



Environmental Protection Operations Directorate

Prairie & Northern Region

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ECCC File: 6200 000 019/003

NWB File: 3BM-CAP0810

August 16, 2018

Via email at: licensing@nwb-oen.ca

Ida Porter

Licensing Administrator

Nunavut Water Board

P.O. Box 119

Gjoa Haven, NU X0B 1J0

Dear Ms. Porter:

RE: 3BM-CAP0810 – Government of Nunavut Community and Government Services – Hamlet of Cape Dorset – Type B Water Licence Application

Environment and Climate Change Canada (ECCC) has reviewed the information submitted to the Nunavut Water Board (NWB) regarding the above-mentioned application and is submitting comments via email as requested by NWB. ECCC's specialist advice is provided based on our mandate, in the context of the *Canadian Environmental Protection Act* and the pollution prevention provisions of the *Fisheries Act*.

ECCC has the following comments:

ECCC #1 Issue - Wastewater Treatment System – Upgrading Facilities

References:

- Operation and Maintenance Procedure for the Existing Sewage Lagoons, May 2016 Page 14
- Hamlet of Cape Dorset Environment Monitoring Program, WL 3BM-CAP 0810 (QA/QC Plan) Section 1.1
- 2015 and 2017 Annual Reports, Cape Dorset
- Cover Letter from Bhabesh Roy, Community Government Services, to NWB dated May 24, 2016.
- Letter from Tim Brown, CGS to Justin Hack, INAC dated Nov. 17, 2016
- Project Proposal for Hamlet of Cape Dorset Environmental facilities under

Water Licence # 3BM-CAP 0810-Type B - Bhabesh Roy (undated)

Comment:

The three-cell lagoon system was designed as an exfiltration system, but regularly overtops. Emergency decants are conducted as well. Wastewater is also directed into the emergency lagoon because of the under-capacity of the system. The Operation and Maintenance (O&M) Plan clearly acknowledges the issues with the system, but no clear path forward is outlined.

As recently as 2016, the O&M Plan, the Environment Monitoring Plan and the Project Proposal stated that the 2007 lagoon would be commissioned “soon” or “at the earliest possible time”. However, information in past Indigenous and Northern Affairs Canada (INAC, now Crown-Indigenous Relations and Northern Affairs Canada or CIRNAC) inspection reports indicated that there are serious problems with berm stability, erosion, and inflowing groundwater. According to the 2015 Annual Report, the Government of Nunavut (GN) had hired Stantec Engineering Consultants Inc. to conduct a feasibility study on repairing and using the 2007 lagoon. The report or the conclusions have not been provided, but it appears that the P Lake 2007 sewage lagoon is now considered abandoned (2017 Annual Report).

The cover letter for the licence renewal and amendment application (dated May 24, 2016) stated that Dalhousie University was doing a wetland treatment study that summer, which could inform decisions about next steps, but no results or indications of direction from that work have been provided.

In Nov. 2016, GN Community and Government Services (CGS) indicated that a Feasibility Study was required to review all potential options for wastewater treatment in Cape Dorset. It is not clear whether the Transport Canada exemption has been obtained to allow construction of a facility within 4 km of a runway. The letter included a schedule which would have the Request for Proposal Design completed by July 2018. No further information has been provided on the progress or status of the study, but it was referenced in the 2017 Annual Report:

The Feasibility studies of a new Wastewater Treatment Facility were completed individually by consultants Stantec and Exp. CGS is planning to start design of a new wastewater treatment facility to get regulatory approval and the new facility is anticipated to be commissioned in 2022.

The operation of a mechanical system could potentially be a viable option, but ECCC notes that there have been problems with the installation and/or operation of mechanical treatment systems in the North. It would be useful for the GN and the Hamlet of Cape Dorset (the Hamlet) to provide a full review of the options being considered (including rehabilitation of the 2007 lagoon) along with an analysis of the pros and cons of each option, and the rationale for the preferred approach. If there is no likelihood of the 2007 P Lake sewage lagoon being used, it will need to be properly reclaimed, and thus should be considered under this water licence.

ECCC's Recommendation(s):

ECCC recommends that:

- the Water Licence include a condition requiring the GN to provide a plan for upgrading the wastewater treatment facilities which includes a full analysis of alternatives and rationale for the preferred option;
- the 2007-built P Lake sewage lagoon be part of the licensed activities;
- if the 2007 lagoon will not be used, the Hamlet take steps to decommission the unused lagoon and remediate the site; in this case, a closure and reclamation plan should be submitted.

ECCC #2 Issue - Plan for Closure and Reclamation of the 2001 Sewage Disposal Facility and the Emergency Sewage Disposal Facility

Reference:

- Hamlet of Cape Dorset Plan for Compliance Licence No. 3BM-CAP0810 (Expired)

Comment:

The compliance table references Part G-1 of the expired licence, and refers specifically to the requirement for closure planning for the 2001 Sewage Disposal Facility and the Emergency Sewage Disposal Facility.

