ANNUAL REPORT 2025

City of Peterborough
Environmental Services
Water Division

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In this Report...

Introduction

The City of Peterborough Water Services prepared this Annual Report (Report) to satisfy the requirements of Section 11 of Ontario Regulation 170/03. Section 11 (1) requires that the owner of a drinking water system prepare a report in accordance with subsection (3) and (6) for the preceding calendar year. The annual report must be prepared no later than February 28th of each year. This Report covers the period of January 1st to December 31st, 2025, and the information provided complies with the reporting requirements outlined in Section 11 of O. Reg.170/03.

A summary of the City of Peterborough's Municipal Drinking Water System (the System) description is outlined below:

- Drinking-Water System Number: 220000497
- Municipal Drinking Water Licence:145-101, Issue 7
- Drinking-Water System Name: City of Peterborough Drinking Water System
- Drinking-Water System Owner: Corporation of the City of Peterborough
- Drinking-Water System Category: Large Municipal Residential

Annual Reporting Requirements

This consolidated Annual Report (the Report) has been prepared in accordance with both section 11 (Annual Reports) and Schedule 22 (Summary Reports for Municipalities) of Ontario Regulation 170/03 (Drinking Water Systems Regulation). This Report is intended to inform both the public and Municipal Council about the operation of the system over the previous calendar year (January 1 to December 31, 2025).

Section 11 of O. Reg. 170/03 requires the development and distribution to the public of an annual report summarizing water quality monitoring results, adverse water quality incidents, system expenses and chemicals used in the water treatment process.

Schedule 22 of O. Reg. 170/03 requires the development and distribution to Council of an annual report summarizing incidents of regulatory non-compliance and associated corrective actions, in addition to providing flow monitoring results for the purpose of enabling the Owner to assess the capability of the water system.

Report Availability

In accordance with section 11 of O. Reg. 170/03, this Report must be given, without charge, to every person who requests a copy. Effective steps must also be taken to advise users of water from the system that copies of the report are available, without charge, and of how a copy may be obtained. Free copies of this report are available on our website

www.peterborough.ca Further information on the Drinking Water Regulations can be found on the Ministry of the Environment website at www.ene.gov.on.ca.

System Description

Raw Water

The source of raw (untreated) water for Peterborough's drinking water is the Otonabee River. The Otonabee River Water is of good quality and can be described as a moderately coloured water of low turbidity. The river water temperature ranges from 0°C (winter) to approximately 26°C (summer). The raw river water is what we call a surface water supply, which means that it is considered to be an unprotected source. Accordingly, we assume that raw water always requires full treatment at the Peterborough Water Treatment Plant to make it drinkable or potable.

The river water quality is monitored by staff at the plant as well as the Otonabee Region Conservation Authority (ORCA) and the Peterborough Health Unit (beaches only). The watershed is protected by planning and approvals processes through the City of Peterborough and ORCA. Since 1998, ORCA has monitored water quality in the Otonabee watershed under the Watershed 2000 Program and the Provincial Water Quality Monitoring Network.

Water Treatment Plant

The plant is located at 1230 Water Street North, Peterborough, adjacent the Riverview Park & Zoo. The plant was initially built in 1922 and expanded in 1952, 1965, 1995, 2000, 2003 and 2016. The conventional treatment process includes coagulation, flocculation, sedimentation, filtration and chlorine disinfection. Aluminum sulphate (alum) is used as the primary coagulant. The current rated capacity of the plant is 104 ML/day.

The following chemicals were used in the drinking water treatment process:

- Chlorine
- Alum (Aluminum Sulphate)
- Hydrofluosilicic Acid
- Sodium hydroxide

Water Storage Tanks and Reservoirs

Treated water is stored at various locations throughout the City in underground reservoirs and elevated storage tanks. Storage is used to supplement supply during times of high-water demand and in emergency situations such as firefighting. The water storage capacity in the system is 48.2 ML.

Water Pumping Stations

There are four individual pressure zones in Peterborough. Water supply is pumped from the plant or from the Water Street Pumping Station. Approximately one half of the City's water supply is pumped using water-driven turbine pumps powered by the Otonabee River flow. There are seven water booster pumping stations around the city, which pump water from lower pressure zones to higher pressure zones. Two of the most critical stations have diesel-powered backup in case of an electrical power outage.

Water Distribution Piping Systems

The water distribution system consists of approximately 472 kilometers of pipe (water mains), 2,471 hydrants and 27,818 individual water services. Hydrants are colour-coded according to the Ontario Fire Code requirements to indicate the available flow rate at a 20-psi residual pressure.

Connected Systems

The Township of Selwyn's Woodland Acres subdivision receives all of its drinking water from the Peterborough municipal water system. A copy of this report has been provided to the Township of Selwyn as required by Schedule 22, section 22-2(4) of O. Reg. 170/03 under the Safe Drinking Water Act.

