



## **Staff Report for Council Meeting**

**Date of Meeting:** March 1, 2023

**Report Number:** SRCS.23.01

**Department:** Community Services  
**Division:** Public Works Operations

**Subject:** 2022 Municipal Drinking Water Reporting

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### **Purpose:**

This report provides information to Council related to the City of Richmond Hill's Water Distribution System, pursuant to requirements under the *Safe Drinking Water Act, 2002* including a Summary Report, an Annual Report, a Ministry of the Environment, Conservation and Parks Inspection Report, and updates to the Municipal Drinking Water Licensing Program.

### **Recommendation(s):**

- a) That SRCS.23.01 containing various 2022 Municipal Drinking Water Reporting documents including the Summary Report required by Schedule 22 of O. Reg. 170/03 be received.
- b) That the "City of Richmond Hill Drinking Water Annual Report 2022" (Appendix 1 to SRCS.23.01) required under Section 11 of O. Reg. 170/03 be received and made available to the public on the City's website.
- c) That the Ministry of the Environment, Conservation and Parks Distribution System Drinking Water Inspection Report 2022 for Richmond Hill's drinking water system as contained in Appendix 2 to SRCS.23.01 be received.
- d) That the Quality Management System Report 2022 (Appendix 3 to SRCS.23.01) required by the Drinking Water Quality Management Standard, be received.
- e) That the Operational Plan attached to SRCS.23.01 as Appendix 4 be endorsed.

### **Contact Person:**

Diogo Oliveira, Manager Water Wastewater and Roads Operations, Extension 2971

Jeff Stewart, Director, Public Works Operations, Extension 2966

**Report Approval:**

**Submitted by:** Tracey Steele, Commissioner of Community Services

**Approved by:** Darlene Joslin, City Manager

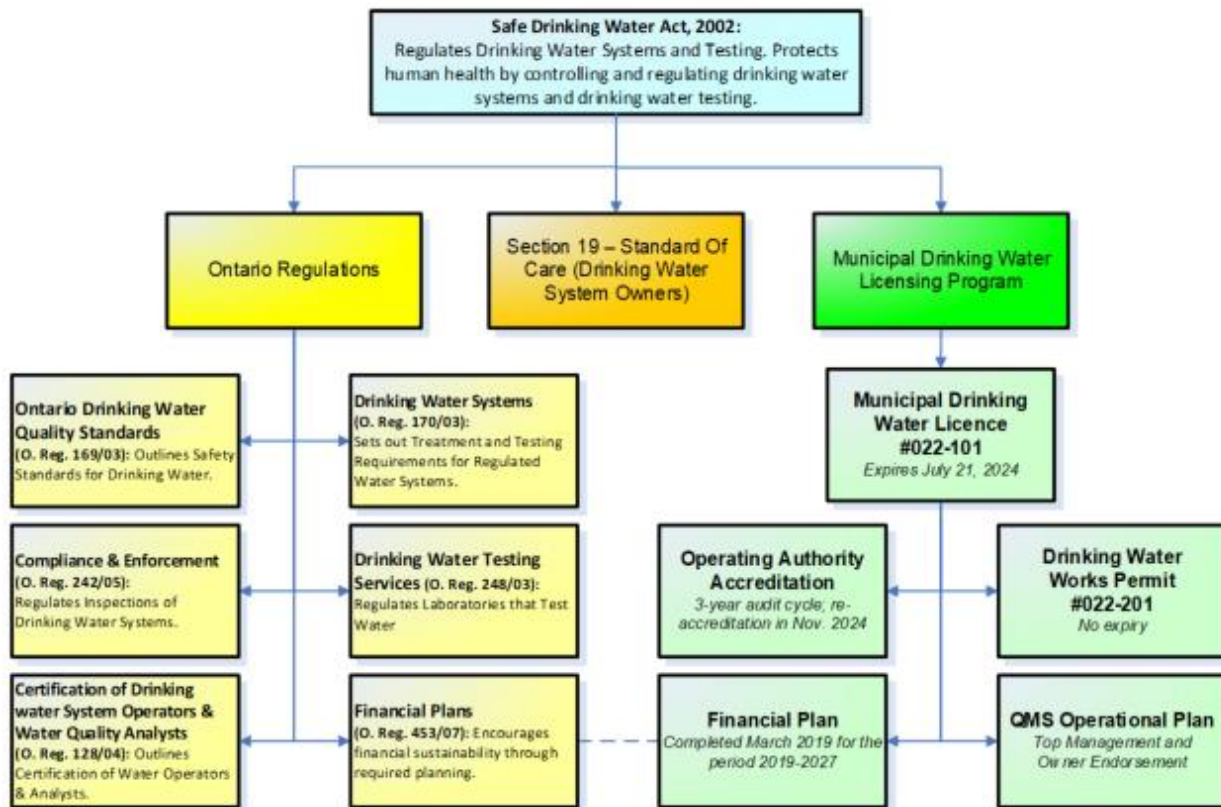
All reports are electronically reviewed and/or approved by the Division Director, Treasurer (as required), City Solicitor (as required), Commissioner, and City Manager. Details of the reports approval are attached.