The GN response states that:

The A&R Plan(s) shall be submitted to the NWB six (6) months prior to the planned decommissioning of Three Cell Lagoon and / or Emergency Lagoon. The future Consultant who will design the new Mechanical wastewater Treatment Plant & will develop an abandonment and restoration Plan at the same time by 2022. [sic]

The short-term plan for compliance is to retain a consultant to work on the Abandonment and Remediation (A&R) Plan, and in the long term, to submit all outstanding A&R Plans to the NWB in accordance with the criteria outlined in the issued water licence by 2022.

ECCC's Recommendation(s):

ECCC recommends that the renewal licence include the requirement for closure plans to be developed for the 2007 lagoon infrastructure, as well as the currently-used facilities, in the term of the renewal licence.

Ans.: The 2007 built P –Lake Sewage lagoon site falls within the Transport Canada's new 4km zoning. This facility hasn't been commissioned and was never used as a sewage treatment facility. The water contained within the berm is surface water runoff from the surrounding hills. Cape Dorset has no future

plan to use this facility. It will remain this way until we abandon and return the site to its natural state. This facility poses little to no risk to the Environment and Health of the Public.

This facility will not be part of the new water licence.

The Plan for the Abandonment and Restoration (A&R) of the existing lagoons will be developed along with the design Phase of the new WWTP. The implementation of the closure plan will be initiated once the new WWTP is commissioned and successfully operated. The consultant will develop an action plan during the design.

All the documents will be submitted to NWB during amendment of the proposed new Water Licence prior to start construction of the new WWTP.

The RFP is ready for advertisement to hire a consulting firm.

ECCC #3 Issue - Toxicity Testing of Sewage Effluent

References:

- Operation and Maintenance Procedure for the Existing Sewage Lagoons, May 2016 Page 12
- Hamlet of Cape Dorset Environment Monitoring Program, WL 3BM-CAP 0810 (QA/QC Plan)

Comment:

The previous water licence required annual sampling and testing for acute lethality to Rainbow Trout, *Oncorhynchus mykiss*, and *Daphnia magna* for effluent leaving the lagoon system at sampling station CAP- 4. The O&M Plan Manual recommends that this requirement be deleted from the renewal licence, due to constraints of sampling, shipping and transportation to the lab.

No testing has been done to date, and ECCC acknowledges difficulties with holding times can be an issue. In the renewal licence, it is suggested that the condition for acute lethality testing be deferred until treatment system upgrading is completed, whether this involves rehabilitation of the 2007 lagoon or commissioning of the proposed mechanical treatment plant (estimated in 2022). Once rehabilitation or the mechanical treatment plant are in place, toxicity testing could be included in the monitoring program and used as an indication of treatment performance. To simplify requirements for the Hamlet, it would be reasonable that just the Rainbow Trout bioassay test be used as an indicator (*Daphnia* are less sensitive to municipal effluent) and that this requirement not be included as a compliance requirement in the main body of the licence, but in the monitoring section.

ECCC's Recommendation(s):

ECCC recommends including the requirement that annual effluent toxicity testing be done for Rainbow Trout following commissioning of an upgraded treatment system, and that this be included in the monitoring section of the renewal licence.

Ans. : An accredited lab named Caduceon Lab in Ottawa conducts chemical analysis for this community. This lab and its neighborhood labs in Ottawa do not conduct the Toxicity test for Rainbow Trout. However if it is included in the new licence, a different lab in Winnipeg will be selected for this test. But it is not that easy for this Community to ship out samples to Winnipeg or any other lab outside of Nunavut.

Yes, once the new Mechanical Wastewater Treatment Plant (WWTP) is built and Commission, toxicity testing could be included in the monitoring program and used as an indication of treatment performance.

ECCC #4 Issue - Solid Waste Disposal - Open Burning**Reference:**

- Solid Waste Operation and Maintenance Plan for Hamlet of Cape Dorset, May 2014 Section 5.1

Comment:

The Hamlet relies on open burning for waste volume reduction. The Solid Waste Plan states that the Hamlet burns garbage weekly, and that waste is to be properly.

segregated into burnable and non-burnable waste according to Table 1.

However, the Plan acknowledges that there actually is no segregation of household garbage or control on placement of wastes. Burning of food wastes, textiles and plastics are strongly discouraged because of incomplete combustion that can affect air quality and contaminate adjacent lands and waters.

ECCC's Recommendation(s):

ECCC recommends that open burning follow best practices as outlined in the Government of NU document referenced, and that implementation of appropriate segregation and waste management practices be a priority.

Ans.: Yes, This will be followed by the Community.

