



Town of
East Gwillimbury

2016 SUMMARY REPORT

East Gwillimbury - Drinking Water Systems

Holland Landing/ Queensville/ Sharon
DRINKING WATER SYSTEM 260001747

And

Yonge/ Green Lane
DRINKING WATER SYSTEM 260087685

And

Mount Albert
DRINKING WATER SYSTEM 260002265

Reporting Period: January 1, 2016 to December 31, 2016
Schedule 22 of Ontario Regulation 170/03
(Safe Drinking Water Act 2002)



Introduction

The Safe Drinking Water Act (2002) mandates that it is the Town's responsibility to:

- Recognize that the people of Ontario are entitled to expect their drinking water to be safe; and,
- Provide for the protection of human health and the prevention of drinking water health hazards through the control and regulation of Drinking Water Systems and drinking water testing.

The completion of this Summary Report serves several purposes. First, it is intended to provide the Mayor and Members of Council, as "Owners" of the Drinking Water Systems, a summary of the Town of East Gwillimbury's three (3) Drinking Water Systems for the reporting period of January 1, 2016 to December 31, 2016.

Second, this report has been created to satisfy the requirements of Schedule 22 of the Ministry of the Environment and Climate Change (MOECC), Regulation 170/03 (Summary Reports for Municipalities).

Earlier this year, the Annual Water Quality Reports were prepared for each water drinking water system to fulfill Section 11 of Ontario Regulation 170/03. The Annual Water Quality Reports were created to identify specific details regarding the overall quality of the Town's Drinking Water System and was made available on the Town of East Gwillimbury's website as of February, 2016.

Together, this Summary Report and the Annual Water Quality Report, provide information to Council with respect to the Town's Drinking Water Systems, and assist in Council meeting its Standard of Care.

System Background

The Town of East Gwillimbury's, Community Infrastructure and Environmental Services - Water Division is responsible for the distribution of safe drinking water throughout the Town. Water is supplied to residences, industrial, commercial, and institutional locations throughout the Town at the highest quality possible.



The Town owns and operates three (3) large drinking water systems,

1. Holland Landing/ Queensville/ Sharon (HQS)
2. Yonge/ Green Lane (YGL)
3. Mount Albert (MA)

East Gwillimbury purchases all its drinking water from York Region and therefore all three of East Gwillimbury's drinking water systems are distribution only. York Region purchases a portion of the required water from the City of Toronto and the Region of Peel. This supply is considered surface water as it is sourced from Lake Ontario. The Region also produces water from regionally owned and operated wells (groundwater source) throughout East Gwillimbury and Newmarket.

The water provided to East Gwillimbury's Drinking water systems is either groundwater only or a blended source of surface and groundwater.

The HQS system primarily receives ground water from the two (2) York Region wells in Holland Landing and four (4) York Region wells in Queensville but a portion of its water is provided from a 750mm watermain that provides a blended source of surface water from Lake Ontario water and well water through the Town's of Newmarket and Aurora.

HQS's drinking water system is operated as a chloraminated drinking water system. Chloramines are a water disinfectant that is made up of chlorine and aqueous ammonia. Chloramines are a longer lasting but less aggressive disinfectant in the distribution system.

The YGL drinking water system receives a blended source of groundwater and surface water. There are six (6) York Region wells in the Town of Newmarket that produce water that is blended with surface water originating from Lake Ontario as noted above. The YGL drinking water system is operated as a chloraminated drinking water system.

Water for the MA drinking water system is treated groundwater, supplied from three (3) York Region wells, and this system is operated as a free chlorinated system.

East Gwillimbury's drinking water systems are identified by their own Drinking Water System numbers through the Ministry of the Environment and Climate Change. These unique DWS numbers have been noted below. All of the Town's drinking water systems have been classified through the Ministry of the Environment and Climate Change as "Class I Drinking Water Systems."



A Municipal Drinking Water License and Drinking Water Works Permit have been assigned by Ministry of Environment to all Drinking Water Systems as follows:

	Mount Albert DWS	Yonge/ Green Lane	Holland Landing/ Queensville/ Sharon
DWS Number	260002265	260087685	260001747
Municipal Drinking Water	117-101	117-102	117-103
Drinking Water Works	117-201	117-202	117-203



Executive Summary

As previously noted, this report has been created to fulfill the requirements under Schedule 22 of Ontario Regulation 170/03 (summary reports for municipalities).

