



Water Resources
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April 23, 2014

Phyllis Beaulieu
Manager of Licensing
Nunavut Water Board
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Your file - Votre référence
3BM-PEL0712
Our file - Notre référence
CIDM# 794790

Re: 3BM-PEL0712 – Hamlet of Kugaaruk – Renewal Application

Dear Ms. Beaulieu:

Aboriginal Affairs and Northern Development Canada (AANDC) Water Resources Division conducted a review of the Hamlet of Kugaaruk renewal application for Type 'B' Water Licence 3BM-PEL0712.

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* (NWNSRTA) 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-PEL0712.

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@aadnc-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-PEL0712 – Hamlet of Kugaaruk – Renewal Application

A. INTRODUCTION

The Nunavut Water Board (NWB, Board) issued municipal water licence 3BM-PEL0712 to the Hamlet of Kugaaruk (Hamlet, Licensee or applicant) on September 7, 2007. The Hamlet submitted an application to renew the licence on December 4, 2012 and again on February 5, 2013. Following a preliminary technical review, the NWB requested information on April 24, 2013; September 18, 2013; and February 10, 2014. The Government of Nunavut Community and Government Services (GN-CGS) provided information on February 17, 2014 and the NWB distributed the application on March 20, 2014, requesting comments from interested parties. The Hamlet is requesting to renew the water licence for 5 years.

The Hamlet of Kugaaruk is located along the east coast of Pelly Bay in the Kitikmeot Region and is approximately 960 km from Iqaluit, NU. The Hamlet currently uses Kugajuk River as a source of potable water. The most recent water licence allows the use of 35,000 m³/year from Kugajuk River and the renewal application requests the use of 80 m³/day from the same source. The sewage treatment facility is located approximately 1.0 km from the Hamlet and consists of a two cell facultative lagoon system and a 160 m wetland treatment area. The solid waste facility is located southeast of the sewage treatment facility, approximately 2.3 km from the Hamlet and consists of a landfill and a bulk metal/hazardous waste storage area.

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-PEL0712.

General

1. According to Block 13 of the water licence application, the applicant is requesting 80 m³/day of water from Kugajuk River. The most recent water licence 3BM-PEL0712 allows the use of 35,000 m³/year which is equivalent to about 96 m³/day. AANDC requests clarification from the applicant on whether an amendment to reduce the current water quantity from 35,000 m³/year to 29,200 m³/year was intended or not. Water consumption was reported to be 27,588 and 27,159 cubic meters (m³) in 2011 and 2012 respectively.
2. No alternate water source was named in the application. According to the 2011 Annual Report, there was an issue with salt intrusion in the winter of 2010-11 at the existing water source and an alternate source of water had been used as an emergency. AANDC recommends that an alternative source of water be included in the application should a similar issue arise in the future.

Studies

3. Part D, Item 6 of 3BM-PEL0712 requires the licensee to submit a Wetland Treatment Area Assessment prior to commissioning of the Enhanced Wetland Treatment Area as an integral component of the sewage treatment or within 90 days of completion, whichever occurs first. In the Licence Decision, the NWB determined that a future treatment efficiency of the Wetland Treatment Area should be assessed in year 5 of the licence and that a further assessment may be considered in an application for renewal. The Wetland Treatment Assessment Report was submitted in 2009. Preliminary sampling results during construction of the sewage lagoon in 2007 indicate that the wetland is capable of treating high concentrations of BOD₅ and TSS to well below effluent quality standards in Part D, Item 8 of 3BM-PEL0712 (preliminary results indicate reductions in BOD₅ from 218 mg/L to 19.5 mg/L and in TSS from 1090 mg/L to 30 mg/L) and reducing faecal coliform levels (preliminary results indicate that faecal coliform levels were reduced from 3.3×10^6 CFU/100mL to 3.2×10^4 CFU/100mL which still exceeded the effluent quality standards). It was concluded that the wetland will be expected to treat sewage effluent well below the set discharge values in the water licence but no further monitoring has been done to confirm this. The report recommended that monitoring be continued for 5 years (or until the water licence expired) at which time treatment efficiencies of the lagoon and wetland were to be re-evaluated in order to identify any deficiencies and implement necessary improvements. It is noted that monitoring of sewage effluent was not done consistently over the past seven years and that an assessment of the wetland treatment area was due 2 years ago and is now considered outstanding. AANDC recommends that the Hamlet become more diligent with their monitoring requirements under Part H of 3BM-PEL0712, that they provide an assessment of the wetland treatment area (sewage lagoon and wetland) and identify any necessary improvements once sufficient information is obtained. AANDC further recommends that the water licence require the Licensee to submit annual monitoring reports for sampling conducted during the months of sewage discharge from the lagoon into the wetland area.

