

SUMMERSIDE MUNICIPAL SERVICES
WATER SYSTEM REPORT
For the Year January - December 2006

Introduction

The City of Summerside has been Sampling its water system on a bi-weekly basis since the 1960's. In 2001 the City established its present policy for a standard practice to ensure that the drinking water quality for the City of Summerside Water Utility is maintained according to the Canadian Drinking Water Standards and any requirements of the Province. The Environmental Protection Act Drinking Water and Wastewater Facility Operating Regulations is the Provincial legislation under which the requirement for sampling and reporting is required. These regulations became effective December 18, 2004. Another act governing the operation and maintenance of a water distribution system is the Atlantic Canada Guidelines for the Supply, Treatment, Storage, Distribution and Operation of Drinking Water Supply Systems. The assessment of water quality monitoring results under the regulations shall be based on the recommendations in the most recent version of the Guidelines for Canadian Drinking Water Quality, or, where no such guidelines exist, on the advice of the Chief Health Officer.

These guidelines cover the design of new systems, operation and maintenance of new and existing systems both small and large. One of the new regulations require the reporting of an annual summary report of the system water quality.

Summary

The City of Summerside Samples its water system on a bi-weekly basis for Bacteriological tests consisting of the following: Total Coliform DC, Escherichia Coli (e-Coli) and Background Growth bacteria. The frequency and quantity of these samples was set by Health Canada's Canadian Drinking Water Guidelines and the Province. The City takes 8 samples from the system on a bi-weekly basis plus a sample from each active well in the system. This gives a total of 24 samples per month with other samples taken as needed. The city has been divided into 8 Zones and this map is used for sampling the system, as per section 11 of the P.E.I. Environmental Protection Act.

The City has made revision to its policy to report levels of Chlorine residual for each sample taken from the system and each well source. This residual is to be maintained at a minimum of 0.1 mg/l or more in the system under the Canadian Drinking Water Guidelines. The Water samples are sent to the P.E.I. Department of Environment Laboratory in Charlottetown where they are tested for Total Coliforms DC, Background Growth DC and E-Coli DC bacteria.

Water Distribution Chemistry/Sampling

Over the 2006 year, we have taken a total of 346 water samples. Of the 346 samples, Five (5) samples were taken at the request of Utility Customers, 9 samples had readings out of compliance, with the results below:

Total Samples out of compliance 21

6 samples	Total Coliform count of >45 CFU/100ml to 1 CFU/100ml
6 samples	Background Growth of >30 CFU/100ml to low of 1 CFU/100ml
0 samples	E- Coli no readings out of compliance

Re- sampling was carried out immediately and results came back clear each time; with 0 CFU/100ml Total Coliform DC, 0 CFU/100ml Background Bacteria Growth, and 0 CFU/100ml E-Coli bacteria.

The remainder of the samples had results of 0 mg/l total coliforms, 0 CFU/100ml Background Growth, and 0 CFU/100ml E-Coli bacteria. These system samples included all the supply wells for the system. The system water was considered suitable for potable use for all samples. (Note : CFU/100 ml means colony forming units of bacteria per 100 ml sample).

Water System Capital Enhancements

The City has replaced a section of water main on Harvard Street because of its age and maintenance requirements. During its construction the residents of this section were placed on temporary water systems with back flow protection to prevent any reversing flow into the distribution system. The Municipal Services Department provided daily Chlorine residual Testing and weekly bacteriologic water sampling of the temporary system. The Municipal Services Department performed 22 samples, in all, over the construction period . The temporary water distribution system for was put on a boil order advisory while the contractor carried out flushing and shock chlorination of the temporary system until it showed good testing results and chlorine residuals. During the time of the boil order, the utility customers affected were provided with drinking water from the contractor doing the work. The new water line was put in service in late November.

A second section of Old main was replaced on lower St. Lawrence St. to increase flushing of the area and create looping in the area to increase pressure and water flow to alleviate an esthetic water quality problem. There were no chemical or bacteriological problems in the samples taken during this time; but a cloudy water esthetic issue in this area necessitated the work on the system.

