

**PORT COLBORNE**

# Port Colborne Distribution System Annual Drinking Water Quality Report

January 1, 2023 to December 31, 2023

Prepared on February 26, 2024

## Introduction

The City of Port Colborne is required, under *O.Reg. 170/03 Drinking Water Systems*, to prepare an annual report detailing the operation of the Port Colborne Distribution System. The regulation specifies in Section 11 what the report must contain and sets a February 28 deadline for having the report prepared. The report must be made available to the Public and can be found on the City's website and by request.

Information regarding the City of Port Colborne's drinking water system is included below. This report is prepared in accordance with O.Reg 170/03 and is available to the public on the City's website at [www.portcolborne.ca](http://www.portcolborne.ca).

**Drinking Water System number:** 260001643

**Drinking Water System category:** Large Municipal Residential

**Owned and operated by:** The Corporation of the City of Port Colborne

## Water Supply and Distribution

The Corporation of the City of Port Colborne (City) is the Owner and Operating Authority of the Port Colborne Distribution System (PCDS), which serves approximately 16,000 residents. The PCDS is a stand-alone Class 1 distribution system, with no downstream connections. It obtains water from the Niagara Region's Port Colborne Drinking Water System water treatment plant (WTP). Treated water is purchased from the Region on a volume basis and distributed through the City-owned distribution system via Region owned trunk mains. The Region's WTP draws water from the Welland Canal, treats it, and is responsible for sampling, testing and monitoring water at and leaving the WTP.

The City does not perform any secondary disinfection as the WTP sufficiently chlorinates the water to meet the minimum requirement of >0.05 mg/L free chlorine residual. The only water treatment chemical used by the City is 12% sodium

hypochlorite which is used when making repairs or performing maintenance on the distribution system to meet disinfection requirements. The distribution system has an average pressure of 58 psi, with pressure maintained by the Barrick Road Water Tower together with the Fielden Avenue Reservoir, which are owned, operated and maintained by the Region.

The Region prepares an annual report for the Port Colborne Drinking Water System, providing information on the treatment methodology, the type of chemicals used, water quality reports and any significant maintenance, repair or upgrades to the WTP. RMON is also required to make their reports available online. Contact information is provided under the section entitled “Where to Obtain Additional Information.”

## Water Quality Monitoring

The City of Port Colborne is required to supply drinking water that meets the requirements of the Safe Drinking Water Act and associated regulations. To ensure the City meets these requirements, the following individuals have been assigned as responsible persons for the distribution system:

Table 1: Port Colborne Distribution System Responsible Persons

Position	Name	Phone number
Director of Public Works	Steve Shypowskyj	905-228-8133
Manager of Operations	Curtis Dray	905-228-8148
Water/Wastewater Superintendent and Overall Responsible Operator	Tommy Peazel	905-228-8139
Environmental Compliance Manager	Cassandra Banting	905-228-8137

The City has identified the Public Works Department as the Operating Authority for the PCDS. The Water and Wastewater group operates under the Public Works Department and is specifically responsible for the daily operation of the distribution system. Certified Water Operators are assigned to conduct both the routine, weekly water quality sampling and testing and to conduct non-routine sampling (i.e., during and after watermain breaks). These activities ensure the water quality meets the Ontario Drinking Water Quality Standards (O.Reg. 169/03) at all times and under all conditions. The Water group also ensures that the operational checks, sampling and testing requirements specified in the Drinking Water Systems Regulation (O.Reg. 170/03) are conducted and recorded. If it is determined that the water quality or an operational parameter does not meet the regulated requirements or exceeds the regulated limits, Certified Operators immediately implement corrective action to ensure the continued

supply of safe drinking water. The operational checks, sampling and testing requirements, which the City must conduct, are outlined in Table 4.

The Region operates the WTP, the Fielden Avenue Reservoir and Barrick Road Water Tower, and as such, is required to conduct operational checks, sampling, and testing activities. Details regarding the Region's requirements are summarized in their Annual Report; information on how to obtain a copy of their report is provided under the section entitled "Where to Obtain Additional Information".

