



# Nunavut Water Board News

## Iqaluit Municipal Water Licence



The NWB has tentatively scheduled a public hearing for the City of Iqaluit's water licence application for October 4, 2004, in Iqaluit. An essential aspect of NWB's public hearing is the opportunity for members of the public to ask questions, present concerns or offer opinions regarding the water licence application. Photo credit - Zainab Moghal

### Nunavut Water Board Public Hearing planned for Iqaluit's Municipal Water Licence Application

On January 16, 2004, the City of Iqaluit submitted an application to the Nunavut Water Board (NWB) for the renewal of its municipal water licence. A water licence is a legal requirement of any municipality who wishes to use water or dispose of waste into water. The City of Iqaluit is seeking a five-year water licence to obtain water for municipal use from Lake Geraldine. The City is also seeking approval from the NWB for its proposed wastewater treatment plant which will treat the increasing quantities of sewage generated in the growing community. More information on these facilities is presented in following sections of this newsletter.

Prior to holding a public meeting, the NWB must give at least 60 days notice before the meeting in order that interested persons, including members of the public, have sufficient time to review the application, as well as prepare a written submission, should they desire. The date of the public hearing will be confirmed later this fall pending the City's submission of outstanding information that was identified during technical meetings held in Iqaluit on September 2 and 3, 2004. The Public will be informed about any upcoming technical meetings to be held prior to the public meeting.

An essential aspect of NWB's public hearing is the opportunity for members of the public to

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ask questions, present concerns or offer opinions regarding a water licence application. The NWB encourages public participation in its decision-making process and seriously considers the public's concerns and values when making its judgments about water use. The NWB also gives due regard to Inuit traditional knowledge in all of its proceedings. The NWB, during public hearings, may receive evidence from Elders who are given the opportunity to speak at any time which is convenient to them.

To make certain that the public can participate in the most meaningful and informed way at the public hearing, the NWB is ensuring public access to information by placing the City of Iqaluit's water licence application and supporting documents on the NWB's electronic public registry at <http://ftp.nunavut.ca/nwb/NWB3%20MUNICIPAL/NWB3IQA/>.

Copies of those documents may also be obtained by contacting Brad Sokach, Director of Engineering, City of Iqaluit at 867-975-8500. A copy of the complete application will also be made available at the DIAND Water Resources Office in Iqaluit (contact: Stephanie Hawkins, INAC Water Resources: 867-975-4555).

In advance of the public hearing, the NWB has dedicated staff resources for community consultation purposes, which may include possible meetings with interested parties in Iqaluit if requested. Members of the public who wish to know more about the City's water licence application or how they may participate in the upcoming public hearing are encouraged to contact Jim Wall, NWB Technical Advisor at 867-983-2214, Patrick Duxbury, NWB Hearing Coordinator at 867-920-4464, or the NWB head office at 867-360-6338. The NWB looks forward to your participation.

## What is the Nunavut Water Board and What is its Role?

**T**he Nunavut Water Board (NWB) is an institution of public government that was created under Article 13 of the Nunavut Land Claims Agreement and the Nunavut Waters and Nunavut Surface Rights Tribunal Act. The NWB has responsibilities and powers over the use, management and regulation of inland water in Nunavut. Its object is to provide for the conservation and utilization of waters in Nunavut, except in national parks, in a manner that will provide the optimum benefits for the residents of Nunavut in particular, and Canadians in general.

The NWB's primary function is to license uses of water and deposits of waste. The NWB is required, when exercising that licensing power, to consider any detrimental effects of a potential use of water or a deposit of waste on other water users. In situations where the approval of a water licence may result in significant environmental impacts, or where public concerns over an application are considerable, the NWB may hold public

hearings. The NWB is a quasi-legal body, whose members function in a capacity similar to judges when weighing evidence presented at public hearings. Licenses issued following a public hearing must be approved by the Minister of Indian and Northern Affairs (INAC).

The NWB does not have enforcement powers. Once a license is issued by the NWB, the jurisdiction of the NWB ceases. Compliance and enforcement of water licenses fall under the jurisdiction of INAC, whose Minister appoints Water Inspectors to ensure that licensees are fulfilling the terms and conditions of their licenses.

The NWB consists of two members directly appointed by the Minister for INAC, as well as four members nominated by Nunavut Tunngavik Incorporated, and two members nominated by designated ministers of the Government of Nunavut. The Minister for INAC, upon recommendation of the other members, appoints the Chairperson.

