



Inspection Report

License #: 3BM-CAP0810 EXPIRED

Inspector: A. Keim & K. Pottle

CIDMS # 546756

| | | | |
|---------------------------------|---|-------|-------|
| Client | Municipality of Cape Dorset | | |
| Mailing Address | Box 30 | | |
| Inspection site location | Cape Dorset , Nunavut | | |
| Contact name | Mike Hayward | Title | A/SAO |
| Last inspection date | August 16, 2008, July 24, 2009, July 29 2010, September 11 2011 | | |
| Inspection Start Date | July 29, 2012 | | |
| Region | Qikiqtani | | |



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

Submitted Via E-Mail

Our File: 3BM-CAP0810 Expired

Your File: _____

CIDM # 546756

January 8, 2012

Mike Hayward
A/SAO
Box 30
Cape Dorset, Nunavut
XOA OCO
Ph: 897-8943 or 8981
Fax: 897-8030
muncdsao@capedorset.ca

Please find attached the report on the Water License Inspection conducted in the Municipality of Cape Dorset July 29, 2012. Included at the end of the report is a record of observations made during the inspection with respect to issues of non-compliance or non-conformity with the issued Water License or the Nunavut Water and Nunavut Surface Rights Tribunals Act (NWNSRTA)

The role of Aboriginal Affairs and Northern Development Canada (AANDC) in issues related to the use of water or the deposit of waste in Nunavut is one of compliance monitoring and enforcement. Our preferred option is to work with clients to identify and address instances of non-compliance, risks to the environment and/ or people.

Should you require more information or clarification please contact the undersigned at the coordinates listed below.

I look forward to working with you and your staff. If you have any questions please do not hesitate to contact our offices here in Iqaluit.

Sincerely,

Sent by E-mail

Andrew Keim
Water Resources Officer
Aboriginal Affairs Northern Development Canada
Box 100 Building 918
Iqaluit, Nunavut XOA OHO
Ph: 1-867-975-4289
Fx: 1-867-979-6445
Andrew.Keim@aandc.gc.ca



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

Submitted Via E-Mail

Our File: 3BM-CAP0810 **Expired**

Your File: _____

CIDM # 546756

January 8, 2012

Mike Hayward
A/SAO
Box 30
Cape Dorset, Nunavut
X0A 0C0
Ph: 897-8943 or 8981
Fax: 897-8030
muncdsao@capedorset.ca

RE: July 29, 2012 Municipal Water Licence Inspection 3BM-CAP0810-Expired

The following inspection report is generated on an inspection conducted to determine compliance with the terms and conditions of the water license issued to the Municipality of Cape Dorset by the Nunavut Water Board (NWB). The report references the applicable parts of Water License (3BM-CAP0810- **expired**) and the findings observed under each of those Parts. During the writing of this report a review was undertaken of the documents located on the Nunavut Water Board's FTP site.

The Inspector would like to thank Adrian Dascalescu, Municipal Technical Officer, for taking the time to meet during the inspection period and providing input and comments into the ongoing issues with the Sewage lagoons systems in place within the community.

Part B: General Conditions

It should be noted that during the period of inspection the Municipality of Cape Dorset continues to operate with an **expired** Water License (**3BM-CAP0810**). The Nunavut Water Board issued the short term (2 year) water license based on a risk assessment that relies on the need for mitigative strategies to be implemented by the Licensee and monitored by the Regulator. Since issuance the same issues of Non-compliance have continued to persist within the municipality.

At this time an application for a new (renewal) licence has not yet been submitted by the licensee or their agent.

It was noted by the Nunavut Water Board in the License that *"While the new lagoon system poses serious risks, the Board is satisfied that with appropriate conditions these risks can be mitigated. Moreover, this is likely the only mechanism for the Hamlet to come into compliance with the Act and the terms of the Licence."*

A survey of the Nunavut Water Board website conducted subsequent to the Inspection of September 11th, 2011 and during the writing of this report shows that a great deal of correspondence concerning aspects of the design and construction of the sewage lagoon system have been posted, however no documents concerning the need for management of the risks associated with the use of the facility have been submitted to the Board by either the Licensee nor the Government of Nunavut who undertook, without authorization, the construction of the facility in 2007.



