

Plan of Compliances Hamlet of Clyde River Water Licensed Facilities

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Introduction:

The Hamlet of Clyde River Amendment Water License No. 3BM-CLY0308 was issued on October 23, 2008 and will be expired on March 15, 2009.

The Water License covers the following environmental facilities:

1. Drinking Water Supply System

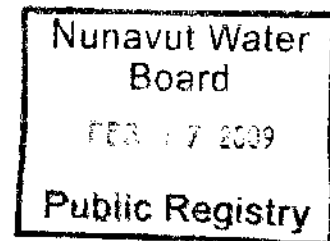
This Supply system consists of

- a. Source Water –Storage Reservoir and
- b. Treatment System-Water Truck fills station.

2. Wastewater Treatment System- Sewage Lagoon

3. Solid Waste Management-Open Landfill

4. Bulky Metals Management-Open dumping



Plan of compliances

Quality Control Plan:

- Accuracy of Sampling, handling, shipping , testing and recording
- Precision of several test results

Quality Assurance Plan:

- Sample control and documentation
- Standard operating procedures for analytical methods
- Equipment preventative maintenance
- Calibration procedure
- Internal quality control activities
- Performance audits
- Data assessment procedures
- Data validation and reporting

Spill Contingency Plan:

Nunavut Spills Report
Please report spills to the 24-hour Spill Report Line
Phone (867) 920 – 8130
Fax (867) 873 – 6924
Nunavut Spill Report Form [Upload as per email attachment]
Contact
Department of Environment General Inquiries Phone (867) 975-5900

Form is attached in **Appendix-A**.

Health and Safety Procedures:

The Foreman has had necessary protective vaccination. He uses protective gear, hard hat, steel boots and coverall to be used during sampling, handling and shipping bottles to Ottawa and Iqaluit Labs. Empty sterilized bottles are received from these Labs.

Preservation and Shipping of Sample bottles

Water sample bottles:

Water samples are kept cool in a cooler with ice and delivered to Health centre for onward shipment by plane to Iqaluit Environmental Lab for testing microbiological parameters mainly finding out the presence of E-coli contents. Iqaluit lab. contact address is as follows:

GN Department of Health and Social Services: Baffin
P.O.Box: 1000 Strn.; 1046; C.P. 1000, Iqaluit, NU; X0A 0H0
Ph: 867-975-4833; Fax: 867-975-4830

Wastewater effluent sample bottles:

These bottles are kept cool in a cooler with ice and directly ship out by plane to Ottawa Lab for testing mainly BOD and TSS values.
No field testing is conducted. Ottawa lab address is as follows:

Caduceon Environmental Laboratories
613-526-1244
2378 Holly Lane
Ottawa, Ontario, K1V 7P1
Tel: 613-526-012

Water Supply Management

Drinking Water Source, Treatment and Distribution:

Source Water:

Location: The community drinking water source is a natural lake and has sufficient storage capacity for the annual consumption of the community. Recently a bathymetry surveys was conducted.

Monitoring Plan: The facility will be fenced avoiding any animal or equipment entering inside. Also a Signage will be provided for the awareness to the visitor. Currently no fund is available. This plan will be implemented once the capital dollars are available. Annual sampling and testing are done by the GN Health inspector following National drinking water guidelines.

Treatment:

Water Truck fills Station: Water is extracted from the Storage Pond by intake pipe associated with heat trace. A filter is fixed at the end of the intake pipe. Water is disinfected by chlorine before filling the tank of the truck.

Distribution: Drinking water is delivered to the community by trucks.

Monitoring Plan: The Hamlet always makes sure that the heat trace is working condition and Chlorinator works satisfactorily disinfecting water before filling the water tank. The Hamlet Water Testing Technician tests chlorine residual, temperature and pH in each and every truck water before distributing to the houses. They also test tap water at Health centre, Hamlet office and also randomly in different houses. They normally use HACH KIT for monitoring chlorine residual. The technician is trained. They are also provided field training by the GN health inspector. They annually attend NTWWA workshop for operators and obtain class room training and field training as well. NTWWA provides them certificate for continuing education. They use log book for recording truck number, date and time of testing, name of technician and the test results. A sample page is attached in **Appendix-B**. Laboratory procedures and guidelines of GN-DOH and SS are attached in **Appendix-C**.

QA/QC: Hamlet sends monthly samples to Iqaluit Lab. for testing microbiological parameters. Hamlet collects samples and hands over to their local health centre. The health centre preserves the samples and ship out to Iqaluit lab by the first

plane. Sampling, preservation, shipping, handling and testing are followed by Iqaluit Lab satisfying the conditions of Canadian accredited lab requirements and the National Drinking Water Guidelines. The log sheets are attached in **Appendix-D**. All the test results and documents are kept in compliancy with the Water License.

