TOWN OF AURORA

DRINKING WATER QUALITY ANNUAL REPORT

JANUARY 1 TO DECEMBER 31, 2009

New Regulations

Amendments to Ontario Regulation 170/03 came into effect on June 5, 2006. The provincially mandated amendments are designed to safeguard the quality of Ontario's drinking water, while making the regulation more workable and affordable for residential drinking water systems and systems serving designated facilities.

Such amendments required the Town of Aurora to publish an annual report describing our water system and the testing which is carried out to ensure a safe supply of drinking water.

Who Looks After the Water Supply?

York Region is responsible for water supply, production, treatment, storage and trunk distribution. York Region is the wholesale supplier of water to Aurora and also publishes an annual report with respect to the general information of water at the supply points. Their report can be found here.

In regards to delivery, the Town of Aurora is the retail supplier of water to the consumer and is responsible for its own distribution network.

The make up of Aurora's water supply is a blended combination of ground water and surface water. In regards to the ground water, York Region operates six production wells (Numbered 1 through 6) in the Town of Aurora which range in depth from 98 to 104 meters. The majority of the ground water supply is provided through wells number 1 through 4, located at the well field and treatment facility on Water Well Lane, near Aurora Heights Boulevard and Yonge Street. The aquifer from which the Aurora wells draw is part of an extensive aquifer (known as the Yonge Street Aquifer) which also makes up part of the current water source for the Town of Newmarket and parts of the Town of East Gwillimbury. The Aurora wells produce approximately 5.5 million m^3 of water per year

In respect to the surface water portion of the supply, Aurora currently receives Lake Ontario surface water from two supply sources, The City of Toronto supply and the Region of Peel feed. The Region of York had commenced in September 2002, the supplementing of Aurora's ground water supply with Lake Ontario water from the south end of Town (Yonge & Bloomington). This water supply currently servicing all of the southern York Region municipalities through Toronto, has been piped in and blended with Aurora's current supply, at this connection point, Aurora is receiving about 10% City of Toronto water. In the spring of 2008, the Region of York had completed the new Peel feed supply which runs north up Bathurst Street. This supply is connected to the Town's distribution system at a number of interconnecting points along Wellington Street, and then terminates in the NW Orchard Heights Boulevard reservoir.

At this point (June 2008), the operational mixing ratio has not yet been finalized, the Region of York, however, anticipates that the Toronto and Peel supply portion will be increasing over time as demand dictates.

Water Treatment

Water treatment for the Aurora wells changed in September 2002, from chlorination disinfection (adding chlorine) to chloramination (adding chlorine and ammonia). This was a necessary change so as to achieve compatible disinfection methods with that of the Toronto supply. Sodium silicate is also added to the well supply to keep the iron in suspension so it doesn't precipitate out and stain plumbing fixtures and laundry.

The Toronto supply and ground water are mixed at the Ridge Road water storage tank. From there, the blended supply enters the Town's distribution system. Following treatment of the ground water source, the water enters the Town's distribution system from three points: for wells #1, #2, #3, #4 at Aurora Heights Drive west of Yonge Street, well # 5 at Old Yonge Street and St. John's Side Road and well # 6 at Bayview Avenue and St. John's Side Road.

The Toronto supply surface water that is being blended, enters through an interconnecting watermain between Richmond Hill and Aurora, at the intersection of Yonge Street and Bloomington Side Road. The water storage vessels located in Town, which are operated by the Region of York, make up an integral component of the Town's distribution system. Storage tanks are for the purpose of providing relatively constant system pressure and to provide a reserve volume of water for community fire protection and to meet system peak demands. There are currently three water towers (NW, SW, PD9) two reservoirs (NW, Bathurst Street), and one storage tank (Ridge Road). There is also an easterly pressure district that is supplied by a Regional water booster station (Aurora East), as noted, the storage tanks and booster station are components of the various pressure districts of the distribution system.

Pressure Districts

Pressure districts are necessary to equalize the operational water pressures that are dictated by the Town's various geographic elevations. There are five pressure districts in Town, numbered 1 through 5. Pressure district number 1, is the largest zone and is also referred to as the Central District. Zone 1 pressures are provided by hydraulic head at the NW Reservoir and the Ridge Road Tank, both these storage vessels are at the same elevation. Zone 2 (Western District) pressures are provided by the NW Water Tower next to the NW Reservoir. Zone 3 (Coscan) pressures provide by the SW Tower on Allenvale Dr. Zone 4 (Eastern District) pressures

provided by the Region’s Wellington Street East Water Pumping Station. Zone 5 (PD9) is provided pressure via the new Oak Ridges Water Tower on the north side of Bloomington Avenue at the Provincial offices near Yonge Street.

The new Peel feed pressure is supplied by the Bathurst Street reservoir just north of Bloomington Avenue, and as mentioned, terminates and continues to blend with the current supplies in the NW Reservoir, as part of the Central Zone 1 pressure district.

Regional Water Sampling Program

Regional operational staff collect samples in Aurora from the raw untreated water at the respective wells, points where treated water enters the distribution system and at storage sites.

The surface supplies are being sampled and monitored at the point of mixing from the Ridge Road storage tank and the NW Reservoir.

The Aurora Water Distribution System

The Town of Aurora owns and operates the distribution network, which includes the watermain piping, booster station, fire hydrants, service connections and meters. Aurora's distribution network, which provides water to the consumer, is divided into four pressure districts with pressures varying between 40-100 p.s.i.