This report is meant to provide an overview of the individual systems within the Town of East Gwillimbury. Set out within this report are:

- an introduction,
- system background,
- executive summary,
- legislative requirements,
- new legislative requirements
- summary of actions taken to correct infrastructure failures in 2016, and
- water withdrawal summaries under the Safe Drinking Water Act and its associated regulations.

No provincial orders were issued to the Town by the Ministry of the Environment and Climate Change under the Safe Drinking Water Act, 2002 (SDWA) during the reporting period January 1, 2016 to December 31, 2016.



Legislative Requirements

The Act and the associated Regulations under which the Town of East Gwillimbury operates the Town's Drinking Water Systems are:

The Safe Drinking Water Act, 2002 (SDWA):

- A. Ontario Regulation 170/03 of the SDWA (Drinking Water Systems),
- B. Ontario Regulation 128/04 of the SDWA (Certification of Drinking Water System Operators and Water Quality Analysts),
- C. Ontario Regulation 169/03 of the SDWA (Ontario Drinking Water Quality Standards);
- D. Ontario Regulation 188/07 of the SDWA (Licensing of Municipal Drinking Water Systems)

The Safe Drinking Water Act, 2002

Justice Dennis O'Connor, who led the Walkerton Commission of Inquiry, recommended that the Ontario government enact a Safe Drinking Water Act to deal with matters related to treatment and distribution of drinking water. As articulated by Mr. Justice Dennis O'Connor, the purpose of the Safe Drinking Water Act is to gather in one place, all legislation and regulations relating to the treatment and distribution of drinking water.

Further to Commissioner O'Connor's recommendations, the provincial government passed the Safe Drinking Water Act 2002, which expanded on the existing policies and practices and introduced new features to protect drinking water in Ontario. The Act's purpose is to protect human health through the control and regulation of Drinking Water Systems and drinking water testing. The Act also provides legislative authority to implement 50 of the 93 recommendations made in Commissioner O'Connor's Part Two Report.

(A) Ontario Regulation 170/03 (Drinking Water Systems)

The Drinking Water Systems Regulation (O.Reg 170/03) establishes eight categories of Drinking Water Systems, four of which are municipal, and the other four being non-municipal. All of East Gwillimbury's water systems are categorized as Large Municipal Residential Systems, as they are municipal Drinking Water Systems that serve major residential developments with more than 100 private residences.

The Regulation contains schedules that address a number of requirements for a Drinking Water System. The following schedules are applicable to Town's systems:

- i. Schedule 7 Operational Checks
- ii. Schedule 10 Microbiological Sampling and Testing
- iii. Schedule 13 Chemical Sampling and Testing
- iv. Schedule 15.1 Lead
- v. Schedule 16 Reporting Adverse Test Results and other problems
- vi. Schedule 22 Summary Reports for municipalities



(i) Schedule 7 - Operational Checks

Schedule 7, Operational Checks for Municipal - Large Residential Systems, identifies responsibility for chlorine, turbidity, and fluoride testing, as well as defines tests that can be done by a certified operator or a certified Water Quality Analyst.

As required under this Schedule, the Town ensures that regulated water samples from all drinking water systems are taken and tested.

The Town's drinking water systems are stand-alone drinking water systems. Primary disinfection and regulatory testing for same required under this schedule are conducted by York Region.

The Town's responsibility with respect to this schedule is to test for chlorine residual that ensures adequate disinfectant remains in the distribution system. The MA drinking water system is tested for *free* chlorine residual, as it is a chlorinated system and HQS and YGL drinking water systems are tested for *combined* chlorine residual, as they are chloraminated systems. For the reporting period January 1, 2016 to December 31, 2016, 486 regulatory samples were taken from the MA drinking water system and tested for free chlorine. 828 regulatory samples were also taken from the YGL drinking water systems and tested for combined chlorine. 1647 samples were taken from the HQS drinking water systems and tested for combined chlorine residuals.

The Yonge/ Green Lane system was closely monitored in 2016 through enhanced chlorine residual testing and the utilization of 2 continuous chlorine analyzers.

(ii) Schedule 10 - Microbiological Sampling and Testing

Microbiological sampling and testing for Large Municipal Residential Systems is mandated under schedule 10. The number of samples to be taken and tested for is based on population.

Based on the population being supplied water through the HQS drinking water system a minimum of 27 samples had to be tested per month, resulting in total of 324 microbiological samples for the reporting period. The Town exceeded the minimum requirement and collected a total of 389 microbiological samples in HQS for testing.

