



2021
Annual Summary Report
for
Municipal 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, 2021 to December 31, 2021
Schedule 22 of Ontario Regulation 170/03
(Safe Drinking Water Act 2002)

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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, 2021 to December 31, 2021.

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

Additionally, 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 made available on the Town of East Gwillimbury's website in February 2022.

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

East Gwillimbury's, Community Infrastructure and Environmental Services - Water Division is responsible for the distribution of potable (safe drinking) water to all industrial, commercial, and household municipal water users in the Town of East Gwillimbury.

The Town owns and operates three (3) large municipal drinking water systems (DWS):

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

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 from Toronto and Peel is surface water sourced from Lake Ontario. The Region also produces water from regionally owned and operated wells (groundwater source) throughout York Region including the East Gwillimbury communities of Holland Landing, Sharon, Queensville and Mount Albert. These systems are disinfected with free chlorine (free chlorinated) or a mixture of chlorine and aqueous ammonia (chloraminated). Chloramines are a longer lasting but less aggressive disinfectant in the distribution system.

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 and from a 750mm watermain that provides a blended source of surface water from Lake Ontario water and well water through the Towns of Newmarket and Aurora.

HQS's drinking water system is operated as a chloraminated drinking water 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, Conservation and Parks. These unique DWS numbers have been noted below. All the Town's drinking water systems have been classified through the Ministry of the Environment, Conservation and Parks as "Class I Drinking Water Systems."

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

DWS Name	Mount Albert	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).

During the reporting period of January 1, 2021 to December 31, 2021 no provincial orders were issued to the Town by the MECP under the Safe Drinking Water Act, 2002 (SDWA).

The Town has maintained 100% compliance with the acts and regulations including water quality monitoring and maintenance of the drinking water system.

Any system failures were quickly resolved while ensuring the safety of the drinking water system and its users.

Legislative Requirements

The Safe Drinking Water Act, 2002 (SDWA) and the associated Regulations under which the Town of East Gwillimbury operates the Town's Drinking Water Systems are:

- Ontario Regulation 170/03 (Drinking Water Systems)
- Ontario Regulation 128/04 (Certification of Drinking Water System Operators and Water Quality Analysts)
- Ontario Regulation 169/03 (Ontario Drinking Water Quality Standards)
- Ontario Regulation 188/07 (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.

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 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 several requirements for a Drinking Water System. The following schedules are applicable to Town's systems:

Schedule 7	Operational Checks
Schedule 10	Microbiological Sampling and Testing
Schedule 13	Chemical Sampling and Testing
Schedule 15.1	Lead
Schedule 16	Reporting Adverse Test Results and other problems
Schedule 22	Summary Reports for municipalities

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 with respect to this schedule is to test for chlorine residual that ensures adequate disinfectant remains in the distribution system. Primary disinfection and regulatory testing for some parameters required under this schedule are conducted by York Region. 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, 2021 to December 31, 2021, **659** regulatory samples were taken from the MA drinking water system and tested for free chlorine. **784** regulatory samples were taken from the YGL drinking water systems and tested for combined chlorine. **3,165** samples were taken from the HQS drinking water systems and tested for combined chlorine.

The Town operates and maintains one continuous chlorine analyzer-flushers to provide enhanced monitoring in the HQS system at the northern limit. This device assists with maintaining chlorine residuals until enough growth created to meet operational demands.

Schedule 10 - Microbiological Sampling and Testing

Microbiological sampling and testing for Large Municipal Residential Systems are 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 28 samples had to be tested per month, resulting in total of 336 microbiological samples required for the reporting period. The Town exceeded the minimum requirement and collected a total of **423** microbiological samples in HQS for testing.

Based on the population being supplied water through the YGL drinking water system, a minimum of 10 samples had to be tested per month, resulting in total of 120 microbiological samples required 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 microbiological samples required for the reporting period. The Town exceeded the minimum requirement and collected **196** microbiological samples for testing.

Schedule 13 - Chemical Sampling and Testing

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

Like Schedule 7, York Region tests for inorganics, organics, nitrate and nitrites, sodium, and fluoride during drinking water production.