Significant Expense Incurred

A summary of the major expenses incurred during the reporting period to install, repair, or replace required equipment, and the value of each is included in Table 1.

Table 1 – Summary of Expenses Incurred

Description	Value
Annual Hydrant Painting and Flow Testing	$103,286.00
Cement Mortar Lining	$1,675,868.87
Chlorine Contact #2 and Clearwell #4 remediation and disinfection	$167,000.00
Drinking Water Treatment Chemicals	$625,000.00
Emergency Trunk main Repair in Air Release Chamber (Westbrook Dr. Trail)	$97,920.51
Gas chlorination preventative maintenance	$12,000.00
Infrastructure Locates	$344,150.39
Laboratory and analyzer supplies	$33,400.00
Replacement programmable logic controller cards for SCADA	$20,000.00
Structural Lining	$1,233,332.36
Water Meter Replacements	$198,000.00
Water Service Repairs (65)	$455,000.00
Water Street Dam Design & Rehabilitation	$1,204,788.85
Watermain Break Repairs (27)	$270,000.00

Operational Checks, Sampling and Testing

Throughout the reporting period, operational checks were conducted and drinking water samples were collected in accordance with O. Reg. 170/03 and the MDWL. Water Services utilizes a The City of Peterborough Environmental Services Laboratory as well as the laboratory at the Water Treatment Plant to analyze drinking water samples that have been collected throughout the System.

Microbiological Parameters Sampling Summary – Schedule 10, O Reg. 170/03

Raw, treated, and distribution water samples were analyzed for microbiological parameters specified in Schedule 10-2, 10-3 and 10-4 of O. Reg. 170/03. Laboratory results for E.coli, Total Coliforms and Heterotrophic Plate Count (HPC) did not exceed the applicable standards stipulated in O. Reg. 169/03. The testing of raw water provides insight to operators on the presence of bacteria. The samples analyzed for microbiological parameters during this reporting period are summarized below.

	Number of Samples	Range of E. Coli Results	Range of Total Coliform Results	Number of HPC Samples	Range of HPC Results
Raw	243	0 - 105	8 - 325	243	7 - 1540
Treated	243	0 - 0	0 - 0	243	0 - 7
Distribution	1380	0 – 0	0 – 0	1380	0 - 7

Operational Sampling Summary - Schedule 7, O Reg. 170/03

Operational checks, including measurements of free chlorine in both treated and distribution water, as well as turbidity levels in raw and treated water, were conducted in accordance with Schedule 7 of O. Reg. 170/03,. The range of results in the following table reflects analyzer calibration and maintenance activities and does not indicate any issues with water treatment.

	Number of Grab Samples	Range of Results	Unit of Measure	Number of Exceedances
Turbidity	11 x 8,760	0.01 – 1.18	NTU	0
Chlorine	8,760	1.05 – 2.47	mg/L	0

Adverse Water Quality Results

There was no incidents of adverse drinking water quality test results in Peterborough for 2025.

Additional Sampling - Suspended Solids waste process

Instrument issued August 16, 2006

Date Sampled	Result	Unit of Measure	Number of Exceedances
Quarter 1	2	mg/L	0
Quarter 2	1	mg/L	0
Quarter 3	1	mg/L	0
Quarter 4	1	mg/L	0

Inorganic Sampling Summary

Treated water samples collected from the Water Distribution System were analyzed for inorganic chemical parameters in accordance with O. Reg. 170/03, Section 13.2 (Schedule

23). Analytical results for samples analyzed for inorganic chemical parameters met the requirements and remained within the applicable standards stipulated in O. Reg. 169/03.

Parameter	MAC	Result Value	MAC Exceedance (Yes or No)	Parameter Description
Antimony (µg/L)	6	<0.06	No	Discharge from petroleum refineries; fire retardants; ceramics; electronics; solder
Arsenic (µg/L)	10	<0.02	No	Naturally occurring in surface waters / mine drainage
Barium (µg/L)	1000	25.7	No	Erosion of natural deposits. Discharge from metal refineries, oil drilling wastes.
Boron (/L)	5000	8	No	Erosion of natural deposits, industrial waste effluents.
Cadmium (µg/L)	5	<0.003	No	Industrial discharge
Chromium (µg/L)	50	0.12	No	Industrial residues
Mercury (µg/L)	1	<0.01	No	Erosion of natural deposits, industrial discharges.
Selenium (µg/L)	50	0.04	No	Discharge from refineries, mines, chemical manufacture
Uranium (µg/L)	20	0.024	No	Erosion of natural deposits.