Based on the population being supplied water through the YGL drinking water systems a minimum of 11 samples had to be tested per month, resulting in total of 132 microbiological samples for the reporting period. The Town exceeded the minimum requirement and collected 149 microbiological samples for testing.

Again based on the population of the MA drinking water system, a minimum of 14 samples had to be collected per month, resulting in a total of 168 samples required for testing for regulatory compliance. As is the case with the HQS and YGL drinking water systems, the Town exceeded the requirement for MA drinking water system and performed a total of 178 microbiological samples for the reporting period.



(iii) Schedule 13 - Chemical Sampling and Testing

Schedule 13, Chemical Sampling and Testing applies to the Town as all Drinking water systems are classified as being Municipal Large Residential systems. Schedule 13 involves the sampling of inorganics, organics, trihalomethanes, nitrate and nitrites, sodium, and fluoride.

As is the case with Schedule 7, the Town's drinking water systems, being standalone drinking water systems, obtain treated drinking water from other large municipal Drinking Water Systems that provide primary disinfection and the Region is required to test for inorganics, organics, nitrate and nitrites, sodium and fluoride.

The Town tests for Trihalomethanes (THMs) in all its distribution systems on a quarterly basis to satisfy its regulatory requirements and for the reporting period of 2016 there was not a single exceedance in any of the three (3) drinking water systems

(iv) Schedule 15.1 - Lead

This Schedule applies to sampling for lead in Large Municipal Residential systems and incorporates a number of requirements. Under the legislation, samples are required during the periods of December 15 to April 15 (Round 1 - winter), and June 15 to October 15 (Round 2 - summer).

The MA drinking water system was granted regulatory relief from the mandated lead sampling program for private residences and non-private private residences in 2011 under MOECC, Certificate of Approval No. PB260002265RR-01.

The Ministry of the Environment and Climate Change issued the amended Municipal Drinking Water License for the YGL drinking water system granting regulatory relief from the mandated lead sampling program for private residences and plumbing that does not serve private residences.

HQS was the third system to receive the amended Municipal Drinking Water License granting regulatory relief from the mandated lead sampling program for private residences and plumbing that does not serve private residences. The regulatory relief was issued in 2012 by the MOECC.

However, as part of the requirements of the lead testing exemption in the Municipal Drinking Water Licenses (MDWL) for HQS, YGL and the MA drinking water systems, sampling for lead is required on a three-year cycle. Each of the two Rounds within each cycle will require a total of four (4) distribution samples from HQS, two (2) from YGL and three (3) distribution samples from the MA distribution system.

In 2016 the Town of East Gwillimbury took lead samples in two-rounds, in each system and had no exceedance in any sample.

(v) Schedule 16 - Reporting Adverse Test Results and Other Problems

Reporting adverse test results and other problems is required under Schedule 16.

The schedule defines the Town's duty to report in the event that any drinking water tests do not meet the standards prescribed by Schedules 1, 2, or 3 of the Ontario Drinking Water Quality Standards (O.Reg 169/03), along with other specific parameters as identified within the schedule.



The reporting requirement involves an immediate oral and, within 24hrs, written notification to the Ministry of the Environment and Climate Change's Spills Action Center (SAC), and the Medical Officer of Health at the local York Region Health Unit. The report indicates the parameter which does not meet the regulatory limits, and also includes the recorded value, date of sample, chain of custody submission number, chlorine residuals of the original result, location of original sample, location and chlorine residuals of re- samples.

Action to resolve the adverse findings is undertaken in accordance with the Town's Operational Plan and/or as directed by the Medical Officer of Health at the York Region health unit. After the corrective action has been completed, the area of the adverse is re- sampled. The re-samples are tested to ensure regulatory compliance, be it for chlorine residual or for the absence of microbiological presence. Once results have been achieved be it meeting the required chlorine residual or clearance from the laboratory, a notice of issue resolution is reported back to the Ministry of the Environment and Climate Change's Spills Action Center and the Medical Officer of Health at the local health unit.

All adverse test results are reported in the Annual Water Quality Report, which is posted on the Town's website for the public no later than February 28th, each year.

In the HQS system, ten (10) Adverse Water Quality Incidents (AWQI) were reported in 2016:

Four (4) of the AWQI for the HQS system were the result of a loss of pressure due to a watermain break, and were reported on May 19th, June 29th, July 21st, and July 27th. The corrective action was to flush the area and sample for Microbiological parameters. Upon receipt of the cleared sample results the main was reopened.

