



## Inspection Report

**License #:** 3BM-HAL

**Inspector:** A. Keim

**CIDMS #** 275362

|                          |                            |       |     |
|--------------------------|----------------------------|-------|-----|
| Client                   | Municipality of Hall Beach |       |     |
| Mailing Address          | Box 3                      |       |     |
| Inspection site location | Hall Beach , Nunavut       |       |     |
| Contact name             | Michelle Hart              | Title | SAO |
| Last inspection date     | July 15, 2007              |       |     |
| Inspection start date    | August 10, 2008            |       |     |
| Region                   | Qikiqtani                  |       |     |



INAC, Nunavut District  
P.O. Box 100  
Building 918  
Iqaluit, NU, X0A 0H0

Submitted Via E-Mail  
Our File: 3BM-HAL0810  
Your File: \_\_\_\_\_  
CIDM # 275362

May 22, 2009

Michelle Hart  
Senior Administrative Officer  
Municipality of Hall Beach  
Box 3  
Hall Beach, Nunavut  
X0A 0K0

**RE: August 10 2008 Hall Beach Municipal Water Licence Inspection 3BM-HAL0810**

The Inspector would like to thank Michelle Hart, Senior Administrative Officer for taking the time to meet during the inspection period and for acting as a guide for the Inspector. The input provided into issues surrounding the failure of the Sewage lagoon was invaluable to the inspection.

**Part A: Scope and Definitions**

No issues were found with respect to the information contained within the current license issued on May 29<sup>th</sup>, 2008.

The license is classed as water use and waste disposal for Municipal Undertakings as indicated on the license form.

**Part B: General Conditions**

It should be noted that during the period of inspection the Municipality of Hall Beach was operating under a water license renewed on May 29<sup>th</sup>, 2008.

A review of the Nunavut Water Board FTP site produced an application and supporting documents submitted by the Government of Nunavut, Department of Community and Government Services who were acting on behalf of the Municipality during the application for renewal as well as during a process of amendment for the decommissioning the "old" sewage lagoon.

During the same review of the Nunavut Water Board FTP site, the Inspector failed to find the required annual reports which were to have been filed in accordance with the previous license. The licensee is reminded that the NWB has imposed on the Licensee, the requirement to produce an Annual Report. These Reports are for the purpose of ensuring that the NWB has an accurate annual update of municipal activities during a calendar year. A "*Standardized Form for Annual Reporting*" is to be used by the Licensee and is available from the NWB file transfer protocol (FTP) site under the Public Registry link at the NWB Website. Such an annual report is required to be filed by March 31<sup>st</sup> 2009 for the year ending December 31<sup>st</sup> 2008. Annual reports are to include the results of the Monitoring Program as outlined in Part H of the current license. As per section 2 of this Part the Licensee is required to comply with the Monitoring program and submit the results of samples collected under the monitoring program.

The Licensee is reminded that any use of water or deposition of waste into any place where it may enter water in Nunavut not currently included within the terms of the most recent renewal license will require a license amendment issued pursuant to the Nunavut Water and Nunavut Surface Rights Tribunal Act.



The licensee is reminded that the application process for amendment or modification may take as long as three to six months. The licensee is strongly encouraged to submit their application as soon as possible to avoid the possibility that they will be forced to operate contrary to the legislation.

A review of the Nunavut Water Board FTB site also found an amendment application related to the decommissioning of one unused cell of the “old” sewage lagoon system within the community of Hall beach. No work was noted during the period of Inspection and a further review of the FTP site notes concerns expressed by INAC and a reply from the Contractor. It is still, a year later, unclear if this work has occurred and given the most recent failure of cell one in the “new” lagoon system the Inspector requires that clarification be provided on this issue by the licensee.

*The Inspector calls upon the Government of Nunavut, Department of Community and Government Services who were acting on behalf of the Municipality for this period, to provide clarification on what work has been completed to the Inspector as an addendum to the Licensee’s Annual Report.*

### **Part C: Conditions Applying to Water Use**

A visual inspection of the Gate valve and intake facilities was conducted during the period of inspection. The following issues were noted during that period;

- Barrels forming the buttress on the side walls adjacent to the water gate had fallen into the reservoir. Continuing erosion will be an issue that must be addressed.
- Garbage in the area was noted in the reservoir.

Water samples were taken near the intake pipe and it should be noted that the sample pH return value after testing was 8.25 pH units. While this result is within CCME (Canadian Council of Ministers of the Environment Guidelines for Community Drinking Water (6.5- 8.5pH units) it may indicate a trend and will be monitored.

The raw water from the Water Supply Lake via the gate valve is annually allowed to flow into the reservoir via a channel. Water from the 1<sup>st</sup> reservoir is then pumped/ transferred into a second reservoir once annually. This water is held in the reservoir until chlorinated on its way into the water truck. The chlorine residual is measured twice daily.