The Town tests for trihalomethanes (THMs) and halo acetic acids (HAAs) in all its distribution systems on a quarterly basis to satisfy its regulatory requirements and for the reporting period of 2021. There was no exceedance in any of the three (3) drinking water systems.

Schedule 15.1 - Lead

This Schedule applies to sampling for lead in Large Municipal Residential systems and incorporates several 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 HQS, MA and YGL system drinking water systems are all on a reduced sampling schedule to sample from the distribution system only as per the requirements from Section 15.1-5 of O.Reg 170/03. This is the result of several rounds of sampling private plumbing to prove that there is not a system wide issue with lead.

Additionally, 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) from MA. In 2021, two (2) rounds of distribution sampling were conducted in all three systems with no exceedance for lead in any sample.

Schedule 16 - Reporting Adverse Test Results and Other Problems

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

This 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, Conservation and Parks' 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 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, Conservation and Parks' 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, 4 Adverse Water Quality Incidents (AWQI) were reported in 2021 as follows:

- June 16, 2021: Total coliform presence
Routine bacteriological sampling results indicated a detection of Total Coliform (TC). Once alerted by the lab, Town staff undertook immediate watermain flushing and sampling of the source, as well as upstream and downstream of the source. Resample results indicated TC not present. Chlorine residuals were good through-out the system at the time of the original sample and no other samples from the HQS system taken the same day had TC.
- November 18, 2021: Low combined chlorine residual (C=0.02 mg/L)
Low combined chlorine residual detected during routine drinking water sampling. Watermain was flushed at location of adverse. Resample results from location of adverse and upstream/ downstream following brief period of flushing showed satisfactory results.

- November 25, 2021: Low combined chlorine residual (C=0.04 mg/L)
Low combined chlorine residual detected during routine drinking water sampling. Watermain was flushed at location of adverse. Resample results from location of adverse and upstream/ downstream following brief period of flushing showed satisfactory results.
- December 01, 2021: Low combined chlorine residual (C=0.03 mg/L)
- Low combined chlorine residual detected during routine drinking water sampling. Watermain was flushed at location of adverse. Resample results from location of adverse and upstream/ downstream following brief period of flushing showed satisfactory results. After third consecutive low residual, as a near-by pressure regulating valve was reopened to eliminate dead-end.

No AWQI results were reported in the MA and YGL system for 2021.

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 31st of the following year.

The Town also makes the report available on the Town's website and hard copies of the report are available by request to members of the public at the Town's municipal office located at 19000 Leslie Street, Sharon or Operations Centre at 19850 Woodbine Ave, Queensville.

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.

Small Drinking Water Systems, O. Reg. 319/08

This regulation came into effect on December 01, 2008. The North Union Community Centre system, the Mount Albert Lions Club system, and the EG Operations Centre system fall under this regulation. York Region's Health Department has enforcement responsibility of these water supply systems.

The Town has ultra-violet (UV) disinfection systems at all three (3) of these locations. The Operations Centre requires chlorine as a secondary disinfection for storage.

The Town has received directives for all three (3) systems from the York Region's Public Health. As a result, the Town is required to conduct organic and inorganic sampling for Mount Albert Lions Club and North Union Community Centre every three (3) months. Additionally, the Town is required to conduct organic and inorganic sampling for EG Operations Centre every two (2) months and free chlorine residual sampling three (3) times per week.

No AWQI results were reported at the two Small Drinking Water System locations in 2021.

2021 MECP Drinking Water Inspection

Between August 10 and September 8, 2021, an inspector from the Ministry of the Environment, Conservation and Parks remotely inspected records and documents for East Gwillimbury's 3 Large Drinking Water Systems (DWS).

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

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 MECP. Operator certificates are renewed every three years if 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 MECP 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 Operators are required to complete a total of 90 training hours within the three-year Operator's certificate renewal period. Operator training consists of 21 hours of Ministry of Environment, Conservation and Parks "Director Approved" classroom training, plus 69 hours of On-the-Job practical training.