The remaining six (6) AWQI in the HQS system were within the new development areas and were the result of total coliform detection during new watermain commissioning procedures, all of which were physically isolated from existing infrastructure.

In the MA system one (1) AWQI for total coliform was detected in a sample taken on September 19th, the corrective action was to flush the area and to resample. On September 22nd, York Durham Lab was able to provide a preliminary result of no detection of Total Coliform.

No adverse results reported in the YGL system for 2016.

MOECC Small Drinking Water Systems, O. Reg. 318/08

This regulation came into effect on December 01, 2008. The North Union Community Centre Well Supply system and the Mount Albert Lions Club Well Supply system fall under this regulation. The primary impact of this regulation is that York Region Health Department has assumed enforcement responsibility of these water supply systems from the MOECC.

The Town installed Ultra-violet (UV) disinfection systems at both these locations. These new systems have resulted in excellent water quality results as well as a decrease in labour required to maintain and operate both locations. The Town has received risk assessments on both systems from The York Region Community and Health Services. As a result of this assessment and the excellent performance of the systems, the Town is now only required to conduct two (2) samples for each system every three (3) months.

No adverse water quality results were recorded at either of these two Small Drinking Water System locations.



(vi) Schedule 22 - Summary Reports for Municipalities, and Section 11 of O. Reg. 170/03

Summary Reports for Municipalities for Large Municipal Residential systems are identified within Schedule 22. The requirements of the report are listed within it, and annual submissions for the previous calendar year, must be submitted to Members of Council, as "Owners" of the system, by March 31 of the following year.

The Town also makes the report available on the Town's website; hard copies of the report are available to the public at the Town's municipal office located at 19000 Leslie Street, Sharon. The report is also made available to any and all other interested parties.

Similarly, Annual Water Quality Reports defined under Section 11 of the Regulation are prepared for submission no later than February 28th of the following year. The requirements of the content set within this report are also defined in the legislation. This Annual Water Quality Reports is also made available on the Town of East Gwillimbury's website.

2016 MOECC Drinking-water Inspection

On May 17, 2016, an inspector from the Ministry of the Environment and Climate Change visited East Gwillimbury for an annual distribution system inspection. The inspector reviewed the Records for East Gwillimbury's 3 Drinking Water Systems (DWS) on file since the previous year's inspection.

Shortly after the inspection the inspection report was delivered to staff with a 100% inspection rating for the YGL and MA drinking water systems.

In the HQS drinking water system, however, records for the Queensville Phase I project were reviewed, revealing that a contracted, certified operator failed to record the chlorine residual sample times on the correct chain of custody form, taken in conjunction with microbiological samples. Under the provision of O.Reg 170/03, Schedule 6-3, all microbiological samples must be taken at the same time and location as a chlorine residual sample. The failure to record the times of the chlorine residual samples resulted in a 94.07% inspection rating for the HQS water system.

Corrective action required the operating authority to ensure chlorine residuals are taken at the same time as the microbiological samples and the correct chain of custody form is being used as part of the New Watermain Commissioning Package. The contracted operators have since been provided the correct chain of custody forms, resolving the issue.

(B) Ontario Regulation 128/04 (Certification of Drinking Water System Operators and Water Quality Analysts)

This Regulation establishes the training and certification requirements that must be satisfied by certified operators and water quality analysts.



These training requirements came into effect on August 1, 2005. Requirements include taking mandatory training courses approved by the Director of the Ministry of Environment. Operator certificates are renewed every three years as long as the training requirements set out in the Regulation have been met.

The hours of training for operators are based on the class of the subsystem. The Ministry of Environment has designated all Town drinking water systems as Class 1 systems.

The Town of East Gwillimbury's water staff operates all drinking water systems in accordance with the Safe Drinking Water Act and all Class 1 Operators are required to complete a total of 90 training hours, and all Class 2 Operators are required to complete a total of 105 training hours within the three-year Operator's certificate renewal period. Operator training consists of 21 (class 1) or 36 (class 2) hours of Ministry of Environment's "Director Approved" classroom training, plus 69 hours of On-the-Job practical training.

During the reporting period January 1, 2016 to December 31, 2016, all of the licensed Water Operators held a valid operator certificate in compliance with O. Reg 128/04.