### **Part D: Conditions Applying to Waste Disposal**

Sewage treatment;

The Licensee is responsible for ensuring, subject to section 3 of this Part, that effluent entering the environment meets the following standards;

| <b>Parameter:</b> | <b>Max Concentration</b> |
|-------------------|--------------------------|
| Faecal Coliform : | 1X 10(6) CFU/100 mL      |
| BOD               | 120 mg/L                 |
| TSS               | 180 mg/L                 |
| Oil & Grease      | No visible sheen         |
| PH                | Between 6 and 9          |

Additionally, in the most recent license the Municipality is required to ensure that all effluent discharged from the Sewage Disposal Facility (HAL-4), shall be demonstrated to be Not Acutely Toxic at Monitoring Program Station HAL-5 prior to entering Foxe Basin. This is demonstrated annually through the following tests;

- a. Acute lethality to Rainbow Trout, *Oncorhynchus mykiss* (as per Environment Canada’s Environmental Protection Series Biological Test Method EPS/1/RM/13); and



b. Acute lethality to the crustacean, *Daphnia magna* (as per Environment Canada's Environmental Protection Series Biological Test Method EPS/1/RM/14).

The Licensee is reminded that these parameters are set by the Nunavut Water Board and are included in the terms and conditions of the issued water license. Compliance with these terms is an obligation of the Licensee.

The Licensee is reminded that as per Section 2 of Part D; Conditions applying to Waste Disposal the Licensee shall provide notice to an Inspector annually when flow is observed from the sewage disposal facility and upon commencing the monitoring program at Monitoring Program Station HAL-4. This is to ensure the Inspector has adequate notice to conduct inspections within the Municipality and to ensure proper sampling is completed by the Licensee.

Solid Waste Management Area;

An inspection was conducted at the solid waste management area.

Large piles of un-segregated materials were evident along the shoreline of the stream running along the solid waste management area. It appears however that since the period of the last inspection the flow of water from this stream has been diverted into a wetlands area before discharge into Fox Basin. This has segregated the runoff and any leachate from the Solid Waste Management Area from any seepage from the Lagoon system. A review of the Nunavut Water Board FTP site does not note an application for modification or alteration to the streambed of any water course.

The Inspector calls upon the Licensee and Government of Nunavut, Department of Community and Government Services to provide insight into this diversion in their submission of the 2008 annual report

This report is based on observations carried out on August 10<sup>th</sup>, 2008.

During the inspection the following locations were sampled;

1. Raw Water
2. Run off stream 200 meters from lagoon.

Results from these samples indicated that treatment from the lagoon is not adequate and that contaminants from the lagoon system may be migrating into the Ocean.

| Location     | Sample Parameter            | Result    | Guideline        | Comment                    |
|--------------|-----------------------------|-----------|------------------|----------------------------|
| Raw water: - | Noted High ph results.      |           |                  |                            |
| Lagoon       | pH                          | 9.22      | 6-9              | ph Units                   |
|              | Total Suspended Solids      | 200 mg/L  | 180 mg/L         |                            |
|              | Hexane Extractable material | 4.4 mg/L  | No Visible sheen | Presence of oil and grease |
|              | Iron                        | 804 µg/L  | <300 µg/L        |                            |
|              | Manganese                   | 51.2 µg/L | 50 µg/L          |                            |

Note: Fecal and Biological Oxygen Demand samples exceeded the time restrictions on testing. Results could not be returned from the lab. Samples collected during the period of Inspection also had an obvious odour of sewage and were green or black in color.



### **Part E: Conditions Applying to Modifications and Construction**

Section 1 of this Part reads as follows;

1. The Licensee shall submit to the Board for written approval, construction design drawings stamped by a qualified engineer registered in Nunavut, prior to the construction of any dams, dykes or structures intended to contain, withhold, divert or retain water or wastes.

Again a review of the Nunavut Water Board FTP site could not find an application or approval for the stream diversion as noted during the period of Inspection.

### **Part F: Conditions Applying to Maintenance**

The Water Intake Facility was well maintained and found to be working and in good order.

The Municipality was unable to produce a Sewage and Solid Waste Disposal Operations and Maintenance manual during the period of inspection. During the consolidation of this report a review of the Nunavut Water Board FTP site was not able to locate this document.

In the 2007 Inspection report submitted to the Licensee and the Nunavut Water Board the Licensee was directed to provide a sewage and solid waste management plan by March 31<sup>st</sup> 2008 for inclusion in the annual report. The purpose of the plan is to assist Hamlet staff in carrying out the procedures relating to their water distribution and waste disposal facilities. As no annual report is available for review the Inspector is concerned that this requirement has not been completed. Given this, the Inspector now echo's the requirements listed in the new Water License issued to the licensee on May 29<sup>th</sup>, 2008. The licensee shall submit the following plans which will form an Operation and Maintenance Manual for the Licensee;

- a. Water Distribution Facility Operation and Maintenance (O&M) Plan;
- b. Sewage Disposal Facility Operation and Maintenance (O&M) Plan;
- c. Sewage Sludge Management Plan;
- d. Solid Waste Disposal Facility Operation and Maintenance (O&M) Plan;
- e. Spill Contingency Plan; and
- f. Monitoring Program Quality Assurance/Quality Control Plan (QA/QC Plan).