During the reporting period January 1, 2021 to December 31, 2021, all the licensed Water Operators held a valid operator certificate in compliance with O. Reg 128/04.

Ontario Regulation 169/03 - Ontario Drinking Water Quality Standards

The Ontario Drinking Water Quality Standard 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.

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.

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).

The Town of East Gwillimbury received its updated Drinking Water Works Permits and Municipal Drinking Water Licenses in June 2021. These permits and licenses are valid until June 2026, however, the application for renew is due in December 2025.

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.

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 between January 13 and 18, 2021. **There were no (0) major non-conformities**, two (2) minor non-conformities and four (4) opportunities for improvement identified during the assessment.

The Town remains fully accredited through 2021 for the Drinking Water Quality Management System. On February 4, 2021, the external auditor, SAI Global, conducted a full scope re-accreditation audit. **There were no (0) minor non-conformity** and five (5) opportunities for improvement identified during the assessment.

All non-conformities and opportunities for improvement were tracked in a Corrective Action Review log and updated in the Town's DWQMS Operational Plan, Procedures and Appendices.

New Legislative Requirements

The MECP has posted a proposed update to minimum requirements for Operation Plans for drinking water systems in Ontario. Much of the update appears to be already satisfied by the Town's current Operational Plan, however, we will ensure these requirements are met. Some of the highlights are:

- There may be 1 plan for all systems so long as it is same operating authority
- Applicable to all parts of the system
- Version number and date on every page print or electronic
- Electronic copies submitted to MECP should be in PDF format
- The plan should be available to public at Town's Operations Centre and/or website (except for sections which could reasonably be expected to seriously threaten the safety or contain contract info/ financial information, etc.)

Drinking Water Works Permits

The Municipal Drinking Water License and Drinking Water Works Permit (DWWP) permits the Water Division of Community Infrastructure and Environmental Services as the approval authority for alterations and additions to the Town's drinking water systems.

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

There were five (5) Drinking Water Works Permit submissions and approvals in 2021.

- DWWP-2021-01 (Queensville Phase 4)
- DWWP-2021-02 (Village Green Connection)
- DWWP-2021-03 (Queensville Phase 6)
- DWWP-2021-04 (Yonge Street Realignment)
- DWWP-2021-05 (73 Sluse Connection)

Summary of Infrastructure Failures In 2021

There were no significant infrastructure failures to note in the MA and/ or YGL systems in 2021. There was, however, one significant failure noted in HQS; Amberglen Court – a service line failure resulted in a significant repair in the Amberglen Court cul-de-sac totaling approximately \$74,000.

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

Common Element Condominiums and Section 5(4) Agreements

There are currently two (2) Small Non-municipal Year-round Drinking Water Systems registered in East Gwillimbury and connected to the Holland Landing /Queensville /Sharon DWS and Mount Albert DWS. Presently, these two private DWS have both entered into an agreement as part of a pilot program to have the Town of East Gwillimbury's operations group to act as the operating authority for the private DWS.

These agreements state that the Towns water operations group will treat the private DWS as a part of the larger system from which all its water is obtained. During this pilot program, the Towns water operations group will complete any sampling and flushing required to maintain water quality within the private DWS. Any other regular maintenance, or infrastructure repairs are still the responsibility of the condo board.

The status of the pilot and discussions regarding continuing the program are currently being reviewed by staff and council.