Organic Sampling Summary

Treated water samples collected from the Water Distribution System were analyzed for organic chemical parameters in accordance with O. Reg. 170/03, Section 13.4 (Schedule 24), Analytical results for samples analyzed for organic chemical parameters met the requirements and remained within the applicable standards stipulated in O. Reg. 169/03.

Parameter	MAC	Result Value	MAC Exceedance (Yes or No)	Parameter Description
Alachlor (µg/L)	5	0.02<MDL	No	Agricultural herbicide
Atrazine + N-dealkylated metabolites (µg/L)	5	0.01<MDL	No	Agricultural herbicide
Azinphos-methyl (µg/L)	20	0.05<MDL	No	Insecticide
Benzene (µg/L)	1	0.32<MDL	No	Discharge from plastics manufacturing, leaking fuel tanks
Benzo(a)pyrene (µg/L)	0.01	0.004<MDL	No	Formed from the incomplete burning of organic matter.
Bromoxynil (µg/L)	5	0.33<MDL	No	Agricultural herbicide
Carbaryl (µg/L)	90	0.05<MDL	No	Agricultural/Forestry/ Household insecticide
Carbofuran (µg/L)	90	0.01<MDL	No	Agricultural insecticide
Carbon Tetrachloride (µg/L)	2	0.17<MDL	No	Discharge from chemical and industrial activities

Parameter	MAC	Result Value	MAC Exceedance (Yes or No)	Parameter Description
Chlorpyrifos (µg/L)	90	0.02<MDL	No	Agricultural/ Household insecticide
Diazinon (µg/L)	20	0.02<MDL	No	Agricultural/ Livestock Operation/ Residential insecticide
Dicamba (µg/L)	120	0.20<MDL	No	Agricultural herbicide
1,2-Dichlorobenzene (µg/L)	200	0.41<MDL	No	Discharge from industrial chemical factories
1,4-Dichlorobenzene (µg/L)	5	0.36<MDL	No	Discharge from industrial chemical factories
1,2-Dichloroethane (µg/L)	5	0.35<MDL	No	Discharge from industrial chemical factories
1,1-Dichloroethylene (vinylidene chloride) (µg/L)	14	0.33<MDL	No	Discharge from industrial chemical factories
Dichloromethane (µg/L)	50	0.35<MDL	No	Discharge from pharmaceutical and chemical factories
2-4 Dichlorophenol (µg/L)	900	0.15<MDL	No	Industrial contamination/ reaction with chlorine
2,4-Dichlorophenoxy acetic acid (2,4-D) (µg/L)	100	0.19<MDL	No	Agricultural/ Residential herbicide
Diclofop-methyl (µg/L)	9	0.40<MDL	No	Agricultural herbicide
Dimethoate (µg/L)	20	0.06<MDL	No	Agricultural/ Livestock Operation/ Forestry insecticide
Diquat (µg/L)	70	1<MDL	No	Agricultural/ Aquatic herbicide
Diuron (µg/L)	150	0.03<MDL	No	Agricultural/ Industrial/ herbicide
Glyphosate (µg/L)	280	1<MDL	No	Agricultural/Forestry/ Household herbicide
Malathion (µg/L)	190	0.02<MDL	No	Fruit & Vegetable / pest control insecticide
2-Methyl-4-chlorophenoxyacetic acid (MCPA) (mg/L)	0.1	0.00012 <MDL	No	Leaching and/or runoff from agricultural and other uses
Metolachlor (µg/L)	50	0.01<MDL	No	Agricultural herbicide
Metribuzin (µg/L)	80	0.02<MDL	No	Agricultural herbicide
Monochlorobenzene (µg/L)	80	0.3<MDL	No	Discharge from industrial and agricultural chemical factories and dry-cleaning facilities
Paraquat (µg/L)	10	1<MDL	No	Agricultural/ Aquatic herbicide
Pentachlorophenol (µg/L)	60	0.15<MDL	No	Pesticide/ wood preservative residue
Phorate (µg/L)	2	0.01<MDL	No	Agricultural insecticide
Picloram (µg/L)	190	1<MDL	No	Industrial herbicide
Polychlorinated Biphenyls (PCB) (µg/L)	3	0.04<MDL	No	Residue from various industrial uses
Prometryne (µg/L)	1	0.03<MDL	No	Agricultural herbicide
Simazine (µg/L)	10	0.01<MDL	No	Agricultural herbicide or its residue
Terbufos (µg/L)	1	0.01<MDL	No	Agricultural insecticide
Tetrachloroethylene (µg/L)	10	0.35<MDL	No	Leaching from PVC pipes; discharge from factories, dry