## Background:

Following the Walkerton tragedy in 2000, the Ontario government developed a new, comprehensive legislative regime based on source-to-tap, multi-barrier protection of drinking water. The *Safe Drinking Water Act, 2002*, (*SDWA*) and its regulations, contain requirements for municipalities that treat and/or provide potable water to consumers.

The chart below outlines key aspects of the *SDWA* that relate to Richmond Hill's drinking water distribution system:

### Legislative Framework for Richmond Hill's Municipal Drinking Water System



Under Section 19 (Standard of Care) of the *SDWA*, owners of a drinking water system are required to:

- (a) exercise the level of care, diligence and skill in respect of a municipal drinking water system that a reasonably prudent person would be expected to exercise in a similar situation; and
  - (b) act honestly, competently and with integrity, with a view to ensuring the protection and safety of the users of the municipal drinking water system.
- 2002, c. 32, s. 19 (1).

This report intends to provide relevant information to help Council, as owners of Richmond Hill's water distribution system, meet this Standard of Care. Its contents are organized as follows, according to specific reporting requirements under the *SDWA*:

- 1. Summary Report:** Schedule 22 of Ontario's *Drinking Water Systems Regulation* (O. Reg. 170/03) requires that no later than March 31 of each year a summary report be prepared for the preceding calendar year, and submitted to members of the municipal council.
- 2. Annual Report (Appendix 1):** Section 11 of O. Reg. 170/03 requires that an Annual Report be prepared for the preceding calendar year, and be submitted to the Regional Municipality of York. This report provides a brief description of the water system, summarizes water quality monitoring, and breakdown of monetary expenses. The Annual Report is available to the public on Richmond Hill's website and at the offices of the Infrastructure and Delivery Services Department, Operations Centre and Central Library.
- 3. Ministry of the Environment, Conservation and Parks Report (Appendix 2):** In 2006, the Ministry of the Environment, Conservation and Parks (MECP) introduced a comprehensive inspection program for municipal residential drinking water systems. The inspection includes a review of operating manuals, logbooks, staff certification and training, water quality monitoring, and other documentation. The objectives of this program are to determine compliance with the *SDWA* and associated regulations; to encourage the continuous improvement of the drinking water system; and to establish a process to measure these improvements.
- 4. Quality Management System Annual Report (Appendix 3):** Under the Drinking Water Quality Management Standard (DWQMS) the City is required to communicate to Council key information related to: Operational Structure, Roles, Responsibilities and Authorities; Infrastructure Maintenance, Rehabilitation, and Renewal Summary; Management Review; and Operating Authority Accreditation.
- 5. QMS "Operational Plan" (Appendix 4):** The *SDWA*, through the Municipal Drinking Water Licensing Program, requires that a municipal drinking water system owner (Council) endorse the most current version of the QMS Operational Plan. The Operational plan defines and documents the quality management policies and procedures specific to the City's municipal drinking water system. This document once endorsed, will be posted on the Richmond Hill's website and made available at the Operations Centre.

