

The Regional Municipality of York

Committee of the Whole
Environmental Services
April 8, 2021

Report of the Commissioner of Environmental Services

2020 Drinking Water Systems Report

1. Recommendation

The Regional Clerk circulate this report to the Clerks of the local municipalities, City of Toronto, Regional Municipality of Peel, and the Ontario Chief Drinking Water Inspector (Ministry of the Environment, Conservation and Parks).

2. Summary

This report and attachments satisfy Council reporting requirements for water quantity, quality and compliance in Ontario Regulation 170/03 – Drinking Water Systems and supports Council in meeting statutory standard of care requirements under the *Safe Drinking Water Act, 2002* (the Act).

Key Points:

- In 2020, 100% of 17,923 laboratory analyzed samples and 99.99% of 39.5 million continuous monitoring analyzer readings were within regulated standards and confirm York Region's high quality drinking water. All adverse results were addressed and reported. Additional information on 2020 adverse results is in Attachment 1
- In 2020, all Ministry of the Environment, Conservation and Parks inspections of the Region's drinking water systems scored 100%. Additional information on 2020 calendar year inspections is in Attachment 2
- York Region received excellent scores in the Chief Drinking Water Inspector's Annual Report Card for the Province's 2019-2020 fiscal year, with a score of 99.98% for water samples meeting Ontario's drinking water quality standards and an inspection score of 100%
- Drinking water systems operated within permitted volume and capacity limits, with one minor exception. On July 4, 2020, the Nobleton system exceeded permitted production limits by 12 cubic metres. Additional information is in the Water Volume and Capacity section of this report, and in Attachment 3
- This report and its attachments were submitted to members of Council by the March 31, 2021 regulatory deadline

3. Background

York Region complies with the *Safe Drinking Water Act, 2002* to protect public health through drinking water

The Ministry of the Environment, Conservation and Parks (the Ministry) regulates municipal drinking water systems in Ontario. The Act was developed to address factors that led to the Walkerton tragedy. As a result, Ontario now has some of the safest drinking water in the world.

The Act requires municipalities to report annually on drinking water. It also imposes a standard of care upon Municipal Council members. Councillors are required to exercise the level of care, diligence and skill regarding oversight of municipal drinking water system that a reasonably prudent person would be expected to exercise. This includes acting with a view to ensuring the protection and safety of users of the municipal drinking water system. Council protects the people in their communities by ensuring financial sustainability, asset management, risk mitigation and continual improvement of the Region's water systems.

This report summarizes 2020 calendar year drinking water systems information with further details in the attachments as follows:

- Reported adverse water quality events and corrective actions (Attachment 1)
- Ministry inspection findings and corrective actions (Attachment 2)
- Performance data for each drinking water system (Attachment 3)
- Monetary expenses for each drinking water system (Attachment 4)

York Region partners with Public Health, its nine local municipalities, and neighbouring municipalities to provide safe drinking water

Within York Region, water is delivered through a two-tiered water system. The Region operates and maintains 15 drinking water supply systems, which provide water to all nine local municipalities. Our local municipal partners maintain their distribution systems to distribute high quality water to residents and businesses.

Environmental Services and Public Health maintain a 24/7 response system to address potential water quality issues. Public Health assesses potential health impacts from reported adverse water quality test results. No follow up corrective actions were required in 2020 and no boil water advisories or drinking water avoidance advisories due to water quality concerns have been ordered by Public Health. Procedures are in place to ensure close cooperation with Public Health, local municipalities and the Ministry to ensure effective communication and to protect public health for water quality concerns.

Despite COVID-19, Environmental Services, the local municipalities and York Region Public Health continued to provide safe and uninterrupted water and wastewater services to York Region residents and businesses. These unprecedented times underscore the direct link

water and wastewater services play in supporting our communities' public health by providing reliable, safe and clean drinking water.

Multi-barrier approach to risk management protects drinking water systems and public health

A multi-barrier approach proactively protects drinking water quality and safety, while informing corrective actions when required. Elements of this approach include Source Water Protection, training of operators, the Drinking Water Quality Management Standard, system audits, a strict Provincial Inspection and Enforcement Program, and research that anticipates future water quality and operational challenges.