Management Plans

4. Part F, Item 1 of 3BM-PEL0712 requires the Licensee to submit the following plans within 90 days of issuance of the licence: Water Collection and Distribution Operation and Maintenance (O&M) Manual, Sewage Treatment Facility O&M Manual (including a Sewage Sludge Management Plan), and Solid Waste Disposal Facility O&M Manual. The O&M manuals for the Sewage Treatment and Solid Waste Disposal Facilities were submitted in 2009 and revised in 2010 but an O&M for water collection and distribution was not provided. In the Clarification and Addendum Document (February 17, 2014), the Hamlet requested for an exemption to update or revise the old O&M Manual for water system and distribution since the existing manual will no longer be useful for the new water treatment plant that is proposed to be commissioned in August 2014.
5. Part F, Item 1 of 3BM-PEL0712 requires the Licensee to submit an Environmental Emergency Contingency Plan for Water, Sewage, and Solid Waste Operations within 90 days of issuance of the licence. A Spill Contingency Plan for Sewage and Solid Waste Sites was submitted in 2009 and approved by the NWB in 2010. AANDC recommends that this plan be updated to incorporate information regarding the new water treatment plant.

6. Part G, Item 1 requires the Licensee to submit an Abandonment and Restoration (A&R) plan at least 6 months prior to the construction of new facilities to replace existing ones. No A&R plans could be located on the NWB FTP site in regards to the commissioning of the upgraded sewage treatment facility in 2009. It is noted that the Hamlet requested the NWB exempt the requirement to submit an A&R Plan since the new lagoon was constructed by improving the existing lagoon (containment berm and dam) and both cells remained within the same location and used for the same operation. AANDC agrees that there would be no benefit to having an A&R Plan for the old sewage lagoon given that it is now part of the new sewage lagoon. Also, AANDC notes that the Hamlet will submit an A&R Plan for the old water treatment system by August 2014 and we look forward to reviewing this.
7. Part H, Item 10 requires the Licensee to submit a Quality Assurance/Quality Control (QA/QC) Plan for the Hamlet Sewage Lagoon and Solid Waste Disposal Facility monitoring program within 90 days of issuance of the licence. The Hamlet committed to submitting a QA/QC Plan by June 2014 in an email to the NWB on February 18, 2014. AANDC recommends that the QA/QC plan be submitted to the NWB for review and approval prior to the start of the monitoring program.

Monitoring

8. Part D, Item 9 of 3BM-PEL0712 requires toxicity testing from the wetland final discharge point (PEL-4) but no results can be found in the annual reports (2011, 2012). AANDC notes that acute lethality testing was done in 2009 and results concluded that there was 100% mortality rate for *Oncorhynchus mykiss* and 0% mortality rate for *Daphnia magna*. AANDC recommends that the Licensee continue to monitor the effluent discharged from PEL-4 and that any acute toxicity failure trigger an investigation with a requirement to report back to the NWB and to develop a plan for adapting the treatment and monitoring system.
9. Part H, Items 1 and 2 of 3BM-PEL0712 requires the licensee to collect ocean water 5 m from the point where sewage effluent enters the ocean (PEL-5) three times per year (beginning, middle, and near the end of discharge and analyzed for multiple parameters). This monitoring requirement doesn't appear to provide any scientific value and it seems unnecessarily onerous to the Licensee to sample 5 m into the marine environment when an effluent sample is collected at the final discharge point of the wetland treatment area (where the effluent leaves the wetland and discharges into the marine environment).

Annual Reports

10. AANDC notes that the 2010 Annual Report could not be located on the NWB FTP site. Also, the 2013 Annual Report was due on March 31, 2014 and could not be located on the FTP site. AANDC reminds the hamlet that annual reports are a licence requirement subject to enforcement action and recommends that annual reports for 2010 and 2013 be provided for review.

Compliance

11. The water licence 3BM-PEL0712 expired on December 31, 2012 and thus the Hamlet of Kugaaruk is currently operating without an active licence.
12. The Field Operations Division at AANDC provided the Hamlet of Kugaaruk with a Multi Year Compliance Summary to assist the GN-CGS in developing a compliance action plan for each municipality. There are several outstanding issues listed in the non-compliance overview of 3BM-PEL0712 between 2007 and 2011. Additionally, it is noted that 2010 and 2011 Inspection Reports directed the Licensee to provide a compliance plan to the NWB and Inspector. It appears that a compliance action plan has not yet been submitted to the NWB or an Inspector. AANDC recommends that the water licence include a term and condition that requires the Licensee to submit a Plan for Compliance within a firm timeline.
13. The Multi Year Municipal Compliance Summary indicates that contact water at the Solid Waste Management Area was found migrating off the site and was not contained or managed in any way (noted during 2010 and 2011 inspections). AANDC recommends that the Hamlet be required to submit a plan to manage contact water (as a section under the Solid Waste Facility O&M Manual) and be required to implement this plan upon approval by the NWB.

C. CONCLUSION

The Hamlet of Kugaaruk appears to have made some efforts over the term of their licence but more effort is required to ensure the protection of water resources in the Pelly Bay area. The Hamlet needs to be more diligent about complying with the terms and conditions in their water licence to ensure that the water in and around Kugaaruk is protected and that any potential impacts are effectively mitigated. Some of the main concerns include non-compliance with their water licence including failure to submit a Plan for Compliance (requested in 2010 by an Inspector), failure to submit management plans (required in 2007 by the water licence), failure to provide information requested by the NWB or Inspector within an acceptable time frame (addendums to plans, information requested for the application), and insufficient monitoring (monitoring completed in 2007, 2009, and 2011).