## **SUMMARY REPORT**

### **1.1 Statement of Compliance**

Requirements for owning and operating Richmond Hill's drinking water system are contained within the *Safe Drinking Water Act (SDWA)*, its applicable regulations, and approval instruments.

- The Ministry of Environment Conservation and Parks (MECP) Drinking Water Ontario web portal provides the most current version of the Act and its regulations: [www.ontario.ca/page/drinking-water](http://www.ontario.ca/page/drinking-water)
- Richmond Hill is approved by the MECP to operate a Class 2 water distribution system through its Municipal Drinking Water Licence Number: 022-101, Issue Number: 9; and to alter the system through its Drinking Water Works Permit Number: 022-201, Issue Number: 4.

Compliance with these standards is evaluated through the MECP Inspection.

## 1.2 Summary of Flow Rates

Under Schedule 22-2(3) of O.Reg.170/03, the Summary Report must include a summary of flow rates for the purpose of enabling the system owner to assess the capability of the system to meet existing and planned uses.

Table 1 is a summary of the quantities and flow rates of the water supplied during the period covered by the report, including monthly average.

**Table 1: 2022 Summary of Flows for Richmond Hill**

Month	Billing Period (# of Days)	Total (m <sup>3</sup> )	Average Daily (m <sup>3</sup> )
January	31	1,612,977	52,032
February	28	1,480,440	52,873
March	31	1,608,717	51,894
April	30	1,517,097	50,570
May	31	1,723,404	55,594
June	30	1,868,402	62,280
July	31	2,179,430	70,304
August	31	2,172,958	70,095
September	30	1,814,784	60,493
October	31	1,656,530	53,436
November	30	1,526,842	50,895
December	31	1,617,399	52,174
<b>Total</b>	<b>365</b>	<b>20,778,980</b>	
<b>Annual Average Daily</b>			<b>56,929</b>

### **1.3 Responsibility for Water Supply, Treatment and Storage**

Provincial Legislation sets out the responsibility for water supply in the City of Richmond Hill. Under the *Municipal Act, 2001*, York Region is responsible for the treatment and storage of water in the City of Richmond Hill. In the early 1980s, Richmond Hill's water supply was converted from a groundwater source (municipal wells) to a Lake Ontario-based source supplied by the City of Toronto. The Region of York now purchases treated water from two sources – the City of Toronto and the Regional Municipality of Peel – and transmits the water to lower tier municipalities in the region.

### **1.4 How Does Lake Ontario Water Get to Richmond Hill?**

Lake Ontario is a drinking water source for many municipalities, including Richmond Hill. Water is drawn into four treatment plants in the City of Toronto and one treatment plant in the Regional Municipality of Peel, which implement all necessary filtration and disinfection requirements in accordance with the *Ontario Drinking Water Standards*. Both Toronto and Peel use “chloramination” (chlorine plus ammonia) to disinfect the water. The chloraminated water is pumped to the Regional Municipality of York. It is York Region's responsibility to maintain trunk watermain, pumps and reservoirs.

### **1.5 The Richmond Hill Water Distribution System**

#### Physical Infrastructure:

The City of Richmond Hill owns and operates a Class 2 Water Distribution System under the authority of the Ministry of the Environment, Conservation and Parks. Richmond Hill's distribution network, which provides water to the end consumer, is comprised of approximately 654 kilometres of watermains and other appurtenances (pipes, valves, and hydrants). The watermain ranges in size from 50 mm to 600 mm in diameter and are operated between 310 Kpa to 689 Kpa (45 and 100 psi). Pipe materials are predominately poly vinyl chloride (PVC), ductile iron and cast iron.