(C) Ontario Regulation 169/03 - Ontario Drinking Water Quality Standards (ODWQS)

The Ontario Drinking Water Quality Standard (ODWQS) identifies the minimum level of drinking water quality acceptable for human consumption.

The Town of East Gwillimbury assesses the acceptability of water through compliance with the following standards:

- Schedule 1. Microbiological Standard
- Schedule 2. Chemical Standards
- Schedule 3. Radiological Standards

As this Regulation indicates the minimum standard exceedance of these values represents the point of which adverse reporting comes into effect.

(D) Ontario Regulation 188/07 - Licensing of Municipal Drinking Water Systems

The Safe Drinking Water Act requires Owners and Operating Authorities of municipal residential Drinking Water Systems to have an accredited Operating Authority. The Water Division of Community Programs and Infrastructure is the accredited Operating Authority for the Town.

In order to become accredited, an Operating Authority must establish and maintain a Quality Management System (QMS). Minimum requirements for the QMS are specified within the Drinking Water Quality Management Standard (DWQMS).

Drinking Water Quality Management Standard (DWQMS)

The Drinking Water Quality Management Standard has 21 elements that relate to quality management and the risk assessment/risk management of critical control points. The Operational Plan documents the processes and procedures that the Owner and Operating Authority have in place to meet the requirements of the DWQMS.



The Town of East Gwillimbury received its updated Drinking Water Works Permits and Municipal Drinking Water Licenses in 2016. These permits and licenses were issued to the Town following an extensive validation and accreditation process by the MOECC.

Audits ensure compliance with DWQMS and ensure continual improvement of the DWQMS.

As participants of the full scope accreditation process for the DWQMS, the Town of East Gwillimbury is required to adhere to the accreditation requirements. An Internal Audit of the DWQMS was conducted by AET Consultants on April 26, 2016. There were zero (0) non-conformities and four (4) opportunities for improvement (OFI) identified during the assessment.

The Town remains fully accredited in 2016 for the Drinking Water Quality Management System and on June 24, 2016 SAI Global conducted an offsite system audit to which the town had conformed to all requirements audited.

New Legislative Requirements

No new regulations came into force in 2016.

Drinking Water Works Permits

Following issuance of the Municipal Drinking Water License and Drinking Water Works Permit in 2011, the Town is now the approval authority for alterations and additions to the Town's drinking water systems.

The Water Division of Community Programs and Infrastructure now has the authority and responsibility to conduct the necessary reviews and approvals previously undertaken the Ministry of the Environment and Climate Change. The Certificate of Approval for water systems is now replaced with Town's Drinking Water Works Permit (DWWP) approvals.

All new developments will be required to submit DWWP applications for review and approval before construction can proceed.

There were six (6) *Drinking Water Works Permit* approvals in 2016.

1. DWWP-2016-01 (Kerbel 09001)
2. DWWP-2016-02 (Kerbel 90015)
3. DWWP-2016-03 (Kerbel 89112)
4. DWWP-2016-04 (Holland Green Subdivision)
5. DWWP-2016-05 (Queensville Community Phase 2)
6. DWWP-2016-06 (Oxford Homes Development - Mount Albert Rd.)



Summary of actions taken to correct infrastructure failures in 2016

The Town quickly responded to all minor incidents and followed the procedures in place to safely and efficiently repair the failure and minimize any impact to the residents.

There were 4 notable infrastructure failures in 2016 in the Holland Landing/ Queensville/ Sharon drinking water system:

Date	Location	Description	Cost (incl. HST)	Material Type
January 24, 2016	19325 Yonge Street	Watermain break and repair	\$32,887.70	Thin Wall PVC
January 30, 2016	22 Red Mills Drive	Service Repair	\$8,183.65	Copper
May 24, 2016	416 Queensville Side Road	Water service repair	\$15,288.96	Copper
October 7, 2016	Earls Court & Mount Albert Road	Water service repair on watermain	\$9,618.88	Copper/PVC



List of References

Safe Drinking Water Act 2002 (SDWA)
Ontario Regulation 170/03 of the SDWA (Drinking Water Systems),
Ontario Regulation 128/04 of the SDWA (Certification of Drinking Water System
Operators and
Water Quality Analysts),
Ontario Regulation 169/03 of the SDWA (Ontario Drinking Water Quality Standards);
Ontario Regulation 188/07 of the SDWA (Licensing of Municipal Drinking Water Systems)