ECCC #5 Issue - Solid Waste Disposal – Management of Hazardous Wastes and Bulky Metals**References:**

- Solid Waste Operation and Maintenance Plan for Hamlet of Cape Dorset, May 2014 Section 1.0 Introduction; Section 6.0 Bulk Metal / Hazardous Waste Storage Area
- Feasibility Study on Metal Waste Site, 2009
- Email from Bhabesh Roy to NWB dated July 16, 2018– Additional Correspondence Documents

Comment:

Household hazardous wastes are stored at the current bulk metal waste storage area. Previous initiatives to improve segregation and handling appear to have been discontinued.

As outlined in the O&M Plan Introduction:

The bulky metal waste site is not being maintained. The sorted areas have begun to spread and new waste has not been sorted to the piles. The hazardous waste area has not been maintained and the waste is placed randomly around the area. There is no fencing around the site and it is open to the public. There is a berm located at the bottom of the site but the berm has been breached in one area. A project was undertaken by the Hamlet by way of a contribution agreement with the Government of Nunavut in November 2006. The project was broken into different phases. Phase 1 was to sort the metal waste into piles of similar metals. Phase 2 was acquiring the services of an environmental engineer to study and provide solutions on how to store, dispose and remediate the bulky metal waste. Phase 3 was to contain the hazardous waste on site. Phase 4 was to remediate the waste but Phase 4 was not started. There is no engineered land farm built to accommodate and treat contaminated soil of this community. The soil conditions and ground water quality in the active layer during Warmer months were unknown. Two monitoring wells were installed to monitor the ground water quality.

The 2009 Feasibility study had identified immediate measures that would be necessary to address regulatory concerns, which included securing the site with berms and/or fencing, waste segregation, proper containment of hazardous wastes, drainage management, and closure planning.

As the disposal site currently is operated, surface runoff from snowmelt and precipitation is in contact with the mixed and unsecured wastes, and the transport of contaminants in leachate from the bulk metal/hazardous waste site onto the land and into Telik Inlet is of concern.

ECCC strongly encourages the GN to take proactive steps to improve solid waste management in accordance with the 2014 O&M Plan and any recent improvements such as use of a metal crusher (as per email from Bhabesh Roy). The Plan should be updated to reflect current practices.

ECCC's Recommendation(s):

ECCC recommends that the licence include a condition to identify plans for compliance with an updated O&M Plan, and demonstrate measures taken to manage solid waste such that surface waters are protected.

Ans.: The lower boundary of the waste metal site is protected by a berm so that surface runoff cannot easily or directly run to the sea. The minor beach developed at the lower corner of this berm was repaired.

The Hazardous wastes (batteries) are partially boxed to ship out at any time. Segregation is still in progress.

Right now a metal crusher is being used on daily basis to reduce the metal volume at site. This is the significant and highest achievement in this Community.

CGS is looking forward to reduce the metal volume soon to create more space to accommodate additional metals at the site.

ECCC #6 Issue - Solid Waste Disposal – New Site

Reference:

- Email from Bhabesh Roy to NWB dated July 16, 2018– Additional Correspondence Documents

Comment:

There is brief mention of a new solid waste facility being in the “advance stage” at about the same time a new wastewater treatment facility would be installed. There are no details on the design and proposed operation of a new facility, nor is there any information on the closure of the existing sites.

ECCC’s Recommendation(s):

ECCC recommends that the Hamlet / GN provide a detailed plan for the new solid waste site as well as closure plans for the existing facilities.

Ans. CGS is in the process of advancing this project to identify a new site, obtain regulatory approval, build a new facility and at the same time present the A&R plan of the existing site. The capital budget is not yet identified for this project yet. Therefore an action Plan is not presentable at this moment.

ECCC #7 Issue - Spill Contact List – Removal of Incorrect ECCC Contact.

Reference:

- Solid Waste Operation and Maintenance Plan for Hamlet of Cape Dorset, May 2014 Spill Contingency Plan Section 10.11 Off-site Resources

Comment:

The Solid Waste Operation and Maintenance Plan section 10.11 includes an incorrect emergency number, shown as:

Environment Canada (Emergency) Yellowknife (867) 669-4725

For any environmental emergencies the 24 Hour NWT/NU Spill Report Line should be contacted first by the Hamlet(as stated in Section 10.3) 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* the Hamlet can contact ECCC Environmental Enforcement at (867) 669-4730.

ECCC's Recommendation:

ECCC recommends that the Hamlet remove the Environment Canada number and replace it with the correct one.

Ans.: Yes, it has been removed and replaced with the correct one.

Should you require further information, please do not hesitate to contact me at (867) 669-4744 or eva.walker@canada.ca.

Sincerely,

[Original signed by Eva Walker]

Eva Walker

Environmental Assessment Coordinator

cc: Melissa Pinto Senior Environmental Assessment Coordinator
Georgina Williston, Head, Environmental Assessment North (NT and NU)