



Our reference
IQALUIT-#793917

April 17, 2014

Your reference
3BM-CAM0914

Megan Porter
Licensing Administrator Assistant
Nunavut Water Board
GJOA HAVEN, NU X0E 1J0

Re: Aboriginal Affairs and Northern Development Canada Review of the Hamlet of Cambridge Bay's Application to Renew Water Licence #3BM-CAM0914

Dear Ms. Porter:

Thank you for your email of March 18, 2014, concerning the above mentioned application. A memorandum is provided for the Board's consideration. Comments have been provided pursuant to the Department's mandated responsibilities under the *Nunavut Waters and Nunavut Surface Rights Tribunal Act* and the *Department of Indian Affairs and Northern Development Act*.

Please do not hesitate to contact me by telephone at 867-975-4555 or email at david.abernethy@aandc-aadnc.gc.ca for further information.

Regards,

David W.
Abernethy

Digitally signed by David W. Abernethy
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David Abernethy
Regional Coordinator
Water Resources Division
Resource Management Directorate
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Encl.

c.c.: Murray Ball, Manager of Water Resources, AANDC Nunavut
Erik Allain, Manager of Field Operations, AANDC Nunavut
Phyllis Beaulieu, Manager of Licensing, NWB



Memorandum

To: Megan Porter, Nunavut Water Board

From: David Abernethy, Aboriginal Affairs and Northern Development Canada

CC: Murray Ball (AANDC), Erik Allain (AANDC), and Phyllis Beaulieu (NWB)

Date: April 17, 2014

Re: **Water Licence Renewal Application, #3BM-CAM0914**

Proponent: Hamlet of Cambridge Bay
Project: Municipal Water Use and Waste Management

Comments:

A. Background

On March 18, 2014, the Nunavut Water Board (NWB) provided notification of the Hamlet of Cambridge Bay (the Licensee) application to renew their Type 'B' municipal water licence for five years. Mr. Shah Alam, Municipal Planning Engineer, Government of Nunavut, Community and Government Services, is authorized to act on the Licensee's behalf for the purposes of this application.

The Hamlet of Cambridge Bay water licence allows for the use of water and deposit of waste for municipal and industrial undertakings (industrial activities include a nearby distant early warning line site). Licensed water and waste management facilities include a raw water distribution pump house next to Water Lake, a sewage disposal facility (lagoon), and a solid waste disposal facility. Substantial effort has been directed toward improving all of these facilities in recent years.

The application is supported by operation and management plans, water quality sampling results, and engineering drawings. Interested parties were asked to review the application and provide comments by April 18, 2014.

B. Results of review

On behalf of Aboriginal Affairs and Northern Development Canada, the following comments and recommendations are provided for the NWB's consideration:

1. Surface water runoff and seepage reporting from the municipal solid waste disposal facility's secondary area

Comment: Section 3.0 of the February 2014 Municipal Solid Waste Disposal Facility Operation and Maintenance Manual states that surface drainage from the solid waste disposal facility's secondary area is directed toward the wetland located downstream of the sewage lagoon. The secondary area is used to manage metal wastes as well as household hazardous wastes and petroleum hydrocarbon (PHC) contaminated soils within lined containment cells. Without



adequate surface water management measures the downstream aquatic ecosystem can be negatively affected from the runoff and seepage that reports from this facility.

Recommendation: The Licensee should ensure that surface water runoff and seepage reporting from the solid waste disposal facility's secondary area is contained and monitored prior to being released into the adjacent wetland. Water management should be consistent with that of the solid waste disposal facility's primary area (i.e., construction of ditches and sumps, establishing a monitoring program station, and establishing effluent discharge limits).

2. Municipal solid waste disposal facility effluent discharge limits

Comment: Part D, Item 6 of the water licence references a dated Government of Nunavut guideline for the purpose of setting effluent discharge criteria for surface water runoff and seepage reporting from the solid waste disposal facility's primary area (the *Environmental Guideline for Industrial Waste Discharges*). This guideline was revised in April 2011 and is now referred to as the *Environmental Guideline for Industrial Waste Discharges into Municipal Solid Waste and Sewage Treatment Facilities*. The primary area used for the disposal of non-hazardous solid waste and is equipped with cells for the diversion of tires, household hazardous wastes, bio-hazardous waste, and controlled burning of select materials.

Recommendation: Part D, Item 6 of the licence should be revised to reference the April 2011 Government of Nunavut *Environmental Guideline for Industrial Waste Discharges into Municipal Solid Waste and Sewage Treatment Facilities*.

3. Management of hydrocarbon impacted soils

Comment: I am concerned that the Licensee is managing hydrocarbon impacted soils without the NWB's authorization. Section III of the licence explains that if the Licensee requires a land farm they must apply for a licence amendment and provide a final design, stamped and signed construction drawings, and an operations and maintenance manual. Based on my review of the application it appears that the solid waste disposal facility's secondary area is equipped with a lined cell intended for the treatment (land farming) of hydrocarbon impacted soils. Furthermore, section 5.0 of the December 23, 2013 application summary document states that empty drums and hydrocarbon impacted soils are being naturally remediated within this cell.

Recommendation: Because the Licensee is managing hydrocarbon impacted soils without the NWB's authorization their licence should not be renewed until the documentation needed to authorize the treatment of such soils is made available for review. The Licensee should request that the licence be amended to authorize the construction and operation of a land farm/ storage facility, provide a final design, stamped and signed construction and as built drawings, and an operations and maintenance manual (details pertaining to how surface water runoff and leachate should be provided).



