

System Description

The Cana Well system was established in the early 1950's by a co-operative formed by homeowners living on Marian Crescent, Rochdale Crescent, and Cana Blvd. The system was operated privately by the co-operative, then by the Ministry of the Environment (MOE), until operation was assumed by the former Township of Pittsburgh. When the township amalgamated with the city of Kingston and Kingston Township in 1998, operation of the system passed into the care of Utilities Kingston.



Staff from the Utilities' Treatment Group, working out of the King Street Water Treatment Plant, currently operate the treatment system. The distribution system is maintained by the Utilities' Underground Infrastructure Department.

The water is supplied from a 150mm steel cased drilled well. Sodium hypochlorite is injected into the system after the pressure tank for disinfection.

The water then passes through a detention tank allowing approximately 22 minutes of contact time, based on average flows, before entering the distribution system.

The distribution system was also originally installed by the co-operative, and was constructed from a variety of materials which were available to the co-operative at the time of construction.

Treatment Plant staff attend the well on a daily basis to make system checks, take bacteriological samples, and to test chlorine residuals in both the treated water and in the distribution system. All Operators are certified by the MOE. ❖

Ontario's Drinking Water Regulations

This report has been prepared in response to Operation Clean Water, an initiative of Ontario's Ministry of the Environment to ensure high quality drinking water for the residents of Ontario. The new regulations put into law what was formerly the Ontario Drinking Water Objectives (ODWO), and sets requirements for public waterworks with regard to sampling and testing, levels of treatment, licensing of staff, and notification of authorities and the public about water quality.

Further information on the Drinking Water Regulations can be found on the Ministry of the Environment web site at www.ene.gov.on.ca

For further information about this report please contact Utilities Kingston at wpp@city.kingston.on.ca or phone Lynn McLeod or Randy Whan at 546-1181 ext. 2296. Free copies of this report are available at 211 Counter St. or City Hall. ❖

Water Quality and Sampling

Sampling requirements for a waterworks are specified by the new Drinking Water Regulations (ODWR) as well as any Certificates of Approval (COA) issued for the specific waterworks. Since there are no sampling requirements outlined in the COA, sampling follows the schedule for groundwater supplies as listed in table 5 of the ODWR.

What is in your water?

Some parameters may be present in source water before it is treated. Here is a description of the various groups of parameters.

Microbiological parameters such as bacteria may come from wastewater treatment plants, livestock operations, septic systems and wildlife. Microbiological quality is the most important aspect of drinking water quality because of its association with dangerous water-borne diseases which can strike quickly.

Inorganic parameters such as salts and metals can be naturally occurring or as a result of urban storm runoff, industrial or domestic wastewater discharges, mining or agriculture. Some may be the result of the treatment and distribution of water (for example, lead from solder in plumbing).

Organic parameters can be naturally occurring, but most organics of concern are synthetic. They originate from industrial discharges, urban storm runoff and other sources. Included in this group are pesticides that originate from both rural and urban areas. Some may originate from treatment of drinking water (for example, chlorination byproducts such as trihalomethanes). Volatile organics such as solvents and certain industrial chemicals are often the result of vehicle emissions or industrial discharges.

The water does contain an elevated level of sodium (approx. 80 mg/l), which when above 20 mg/l requires notification of both residents and the local Medical Officer of Health. This information is relevant only to those who may be on a sodium restricted diet. Consumption of sodium in excess of 10 grams per day by normal adults does not result in any apparent adverse health effects, and intake from water accounts for only a small fraction of daily intake. Sodium occurs naturally in the earth's crust and is not considered to be toxic. The aesthetic objective for sodium is 200 mg/l.

DEFINITIONS & TERMS

- ° C - degrees Celsius
- ° F - degrees Fahrenheit
- kg - kilogram
- l - litre
- m - meter
- m³ - cubic meter, 1 m³ = 1000 litres.
- TCU - True Colour Units
- CaCO₃ - Calcium carbonate
- mg - milligram
- psi - pounds per square inch
- mg/l - Milligrams per litre. This is a measure of the concentration of a parameter in water, also called parts per million. (PPM)
- ug/l - Micrograms per litre. This is a measure of the concentration of a parameter in water, also called parts per billion.

ng/l - Nanograms per litre. This is a measure of the concentration of a parameter in water, also called parts per trillion.