#### Roles and Responsibilities:

The City's Planning and Infrastructure Department is responsible for the design and construction of the Water Distribution System, which the Community Services Department then maintains and operates. City employees that operate the system are certified by the Ministry of the Environment, Conservation and Parks. Certified operators perform a variety of maintenance activities on the watermain to keep them operational and to satisfy mandated sampling for disinfectant levels and bacteriological testing. Key activities include: watermain breaks, service connection repairs, valve exercising and other infrastructure repair programs, watermain flushing, fire hydrant maintenance, and water sampling and testing. (*See Appendix # 3: Quality Management System Annual Report 2022*)

### **1.6 Water Sampling and Testing**

The purpose of sampling and testing is to confirm that water is safe for human consumption and to provide a comprehensive track record.

Requirement:

O.Reg.170/03 stipulates the minimum number and frequency of sampling for Richmond Hill's distribution system based on population and in accordance with Richmond Hill's Ministry of Environment, Conservation and Parks Inspection Report, Richmond Hill must meet the following annual sampling requirements:

Parameter	Description/Notes	Required # of Samples	Requirement Source
Chlorine residual	For monitoring amount of residual chlorine in system, and confirming of water quality following maintenance	365	<i>O. Reg. 170/03, Sch. 7</i>
<i>E. Coli</i> Total Coliform HPC	For testing presence of microbiological activity	1560	<i>O. Reg. 170/03, Sch. 10</i>
Trihalomethanes (THM's)	For testing presence of disinfection by-products	4	<i>O. Reg. 170/03, Sch.13</i>
Lead (Pb)	For testing presence of lead in the distribution system only – not private side	40	<i>O. Reg. 170/03, Sch. 15; Richmond Hill's License, Sch. D</i>
Haloacetic Acid (HAA)	For testing presence of disinfection by-products	4	<i>O. Reg. 170/03, Sch.13</i>
Nitrosodimethylamine (NDMA)	For testing presence of disinfection by-products	4	<i>O. Reg. 169/03 Sch. 2</i>

Sampling Frequency and Location:

Certified Richmond Hill operators perform daily chlorine residuals tests and obtain microbiological samples for analysis five days a week. Samples are taken primarily from dedicated sampling stations installed strategically throughout the city. Operators may use City buildings (Fire Halls, Libraries, Community Centres, and Municipal Offices). Commercial establishments are alternative sampling locations.

Samples taken in 2022

In 2022, staff collected 1959 microbiological samples (1560 Regulatory and 399 Operational) and performed 2926 chlorine residual tests (365 Regulatory and 2561 Operational). Microbiological samples 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 (CAEAL).

Richmond Hill staff also took 40 lead samples, 4 Trihalomethane (THM), 4 Haloacetic Acid and 4 Nitrosodimethylamine samples through this reporting period. THM's are the most commonly occurring group of disinfection by-products resulting from the use of chlorine.

Residents having private side plumbing issues are referred to York Region Public Health for information.

Table 2 – Water Quality Samples, 2022

Source	Number of Samples
Distribution System (sampling stations, residential, etc.)	1959 microbiological
	2926 chlorine residual
	12 trihalomethane
	40 lead
	12 haloacetic acid
	4 nitrosodimethylamine

**Note:** More detailed summary of sampling results could be found within Appendix 1.

**1.7 Drinking Water is also tested by the City of Toronto, Peel Region, and York Region**

Under the SDWA, all agencies providing water have a responsibility from the source to the consumer. Toronto and Peel both sample raw water and treated water entering the distribution system. The Regional Municipality of York also samples and tests water received from Toronto and Peel at its storage facilities and pumping stations. The City of Richmond Hill tests water received from York Region as it moves through the distribution system to the consumer.