## The Nunavut Water Board is:

Thomas Kudloo, Chair  
Baker Lake

Robert L. Hanson, Vice Chair  
Iqaluit

Guy Kakkiarnium  
Kugaaruk

Thomas Kabloona  
Baker Lake

George Porter  
Gjoa Haven

William Lyall  
Cambridge Bay

Charlie Inuaraq  
Pond Inlet

Geoff Qilak Kusugak  
Rankin Inlet

Lootie Toomasie  
Qikiqtarjuaq



Nunavut Water Board members in attendance at a public hearing in June in Arctic Bay concerning the water licence for the closure and reclamation of the Nanisivik Mine. Photo credit - Stephen Lines

## Summary of the City of Iqaluit Water Licence Application

The City of Iqaluit (City) is seeking approval from the Nunavut Water Board for a five-year water license. The City's water license application proposes substantial changes to some of the most essential municipal services, especially to the raw water supply and treatment system, as well as the wastewater treatment facility

### Water Supply, Treatment, Storage and Distribution

The infrastructure system that provides water to Iqaluit was first installed in the 1960's. It has been subject to several modifications during the years.

Iqaluit's raw water source, Lake Geraldine, is replenished each year during the spring and summer from runoff from its surrounding watershed. In order to ensure that the lake could provide an adequate supply of water to the City during the winter months, a dam was constructed to increase the capacity of the lake. Water travels, by gravity, from the dam outfall to the water treatment plant where it is treated by sand filtration, chlorination and

lime stabilization. Treated water is held in reservoir tanks prior to entering the main distribution system, whereby water is carried to homes and businesses either by the utilidor network or by water trucks.

The City, in its water licence application, has requested an annual water use of 1,100,000 m<sup>3</sup>. As the facility has been in need of an upgrade to meet the demands of a growing population, the City proposes to expand and modernize its water treatment facility. The proposed upgrade will include a larger, improved intake pipe, four new water filters, as well as expansion to the treatment building. Some regular system activities, including some water monitoring functions, will become automated through the installation of a new computer system.

The City is proposing to replace its primary chlorination-based disinfection system with a ultra-violet light treatment system. This system will use high intensity ultra-violet light to destroy microorganisms that could potentially cause health problems. However, in order to ensure that water traveling throughout the distribution network remains



safe, small quantities of chlorine will still be added into the system to ensure continuous disinfection. It should be noted, however, that upholding standards for the quality of drinking water is the responsibility of the Government of Nunavut's Department of Health and Social Services, as mandated under the *Public Health Act*. The upcoming NWB public hearing will not deal with issues specific to drinking water quality.

A remaining issue to be considered by the NWB is the adequacy of Geraldine Lake as the only raw water source for Iqaluit. As the City continues to grow, there is the real potential for a shortfall of the raw water supply to occur as the City's increasing demand for water exceeds the annual recharge rate of the lake. To make up for this anticipated shortfall, the City will need to consider raising the dam to increase the lake's storage capacity, as well as the transfer of water from other local sources into Lake Geraldine. The City's current application before the NWB has not proposed any specific activities to address this issue. However, future alterations to the City's raw water supply may or may not require another public hearing before the NWB, depending on the nature of the proposed undertaking.



The dam on Geraldine Lake permits control of water and increases the lake's volume. The City will likely need to increase Iqaluit's raw water source in years to come.

Photo credit - Scott Stewart, INAC



## Wastewater Treatment

At present, the City's wastewater treatment system consists of a sewage lagoon system - which is effectively a series of storage ponds. The lagoon provides a primary treatment for wastewater before its release into Koojesse Inlet. The sewage production rate for the City is estimated to be 1,800 m<sup>3</sup> per day. The retention time of waste water in the sewage lagoon varies between 6 and 14 days.

Regulatory agencies with authority over water, such as the NWB and Environment Canada believe that Iqaluit's current lagoon-based wastewater treatment system is inadequate for meeting water quality guidelines. Members of the public have also expressed the opinion that the retention time and treatment of sewage is not adequate and that the quality of discharge water could improve.



Wastewater flowing from Iqaluit's lagoon system into Koojesse Inlet. A proposed mechanical wastewater treatment facility will should improve the water of water entering the environment. Photo credit - Scott Stewart, INAC

In 1998, the City began construction of a new mechanical wastewater treatment plant; however, due to flaws in its design, the project was subsequently abandoned. The City has more recently hired the engineering consultants CH2MHill and EarthTech to redesign the treatment plant. These companies have suggested a design which will utilize a conventional and reliable sewage treatment

technology called the “Activated Sludge Process”. The plant has also been designed so that it is capable of serving a projected population of 12,000 persons.

