

NWB Manager of Licensing

From: Joe Murdock [tech1@nwb.nunavut.ca]
Sent: Friday, September 01, 2006 8:40 AM
To: Roy, Bhabesh
Cc: Fuentes, Patricio; Palluq, Johnathan; Toonoo, Timoon; Josh Hunter SAO; Dawe, John; Phyllis Beaulieu; licensingtrainee@nwb.nunavut.ca
Subject: 060901 3BM-RUT GN Utilidor Licence in Hamlet of Resolute Bay

Bhabesh,

Further to our discussion yesterday I would like to reiterate some of the issues that we covered regarding water licensing and the Hamlet of Resolute Bay.

- As identified in your letter to me dated August 24th, 2006, and our telephone discussion the GN is the owner-operator of the Resolute Bay Utilidor.
- As per our conversation there is a need to withdraw (through a formal letter from the GN to the NWB) your previous application and submit a new application for the utilidor system only. As I had discussed, the GN's current application calls to licence all of the Hamlet's facilities.
- You had advised me that you will be personally assisting the Hamlet of Resolute Bay in filing a separate water licence application. The Hamlet's application will cover all other municipal facilities. As a first step the Hamlet is to reply to my August 22nd, 2005 letter and outline what facilities they currently own and operate in Resolute Bay. As a second step the Hamlet is to also withdraw their current water licence application (through a formal letter from the Hamlet to the GN) as their current application calls to licence the utilidor and all municipal facilities. After these 2 steps have been completed then the NWB can give additional direction with respect to the Hamlet's water licence.
- The GN Licence for the Utilidor will be referred to as 3BM-RUT whereas the Hamlet's municipal water licence will be referred to as 3BM-RES here on in.
- Regarding the information that needs to be presented for the GN licence (3BM-RUT), the GN must effectively communicate how the system contains waters and wastes. Consideration, through appropriate engineering communication, must also be given to how waters and wastes are brought into the system (inlet) and how waters and wastes will be discharged from the system (outlet). A semi-concise plan should also be created to detail how the Utilidor will be operated and maintained (Operations and Maintenance Plan) and what contingencies are in place if upsets occur in the Utilidor system (Emergency Response Plan). If you require assistance in refining the contents of these plans please feel free to contact me as need be.

Please do call me when you are completing the water licence applications and there is a lack of clarity. Also please do call if you have any other questions. I have cc'ed the Hamlet of Resolute Bay on this email for your information.

Regards,

Joe Murdock
Director of Technical Services
Nunavut Water Board

Canadian Geotechnical Society Cold Regions Geotechnology Division

----- Original Message -----

From: Roy, Bhabesh
To: Joe Murdock
Cc: Fuentes, Patricio; Palluq, Johnathan; Toonoo, Timoon; Josh Hunter SAO; Dawe, John
Sent: Wednesday, August 23, 2006 12:52 PM
Subject: Resolute Bay water License

9/15/2006

Resolute Bay Utilidor System

Prepared By: Bhabesh Roy, M.A.Sc., P.Eng
Regional Municipal Planning Engineer

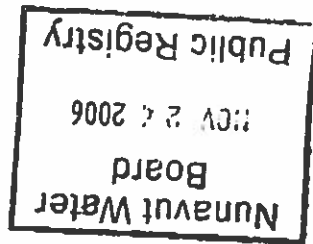
Introduction: The Hamlet of Resolute Bay is serviced by an Utilidor system which delivers water to houses and commercial users, and collects the sewage from these users. The system is combined of water supply and sewage systems and has several components like:

- Raw water source (Char Lake)
- Pump House
- The water supply line from pump house to the WTP
- The utilidor system is comprised of the water distribution system and the sewage collection system
- The sewage-outfall

The entire system was built in Stages: Stage 1A was completed in 1977 and stage 1B was completed in 1978. Dillon's final report dated February 17, 1999 indicated that the design of the Utilidor system was done by UMA. UMA also conducted condition assessment study in 1995 and also Dillon in 1998. Following these reports, A.D. Williams Engineering Inc. did the recent assessment and is working forward to the followings:

1. Install a new boiler at Char Lake and reduce the bleeder rate to lower water usage to about 55,000 lgal./day.
2. Install larger circulation pumps in the boiler systems and revise the circulation systems.
3. Check the rate of circulation from WTP and repair the utilidor watermain.
4. Lower the main bleeder rate at the sewer bleeders to a flow rate of about 4 gpm each.
5. Upgrade Emergency generator for both Plants

Presently rehabilitation of existing 168m utilidor system was completed in this summer. There is an extension of 480m water main and 260m-sewer-main to accommodate 5-Fire hydrants and two gate valves. The extension works is expected to complete in 2007. A.D. Williams Engineering Inc. is the existing consultant for the rehabilitation and extension works of the utilidor system.



Description of the project:

Raw water source: Char Lake is the raw water source for both Municipal system and Airport. This source is located about 2km North-west from the Hamlet of Resolute Bay. Present water production is roughly in the 70,000 to 80,000 lgal/day range. A new boiler of 200,000 Btu/h is recommended to be added to heat the wet well.

Pump House: The pump house is an insulated metal building located on the top of a underground Concrete Reservoir which is connected to Char Lake with a 200mm intake pipe. The Char Lake pump house has two main pumps which are operated to maintain the reservoir level at Signal Hill. Insulation system has been improved to about 84,000 Btu/h to adequately heat the pump house. Boiler system has been changed with the capacity of 60 gpm.

Supply Line from Char Lake to the WTP: The water intake from Char Lake to the WTP is an 1878mm long 150 mm diameter with 50 mm insulation buried pipeline. The pipeline is electrically heat traced. The heat trace is allowed to operate only when the main pipe are not operating.

Signal Hill Treatment Plant: Signal Hill WTP receives water from Char Lake and treated by Chlorine. The treated water then enters the above ground heated reservoir of capacity 117,000 lgl. The bottom 3650 mm of the reservoir is the fire reserve of the town. The temperature of the reservoir is maintained at 5.6 degree Celsius. The heating of the Signal Hill building is also by the boilers, roughly 24,600 Watts of heat.

Water is pumped by one of the two circulation pumps of capacity 370gpm each through 200mm diameter pipe from the reservoir to the Utilidor system. To ensure the water system does not freeze, roughly 300 gpm are recirculated back to the WTP. Water also flows to the truck fill.

Utilidor System: The system consists of water distribution and wastewater collection systems. The water supply utilidor is a looped water supply system of 204mm with 200 mm insulation and 323m with 150 mm insulation mains looping around the town and back to the Signal Hill Reservoir. A Constant pressure of 50 kPa (20 psi) is provided at the water treatment plant to the distribution system. Recirculation process is established to avoid freezing. The system consist of 30 manholes.

Wastewater is collected from the bleeders and domestic use. 3 main bleeders are there, each having a high bleed rate. Each house has a bleeder set up about 1 litre/hr. There are about 73 units of a total 73 l/hr from housing units. The total bleed rates are about 73 cubic metres per hour. Also, main bleeders are located at seven locations in the manholes at about 7.3 gpm each. Bleeders are established to ensure flow in dead end portions of the system and to ensure adequate flow goes to the sanitary system especially the upper portions. Again when there is no water use in the community, the bleeders ensure that the sanitary lines remain unfrozen.

9. Water and Sewer Facilities Investigation, Final Report, UMA Engineering Ltd., 1999

I will appreciate if you keep me inform of the proceeding.

Should you require any more information, please write or call me.

Sincerely,



Bhabesh Roy, M.A.Sc., P.Eng.

Municipal Planning Engineer

Community & Government Services

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