Aurora's system is comprised of approximately 192.7 kilometres of watermain, located typically on local roads. The watermain pipe materials consist of ductile iron (60%), cast iron (9%), and P.V.C. (30%)

The Public Works Department is responsible for the maintenance and operation of the water distribution system. Staff members within the section who operate the system are certified and licensed by the Ministry of the Environment. Aurora's certified staff performs a variety of maintenance activities on the watermains to keep them operational and to mandate sampling for disinfectant levels and bacteriological testing. Some of the activities include watermain break repairs, valve exercising and repair programs, utility stake outs, flushing of watermains, fire hydrant maintenance and water sampling.

Water Sampling

Aurora's certified operators currently take water samples for microbiological analysis and chlorine residual tests every week at various locations throughout the Town. As well as using test stations, samples are also taken from high public usage areas, such as: the Fire Hall, Schools, Commercial Establishments, Senior Centres/Homes, Community

Centres, and Daycares. The locations are altered from time to time to ensure complete distribution system coverage. Town staff also collects daily chlorine residual samples to ensure continuous disinfection throughout the distribution system.

Once the microbiological samples are collected, they are taken for analysis to the York-Durham Regional Environmental Laboratory in Pickering. The Laboratory is accredited for microbiological testing by the Canadian Association for Environmental Analytical Laboratories. Any samples which contain indicators of “adverse” water quality are immediately identified and the information forwarded to the Ministry of Environment and the York Regional Health Unit for follow up. Mandated protocols are then instituted for the necessary remedial actions.

The re-sampling (remedial action) consists of three samples to be collected for each adverse sampling site. Flushing the distribution system in the vicinity of the re-sampling is also performed. One sample was collected from the affected site, one at an upstream location and one sample at a down stream location. The chlorine residual and the time of the sampling for each site are noted for each location.

Based on the newly introduced “Safe Drinking Water Act” Regulation (O. Reg. 170/03), the Town of Aurora is required to sample for microbiological contamination at sixteen random location points throughout the distribution network on a weekly basis. Also, required are daily chlorine residual tests, trihalomethanes tested quarterly and lead tested annually, at points that reflect the maximum residence time in the distribution system.

Lead Sampling

The Ontario Government has amended the existing Drinking Water Systems Regulation O. Reg. 170/03, effective July 2007, which means Aurora is now mandated to perform additional tests at private residential taps to check for lead in the drinking water. Aurora will now be required to test 80 residential, 8 non-residential locations, and 16 distribution system samples, for a total of 104 samples twice a year. After 4 cycles, or 18 months, of acceptable results, the testing requirements will be reduced to 52 samples twice a year. Sampling locations would be mainly located at single-family dwellings, as well as a selection of multiple-family dwellings and non-residential locations, such as workplaces, restaurants and community centres, and the testing program will need to cover the entire community.

As such, the following table summarizes the results of the various required tests for the period noted:

PERIOD – JANUARY 1 TO DECEMBER 31, 2009

NUMBER OF SAMPLES TAKEN	COMBINED CHLORINE RESIDUAL RANGE	RE-SAMPLES
865	0.25 mg/L – 2.20 mg/L (Chloramination Disinfection)	0
	Re-samples	5
4	Trihalomethanes	0
316	Lead Samples	7
315 Daily Chlorine Residual Tests		

The 2009 report describes (5) microbiological adverse test results.

- The adverse result occurred July 7, 2009 at 201 Earl Stewart Drive and 78 George Street sample station As per standard operating procedures the watermains in the area were flushed and 3 re-samples (one at the original location plus one upstream and one downstream) for each location were taken July 7, 2009. All follow-up results returned negative and the occurrence was deemed a sampling error.

- The adverse result occurred July 28, 2009 at 5 Lensmith Drive and 4 Hollidge Boulevard sample stations. As per standard operating procedures the watermains in the area were flushed and 3 re-samples (one at the original location plus one upstream and one downstream) for each location were taken July 28, 2009. All follow-up results returned negative and the occurrence was deemed a sampling error.

- The adverse result occurred September 29, 2009 at 15 Brookland Avenue sample station. As per standard operating procedures the watermains in the area were flushed and 3 re-samples (one at the original location plus one upstream and one downstream) were taken September 29, 2009. All follow-up results returned negative and the occurrence was deemed a sampling error.

- The Town experienced an adverse chlorine residual event on September 30, 2009 on Industrial Parkway South near Vandorf Side Road, where the combined chlorine residual was below 0.25 mg/L (regulation states a minimum of 0.25

mg/L). This result was reported as an adverse condition. As required and directed by the Ministry of Environment and the York Region Public Health Department, the watermains in that area were flushed until the combined chlorine residual was above 0.25 mg/L.

- An elevated result for Sodium was reported to the York Region Public Health Department on March 6, 2009 from our sample station at 91 Devins Drive. As directed by the York Region Public Health Department the sample was taken 3 times with the same elevated result above 20mg/L. The Town of Aurora followed all notification protocols for this event.

Available to the Public

Water Quality Reports are available annually, they are available to the public and can be picked up free of charge at the Aurora Town Hall, 1 Municipal Drive, Public Works Department, and 3rd Floor or at the Public Works Yard, 9 Scanlon Court.

The website for reports on the summary of sample results taken at the supply sources is provided by the Region of York.

Any Questions related to this report or any other water quality issue may be directed to the Water and Wastewater Supervisor, Luigi Colangelo, at (905) 727-3123, extension 3442; email to lcolangelo@e-aurora.ca, or by writing to the Town of Aurora, 1 Municipal Drive, P.O. Box 1000, Aurora, Ontario, L4G 6J1.