Source Protection Program prevents contamination of Ontario's drinking water

Staff continue to identify, mitigate, and report current and future threats to drinking water sources as required by the *Clean Water Act, 2006*. York Region's Drinking Water Source Protection Program identifies and manages potential threats to drinking water. Continued focus areas include:

- Requiring proposed developments in vulnerable areas to plan carefully to ensure the safety of our immediate and long-term drinking water supply
- The Source Water Protection Incentive Program, which encourages and supports businesses to make changes to protect drinking water sources
- Working together with the Province, local and neighbouring municipalities, and Conservation Authorities to align our programs and plans to ensure consistent, effective and successful protection of all sources of drinking water

In 2021, York Region's Source Water Protection Program will continue to serve the community through these focus areas. Implementation efforts are documented and reported to the Province as required by the *Clean Water Act, 2006*.

Provincially mandated training provides staff with required knowledge to sustain high performing water and wastewater systems

Staff continued to develop and participate in relevant and informative virtual and in-person training, abiding by all COVID-19 restrictions and Public Health protocols. The training program is tailored to ensure operators receive required provincially standardized education, and that on-the-job training translates regulatory requirements to operational needs. The training program equips staff to manage drinking water systems competently and efficiently in compliance with applicable licence requirements and best practices.

Drinking Water Quality Management Standard is a tool for driving continual improvement

The Region adheres to a statutory quality management standard that protects public health through consistent practices for managing and operating water systems, and by proactively

identifying and mitigating risks. The standard requires an approach for identifying and resolving inefficiencies through process and procedure improvements. The 2020 Integrated Management System Update Report, also on this agenda, provides more information.

Provincial inspections and enforcement assess compliance

York Region facilities are inspected annually by the Ministry to confirm compliance with regulations, licenses, permits and Ministry procedures. Staff maintains a positive working relationship with regulators to identify and mitigate risks identified in our watersheds.

York Region’s data management practices were recognized for management innovation

Online instruments and a comprehensive sampling program generate billions of data points about the performance of our drinking water systems. Automated data analysis processes save staff time by comparing data against regulated limits and prompting staff to follow up as appropriate. Empowering staff with the right tools, technology and training allows them to gain insights into the data, which supports our industry-leading drinking water operations.

Comprehensive data management practices also enable the sharing of meaningful datasets on the Region’s website. The interactive report found at york.ca/drinkingwater provides an effective way to learn about the Region’s drinking water systems. The complete dataset may also be downloaded from the Region’s Open Data site. In 2020, the Ontario Public Works Association recognized York Region for management innovation as a leader in drinking water data management and transparency with the public. Easy to access data supports Council’s Strategic Plan Objective of “Maintaining public confidence in Regional government” and the Vision 2051 goal of “Open and Responsive Governance”.

4. Analysis

WATER QUALITY

All laboratory samples met limits in 2020, and results confirm York Region’s high-quality drinking water continues to be safe

The comprehensive sampling program includes both regulatory and research samples and is updated in response to operational needs and regulatory changes. In 2020, the York-Durham Environmental Laboratory performed 17,923 water quality tests for York Region’s drinking water systems. Four sodium samples were above the reporting threshold of 20 mg/L, prompting notification to York Region’s Medical Officer of Health. This reporting threshold for sodium is not a compliance limit or regulated standard – it ensures those on sodium restricted diets have information available to them about sodium levels in their drinking water. Results this year mean 100% of all samples collected and analyzed by the laboratory in 2020 were within regulated limits and standards. The laboratory initiates a notification process when sample analysis indicates a parameter requires reporting. Staff responded to each adverse test result and performed corrective actions. There were no risks to public health because of these adverse events.

Table 1 summarizes the laboratory analyzed water quality test results reported as adverse water quality events in 2020. Attachment 1 summarizes all reported adverse water quality events.