## Water Quality Test Results

As per the sampling and testing requirements detailed in Table 4, the City conducted the following sampling in the period of January 1, 2023 to December 31, 2023:

### Microbiological Analysis

In accordance with the requirements of Schedule 10, section 10-2 (1) of O.Reg.170/03, samples are collected and submitted for analysis on a weekly basis. Additionally, samples are collected and submitted for analysis after watermain breaks, during hydrant flushing activities and in response to some water quality complaints etc.

In 2023, a total of 416 samples were collected and analyzed for the presence of E.coli and Total Coliforms. Laboratory results indicated no detection of microbiological parameters in the reporting year.

To monitor the potential deterioration of the water quality, 416 samples were collected and analyzed for Heterotrophic Plate Count (HPC). Laboratory results indicated that in 2023, HPC was detected at very low levels, between 0-87 colonies/mL (*Table 5*).

### Operational Parameters

The City monitors the operational parameter, free chlorine, twice weekly, and on an as-required basis in response to watermain breaks, hydrant flushing, and complaints etc. Turbidity is measured weekly, and on an as-required basis. In 2023, this resulted in the collection and analysis of 3,192 chlorine samples (839 routine and 2353 non-routine) and 2,422 turbidity samples (69 routine and 2353 non-routine). Free chlorine levels ranged between 0.20 to 1.21 mg/L (*Table 5*).

Turbidity levels ranged from 0.07 to 0.90 NTU (*Table 5*).

### Lead Testing (Schedule 15.1) Results

The City is no longer required to collect lead samples from plumbing systems and is only required to collect samples from the distribution system. Under O.Reg. 170/03 distribution system samples are required to be collected twice annually, with one set collected during the winter sampling cycle (December 15 to April 15) and another set during the summer sampling cycle (June 15 to October 15). The collected samples are tested for alkalinity and pH in year one and two, with lead sampled in year three. In this reporting year, samples were collected from four (4) locations in the distribution system and analyzed for alkalinity and pH only. Alkalinity ranged from 81 to 96 mg/L, while pH values ranged from 6.54 to 7.47. All values were well within the recommended guidelines (*Table 5*).

### Organic Parameters

The City is required to sample for trihalomethanes (THMs) and haloacetic acids (HAAs) on a quarterly basis.

THM results from 2023 continue to indicate that THMs are not a concern in the distribution system, as the running annual average concentration was 0.0071 mg/L, much less than the 0.10 mg/L regulated limit (*Table 5*). None of the individual samples exceeded half the standard prescribed in Schedule 2 of the Ontario Drinking Water Quality Standards.

Results from the four (4) HAA samples collected in 2023 continue to indicate that HAA's are not a concern in the distribution system as the running annual average concentration was 0.0073 mg/L, much less than the 0.08 mg/L regulated limit (*Table 5*). The samples were well below half of the standard prescribed in Schedule 2 of the Ontario Drinking Water Quality Standards.

### Regulatory Non-Compliances

There were no reportable adverse water quality incidents in 2023. The City was required to update the Water Operations and Maintenance Manual as result of the 2022 Ministry Inspection and this was submitted in August 2023 and accepted by the Ministry.

### Our Commitment to Providing Safe Drinking Water

To ensure that residents, businesses and visitors to our community continue to receive the safest drinking water, the City has incorporated the following practices into the routine operations of the Distribution System:

- Exceed the minimum regulatory sampling requirements, by sampling additional sites for both operational and microbiological parameters
- Comprehensive flushing program targeting “dead ends”, where water use is not very high, to ensure chlorine levels are at least 0.10 mg/L
- Prompt response to watermain breaks and customer complaints

In addition, the City has the following plans for 2024:

- Continuing to finalize the design for replacement watermain projects (Davis St., West St., Homewood Ave., and Berkley Ave.) and begin construction for the Davis Street watermain replacement project. Approved budget of \$5 million.
- Utilize data from the Infrastructure Needs Study and Asset Management Plan to prepare an updated Water Financial Plan, as part of the requirements for the Municipal Drinking Water License Renewal

Major expenditures for 2023 included the following:

- Completed \$175,000 on watermain designs thus far.