In discussion with the Licensee during the period of Inspection it was clearly stated a number of times by various officers of the Municipality that the Licensee (Municipality of Cape Dorset) continues to remain firm in their stance regarding their refusal to take ownership or responsibility for the newly constructed sewage lagoon (2007) system.

This system remains un-commissioned and thus is covered under the authority of the expired Water License for the Municipality. Part H: Conditions applying to the Monitoring Program, item 8 details as follows;

8. The Licensee shall not commission the 2007 Sewage Disposal Facility until the requirements of Part H, Item 6 and Item 7 have been completed and approved.

Sections 6 and 7 outline the requirement for works to be undertaken by the Government of Nunavut as agreed to at the Public Hearing conducted in January 2008 and which read as follows within the text of the license;

6. The Licensee shall install thermistors for the purpose of validating assumptions made in the geothermal analyses for the 2007 Sewage Disposal Facilities as recommended by the Geotechnical Engineer of record and agreed upon by the Licensee, subject to a minimum of three 20 to 25 metre deep thermistors installed in crest of the west berm and at least one thermistor of that depth in the east berm.

And,

7. The results of thermistor monitoring required under Part H, Item 6, shall be submitted to the Board for approval in writing, prior to commissioning of the 2007 Sewage Disposal Facility. The results shall include an Engineer's Report, validating the assumptions of the geothermal analysis through adequate monitoring of the thermal regime for the East and West Berms and downstream foundations

At the time of Inspection this work had been completed but 2 out of the 4 thermistors did not have data loggers.

The new lagoon system (2007) therefore cannot be commissioned. As the Municipality has not taken care and control or ownership of the Lagoon the Municipality has continued to use the Emergency lagoon system and the Three Tier lagoon system which have repeatedly failed during spring freshet in previous years and required substantial work as noted by the Inspector. It was noted however that during the period of this Inspection that work on the maintenance of the 3-tier lagoon system within the municipality has been undertaken prior to the inspection and that the lagoon cell 3 was being maintained in an appropriate manner.

The Licensee was also to have provided within 90 days of the issuance of the now expired license a Plan for Compliance that clearly demonstrated the ways and means by which the Licensee would undertake the required works necessary to achieve full compliance with the conditions of this Licence. This was not completed as required. Following this in July of 2012 a Direction to the Government of Nunavut CGS was issued to provide a Plan for Compliance which at this time remains incomplete.

The Licensee is reminded to ensure that an Annual report is filed with the Nunavut Water Board and the Inspector by March 31st, 2013. That report should include any and all works conducted during the period of 2012 and include a detailed report on the state of the sewage waste infrastructure in the Municipality.



The Nunavut Water Board has not received any annual reports for 2009, 2010. These reports need to be complete and submitted in a timely fashion. It is noted that a report for 2011 was submitted on behalf of the Licensee by CGS however the report was found to be incomplete.

Part C: Conditions Applying to Water Use

A visual inspection of the Pipe line and intake facilities was conducted during the period of inspection. No issues were noted.

Water samples were collected near the intake pipe.

The raw water from Tee Lake is pumped from the lake through the pipeline down to the holding tank. It is chlorinated on its way into the holding tank and again as it leaves the tank to enter the water truck. The chlorine residual is measured twice daily.

During the inspection there was dirt/ grit/sand found settled in the bottom of the chlorine mixing tank. Chlorine testing records for each water truck load were incomplete, and a barrel of glycol was in the facility.

Metres and records were observed during the inspection inside the pumping station. Records were incomplete and the record sheet did not specify what was being tested or sampled, whether it were each truck load or one truck load a day etc.

Part D: Conditions Applying to Waste Disposal

Sewage treatment;

The Licensee is responsible for ensuring that the Effluent discharged from the "Emergency Lagoon" and the "Three tier" lagoon systems and entering the environment meet the following standards;

It was noted that both the three tier and old emergency lagoons were found to be in use during the period of Inspection.

| Parameter: | Max Concentration |
|-------------------|--------------------------|
| Faecal Coliforms: | 1X 10(4) CFU/100mL |
| BOD | 120 mg/L |
| TSS | 180 mg/L |
| Oil & Grease | No visible sheen |
| PH | Between 6 and 9 |

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 Municipality.