Table 1
Adverse Water Quality Events
Reported from Laboratory Analyzed Samples in 2020

Parameter, Drinking Water System (DWS) and Number of Occurrences	Summary of Reported Sample Results and Corrective Actions Taken
Sodium <ul style="list-style-type: none"> • Ansnorveldt DWS (1) • Georgina DWS (1) • Schomberg DWS (2) 	<p>Sodium levels between 20.2 and 41.9 mg/L were reported in April at Ansnorveldt Wells 2 and 3, Georgina Water Treatment Plant, Schomberg Water Treatment Plant and Schomberg Elevated Tank.</p> <p>The reporting requirement is once every 57 months for results exceeding 20 mg/L. Health Canada’s guideline for sodium in drinking water is an aesthetic taste objective of 200 mg/L.</p> <p>Operators resampled these facilities to confirm sodium levels were meeting the aesthetic taste objective.</p>

Continuous monitoring analyzers and online equipment safeguard drinking water delivered to residents

In addition to sampling conducted by operators, 376 online analyzers continuously monitored system performance, creating 39.5 million water quality records in 2020. Online analyzers continuously monitor several water quality parameters, including chlorine residual, which is an indicator of disinfection level. Analyzers and other online equipment are calibrated regularly by trained operators and technicians.

Highly sensitive analyzers monitor water quality at all times and automatically stop water production if a concern is detected. The Region’s Remote Operations Centre monitors the system 24/7 and dispatches field operators to respond to alarms or unusual trends and perform corrective actions as required. These processes greatly reduce the risk of non-potable water entering the drinking water system.

Online monitoring system and analyzer readings showed compliance with regulatory limits for water safety parameters

Of the 39.5 million analyzer readings in 2020, staff reported 22 adverse water quality events. Most events self-corrected or needed minor equipment adjustments and required no operator

intervention aside from confirming drinking water was safe through onsite tests and restarting facility operation. There was no risk to public health because of these adverse events.

Table 2 summarizes the continuously monitored analyzer readings reported as adverse water quality events in 2020. Attachment 1 summarizes all reported adverse water quality events.

Table 2
Adverse Water Quality Events
Reported from Continuous Monitoring Analyzer Readings in 2020

Parameter, Drinking Water System (DWS) and Number of Occurrences	Summary of Reported Sample Results and Corrective Actions Taken
High Chlorine Level <ul style="list-style-type: none"> • Aurora DWS (1) • Newmarket DWS (1) • Schomberg DWS (7) • York DWS (1) 	<ul style="list-style-type: none"> • High chlorine residual events resulted from temporary, minor equipment or process errors • Corrective actions for high chlorine levels include collecting grab samples and recalibrating analyzers
Low Chlorine Level <ul style="list-style-type: none"> • Georgina DWS (1) • Stouffville DWS (2) 	<ul style="list-style-type: none"> • Low chlorine events were caused by temporary, minor equipment errors • Corrective actions included collecting grab samples and restoring normal operation of facility by backflushing until chlorine residuals compliant
Filtration Performance <ul style="list-style-type: none"> • Keswick DWS (2) • Georgina DWS (1) 	<ul style="list-style-type: none"> • In one instance, coagulant was not added ahead of filtration due to an operational error • Corrective actions included isolating plant from system and backflushing; water without coagulant did not leave the plant • In two instances, water turbidity results suggested poor filter performance. Flow halted upon alarm and prevented water from entering distribution system • Corrective actions included collecting grab samples and restoring normal operation of facility by backflushing until turbidity readings decreased

Parameter, Drinking Water System (DWS) and Number of Occurrences	Summary of Reported Sample Results and Corrective Actions Taken
High Fluoride Level <ul style="list-style-type: none"> • Georgina DWS (2) • Keswick DWS (3) 	<ul style="list-style-type: none"> • Fluoride is continuously monitored at Georgina and Keswick Water Treatment Plants, where it is applied within optimal range recommended by the Medical Officer of Health • When alarms trigger for fluoride readings above operational limits, the facility immediately stops directing water to the distribution system • If required, an operator may backflush system to prevent the treated water from leaving facility and restore correct fluoride dose
Low System Pressure <ul style="list-style-type: none"> • York DWS (1) 	<ul style="list-style-type: none"> • A low-pressure incident occurred in Richmond Hill due to a watermain break. Break was repaired, and the watermain was disinfected and flushed. Microbiological sampling results confirmed no contamination

2020 CALENDAR YEAR MINISTRY INSPECTIONS

In 2020, all drinking water system inspections scored 100%

In the 2020 calendar year, all Ministry inspections scored 100%. There were 10 inspections completed for the Region’s drinking water systems. All worker health and safety protocols related to COVID-19 were adhered-to during inspections. Attachment 2 outlines the 2020 calendar year inspection results. There were no non-compliance findings in 2020; Ministry staff included one administrative best management practice recommendation to improve documentation practices, which staff have implemented.

