



Water Resources
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Phyllis Beaulieu
Manager of Licensing
Nunavut Water Board
P.O. Box 119
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Your file - Votre référence
3BM-KIM0911
Our file - Notre référence
CIDM# 766622

Re: 3BM-KIM0911 – Hamlet of Kimmirut – Renewal Application

Dear Ms. Beaulieu:

Aboriginal Affairs and Northern Development Canada (AANDC) Water Resources Division conducted a review of the Government of Nunavut Community Government Services' renewal application for the Hamlet of Kimmirut's Type 'B' Water Licence 3BM-KIM0911.

The following advice has been provided pursuant to AANDC's mandated responsibilities for the enforcement of the *Nunavut Waters and Nunavut Surface Rights Tribunal Act* (NWNSTRTA) and the *Department of Indian Affairs and Northern Development Act*. In conducting our review, AANDC Water Resources referred to documents on the FTP site relating to 3BM-KIM0911.

Should you have any questions or comments, please do not hesitate to contact me at (867) 975-4738 or by e-mail at Jean.Allen@aandc-aadnc.gc.ca

Sincerely,

Jean Allen
Water Management Specialist

Cc. Murray Ball, Manager of Water Resources, AANDC
Erik Allain, Manager of Field Operations, AANDC

Technical Review Memorandum

To: Phyllis Beaulieu – Manager of Licensing, Nunavut Water Board

From: Jean Allen – Water Management Specialist, Water Resources, AANDC

Re: 3BM-KIM0911 – Hamlet of Kimmirut – Renewal Application

A. INTRODUCTION

The Nunavut Water Board (NWB, Board) issued a municipal water licence (3BM-KIM0911) to the Hamlet of Kimmirut on January 9, 2009. On June 8, 2009, the Government of Nunavut Community Government Services (GN-CGS) submitted an application to amend 3BM-KIM0911, which was denied by the NWB on March 19, 2010 because they were not satisfied that the requirements of c. 57 of the NWNSRTA have been met.

In their March 19, 2010 decision letter for licence 3BM-KIM0911, the NWB expects any future application for amendment to include the following:

- 1) Acceptable, alternative methods for sewage disposal during construction;
- 2) Results of sampling to determine if there are fish in the wetland area or the small pond upstream of Soper Lake;
- 3) A more detailed topographic map covering the entire sewage effluent treatment train including definitive flow patterns, discharge location into wetlands, predicted flow course through wetlands, discharge into small ponds, and final discharge into Soper Lake;
- 4) A site-specific wetland study;
- 5) A Plan for Compliance that addresses the Board's requirements and parties' concerns.

The GN-CGS submitted an application to renew 3BM-KIM0911 on August 13, 2013 and the NWB distributed the application requesting comments from interested parties on December 11, 2013. The GN-CGS (applicant) is requesting to renew the licence for 5 years starting in January 2014.

The Hamlet uses Lake Fundo as their water source. There are currently 2 solid waste facilities in Kimmirut: the main facility just west of the existing sewage disposal facility; and the facility constructed in 2002 currently used for waste oil storage and bulky scrap metal. The existing sewage system comprises the discharge of raw sewage in a ditch which flows 300 m downhill to a pond located east of Lake Fundo. The enhanced sewage disposal facility (constructed in 2001 and upgraded in 2008) comprises of an upper lagoon, a lower lagoon, and wetlands (300 m of drainage ditches and low areas followed by approximately 20 ha (10,000 m²) of wetland towards the pond upstream of Soper Lake) but it has not been commissioned yet due to concerns from the community, regulators, and the NWB.

In their renewal application, the applicant proposes to increase the quantity of water from 30,000 m³ / year to 100 m³ / day, and anticipates that 50 m³ will be returned to source per day. According to the Technical Summary (and confirmed by annual reports), the average water consumption is approximately 18,500 m³ / year and the annual sewage volume is expected to be the same (18,000 m³ / year) according to the application form.