Parameter	MAC	Result Value	MAC Exceedance (Yes or No)	Parameter Description
				cleaners and auto shops (metal degreaser)
2,3,4,6-Tetrachlorophenol (µg/L)	100	0.20<MDL	No	Wood preservative
Triallate (µg/L)	230	0.01<MDL	No	Agricultural herbicide
Trichloroethylene (µg/L)	5	0.44<MDL	No	Discharge from metal degreasing sites and other factories
2,4,6-Trichlorophenol (µg/L)	5	0.25<MDL	No	Pesticide manufacturing
Trifluralin (µg/L)	45	0.02<MDL	No	Agricultural herbicide
Vinyl Chloride (µg/L)	1	0.17<MDL	No	Leaching from PVC pipes; discharge from plastics factories

Disinfection by-products

Haloacetic Acids (HAA) and Trihalomethanes (THM) are the two most common groups of disinfection by-products (DBPs), are formed when disinfectants (typically chlorine) react with naturally occurring organic matter (like decaying vegetation) in the water source. Distribution samples analyzed in accordance with O. Reg. 170/03, Section 13.6 (THMs and HAAs). Analytical results for samples analyzed for THM and HAA's met the requirements and remained within the applicable standards stipulated in O. Reg. 169/03.

Parameter	MAC	Result Value Annual Average	MAC Exceedance (Yes or No)	Parameter Description
HAA - µg/L	80	60.6	No	disinfection byproducts formed when chlorine reacts with natural organic
THM - µg/L	100	75.7	No	disinfection byproducts formed when chlorine reacts with natural organic

Additional Regulatory Treated Water Parameter

Drinking water has additional parameters that for treated water in O. Reg 170 Section 13.7 (Nitrates and Nitrites). Section13.8 (Sodium), and Section 13.9 (Fluoride). Analytical results for samples analyzed for organic and inorganic chemical parameters met the requirements and remained within the applicable standards stipulated in O. Reg. 169/03.

Parameter	MAC	Number of samples	Result Value	MAC Exceedance (Yes or No)	Parameter Description
Fluoride (mg/L)	1.50	365	0.01 – 0.84 LIMS	No	Naturally occurring.

Parameter	MAC	Number of samples	Result Value	MAC Exceedance (Yes or No)	Parameter Description
Nitrite (mg/L)	1	4	0.05 – 0.05	No	A natural component of water at this level.
Nitrate (mg/L)	10	4	0.05 – 0.44	No	Runoff from fertilizer use, erosion of natural deposits
Sodium (mg/L)	20	1	9.9	No	Occurs naturally in the earth's crust. Notification is required every 60 months if greater than 20 mg/L

Lead Sampling Summary – Schedule 15.1, O Reg. 170/03

The Peterborough Municipal Water Treatment System was granted relief from regulatory lead sampling in Schedule 15.1 of O. Reg. 170/03, as described in Schedule D of the Municipal Drinking Water Licence #145-101, Issue #7, dated March 25, 2025.

Location Type	Number of Samples	Range of Lead Results	Unit of Measure	Number of Exceedances
Plumbing	0	0	mg/L	0
Distribution	17	0.0005 - 0.0005	mg/L	0

Capability of Water System

The annual summary of water delivered in 2025 is as follows:

Month	Average Day (M^3/d)	Maximum Day (M^3/d)	Peak Flows (L/m)
January	26,975	28,956	20,108
February	26,919	30,132	20,925
March	26,009	30,709	21,326
April	25,888	28,166	19,560
May	27,287	30,247	21,005
June	31,788	46,310	32,160
July	35,144	38,627	26,824
August	33,148	37,675	26,163
September	29,308	33,211	23,063
October	27,039	30,052	20,869
November	26,569	30,495	21,177
December	25,800	31,010	21,535

The Municipal Drinking Water Licence rates the plant at a daily maximum of 104,000 M^3; therefore, there were no exceedances of this Licence. The Permit to Take Water allows a maximum raw water taking of 190.68 ML/day, therefore there were no exceedences of this permit. The Permit to Take Water also stipulates a maximum allowable limit of 132,743 L/m, again Failure to Meet Requirements of the Safe Drinking Water Act and Regulations
There are no known failures to meet the requirements of the Safe Drinking Water Act, 2002 or any current regulation made under this Act.

Failure to Meet Requirements of the Municipal Drinking Water Licence

There are currently no known failures to meet the requirements of the terms and conditions of Municipal Drinking Water Licence, number 145-101, Issue No.7.

Failure to Meet Requirements of Provincial Officer Orders

There were no Provincial Officer's Orders issued during the period covered by this report. Any previously issued orders have been addressed. There are currently no known failures to meet the requirements of the terms and conditions of any Provincial Officer's Orders.

Water Usage

From January 1 to December 31, 2025, the Peterborough Water Treatment Plant produced 10,403,821 cubic metres of water. This compares to 10,335,406 cubic metres from the previous year.

Questions or comments

Please contact us either by mail, phone or email.
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