During the period of inspection it was again noted that the color of the effluent in all cells was black and still visible in the stream running down from the third cell of the lagoon into Telik Inlet. A recommendation by the Inspector in the 2011 inspection for sampling to be undertaken by the licensee to determine the cause of the color was not completed by the licensee. Samples were collected by the licensee in 2012 and feedback from the lab suggests that sludge from the bottom of the lagoon is being transported up into the water column by ice in the spring and then suspended during the active period. This, if true may have an adverse affect on the treatment of effluent within the lagoon system and should be addressed by the licensee.



The licensee is reminded that prior to a planned decant of the sewage treatment lagoon system there is a requirement for the Municipality to notify the Inspector ten days in advance and to ensure the monitoring program is followed.

During the inspection of the 2007 lagoon (old lagoon) it was noted that there is still continuous flow under the wall of the lagoon and continues to release effluent out into the marine environment. There was also a hole near the old lagoon that was not present in previous inspections that is filled with effluent from the old lagoon. A recommendation was given to backfill the hole. There were also no visible signages at the old lagoon or the three tier lagoon.

Solid Waste Management Area;

An inspection was conducted and samples were collected at the solid waste management area (metal dump) during the inspection. In 2011 the Inspector provided the Municipality an opportunity to address those issues that were outstanding.

During the 2012 Inspection the Inspector noted that a section of the berm around the waste metals area that had been washed out in 2011 had not been addressed by the Licensee and that runoff continues to leach into the environment. This was again discussed in the post inspection briefing with the Licensee and a commitment to address it was made at that time.

It was also recommended in 2011 that a fence be put around the perimeter of the municipal burn location to prevent transport of wastes off the site and the deposit of hazardous waste from the community; the inspector noted that there has not been a fence installed.

During the period of inspection it was noted that hazardous materials found in the Solid Waste Management Area are unsecured and remain un-segregated. Old batteries were found stored outside in 45 gallon drums that had been mixed with water. A recommendation was provided in 2011 to separate the batteries and water and to dispose / neutralize the contact water properly. It was also noted that in one of the sea-lift cans, segregated for hazardous materials, was a barrel of oxidizer, it was recommended to be removed and stored properly.

During the inspection the following locations were sampled;

1. Raw Water (Tee lake),
2. Ponding of run-off from waste metal area approximately 50 metres NW between waste metal area and Telik Inlet,
3. Run off stream at three tier lagoon.

Part E: Conditions Applying to Modifications and Construction

During the period of this Inspection as with previous inspections since 2007 a number of deficiencies with the New Sewage Lagoon were pointed out by Municipal staff.

These were outlined immediately following the inspection and the Licensee was to address with the Government of Nunavut, Department of Community and Government Services and provide feedback to the Inspector.

To date the Inspector has not been contacted by either party to address these issues. However it should be noted that the Municipality has brought forth continued concerns to the Inspector concerning the build up of water within the new Lagoon and the flooding in the access way in the East Dyke. This also includes a flow of water from the toe of the lagoon that was documented and photographs sent to the Inspector in September 2008.



It is noted that Section 5 of this part states that the Licensee shall, within sixty (60) days of issuance of this Licence, provide a summary report along with revised stamped as-built plans and record drawings of the 2007 Sewage Disposal Facility, to reflect the clarifications and omissions identified through the Licence application review and detailed in the attached Schedule 1 (of the recently issued Water License 3BM-CAP0810). A review of the Nunavut Water Board FTP site was unable to locate this document.

The Inspector seeks to have the required submissions made to the Nunavut Water Board and will direct this to be done if required.

Part F: Conditions Applying to Operations and Maintenance

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

The Licensee was required, as per section 2 of this Part to submit an Operation and Maintenance Manual for the Water Supply Facilities and the Solid Waste Disposal Facilities prepared in accordance with the *"Guidelines for Preparing an Operation and Maintenance Manual for Sewage and Solid Waste Disposal Facilities"*, October 1996. This document was not found during the same review of the Nunavut Water Board FTP site.

In 2009 a draft Operations and Maintenance Manual was reviewed during the period of Inspection however it was not complete and in draft form. The Licensee did commit again during the 2012 Inspection to having the document completed and ready for submission by March 31st for inclusion in the annual report.

Part: G Conditions Applying to Abandonment and Restoration

The Hamlet of Cape Dorset is currently using the Three tier and Emergency Sewage lagoons.

