Introduction

The City of Iqaluit is requesting a renewal of our water license. This is being presented as a renewal although our application submitted in 2000 and the subsequent license was not officially issued.

This application had requested a 3 year term for the new license. This term was chosen as past water licenses for the City were issued for this term. It is our understanding the term for the license can be extended to 5 years, and as such the City requests that their application be amended to reflect a 5 year term.

As requested by the Board, the City is providing additional copies of the submitted reports. Electronic copies were submitted to the board with the original application and in response to subsequent requests from the board. Additional reports which are considered by the City to be of importance to the water license application process are also provided at this time. The City is today presenting the board with photocopies of all reports electronically submitted in the original application. Original copies of these reports have been brought to this meeting by the City, however in many cases the original copy is the only copy in the City's possession and therefore we will insist that these reports not be kept by the board. The original reports can be used to confirm the completeness of the photocopied reports provided.

The water license renewal application is for the removal of water from Lake Geraldine for municipal uses including domestic and commercial uses. Water consumption requested under the new water license shall not exceed

1,100,000 cubic metres per year. This is the same as the previous license application.

The water license application deals with storage, treatment and distribution of water, waste issues, and wastewater issues. We would like to review the City's infrastructure and initiatives regarding these three issues.

Water Issues

The City's water system is comprised of:

- Lake Geraldine watershed for raw water supply
- Lake Geraldine Reservoir for raw water storage
- Water Treatment Plant
- Treated water storage tanks
- Water mains for distribution
- Five water trucks for distribution
- Four reheat/recirculation stations
- One water booster/truckfill station

The Lake Geraldine watershed is currently the only source of water for the City. From comparisons to adjacent watersheds, which are monitored and there exists detailed historical information, the need to supplement the watershed as a source of raw water in the future has been identified. Continued monitoring of the watershed and reservoir is planned to better determine when this will be required. The requirement for a supplemental water supply is currently estimated to be in 8-10 years and is therefore outside the duration of this water license.

Lake Geraldine Reservoir provides the City with raw water storage. The reservoir is recharged during the summer months, and generally provides sufficient storage to meet the City over winter storage requirements. The storage capabilities of the reservoir are reported to be insufficient to meet the City's long term needs. The City is currently in the process of selecting a Consultant to undertake the design of the expansion of the reservoir. It is

anticipated that a preliminary design report will be prepared in the next 6 to 9 months. The preferred method of expanding the reservoir is the extension of the dam, and construction and expansion of earth berms. To the best knowledge of the City, the Lake Geraldine Reservoir is not a fish bearing water body. The creek which the reservoir outlets into has been identified as fish bearing. Lake Geraldine is one of several sources of water supplying this creek. The reservoir only overflows during the late part of spring melt, after it has recharged, and periodically during the summer. It is therefore not a continuous contributor to the flow in the creek. Flow in the creek is maintained through its own watershed. Therefore changes to the flow from Lake Geraldine should not adversely affect the fish bearing habitat.

The City had a Dam Safety review completed in 2002 which had identified a possible slope stability problem in one of the earth berms adjacent to the concrete dam. In subsequent years, a dam safety inspection has been carried out by the same Engineer to monitor the berm. Unless the situation worsens, remediation of this area will be included in the project for the expansion of the water reservoir. The 2004 dam inspection will occur in the fall of 2004.

The City's water treatment plant has recently undergone an extensive expansion. Its current capacity is approximately 9,500 cubic metres per day and shall meet the City's long term requirements. The water treatment process is:

- UV treatment for the disinfection
- Rapid sand filtration
- Caustic soda addition for pH adjustment
- Chlorination for disinfection within the distribution system

- Fluoridation

The treated water storage is provided through clear wells in the water treatment plant and the treated water storage tank. The total storage capacity of treated water is 2,967 cubic metres.

Approximately 60% of the units in the City receive water through a system of underground HDPE water mains. The water distribution system utilizes 4 reheat stations for freeze protection, and a water booster station to provide sufficient water pressures to areas of the City.

Additionally the City utilizes 5 water trucks for water delivery to the remaining 40% of City Units. The trucks are filled at the water booster station.

Waste Issues

The City of Iqaluit currently operates a solid waste facility in the West Forty. The facility accepts domestic and commercial waste, as well as ash from the hospital's incinerator which they use to neutralize of hazardous medical wastes. In addition the site is used for the storage and processing of recycled material, metal storage, and household hazardous waste storage. Waste is disposed of in the landfill, compacted and periodically covered.

The City of Iqaluit has recognized issues with surface water and leachate at the solid waste facility and as such has retained the services of a consultant to review these issues and recommend remedial actions. The intention of the project is to divert drainage from traveling through the landfill, and to characterize the leachate.

The City has also recognized the need to update the Operation and Maintenance Plan, and is actively seeking professional assistance to develop such a plan as the existing plan is based on a continuous burning operation. The O&M plan will include:

- Waste placement
- Depth of cover material to be applied to the active cell
- Alternate cover material
- Methods and frequencies to monitor development of the site and a
- Surface water monitoring program

The City is planning to continue the Household Hazardous Waste collection program in conjunction with an applicable training program late in October 2004.

An updated spill contingency plan is recognized as a priority for the transportation and processing of waste in the landfill.

Wastewater Issues

The City of Iqaluit's sewage collection system is comprised of sanitary sewer system which includes 2 sewage lift stations, as well as a fleet of 4 sewage trucks. The City is in the process of retaining a consultant to provide design services for the upgrading of the two sewage lift stations. The work is scheduled to proceed during the 2005 & 2006 construction season.

The sewage is currently treated in a sewage lagoon. The City however has retained a consultant to design the conversion and expansion for the sewage treatment plant. This project is scheduled to be tendered this fall with construction to begin during the 2005 construction season, and commissioning in the spring of 2006.

The City has recognized the need for a sludge and grit management program to be developed prior to the commissioning of the plant. This program will be developed with consultation and approval of the regulatory agencies.

Upon completion of the wastewater treatment plant, the existing lagoon will become redundant. The City intends to develop an abandonment plan for the lagoon, and is proposing that it be maintained for use in case of an emergency for treatment of the City's wastewater.

Until the new facility is commissioned the existing sewage lagoon shall be used for sewage treatment. The City's staff monitors the lagoon daily, and adjust the outlet control to regulate the fluctuations in sewage levels due to changes in the flows.

The Dam Safety Review completed in 2002 by Trow Consulting reported the safety of the dykes can not be accurately evaluated to an acceptable level. A subsequent geotechnical investigation, by Trow Consulting, which was carried out as a result of recommendations from the 2002 Dam Safety Review, has concluded "Based on the results of the slope stability analysis, it is considered that a catastrophic failure of the berms is unlikely." The City's staff also performs yearly inspections on the lagoon berms, and recommend remedial action as required to address operational concerns. As the facility is schedule for decommissioning in approximately 2 years, no major remedial projects are scheduled.