B. RESULTS OF REVIEW

The AANDC Water Resources Division offers the following comments/ recommendations for the NWB's consideration in regards to the renewal application for water licence 3BM-KIM0911.

General

- 1) The application to renew 3BM-KIM0911 is dated June 16, 2006. AANDC recommends that the application form be updated to include more current activities (i.e. boxes 13 and 15). Additionally, it appears as though the applicant proposes to amend the existing water licence to increase water use from 30,000 m³ / year (~82 m³ / day) to 100 m³ / day. Clarification is requested from the applicant on whether it is their intention to apply for an amendment in addition to a renewal.
- 2) It is noted that the Hamlet of Kimmirut is currently the licensee of 3BM-KIM0911 and the GN-CGS is the applicant for the renewal application for this same licence. It is recommended that both the GN-CGS and the Hamlet of Kimmirut be considered licensees for municipal water licences.
- 3) While the application requests the applicant to describe the composition, quantity, methods of treatment and disposal (Box 8), this information (including references to this information) cannot be found in the submitted application. AANDC recommends that this information be provided to the NWB for review prior to renewal.
- 4) The technical summary describes 3 solid waste facilities: the existing facility just west of the existing sewage disposal facility; a new waste oil storage area and bulk scrap metal disposal area built in 2002, and a new proposed waste management facility. AANDC notes that the new proposed solid waste management facility was not included in the scope of previous applications so clarification is requested on whether the applicant intends to include the new proposed solid waste management facility in the scope of this application.
- 5) The current water licence requires the Hamlet to submit quarry management plans for any approved source of aggregate material within the municipality and notes that any new quarry developments that receive NIRB approval will require an amendment to their water licence. Clarification is requested whether any more deposits are to be considered in this renewal application.

Wastewater Treatment

Existing sewage facility

- 6) The Hamlet currently discharges raw sewage directly into a ditch which drains directly to the ocean, approximately 750 m south of the community (400 m southwest of the nearest resident). Plans for alternative methods for sewage disposal, as requested by the NWB in their last decision (March 19, 2010), could not be located in the application.

Enhanced Sewage Disposal Facility

- 7) A geotechnical inspection of all engineered facilities related to the management of water and waste was carried out on July 22 and 23, 2013 and the inspection report was

expected at the end of September 2013. While this report was not found in the application, it was located on the NWB FTP site. The report concludes that the enhanced sewage disposal facility not be used until one of the remediation options (rockfill toe vs. rockfill bench) have been implemented. AANDC agrees with this conclusion and recommends that the applicant submit a letter to the NWB outlining an implementation plan to address the recommendations in the report.

- 8) The GN-CGS retained Nunami Stantec Ltd. to conduct a fish and fish habitat assessment of the proposed wetland area in Kimmirut. According to the schedule in Appendix F, field sampling was conducted in September 2013 and another sampling program is scheduled in June 2014. A preliminary finding report will be available on March 2014 and a final report is expected by November 2014. We are happy to see that the applicant is making strides to comply with regulatory requirements, but until it is confirmed whether or not the waterbodies within the wetland area, including the small pond upstream of Soper Lake, are fish bearing, AANDC recommends that the enhanced sewage disposal facility **not** be commissioned.
- 9) According to Appendix L, GN-CGS is planning a 3 year site-specific study on the wetland downstream from the new sewage lagoons to determine wetland efficiency. Sampling will be done for 3 years starting the year after commissioning of the enhanced sewage disposal facility (expected in 2015) and evaluation reports will be submitted with annual reports. AANDC is satisfied that the applicant is planning to undertake a site-specific study of the wetland system, but recommends that a plan for this study be submitted to the NWB for review prior to commissioning of the enhanced sewage disposal site to ensure that issues pertaining to eventual compliance architecture are not overlooked;

Quarry Management Plan

- 10) According to Part D, Item 10 of 3BM-KIM0911, the Licensee shall submit a quarry management plan to the NWB that (a) confirms that material does not produce acid rock drainage (ARD) and is not metal leaching (ML); (b) provides an assessment of any potential impacts to freshwater quality; and (c) provides measures to mitigate any potential impacts to freshwater quality. Upon review of the Quarry Management Plan of Kimmirut for quarry deposits 2 and 2A, it appears that neither of these requirements has been satisfied.