Non-Revenue Water

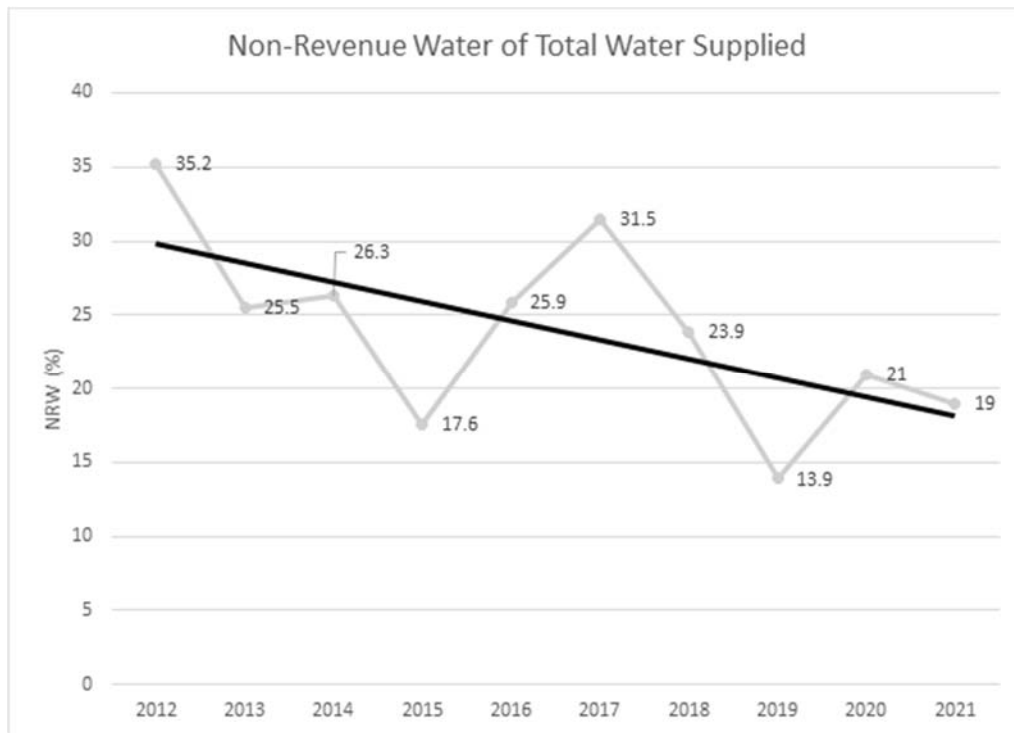
At the end of 2019, the American Water Works Association (AWWA) recommended that water loss focus on a suite of eight indicators, including two new ones, that focus on the Volume of losses, Value of losses, and Data Validity.

With these updates, AWWA recommended that utilities discontinue support for any percentage performance indicators, including percentage of non-revenue water (NRW) which has been the standard

metric used historically. Council was provided an education session May 20, 2020, outlining the AWWA changes. Staff continue to track NRW along with the new KPI's while transitioning to the new metrics.

The chart below is a summary of the historical NRW for East Gwillimbury. The NRW is inclusive of a number of system wide variables including flushing for both water quality and maintenance, system leaks as well as operational water use by ECSS, CIES and CPRC.

NRW has trended downwards since 2012, with the majority of non-revenue water associated to maintain chlorine residuals in the Bales Drive industrial area. In 2021, Queensville/Sharon also required large flushing volumes to maintain chlorine residuals. This downward trend is a positive indicator that the town is reducing NRW over time.



The two new AWWA metrics include:

“Loss cost rate” metric is a financial indicator on the financial impact of respective losses per service connection. This combines volume and value of loss. In 2021, the Town’s Total (Apparent and Real) loss cost rate was calculated to be \$37.46/connection. To put this in context, it is just below the 75th percentile (from AWWA reference water audits), which indicates that the Town is in an enviable position of being just shy of the top 25 percentile as compared to other water systems across North America.

“Normalized water losses” metric represents losses per connection. It is noted by AWWA that this is not a stand-alone KPI; nor can it be used as a target. In 2021, the Town had a total loss of 60 litres/connection per day. To also put this into context, it is below the 10th percentile and

comparatively favourable.

As the full suite of KPI's are currently under development by the AWWA, it will take time to evaluate and fully adopt them. As such, going forward Staff will continue to utilize the AWWA software to evaluate the suite of KPIs to more fully understand and compare water loss performance.

It is worth noting that the water audit, completed every year, is about obtaining good quality data, and each year identifying where that data can be improved. Town staff have achieved this every year, and each year the data improves. The customer billing data collected from the upgraded meters on a monthly basis has improved this data set.

Staff will work towards continuously improving data for future audits.

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)
- Ontario Regulation 319/08 of Health Protection and Promotion Act (Small Drinking Water Systems)