The Licensee is reminded that the submission of the above listed plans is a requirement of the current Water license.

### **Part G: Conditions Applying to Abandonment and Restoration**

The Municipality was unable to produce an Abandonment and Restoration Plan during the period of inspection. During the consolidation of this report a review of the Nunavut Water Board FTP site was not able to locate this document.

### **Part H: Conditions Applying to the Monitoring Program**

The licensee is reminded that they must ensure that adequate signage is in place.



#### Sewage Waste monitoring:

During the inspection it was noted that the Hamlet had not complied with Section 2 of this Part. The Licensee is reminded that they must collect the required samples at two locations (HAL-4 and HAL-5) as outlined in the current license.

To assist the licensee in the future, the following are the required parameters to be tested for as a requirement of their water license. The Licensee is also required, as per the new License, to notify the Inspector when a flow is observed from the lagoon (HAL-4 and HAL-5) and then sample from that flow monthly from that point on until no flow is observed.

|                                 |                            |
|---------------------------------|----------------------------|
| Biochemical Oxygen Demand - BOD | Fecal Coliforms            |
| Total Suspended Solids          | pH                         |
| Conductivity                    | Nitrate-Nitrite            |
| Oil and Grease (visual)         | Total Phenols              |
| Magnesium                       | Calcium                    |
| Sodium                          | Potassium                  |
| Chloride                        | Sulphate                   |
| Total Hardness                  | Total Alkalinity           |
| Ammonia Nitrogen                | Total Zinc                 |
| Total Cadmium                   | Total Iron                 |
| Total Cobalt                    | Total Manganese            |
| Total Chromium                  | Total Nickel               |
| Total Copper                    | Total Lead                 |
| Total Aluminum                  | Total Arsenic              |
| Total Mercury                   | Total Organic Carbon (TOC) |

These samples are to be collected and analysed in accordance with a Quality Control / Quality Assurance plan.

#### Solid Waste Management monitoring:

To assist the licensee in the future, the following are the required parameters to be tested for as a requirement of their water license. The Licensee is required, as per the new License, to sample during period of run-off or seepage from the Waste management area ( HAL-2)

|   |                  |
|---|------------------|
| TPH (Total Petroleum Hydrocarbons)            |                  |
| PAH (Polycyclic Aromatic Hydrocarbons)        |                  |
| BTEX (Benzene, Toluene, Ethylbenzene, Xylene) |                  |
| BOD   | Fecal Coliform   |
| pH  | Conductivity     |
| Total Suspended Solids                        | Oil and Grease   |
| Nitrate-Nitrite                               | Ammonia Nitrogen |
| Total Phenols                                 | Total Alkalinity |
| Total Hardness                                | Calcium          |
| Magnesium                                     | Potassium        |
| Sodium  | Sulphate         |
| Total Arsenic                                 | Total Cadmium    |
| Total Copper                                  | Total Chromium   |
| Total Iron                                    | Total Lead       |
| Total Mercury                                 | Total Nickel     |



**Non-Compliance:** Issues identified during the inspection and/or review of relevant material

**Issues with a known or anticipated human health impacts;**

- In July of 2008 the Sewage lagoon system, specifically Cell 1, in the Municipality of Hall Beach suffered a catastrophic failure which resulted in the loss of the contents of the lagoon cell. This release was estimated to be up to 13 million litres of untreated sewage.
- Remove barrels and garbage from Gate valve entry to water supply reservoir.

**Issues where there is a known or anticipated environmental impairment;**

- The Municipality of Hall Beach has failed to file the required reports and conduct the required sampling under the Monitoring Program over the past year.
- Address concerns identified by the Inspector concerning the Sewage Lagoon as well as those identified by INAC staff and submitted as comments in the application procedure for the current water license.
- Submit to the Inspector a report on actions taken to mitigate the results of the failure of cell 1 of the sewage lagoon.

**Issues where there is a known or suspected violation of a requirement of the Water License;**

- Failure to file spill reports in accordance with the Spill Contingency Regulations within in required timelines.
- The Municipality has not submitted as directed the Operation plans which cumulatively make up the required Operations manual noted in the 2007 Inspection.
- Submit the required Annual reports for 2006, 2007 and 2008.
- Install and maintain the appropriate signage, and Surveillance Network Program (SNP).
- Develop a Quality Assurance/ Quality Control Plan (contact the Nunavut Water Board).
- Develop an Operations and Maintenance Manual that contains such items as outlined in the recently issued water license.
- Develop and submit for approval a Sewage Sludge Waste Management Procedure or manual as required.
- Submit the required Abandonment and Restoration plans.

**The Municipality of Hall Beach continues to operate in Non-conformity with the terms and conditions of the Water License issued in 2008.**

A. Keim

Inspector's Name

Inspector's Signature

Attached under separate cover;  
Photos taken during Inspection of August 10<sup>th</sup>, 2008

Cc:

Peter Kusugak – Manager Field Operations Section- Indian and Northern Affairs Canada  
Phyllis Beaulieu – Manager Licensing – Nunavut Water Board









Water License Inspection Photos Hall Beach August 10 2008: CIDM 268994







