



TOWN OF AURORA

DRINKING WATER QUALITY ANNUAL REPORT

JANUARY 1 TO DECEMBER 31, 2011

Regulatory Requirements

This report is prepared in accordance with Ontario Regulation 170/03, Drinking Water Systems under the Safe Drinking Water Act 2002.

Who Looks After the Water Supply?

York Region is responsible for water supply, production, treatment, and 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 at this following link:

<https://www.aurora.ca/TownHall/Pages/Departments/Infrastructure%20and%20Environmental%20Services/Drinking-Water-in-Aurora-.aspx>

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 Drive 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 m³ 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 Street & Bloomington Road). 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.

Since June 2008, the Region of York is responsible for the operational mixing ratio of the two water supplies. Currently the annual average mixing ratio is 75% surface water supply (Lake Ontario) and 25% groundwater supply.

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 tanks 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 Drive. 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 Road at the Provincial offices near Yonge Street.

The new Peel feed pressure is supplied by the Bathurst Street reservoir just north of Bloomington Road, 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 collects 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 five pressure districts with pressures varying between 40-100 p.s.i.

Aurora's system is comprised of approximately 222.8 kilometres of watermain, located typically on local roads. The watermain pipe materials consist of ductile iron (60%), cast iron (5%), and P.V.C. (35%)

Infrastructure and Environmental Services 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 using water sample stations. The locations are altered week to week 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 Reduction

The Town of Aurora applied for regulatory relief from the Community Lead Sampling Program in November 2011 under the Safe Drinking Water Act, 2002. On January 5, 2012, the Town of Aurora received regulatory relief from Lead Sampling, as a result of successfully completing 8 consecutive rounds of Lead testing in which less than 10% of the 494 residential Lead Samples collected did not exceed the Ontario Drinking Water Quality Standard for Lead 0.010 mg/L. The Town of Aurora’s new regulatory requirement for Lead Sampling will be as follows: 8 distribution samples between December 15, 2011 to April 15, 2012, another 8 distribution samples between June 15, 2012 to October 15, 2012 annually until October 15, 2016.

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

PERIOD – JANUARY 1 TO DECEMBER 31, 2011

NUMBER OF SAMPLES TAKEN	COMBINED, CHLORINE RESIDUAL RANGE	RE-SAMPLES
876	0.25 mg/L – 2.20 mg/L (Chloramination Disinfection)	4
4	Trihalomethanes	0
145	Lead Samples	1
262 Daily Chlorine Residual Tests		

The 2011 report describes (4) microbiological adverse test results.

201 Earl Stewart Drive Sample Station- 2 adverse results

The first adverse result occurred based on a sample taken August 2 and reported to the Town on August 3. 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 August 3, 2011. The Town was notified on August 4 that the upstream and downstream samples were favourable but the sample station site was still adverse.

As directed by the York Region Public Health Department we were directed to re-sample only at 201 Earl Stewart Drive, over a two day period for August 4 and 5. The results of these tests were favourable with no further action required.

58 Stone Road Sample Station- 1 adverse result

The adverse result occurred August 8. 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 August 9. All follow-up results were favourable and the occurrence was deemed a sampling error.

85 Mary Street Sample Station- 1 adverse result

The adverse result occurred August 22 at the sample station located opposite 85 Mary Street. 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 August 23, 2011. All follow-up were favourable and the occurrence was deemed a sampling error.

Overall, the Town of Aurora water supply system is being operated to a high level of service resulting in the delivery of safe water to the community. The number of adverse samples is not out of line from previous years and all follow up results were favourable.

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, 100 John West Way, Infrastructure & Environmental Services, 3rd Floor, or at the Public Works Yard, 9 Scanlon Court.

Water Quality Reports are also available on the Town website at: www.aurora.ca

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

<https://goo.gl/Cqxbxc>

Any questions related to this report or any other water quality issue may be directed to the Water and Wastewater Supervisor, John Lopizzo, at (905) 727-3123, extension 3442; email at jlopizzo@aurora.ca, or in writing to the Town of Aurora, 100 John west Way, P.O. Box 1000, Aurora, Ontario, L4G 6J1.