Chlorination of Water System

A chlorine residual was maintained in the water system ranging from a minimum of 0.02 mg/l to a maximum of 0.39 mg/l . The levels of chlorine residuals are checked on a regular basis and the chlorine pumps are maintained to have a consistent and constant residual of chlorine in the water system for public safety. The chlorine residual is checked on a regular basis to maintain the system at a level of 0.1 mg/l or higher. In an effort to have better control of the chlorine residuals in the distribution water system, the chlorine injection system has been set to maintain a 0.2 mg/l (ppm) residual chlorine in the distribution water system with a minimum of 0.1 mg/l(ppm) . The City has also budgeted resources into the chlorine system to have better safeties on the chlorine injection system and back-up systems to keep up to changing P.E.I. water and sewer regulations and Atlantic Canadian Water Guidelines. These changes were started in the 2006 year and will be finished in early 2007.

Source Water Wells

The Municipal Services Department had repairs performed to two water supply wells following the Provincial Regulations. One well pump was replaced on Greenwood Drive which was put back into service after all testing for bacteria showed good testing results. Well #2 in the Wilmot Well field was re-drilled and replaced after being out of service. Well #2 is not back in service at the date of this report due to additional maintenance being required. It is expected to be back in service supplying water to the system in mid-year. Many repairs were conducted on the delivery system control of each individual well in the Wilmot wellfield.

A General chemical analysis on all the active water supply wells for the city is carried out on a yearly basis and the results were within the Health Canada's Canadian Drinking Water Guidelines acceptable limits. These guidelines outline the common substances sampled on a yearly basis based on MAC (Maximum acceptable limits) or IMAC (Interim Maximum acceptable limits).

General Chemistry Test Source waters on yearly basis
Detailed Chemistry Test Source water on 3yr cycle or as needed

Information on **The Atlantic Canada Water Guidelines and the P.E.I. Act** can be seen on Provincial Government's web site (web address below);

<http://www.gov.pe.ca/infopei/index.php3?number=1004345&lang=E>

Information on Health Canada's Canadian Drinking Water Guidelines can be seen at Health Canada's web site (web address below);

http://www.hc-sc.gc.ca/ewh-semt/water-eau/drink-potab/index_e.html

Information on **Bacteriological parameters** can be found on the P.E.I. Gov web site (web address below);

http://www.hc-sc.gc.ca/ewh-semt/water-eau/drink-potab/index_e.html

Information on **Chemical parameters** can be found on the P.E.I. Gov web site (web address below):

<http://www.gov.pe.ca/infopei/index.php3?number=43878&lang=E>

or Health Canada's web site (web address below);

http://www.hc-sc.gc.ca/ewh-semt/water-eau/drink-potab/index_e.html

The Chemistry testing showed an elevated nitrate amount of 10 mg/l (ppm) in Wilmot well #5 during yearly testing done by the P.E.I. Department of Environment, Energy and Forestry. The City carried out additional testing on all active water supply wells feeding the distribution system and only Wilmot well #5 showed high nitrates. Wilmot well #5 was immediately taken out of service and continued testing was conducted over a 2 week period to find the location of the high nitrates in co-operation with the P.E.I. Department of Environment, Energy and Forestry. The nitrate concentration lowered as the well was flushed for a longer duration. In Consultation with the Department of Environment, Energy and Forestry, Wilmot well #5 was put back on line in tandem with another Wilmot well of a lower nitrate concentration. This change in operation at the Wilmot wellfield in addition to bi-weekly testing of nitrates on the distribution system alleviated the issue to well below the nitrates maximum limit of 10mg/l (ppm). The City continues to monitor the situation for any changes in nitrates level in conjunction with the Department of Environment, Energy and Forestry.

A total of 117 chemical and nitrate tests were carried out on the active wells and the distribution system over the past year. A sampling summary of the City's efforts in testing for 2006 is available on line at the City website.

Conclusion

The City continues to maintain and operate the water supply system in compliance with the current acts and regulations to supply safe potable drinking water for utility customers. For questions regarding this report or the water distribution and supply system please contact the Director of Municipal Services at (902) 432-1272.