Abandonment and Restoration Plans have not been submitted by the licensee.

Part H: Conditions Applying to the Surveillance Network Program (Monitoring Program)

During the period of Inspection the Inspector did not find adequate signage where required. The licensee is reminded that they must ensure that adequate signage is installed and remains in place.

Again, as the New Lagoon (2007) has not yet been commissioned and no sewage has been deposited in the lagoon the sampling associated with that facility is not yet required.

However for those remaining sites that are currently in use and covered under the license as issued the Inspector noted that the Licensee had not complied with section 2 of this part.

The Municipality is reminded that they must collect samples at the following noted sampling sites (Cap 3, 4 and 5) inclusive. These samples are to be collected one week prior to discharge, once at the beginning of the discharge and then weekly thereafter for the duration of the discharge.



These samples shall be analyzed for the following parameters;

| | |
|--|----------------------------|
| Biochemical Oxygen Demand (BOD ₅) | |
| Carbonaceous Biochemical Oxygen Demand (CBOD ₅) | |
| Total Suspended Solids | pH |
| Conductivity | Oil and Grease (visual) |
| Fecal Coliforms | Total Organic Carbon (TOC) |
| Nitrate-Nitrite | Ammonia Nitrogen |
| Total Phosphorus | Total Phenols |
| Magnesium | Calcium |
| Sodium | Potassium |
| Chloride | Sulphate |
| Total Hardness | Total Alkalinity |
| Total Arsenic | Total Mercury |
| Total Trace Metals as determined by a standard ICP Scan (to include at a minimum, the following elements: Al, Sb, Ba, Be, Cd, Cr, Co, Cu, Fe, Pb, Li, Mn, Mo, Ni, Se, Sn, Sr, Tl, Ti, U, V, Zn), | |

Additionally at Cap-2 (Runoff from the Solid Waste Disposal Area), as per Section 4 of this Part the Licensee must sample during period of observed flow for the following parameters;

| | |
|------------------------|------------------|
| BOD ₅ | Fecal Coliforms |
| pH | Conductivity |
| Total Suspended Solids | Ammonia Nitrogen |
| Nitrate-Nitrite | Oil and Grease |
| 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 |

These samples are to be collected and analysed in accordance with a Quality Control / Quality Assurance plan. There is no indication that this was completed by the Licensee even after this was noted in the 2010 and 2011 Inspection reports.

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

- Part B (1) Failure to submit as required a complete any Annual reports
- Part B Item (2) Failure to fully implement and comply with the Monitoring Program (this includes those requirements as listed in Part H – Monitoring Program)
- Part B Item (5) Failure to post signage to identify the stations of the monitoring program
- Part B (6) Failure to submit as required a Plan for Compliance.
- Part D (10) Failure to implement appropriate erosion and diversion control methods, to minimize surface water intrusion and leachate generation at the Solid Waste Storage Facility.
- Part E (5) Failure to submit a completed Summary Report including revised as-built plans for the New Lagoon (2007).



- Part F (1) Failure to develop and submit an Operation and Maintenance Manual, Sewage Treatment System, Hamlet of Cape Dorset, subject to the requirements of Schedule 2.
- Part F (2) Failure to develop and submit an Operation and Maintenance Manual for the Water Supply Facilities and the Solid Waste Disposal Facilities.
- Part F (5) Failure to submit a geotechnical Inspection report to be completed annually in July.
- Part G Failure to submit all Abandonment and Restoration Plans.
- Part H – Failure to implement the requirements listed under the Monitoring Program (all parts that apply currently and not subject to the commissioning of the New lagoon (2007))

The Municipality of Cape Dorset continues to operate in Non-conformity with those terms and conditions of the Water License issued in 2008 for which they are responsible and which apply in these circumstances.

A. Keim
Inspector's Name

Sent by E-mail
Inspector's Signature

Cc:
Phyllis Beaulieu – Manager Licensing – Nunavut Water Board

Contact:

Andrew Keim
Water Resources Officer
Aboriginal Affairs Northern Development Canada
Box 100 Building 918
Iqaluit, Nunavut XOA OHO
Ph: 1-867-975-4289
Fx: 1-867-979-6445
Andrew.Keim@aadnc.gc.ca