CHIEF DRINKING WATER INSPECTOR 2019-2020 RATINGS

York Region received top scores in the Greater Toronto Area for the Ontario Chief Drinking Water Inspector’s 2019-2020 Annual Report

Ontario’s Chief Drinking Water Inspector releases an annual report, which rates all regulated drinking water systems in Ontario. Reporting timelines are based on the Ministry’s previous fiscal year from April 1, 2019 to March 31, 2020. York Region achieved top scores for inspections and for samples meeting provincial water quality standards. In the 2019-2020 Chief Drinking Water Inspector’s Report, York Region’s combined average score was 99.99%. The City of Toronto and Peel Region, which supply the majority of York Region’s drinking water, also received high scores. Table 3 outlines the scores for GTA municipalities.

Table 3
Ministry of the Environment, Conservation and Parks
2019-2020 Chief Drinking Water Inspector's Annual Report Scores

Municipality	Inspection Rating (%)	Water Quality Tests Meeting Standards (%)	Overall Score (%)
	2019-2020	2019-2020	2019-2020
York Region*	100.00	99.98	99.99
Durham Region*	100.00	99.85	99.92
City of Toronto*	100.00	99.81	99.90
Peel Region*	97.95	99.96	98.96
Provincial Average	98.42	99.85	99.13

*Average of scores for all drinking water systems within the municipality

York Region achieved an overall inspection rating of 100% in the Chief Drinking Water Inspector's Report. Details on 2019 inspections and sample results are found in the 2019 Drinking Water Systems report to Council on [March 12, 2020](#).

York Region achieved an overall sample compliance rating of 99.98% in the Chief Drinking Water Inspector's Report for laboratory analyzed samples meeting the requirements of O.Reg.169/03: Ontario Drinking Water Quality Standards. This is based on laboratory sampling conducted from April 1, 2019 to March 31, 2020. Details on 2019 adverse water quality incidents are found in the 2019 Drinking Water Systems report to Council on [March 12, 2020](#).

Historically, York Region scores very well in the Chief Drinking Water Inspector's Report, scoring above the Provincial average, with combined inspection and test result averages ranging between 99.17 (2017/2018) and 99.99 (2019/2020) over the previous five years.

WATER VOLUME AND CAPACITY

All drinking water systems operated within permitted water volume and capacity limits, except for one system on one day

In 2020, York Region's drinking water systems operated within their monthly average withdrawal and maximum daily withdrawal limits, with a single exception. On July 4, 2020, the combined total flow from three wells in Nobleton exceeded the permitted limit of 4,460 cubic metres per day by 12 cubic metres. Process controls were unexpectedly triggered with a minor delay due to telecommunication issues between facilities, which have now been

adjusted. The Nobleton Drinking Water System continues to meet the water needs of the community, with an average daily water demand from the three wells operating below their permitted capacity.

York Region continues to maintain compliance with:

- The *Safe Drinking Water Act, 2002* and its regulations
- Terms and conditions of the Region's Permits to Take Water and supply agreements with the City of Toronto and Peel Region
- Permitted Intra-Basin Transfer volumes for water taken from (and returned to) Lake Ontario for communities in the Lake Huron watershed

York Region continues to ensure sufficient drinking water capacity for the Region's growing population. Attachment 3 illustrates important data about the amount of water taken from each water source. This data informs decision making regarding long-term, reliable water sourcing. Maximum permitted volumes support forecasted population growth to 2031. Long-term water demands will be refined in the updated Water and Wastewater Master Plan, which is currently underway.

