QC plan. A support letter for this specific plan is necessary.

Recommendation:

CIRNAC recommends the applicant update their QA/QC plan.

7. Groundwater monitoring

Reference:

- Cape Dorset Nunavut Groundwater Monitoring Operations and Maintenance Manual, AMEC Earth & Environmental, July 2011

- 2011, 2012, 2014, 2015, 2016 & Annual Reports for the Hamlet of Cape Dorset, GN-CGS
- Licence 3BM-CAP0810 – Cape Dorset, Nunavut, Nunavut Water Board, March 2008

Comment:

The expired licence includes 5 groundwater monitoring well locations. These were constructed prior to July 2011, and as built installation drawings are included in the Groundwater Monitoring O&M Manual.

No data from the wells has been submitted with the annual reports. In order to understand whether these locations should be carried over into any renewed licence, it would be necessary to know:

- Have the wells ever been sampled?
- Were they dry or frozen? Is any data available?
- Is the Groundwater Monitoring O&M Manual being followed?
- In what condition are the wells 8 years after installation? Have they been broken or vandalized?

Recommendation:

CIRNAC recommends the applicant provide information on their groundwater sampling efforts to inform what monitoring requirements could be included in any renewed licence.

8. Acute lethality testing

Reference:

- Operation and Maintenance Procedure for the Existing Sewage Lagoons, Hamlet of Cape Dorset, May 2016
- Email correspondence between Assol Kubeisinova (NWB technical advisor) and Bhabesh Roy (GN-CGS municipal planning engineer), July 16, 2018

Comment:

The applicant is requesting that the monitoring requirement for annual acute lethality testing to rainbow trout or Daphnia be removed from any renewed licence. Their justification is “Our Accredited lab in Ottawa named Caduceon Lab. They or their neighbourhood labs do not test this parameter. It is troublesome to ship out this sample to the lab outside of Nunavut. Again previous INAC inspector Andrew Keim was not in favour of removing this type of testing.”

Their reply is surprising given that in March 2018, this same applicant stated that they would be able to do acute lethality testing for another south Baffin community.

Recommendation:

CIRNAC recommends the applicant clarify state why acute lethality testing is not a problem for one community, but not feasible for a second one in the same region.

9. Metal dump clean-up

Reference:

- Hamlet of Cape Dorset Metals Disposal Site Study, Concentric Associates International Incorporated, December 2009
- Email correspondence between Assol Kubeisinova (NWB technical advisor) and Bhabesh Roy (GN-CGS municipal planning engineer), July 16, 2018

Comment:

The Metals Disposal Site Study concluded that the best method of dealing with the accumulated material was sealift backhaul. It included several recommendations following the removal of material from site, including a Phase I/II site assessment, site restructuring and establish a schedule for scrap metal removal.

It is not clear if any of the recommendations of the Site Study were implemented.

Recommendation:

CIRNAC recommends the applicant clearly explain:

- what has been done at the metal dump since 2009;
- which of the Study's recommendations were implemented;
- a schedule for completion of the outstanding recommendations, or justification as to why they will not be implemented.

10. Compliance Plan

Reference:

- Hamlet of Cape Dorset Plan for Compliance Licence No. 3BM-CAP0810 (expired), GN-CGS, May24, 2018
- Licence 3BM-CAP0810 – Cape Dorset, Nunavut, Nunavut Water Board, March 2008

Comment:

GN-CGS has submitted a compliance plan where they self-assess their compliance status with different elements of their expired licence. Five instances of non-compliance (E-5, F-1, H-6, H-7 and H-9) are related to terms and conditions related to the 2007 P-Lake sewage lagoon. Since it is abandoned without having been used, it is reasonable that these conditions would not be met.

There are terms and conditions for which the applicant deems themselves to be in compliance, which is not supported by the documents presented with the application.

Licence item	Condition	Hamlet's status of compliance	Inconsistency
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Licence item	Condition	Hamlet's status of compliance	Inconsistency
B-2	The Licensee shall comply with the Monitoring Program described in this Licence ...	In Compliance, Hamlet is currently following the Monitoring program of the existing facilities except the P-Lake Sewage Lagoon. They are following the INAC inspector's direction as needed.	Data presented in the annual reports is missing more stations than just those associated with the 2007 P-Lake Lagoon. For example SNP stations CAP-2, CAP-19 & CAP-20
D-8 Cont'd	... to the point of entry at the ocean, shall be demonstrated to be non-acutely toxic under the following tests to be conducted once annually, approximately mid-way through the discharge period.	blank	These data have not been presented in the annual report
F-2	The Licensee shall submit to the Board, for approval in writing, within ninety (90).days of issuance of the Licence, an Operation and Maintenance Manual for the Water Supply Facilities and the Solid Waste Disposal Facilities ...	In Compliance	No manual for the water supply facilities was included with the application.
F-5	An inspection of all engineered facilities related to the management of water and waste shall be carried out annually in July, by a Geotechnical Engineer ...	In Compliance. The P lake lagoon is an Engineered facility but has been abandoned. The waste management facility and the existing lagoons are non-engineered facilities. However Hamlet submits annual report on time.	The O&M Procedures for the Existing Sewage Lagoons require a site inspection by a qualified engineer (Section 3.4.6), and no reports to this effect have been submitted.

The report does not include compliance with discharge criteria from the sewage lagoons, which is a critical element. As discussed in comment 3, more information needs to be provided on what steps are being taken to reach compliance.

Recommendation:

CIRNAC recommends the applicant continue their efforts to comply with the *Nunavut Waters and Nunavut Surface Rights Tribunal Act*, the Nunavut Water Regulations and their expired water licence.