NTU - Nephelometric Turbidity Units - A measure of the amount of particles in water.

MAC - Maximum Acceptable Concentration. This is a health-related drinking water standard established for contaminants having known or suspected adverse health effects when above a certain concentration. The length of time the MAC can be exceeded without injury to health will depend on the nature and concentration of the parameter.

IMAC - Interim Maximum Acceptable Concentration. This is a health related drinking water standard established for contaminants when there are insufficient toxicological data to establish a MAC with reasonable certainty, or when it is not practical to establish a MAC at the desired level.

Parameter - A substance that we sample and analyze for in the water.

The detectable results for this quarter are listed in the table below.

Microbiological Parameters	MAC or IMAC	Number of Samples	Number of Detectable Results	Number of Sampling Dates	Range	Exceedance ?	Typical Source of Contaminant
Total Coliform (counts/100ml)	*	28	0	10/03 - 12/28	N/A	No	Indicates possible presence of fecal matter.
Escherichia coliform (counts/100ml)	*	28	0	10/03 - 12/28	N/A	No	Definite indicator of fecal contamination.

* Indicator of adverse water quality if detected

Parameters Related to Microbiological Quality	MAC or IMAC	Number of Samples	Number of Detectable Results	Sampling Dates	Range	Exceedance ?	Typical Source of Contaminant
Turbidity (NTU)	1	63	63	10/2 - 12/29	0.12 - 1.35	Yes	Turbidity is a measure of particulates in water.
Free chlorine - Treated water (mg/l)	-	62	62	10/2 - 12/29	0.46 - 1.78	N/A	See below
Free chlorine - Distribution (mg/l)	-	61	61	10/2 - 12/29	0.12 - 1.01	N/A	Recommended level of at least 0.20 mg/l in distribution system to maintain microbiological quality.

N/A - Not Applicable

Inorganic Parameters	MAC or IMAC	Number of Samples	Number of Detectable Results	Sampling Dates	Range	Exceedance ?	Typical Source of Contaminant
Nitrate (mg/l)	10	1	1	10/11 - 10/11	< 0.05	No	A natural component of water at this level.

Volatile Organics	MAC or IMAC	Number of Samples	Number of Detectable Results	Sampling Dates	Range *	Exceedance ?	Typical Source of Contaminant
Trihalomethanes- Treated water (ug/l)	100	4	4	01/06 - 10/11	1.9	No	By-product of chlorination
Trihalomethanes- Distribution (ug/l)	100	1	1	10/11 - 10/11	38.1	No	By-product of chlorination

* The MAC for THMs is based on a running annual average. The numbers listed are average results for data from the last 4 quarters.

Pesticides & PCB	MAC or IMAC	Number of Samples	Number of Detectable Results	Sampling Dates	Range	Exceedance ?	Typical Source of Contaminant
None	-	-	-	- - -	-	-	-

QUESTIONS AND ANSWERS

Q: What is an Accredited Laboratory?

A: Accredited labs must have undergone an on-site assessment and performance review of their methods by the Canadian Association of Environmental and Analytical Laboratories (CAEAL). The Standards Council of Canada (SCC) grants accreditation to the lab based on the recommendation of CAEAL. The accreditation requirements are repeated every two years.

Q: What had to be done to meet the new regulations?

A. The Cana Well System was meeting the ODWO before they became law, so little change was required to comply with the new regulations. The quarterly distribution system samples for THMs will be added, as well as some changes in reporting requirements. This report to the public is also the result of the new regulations.

Q: What parameters did you test for?

A. A complete list can be found in the Ontario Drinking Water Standards (ODWS) or at the MOE website listed on page 1 of

this report. Microbiological parameters are tested 3 times per week. ODWS tables B and D, which include Volatile Organics, Pesticides and PCBs, are tested for on a quarterly basis. As well, a sample will be collected from the distribution system four times per year and analyzed for THMs. Inorganics are to be tested for every 3 years. A description of what these are and where they come from can be found on pages 1-2 of this report. Only those parameters found in detectable levels are listed in the table above.