5. Financial

Effective and comprehensive asset management is critical to delivering reliable and sustainable water services

York Region delivers high quality drinking water in a safe and cost-effective manner. In the approved 2020 Capital and Operating Budget, Environmental Services presented the 2020 to 2022 budget and operating outlook. In addition to funding to maintain assets that are wholly owned and maintained by York Region, many projects are cost-shared with the Regional Municipality of Peel and the City of Toronto. These investments support long-term drinking water safety and supply. Effective asset and infrastructure management is critical to the Region's ability to deliver services and sustain our growing communities. The approved 2021 Capital and Operating Budget, presented to Council on [March 4, 2021](#), shares information on how water and wastewater assets are funded.

In October 2015, Council approved 2016-2021 water rates. The plan was implemented commencing April 2016, and the Region was on track to achieve full cost recovery pricing by 2021; however, previously approved water rate increases for 2020 and 2021 have since been deferred due to impacts of the COVID-19 pandemic. As a result, full-cost pricing will not be achieved this year. One of the key features of full cost pricing is fully funding asset management work to ensure our system remains in a state of good repair and performs optimally. Staff will be bringing multi-year rate recommendations to Committee in late 2021.

York Region invested \$12.3 million in 2020 to maintain and improve drinking water systems

The Drinking Water Systems regulation requires water utility owners to “describe any major expenses incurred during the period covered by the report to install, repair or replace required equipment.”

In 2020, York Region invested \$12.3 million installing, repairing or replacing equipment used to treat, store and deliver safe drinking water. This is a small cost compared to water asset replacement cost of \$2.3 billion; this investment demonstrates the importance of routine maintenance to maximize asset performance and minimize costs. These rate-supported costs are funded through the Environmental Services water budget, as approved annually by Council. These expenses do not include operational costs or salaries and are summarized in Attachment 4.

Drinking tap water is the financially and environmentally responsible choice

Tap water is affordable compared to bottled water, and our municipal water is highly regulated and constantly monitored. Bottled water sales continue to grow, and recent statistics show bottled water has surpassed the consumption of other commercially available beverages. The cost of bottled water is significant compared to tap water. For example, spending \$1 on bottled water can buy the equivalent of over 600 bottles worth of tap water. Bottled water also generates waste, plastic that is difficult to recycle and additional costs from packaging and transportation. Drinking tap water is the financially and environmentally responsible thing to do.

6. Local Impact

York Region and its nine local municipalities work together to distribute high quality drinking water

Water quality standards are maintained through collaboration between York Region and the nine local municipalities. Although ownership and operation of the water systems is two-tiered, the Region and the local municipalities coordinate operation of highly efficient and integrated systems to provide safe and uninterrupted water supply to our shared customers.

7. Conclusion

York Region’s drinking water systems must comply with strict provincial regulations to keep drinking water safe. In 2020, all laboratory samples met compliance limits and no non-compliances were identified through Ministry inspections, confirming the excellent performance of York Region’s drinking water systems. The ongoing excellence of our drinking water systems is supported through continual improvement initiatives including data management work that was recently recognized for management innovation by the Ontario Public Works Association.

This report and attachments satisfy the Council reporting requirements in Ontario Regulation 170/03 – Drinking Water Systems and support Council in meeting statutory standard of care requirements under the *Safe Drinking Water Act, 2002*. The drinking water quality and systems data, posted on york.ca/opendata and on york.ca/drinkingwater, satisfy the public-facing water quality and systems information reporting requirements under the Act. It demonstrates the Region's commitment to operational excellence through continual improvement, while also fulfilling our obligation to communicate performance to Council, stakeholders and the public. Council is able to demonstrate due diligence required for decision-making under their statutory standard of care by reviewing and considering the information contained in this report when exercising decision-making authority.

For more information on this report, please contact David Szeptycki, Director of Strategy and Innovation, at 1-877-464-9675 ext. 75723, or Beth Weir, Director of Operations, Maintenance and Monitoring, at 1-877-464-9675 ext. 75340. Accessible formats or communication supports are available upon request.

Recommended by:

Per: 
Erin Mahoney, M. Eng.
Commissioner of Environmental Services

Approved for Submission:


Bruce Macgregor
Chief Administrative Officer

March 19, 2021
Attachments (4)
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