4. Closure status of scrap metal pile west of the waste disposal facility's secondary area

Comment: Appendix A of the application, titled, "As-built drawings of facilities showing monitoring locations," references a scrap metal pile west of the waste disposal facility's secondary area that appears to be within the sewage disposal facility's wetland area. The October 3, 2010 Earth Tech | AECOM Sewage Lagoon Improvement Plan, drawing # C-04 (stamped and sealed by an engineer) posted on the NWB public registry states that this scrap metal pile was to be relocated to the waste disposal facility's secondary area. However, the 2012 Annual Report states, "scrap metals broken to smaller pieces and buried in trenches with sufficient cover materials in accordance with design and drawing." The closure status of this scrap metal pile is not clear to me.

Recommendation: The Licensee should confirm whether or not the scrap metal pile situated west of the waste disposal facility's secondary area was relocated to the waste disposal facility's secondary area or was buried in trenches as indicated in the 2012 Annual Report. A detailed report should be provided to the NWB describing the following:

- Whether or not the scrap metal pile was relocated to the waste disposal facility's secondary area or was buried in trenches;
- If the scrap metal pile was buried in trenches, the design and drawings referenced in the 2012 Annual Report should be provided. If applicable, all existing engineering drawings should be provided;
- If the scrap metal pile was buried in trenches, the cover design should be described (i.e., type and size of aggregate fill material, whether or not the fill was compacted, etc.; and
- Whether or not hazardous materials/substances were removed from the scrap metal pile debris (e.g., batteries, oils and lubricants, mercury switches, etc.) prior to relocation to the waste disposal facility's secondary area or trenches; and
- If buried in trenches, whether the disposal area is subject to subsurface flow (i.e., movement of water in the active layer).

5. No as-built drawings for improvements to the waste disposal and sewage disposal facilities

Comment: It appears that no as-built drawings, signed and sealed by a professional engineer, have been provided for the improvements made to the waste disposal and sewage disposal facilities. Rather a drawing that identifies the sewage and waste disposal facility monitoring stations and berm locations was provided (Appendix A: As-built drawings of facilities showing monitoring locations). Greater detail is provided in the 2008 EarthTech | AECOM pre-construction drawings posted on the NWB public registry (e.g., sewage effluent truck discharge flume and spillway, culvert specifications, solid waste disposal facility cells, on-site retention pond within the solid waste disposal facility's primary area, etc.).

Recommendation: The Licensee should provide all existing as-built drawings, signed and sealed by a professional engineer, for the improvements made to the waste disposal and sewage disposal facilities. The drawings are needed to provide details concerning the dimensions of constructed infrastructure (e.g., berms, ditches, sumps, lined solid waste disposal cells); the construction materials that were used (e.g., type and size of aggregate fill material, impermeable liner material); the slopes/ gradients of constructed infrastructure (e.g., pads used for the solid waste disposal facility primary and secondary areas); elevations, etc.



6. Open burning of solid waste

Comment: The current licence makes reference to the open burning of certain solid waste materials but does not include any specific terms and conditions related to this activity. Information concerning the burning of solid waste materials is provided in the application. Section 5.2 of the February 2014 Municipal Solid Waste Disposal Facility Operation and Maintenance Manual (included with the application) states that materials such as cardboard, untreated wood products, and natural fiber textiles should be diverted to the burn pit. The landfill operator is tasked with following the Hamlet's Clean Burn Policy (also included with the application) to ensure that only acceptable wastes are deposited in the controlled burn area, the local fire department and municipal services/ public works personnel are notified prior to any burning of wastes, and that burning only occur when weather conditions permit. Although the burning of such products would reduce the amount of waste being managed in the waste disposal facility this practice is not preferred because it can negatively impact water quality through the deposition of airborne particulate matter and it eliminates an organic material source that can be used to cover compacted waste.

Recommendation: The burning of waste materials is discouraged because it can negatively impact water quality through the deposition of airborne particulate matter. I encourage the Licensee to divert combustible organic materials to cover compacted solid waste. If the Licensee is authorized to burn materials such as cardboard, untreated wood products, and natural fiber textiles, the licence should include specific terms and conditions. The following terms and conditions are recommended:

- 1) Burning should be conducted in compliance with Government of Nunavut's *Environmental Guideline for the Burning and Incineration of Solid Waste* (2012);
- 2) Other considerations when open burning include, but are not limited to:
 - a) Only untreated wood products can be burned.
 - b) Non-combustible materials associated with the waste wood (i.e., plastics, tar paper, floor coverings, shingles, insulation, wiring, and tents) should be removed prior to the burning acceptable wood waste;
 - c) The products mentioned in (a) above should be manageably sized to ensure complete burning; and
 - d) Controlled burns should have adequate temperatures to ensure complete combustion of the waste materials. Air assistance should be considered.
- 3) Burning should only occur within a confined area (e.g., within a cage or a ventilated burn box);
- 4) Burning practices should minimize impacts to surface or groundwater;
- 5) Ash is to be collected and disposed of as per incinerator ash after every burn;
- 6) Ten day notification to be provided to the Inspector which includes the following:
 - a) Quantity and details of waste to be burned;
 - b) Proposed dates;
 - c) Protocol to be followed for open burning; and
 - d) Person responsible for carrying out the burn; and
- 7) A report of burn site cleanup with photos should be provided in Annual Reports (i.e., type and quantity of waste burned, weather conditions at time of burn, disposal of residual waste and ashes).

Prepared by David Abernethy