Wastewater Management

Wastewater Treatment Facility- Sewage Lagoon:

The existing facility is under capacity and incapable satisfying the requirements of the community demand. The design for optimization of the system has been completed and approved by the regulatory agencies. To satisfy the community demand for the next 20yrs, the new cell will be built and the existing cell will also rehabilitated soon after the new cell is commissioned. The contractor has been hired. They already mobilized to the community at the end of last summer, 2008. They already started preparation in producing granular materials. NIRB approval and a spill contingency plan have been provided and adopted by the contractor. The entire construction is expected to complete in 2010. The entire facilities will be ready to commission sometimes in September 2010. A detailed construction schedule along with a site plan is attached in **Appendix-E**.

Construction Monitoring: The Construction will be inspected periodically by the consultant following their technical specifications. GN CGS Technical staffs will conduct top supervision as QA/QC measures. As built drawings and final O&M manual will be prepared once the facilities are constructed and rehabilitated and commissioned.

Effluent quality monitoring of the existing Sewage Lagoon: This is an annual one time decanting Lagoon. Samples are taken from the different monitoring points three times during decanting, at the beginning, at the middle and at the end. The compliance point has been established at the end of Lagoon pipe. The sample bottles are marked with location of sampling, date and time, and person's name following the specification and guidelines provided by the Accreditation Lab in Ottawa. Sampling, preservation, handling and shipping are followed according to the instruction of the Lab Supervisor. Lab contact address is as follows:

Caduceon Environmental Laboratories
613-526-1244
2378 Holly Lane
Ottawa, Ontario, K1V 7P1
Tel: 613-526-012

The Lab instruction sheet and samples tested in 2008 are attached in **Appendix F.**

QA/QC Plan for effluent sampling during Decanting:

Ten days advance notice is provided to INAC inspector before the starting date of decanting following the hamlet water License guidelines. INAC inspector sometimes visits during decanting period and takes samples together with the Foreman. The Foreman conducts proper sampling, provides quality assurance and also maintains quality control as well.

Final O&M Manual:

The Final O&M manual will be submitted with the as built drawings within 90 days after commissioning of the sewage treatment Facilities. This O&M document will provide guidelines for process management, monitoring ground temperature by thermisters, monitoring berm stability, effluent quality sampling, coordinates of sampling, testing and recording of the test results. This document will also provide detailed QA/QC plan and spill contingency plan.

Solid waste Management

Solid waste Management: The solid waste management in the community is managed by Land fill open dumping process. Currently the facility is inadequate capacity to satisfy the needs of the Community. Funding for the improvement is available in 2009-10 and 2010-11 fiscal years. The new facility will be built and commissioned in 2011. Design will be prepared satisfying NWB guidelines. **"Guidelines for preparing an Operation and Maintenance Manual for Sewage and Solid Waste Disposal Facilities, October, 1996, of NWT" will be followed.**

Open burning policy of GN-DOE will be applied.

Bulky Metal management: No plan and no funding for this Facility are available at the present time.

Enforcement by INAC

INAC inspector's instruction during emergency decanting is as follows:

The Sewage Disposal Facility shall be maintained and operated, to the satisfaction of an Inspector in such a manner as to prevent structural failure.

As such, it is my interpretation of this section that you are authorized to take whatever actions as are necessary to prevent the structural failure of the lagoon. That being said, I, as the inspector will require the Municipality to take actions to mitigate any environmental damage as well.

To determine any actions that may be required it will be incumbent on the municipality to sample any discharge from the lagoon at the beginning, middle and end of the discharge. The discharge will be samples for the following parameters;

| | |
|------------------------|----------------------------------|
| BOD | Faecal Coli forms |
| pH | Conductivity |
| Total Suspended Solids | Ammonia Nitrogen |
| Nitrate-Nitrite | Oil and Grease (visual) |
| Total Phenols | Sulphate |
| Sodium | Potassium |
| Magnesium | Calcium |
| Total Arsenic | Total Cadmium |
| Total Copper | Total Chromium |
| Total Iron | Total Lead |
| Total Mercury | Total Nickel |
| Total Zinc | Total Petroleum Hydrocarbons TPH |
| BTEX | |

If you have any questions please do not hesitate to call me at the office or on my cell 1-867-445-1978.

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Inspector's Report in 2008 is attached in **Appendix-G**.

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