## What's New?

The City is applying for a renewal of its Municipal Drinking Water Licence in April 2024 and will complete a Water Financial Plan in advance of the submission. The City had its re-accreditation audit in December 2022 and received its Certificate of Accreditation from SAI Global for the City's Drinking Water Quality Management System. The City's Operational Plan is available on the City's website at: <https://portcolborne.ca/en/living-here/drinking-water-licensing.aspx>

## Where to Obtain Additional Information

Copies of this annual report are available, free of charge, at the Engineering and Operations Centre, 1 Killaly Street West. It can also be downloaded from the internet at <https://portcolborne.ca/en/living-here/drinking-water-quality-reports.aspx> Copies may also be obtained by contacting the City numbers listed below.

Additionally, all laboratory test results are available at the Engineering and Operations Centre, 1 Killaly Street West. Copies may also be obtained by contacting the City numbers listed below.

The Regional Municipality of Niagara provides an annual report for the Port Colborne Water Treatment Plant, and it can be downloaded from the Region's website:

<https://www.niagararegion.ca/living/water/water-quality-reports/default.aspx> Copies may also be obtained by contacting any of the numbers listed below:

Table 3: Contact Information for the City and Region

Organization	Department	Phone Number
City of Port Colborne	Public Works	905-835-2900
Regional Municipality of Niagara	Water and Wastewater Division	905-685-1571

Table 4: Distribution System Water Quality Sampling and Testing Requirements

Parameter	Sampling and Analysis	Distribution System Standards	Comments
Microbiological	<p>Required to collect a minimum of 24 samples each month, however, the City collects 32 samples per month and tests for total coliforms and/or <i>E.coli</i>. Required to analyze 25% of all samples collected weekly for heterotrophic plate count, however, the City analyzes all samples</p>	<ul style="list-style-type: none"> <li>• <i>E.coli</i> – NONE detected</li> <li>• Total Coliforms – 1 detected</li> <li>• Heterotrophic plate count - &lt;500 cfu/mL</li> </ul>	<ul style="list-style-type: none"> <li>• 8 samples collected each week</li> <li>• Samples sent to an accredited laboratory for analysis</li> <li>• Adverse results are immediately reported by the lab to the City</li> </ul>
Free Chlorine Residual	<p>Required to collect a minimum of 28 samples per month, however the City collects 64 samples per month and tests for free chlorine. Collected twice weekly (at least 48 hours apart) from representative areas of the distribution system</p>	<ul style="list-style-type: none"> <li>• Minimum residual chlorine 0.05 mg/L</li> <li>• City targets 0.20 mg/L</li> <li>• City's acceptable low limit is 0.10 mg/L</li> </ul>	<ul style="list-style-type: none"> <li>• City flushes known dead ends on a regular basis to ensure at least 0.10 mg/L is maintained at all areas of the distribution system</li> </ul>
Turbidity	<p>Frequency of sampling not specified, however, City collects a minimum of 1 sample weekly from the bulk water depots, and during non-routine sampling (i.e. flushing, watermain breaks)</p>	<ul style="list-style-type: none"> <li>• 5.0 NTU maximum aesthetic objective</li> </ul>	<ul style="list-style-type: none"> <li>• Turbidity generally not an issue in the distribution system.</li> </ul>
Trihalomethanes (THMs)	<p>Required to collect at least one sample quarterly, however the City collects 2 samples quarterly, and submits for analysis</p>	<ul style="list-style-type: none"> <li>• 0.10 mg/L maximum acceptable concentration</li> </ul>	<ul style="list-style-type: none"> <li>• Based on a four-quarter progressive annual average of test results (average of all test results each quarter) at points that are likely to have an elevated potential for the formation of THMs</li> </ul>