Operation and Maintenance (O&M) Manual

- 11) While an O&M Manual for the Enhanced Wastewater Facility was submitted in July 2012, there are no O&M manuals available for the existing sewage disposal facility or solid waste management facilities. AANDC recommends that these outstanding O&M Manuals be provided to the NWB for approval prior to renewal.
- 12) The O&M Manual for the Enhanced Wastewater Facility does not appear to address the following, as required under Part F, Item 2 of the water licence:
 - a) Hazardous waste management procedures; and
 - b) Planning modifications to streams and water bodies, including water crossings.

Spill Response Plan

- 13) The Spill Response Plan (SRP) was prepared as part of the O&M Plan for the wastewater treatment site (also known as the Enhanced Sewage Disposal Facility). AANDC recommends that a SRP be provided for each facility under the water licence (i.e. existing sewage disposal facility and solid waste disposal facilities) or alternatively they submit a general spill response plan to include potential spill responses for all facilities.
- 14) Table 1 in Section 4.0 should include contact information for the persons responsible for the facility but it is currently blank. AANDC recommends that this table be filled in and sent to the NWB prior to commissioning of the new wastewater treatment site.
- 15) Section 8.4 recommends that at least one spill kit is readily available at the wastewater treatment site but it is unclear whether or not there will be a spill kit located on site. AANDC recommends that the licensee identify the location(s) of spill kit(s) prior to the commissioning and/or storage of any chemicals at the wastewater treatment site.
- 16) It is unclear in Section 8.5 whether or not hands-on first response training will be provided to all personnel at the facility. AANDC recommends that personnel be trained in hands-on spill response procedures.

Fuel Storage

- 17) The most recent geotechnical inspection report (September 2013) indicates that a double-walled fuel storage tank was disconnected and stored within secondary containment but that a single-walled fuel tank was installed without appropriate secondary containment and that there is potential for contaminating downstream water sources. AANDC recommends that all fuel tanks be stored within secondary containment.

Quality Assurance / Quality Control (QA/QC) Plan

- 18) Section 2.1 of the QA/QC Plan (and Section 4.8 of the O&M Manual) references sampling procedures in the QA/QC Guidelines for Class B Licences and references the Standard Methods for the Examination of Water and Wastewater for methods on sampling, sample preservation, and analysis. We do like the Environmental Monitoring Program Checklist provided in Appendix C and recommend that this also be referenced in the O&M Plan. It is also recommended that the applicant consider the following to improve the checklist:
 - a) To include as a pre-sampling activity, a plan to coordinate sampling with the flight schedule to ensure the samples get out on the same day.
 - b) To include in the bottle order section, a reminder to request that a trip blank sample be prepared when placing the bottle order.
 - c) To include in the checklist, sampling instructions for QC samples (i.e. field blanks).

Environmental Sampling Training Program

- 19) AANDC is pleased that the GN-CGS is assisting the Hamlet to develop a training program to provide guidance/training to operators on how to properly collect and submit water and wastewater samples for their water licence. AANDC has reviewed the

Environmental Sampling Training Program (August 13, 2013) and provides the following suggestions the applicant:

- a) A list of definitions should be provided to supplement the document. AANDC suggests that terms in Section 2.4 including sampling, preservation, and analysis be defined and the importance of each to be identified (i.e. what does sample preservation mean and why do we need to preserve the samples?).
- b) Section 2.5.2 indicates that sampling equipment are to be cleaned with soap and water after each sampling location to prevent cross-contamination. AANDC suggests a little more detail be provided to explain the best way to clean the equipment when out in the field (i.e. can any soap be used? What extra equipment is required for cleaning purposes?).
- c) Section 2.5 instructs the sampler not to rinse the sampling bottles since some bottles contain preservatives. AANDC notes that some laboratories provide bottles and preservatives separately with instructions to rinse the bottle, collect the sample, then add the preservative. Are the instructions provided in this document specific to the contracted lab? If there is a possibility to use other labs, then we would suggest that the different sampling scenarios be stated in this section.
- d) AANDC suggests that Section 2.5 include a recommendation to sample from the 'cleanest' to the 'dirtiest' locations.

Compliance

The Field Operations Division of AANDC will be commenting in greater detail in regards to the Plan for Compliance submitted by the GN-CGS for 3BM-KIM0911. The Water Resources Division offers some general comments in regards to compliance and they are as follows:

- 20) Although a great deal of work to achieve compliance with the expired licence has been undertaken by the Licensee in the last year, the Hamlet of Kimmirut remains in non-compliance. The Water Resources Division recommends that the NWB consider the outstanding issues of non-compliance identified in the Municipal Water Use Inspection Report Form dated August 8, 2013 (August 2013 Inspection Report) prior to making a decision.
- 21) The Hamlet of Kimmirut was one of the communities included in the Inspector's Direction imposed by AANDC on the GN and according to the August 2013 Inspection Report, the GN has not to-date fulfilled all commitments made on the submitted Compliance Plan and are currently in violation of the Inspector's Direction. The Water Resources Division recommends that this violation of the Inspector's Decision be considered by the NWB prior to making a decision.

Abandonment and Restoration (A&R) Plan

- 22) A&R Plans for the existing wastewater and solid waste disposal sites have not been submitted to the NWB but the GN-CGS indicates that these plans will be submitted 6 months prior to decommissioning if the existing facility or the construction of a new facility. AANDC notes that the construction of new wastewater and solid waste facilities in 2002 has triggered the requirement for the licensee to submit an A&R Plan (Part G, Item 1b). As such, it is recommended that these outstanding A&R Plans be submitted to the NWB prior to renewal.

C. CONCLUSION

While there are many plans for compliance, there is still a substantial amount of information that is not yet available for review, and as such, AANDC considers GN-CGS's renewal application for water licence 3BM-KIM0911 to be incomplete at this time.

Additionally, the renewal application does not appear to address all requirements of the NWB stated in their March 19, 2010 Decision Letter. For instance:

- 1) While acceptable, alternative methods for sewage disposal has not been provided, AANDC recommends that the NWB implement a grace period provided the wetland system is being advanced as quickly as is feasible;
- 2) A study to determine if there are fish in the wetland area or the small pond upstream of Soper Lake was initiated but the results will not be available until November 2014;
- 3) A scope of work for a site-specific wetland study has been submitted and is expected to start in 2015 or 1 year after commissioning the lagoons, however no plan or framework for the study was provided;
- 4) While a Plan for Compliance that addresses water licence requirements was provided, a plan to address parties' concerns could not be located.

The 2 year licence was issued by the NWB in 2009 to send a clear message that the NWB will not passively encourage the Hamlet's failure's to comply with licence conditions and that the NWB fully expected the Hamlet to take immediate steps toward full compliance with all licence requirements for its existing facilities. Now, almost 5 years later, AANDC notes that while the Hamlet has made improvements toward compliance, they have not yet achieved full compliance. AANDC cannot recommend renewal of water licence 3BM-KIM0911 until such time that:

- 1) The applicant has submitted the information requested by the NWB, outstanding information requested by parties in previous submissions, and the information requested in this review memo.
- 2) The NWB and the Field Operations Division at AANDC are satisfied that (a) the GN-CGS has fulfilled outstanding requirements contained within the water licence, inspection reports, and the Inspectors Direction and (b) the GN-CGS have fulfilled their commitments in the submitted Plan for Compliance.