The sampling completed at the source by the treatment facility owners includes a rigorous scan of over 300 parameters. More information on Toronto’s and Peel’s sampling and system analysis can be reviewed at their respective web sites: [www.toronto.ca/water](http://www.toronto.ca/water) and [www.peelregion.ca/pw/water](http://www.peelregion.ca/pw/water).

The Region of York is also required to take additional samples for microbiological testing and residual disinfectant levels. More information on York Region’s sampling and system analysis can be obtained through their web site at [www.york.ca](http://www.york.ca).

**1.8 Communications When Adverse Water Samples Are Identified**

Requirement – Laboratory:

A water sample that does not meet provincial water quality standards is considered “adverse”. When adverse water quality is detected, the York-Durham Laboratory, conducting the tests on behalf of Richmond Hill, will immediately notify City staff, the Ministry of the Environment Conservation and Parks (Spills Action Centre) and the York Region Medical Officer of Health. This notification is made by telephone through live communication to a person in authority; messages are not permitted. In addition to the phone calls, an email sent to the three agencies to verify the live communication made earlier.

Requirement – Drinking Water System Owner/Operating Authority:

The SDWA also requires the drinking water system owner/operating authority to immediately notify the Ministry of the Environment Conservation and Parks, and the



York Region Medical Officer of Health that the laboratory notice has been received and that “corrective actions” are being initiated. The method of contact is, again, by telephone to a person in authority. Richmond Hill also emails both agencies first to verify the previous live communication, and again to confirm that corrective actions have been completed and the issue resolved.

This reporting system provides assurance that the water works owner is complying with applicable regulations and that appropriate corrective actions are being taken and are being reported.

### **Financial/Staffing/Other Implications:**

This report is for information purposes, as required by Ontario’s Ministry of the Environment Conservation and Parks, and therefore has no financial, staffing or other implications.

### **Relationship to the Strategic Plan:**

This report aligns with Council’s Priority of *Balancing Growth and Green* by meeting the regulatory requirements to provide safe and sustainable drinking water.

### **Conclusion:**

This staff report SRCS.23.01 including Appendices 1 to 4, outlines the legislative framework for Richmond Hill’s drinking water system and provides relevant information to Council as owners of the drinking water system. The staff report presents requirements under the *Safe Drinking Water Act* and associated regulations and summarizes water quality monitoring and flow rates of water supplied. The staff report and appendices also identify operational structure, roles and responsibilities, and defines management policies and procedures specific to the Richmond Hill drinking water system. Richmond Hill takes considerable care in providing a safe and reliable supply of drinking water to its residents. In accordance with the *Safe Drinking Water Act, 2002*, and Ontario Regulation 170/03, the receiving of this report by Council fulfills the condition of advising members of Council on the status of the drinking water system in Richmond Hill through the results published in the Summary Report and Annual Report.

### **Attachments:**

The following attached documents may include scanned images of appendices, maps and photographs. If you require an alternative format please call contact person listed in this document.

- Appendix 1 - 2022 Drinking Water Annual Report
- Appendix 2 - Distribution System Drinking Water Inspection Report
- Appendix 3 - Quality Management System Annual Report
- Appendix 4 - Operational Plan for Richmond Hill Distribution System 7.0

**Report Approval Details**

Document Title:	SRCS.23.01 - 2022 Municipal Drinking Water Reporting.docx
Attachments:	- SRCS.23.01 - 2022 Drinking Water Annual Report Appendix 1.pdf - SRCS.23.01 - Distribution System Drinking Water Inspection Report Appendix 2.pdf - SRCS.23.01 - Quality Management System Annual Report Appendix 3.pdf - SRCS.23.01 - Operational Plan 7 Appendix 4.pdf
Final Approval Date:	Mar 13, 2023

This report and all of its attachments were approved and signed as outlined below:

**Tracey Steele - Mar 13, 2023 - 1:03 PM**

**Darlene Joslin - Mar 13, 2023 - 2:24 PM**