Table 4: Distribution System Water Quality Sampling and Testing Requirements (*continued*)

Parameter	Sampling and Analysis	Distribution System Standards	Comments
Haloacetic Acids (HAAs)	Sampled quarterly. Required to collect one (1) sample per quarter.	<ul style="list-style-type: none"> <li>0.08 mg/L maximum acceptable concentration</li> </ul>	<ul style="list-style-type: none"> <li>Based on a four-quarter progressive annual average of test results (average of all test results each quarter) at points that are likely to have an elevated potential for the formation of HAAs</li> </ul>
Lead	<p>Regulatory amendments late in 2009 and the City's historical results from 2008/09 resulted in the City qualifying for exemption from having to collect samples from plumbing.</p> <p>Required to collect samples twice annually (between Dec 15 and Apr 15 and between Jun 15 and Oct 15) from four (4) locations in the distribution system and analyze the samples for pH and alkalinity for two years, and then in the third year, perform the pH and alkalinity analysis and lead analysis. Eight (8) samples total per year.</p>	<ul style="list-style-type: none"> <li>No standard for alkalinity or pH, these parameters are monitored so that, should they change, the potential for lead levels to increase is analyzed</li> <li>Maximum acceptable concentration for lead is 0.010 mg/L</li> </ul>	<ul style="list-style-type: none"> <li>Distribution system samples are generally collected from water sampling stations and/or fire hydrants</li> <li>If a lead exceedance occurs in future, the City may be required to resume standard sampling.</li> </ul>



Table 5: Distribution System Water Quality Sampling and Testing Results – January 1 to December 31, 2023

Parameter	Requirement	Number of samples		Results			Comments
		Routine	Non-Routine	Range	Unit	# of Adverse	
<b>Microbiological Analysis</b>							
<i>E. coli</i>	ND	416*	0	0	counts 100 mL	0	Presence of <i>E.coli</i> indicates presence of fecal matter
Total Coliforms	ND	416*	0	0	counts/ 100 mL	0	Presence of Total Coliforms indicates possible presence of pathogenic bacteria
Heterotrophic Plate Count (HPC)	<500	416*	0	0 - 87	cfu/ 100 mL	N/A	Presence of HPC indicates water quality deterioration
<b>Operational Parameters</b>							
Free Chlorine	Minimum 0.05	839*	2353	0.20 – 1.21	mg/L	0	Level of disinfectant present
Turbidity	5.0	69*	2353	0.07 – 0.90	NTU	N/A	Not a reportable parameter; 5.0 NTU is aesthetic guideline
<b>Lead Testing Results</b>							
Alkalinity	30 - 500	4		81 to 96	mg/L	N/A	Neither are reportable parameters; guidelines are the recommended operational level. Low alkalinity and/or low pH may accelerate corrosion, which may cause lead from soldering or lead lines to be released into drinking water.
pH	6.5 – 8.5	4		6.54 - 7.47		N/A	
Lead	Plumbing	0.010 mg/L	N/A		mg/L	N/A	Corrosion of lead or lead soldered plumbing/distribution systems may cause lead to be released into drinking water
	Distribution		N/A				
<b>Organic Parameters</b>							
Trihalomethanes	0.10	8		(Running Annual Avg) 0.0071	mg/L	0	By-product of chlorination; forms when chlorine reacts with suspended organics.
Haloacetic Acids	0.08	4		(Running Annual Avg) 0.0073†	mg/L	0	By-product of chlorination; forms when chlorine reacts with suspended organics.

\*Note – operational checks are routine samples. Only routine microbiological samples, collected in accordance with Schedule 10, section 10-2 (1) of O.Reg. 170/03, are analyzed for Heterotrophic Plate Count (HPC) to meet the required 25%. Non-routine sampling includes sampling after watermain breaks, complaints, annual hydrant flushing and dead end flushing.

†Note – samples less than the MDL are entered as “0” to calculate the Running Annual Average.