The City of Iqaluit has expressed its desire to operate a wastewater treatment plant that will meet the regulatory requirements of the NWB, as well as Environment Canada’s requirements for the protection of fish and fish habitat as required under Section 36(3) of the *Fisheries Act*.

### What is Activated Sludge?

The activated sludge process is an efficient and widely respected method to treat sewage that is used in all over the world. It is a biological wastewater treatment system that uses microorganism, which are acclimatized to a particular waste stream, to speed up the decomposition of sewage. In such a system, live microorganisms, contained in what is known as “activated sludge”, are introduced to wastewater where they feed on the waste particles. As they feed, the microorganisms grow and reproduce, thus consuming more and more waste until the wastewater is partially cleaned. Modern wastewater treatment plants employ the activated sludge process in combination with other physical and chemical treatment methods to reach their objective of releasing acceptable water into the environment.

### Solid Waste Management

The City of Iqaluit’s landfill is an approximately 1.5 hectare large solid waste management site. Wastes are currently spread in lifts, compacted and then covered with gravel to reduce disturbance by wildlife, odour, and scattering of debris through wind. The volume of solid waste generated by the City of Iqaluit is approximately 40,000 m<sup>3</sup> per year. As the current facilities are predicted to meet community’s needs until 2009 or 2010, the expansion or relocation of the solid waste management facility has not been identified as an issue under the City’s water licence application.

An evaluation of Iqaluit’s current recycling program, organized by the city, is not under review in this water licence as the NWB does not possess the legal authority to impose one particular waste management practice over another. Only where such practices impact fresh water may the NWB have jurisdiction to make decisions.

A possible outstanding item to be discussed at the upcoming NWB public hearing, linked to both wastewater treatment and solid waste management, is the management of sewage sludge that will be collected from the wastewater treatment plant following treatment. Sludge disposal will be necessary and options for this sludge may include incineration, composting or landfilling at a secure site.



A shredder, used to minimize the volume of waste, in operation at the City’s landfill. Photo credit - Scott Stewart, INAC

### Hazardous Waste

Hazardous waste in Iqaluit is currently set aside at the landfill site and is stored until shipment to southern Canada for disposal. A household hazardous waste collection program takes place four times per year and individuals may also bring such waste to the facility throughout the year. After each collection the waste is neutralized or recycled. No significant changes to the City of Iqaluit’s current hazardous waste management system have been identified in the scope of the current licence application.



Hazardous waste stored at the City of Iqaluit's Landfill facility. Photo credit - Scott Stewart, INAC

## Bulky Waste

Scrap metal and bulky waste is currently stored at the most southerly portion of the landfill site. These are separated from the regular waste stream, compacted and covered. No significant change to the City of Iqaluit's current management of bulky waste has been identified in the scope of the current licence application.

## Waste Oil

Waste oil is currently collected and stored at the public works garage. It is separated from the regular waste stream and sent to a local contractor who sends the waste to a southern destination for disposal or instead uses it for heating fuel. No significant change to the City of Iqaluit's current management of waste oil has been identified in the scope of the current licence application.

## Other Issues

Under an approved water license, the City of Iqaluit will have to maintain a spill contingency plan for dealing with spills, such as those of fuel oil or sewage associated with the water management facilities. As a condition of the water licence, the City will

be required to monitor water and report the results to the NWB. The NWB, upon demand, will make those records of water quality available to any interested party.

Finally, in its application, the City of Iqaluit has stated that it is devoted to being environmentally responsible to the community, as well as to being in compliance with the regulatory requirements that shall be set out in the water licence. The City has also stated that it wishes to respond to Iqaluit's current needs and that it is committed to solid planning for the future, such as continuously improving infrastructure associated with the water supply system, solid waste management and sewage treatment facilities.

The NWB will strive to ensure that its licensing decision fairly balances the aspirations of the City of Iqaluit to improve its municipal infrastructure and environmental management practices while taking into consideration the concerns and values of the residents of Iqaluit specifically and Nunavummiut generally. The NWB invites members of the public to ask questions or make comments at the upcoming public hearing on the City's application; or if they wish, members of the public may also submit a written intervention to the NWB in advance of the public hearing as notified by the NWB. The NWB looks forward to meeting all interested parties later this fall during the upcoming public hearing.

### Newsletter Credits

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