



2024 Annual Drinking Water System Report

Port Dover Drinking Water System

1. Introduction

The Corporation of Norfolk County has prepared this report to satisfy the requirements of Section 11 of Ontario Regulation (O. Reg.) 170/03. This annual report must be prepared no later than February 28 of each year.

This report covers the period from January 1, 2024 to December 31, 2024, and the information provided complies with the reporting requirements of O. Reg. 170/03 Section 11.

A summary of Port Dover's Municipal Drinking Water System is outlined below:

Drinking Water System Number: 220000399

Drinking Water System Name: Port Dover Drinking Water System

Drinking Water System Owner: Corporation of Norfolk County

Drinking Water System Category: Large Municipal Residential

2. Reporting Requirements under Section 11 – O. Reg. 170/03

Section 11 requires that the report include the following information relating to the period covered by the report. This includes:

- A statement of where a report prepared under Schedule 22 will be available for inspection by any member of the public during normal business hours without charge.
- A brief description of the drinking water system, including a list of water treatment chemicals used.
- Any major expenses incurred to install, repair or replace required equipment.



- A summary of any reports made to the Ministry of Environment, Conservation and Parks (MECP) for Adverse Water Quality Incidents (AWQI's).
- A summary of the results of tests performed under O. Reg. 170/03, an approval, the municipal drinking water licence or an order, including an Ontario Water Resources Act (OWRA) order.
- To describe any corrective actions taken

3. Evidence of Compliance

Availability of the Annual Report

In accordance with Section 11 O. Reg. 170/03, a copy of the annual report will be posted for each system by the end of February each year on the Norfolk County web site at norfolkcounty.ca. A Summary Report on regulatory compliance is required annually under Schedule 22 of Regulation 170/03 for each municipal drinking water system. This report summarizes any known failures to meet the requirements of the Safe Drinking Water Act, its duration and corrective measures. The reports are presented to Norfolk County Council for acceptance before March 31st each year. The reports are made available to the public in April on the Norfolk County web site noted above or by request from the Environmental Services Department. A copy of the annual report is available to the public, free of charge at the following locations as well:

12 Gilbertson Drive, Simcoe, Ontario, N3Y 4N5

Description of the Municipal Drinking Water System

The Port Dover Drinking Water System supplies drinking water to the community of Port Dover. The drinking water system currently serves a population of approximately 7,800. The Port Dover water treatment plant is fed from a surface water source, which is Lake Erie. The water enters a 500mm intake pipe that is located approximately 450m offshore in approximately 4.3m of water.

The water distribution system includes a 5,000 m³ elevated tank, which acts as a reservoir when the system requires larger amounts of water than the water treatment plant can supply (such as firefighting and peak flows) and also helps to maintain a constant system pressure. There are approximately 403 fire hydrants and approximately 66,300 meters of water main and transmission main ranging in size from 150 mm to 400mm in diameter. The piping material consists of cast iron, Polyvinyl Chloride (PVC) and ductile iron pipe.



Water Treatment Chemicals

The following water treatment chemicals were used during the reporting period:

- Sodium Hypochlorite
- Carbon Dioxide

Significant Expenses Incurred

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

Table 1 – Summary of Expenses Incurred

Activity	Cost Incurred (2024)
Port Dover Phase 2 Upgrades	\$4,681,504
Port Dover Elevated Storage Tank Chlorine Booster System	\$161,271
General Operations Maintenance and Repair in Water Treatment Plant and Distribution System	\$166,517

4. Microbiological Testing

E. coli and Total Coliform

As per Schedule 10 of O. Reg. 170/03 – Microbiological Sampling and Testing, bacteriological tests for *E. coli* and total coliforms were performed weekly on the raw and treated water at the facilities and in the distribution system. The results from the 2024 sampling program for the Port Dover Drinking Water are shown in the table below.

Location	Number of Samples	Range of <i>E.coli</i> Or Fecal Results (min #)-(max #)	Range of Total Coliform Results (min #)-(max #)
Raw	52	0 - 700	0 - 7000
Treated	52	0 - 0	0 - 0
Distribution	208	0 - 0	0 - 0



Heterotrophic Plate Count (HPC)

As per Schedule 10 of O. Reg. 170/03 - Microbiological Sampling and Testing, HPC analyses are required from the treated and distribution water. HPC tests are required weekly for treated water and for twenty five percent of the required distribution system bacteriological samples. Results over 500 colonies per 1 mL may indicate a change in water quality but is not considered an indicator of unsafe drinking water. The results from the 2024 HPC sampling program for the Port Dover Drinking Water System are shown in the table below.

Location	Number of Samples	Number of HPC Samples	Range of HPC Results (min #)-(max #)
Treated	52	52	0 - >2000
Distribution	208	52	<10 - 430

5. Chemical Testing

The Safe Drinking Water Act requires periodic testing of the water for sixty different chemical parameters. The latest results for these parameters are provided in Appendix A. The sampling frequency varies for the different types of water systems. If the concentration of the parameter is found to be above half of the Maximum Allowable Concentration (MAC) under the Ontario Drinking Water Quality Standards, an increased testing frequency of once every three months is required by Regulation. No additional testing is required for the Port Dover Drinking Water System.

6. Operational Monitoring

Operational checks including raw and treated water turbidity and treated and distribution free chlorine were conducted in accordance with Schedule 7 of Reg. O. 170/03.

Turbidity

The turbidity of the treated water is monitored continuously at each treatment plant; the turbidity of the raw water is checked on a weekly basis. Turbidity is measured in Nephelometric Turbidity Units (NTU). A summary of the 2024 turbidity monitoring results are provided in the table below.



Location	Number of Grab Samples	Range of Results	Unit of Measure
Suez Plant 1 Outlet Turbidity	8760	0.01 – 0.48	NTU
Suez Plant 2 Train 1 Outlet Turbidity	8760	0.03 – 0.58	NTU
Suez Plant 2 Train 2 Outlet Turbidity	8760	0.01 – 1.70	NTU

Chlorine Residual

In accordance with Schedule 7 of O. Reg. 170/03, free chlorine residuals in the treated water are monitored continuously at the point of entry to the distribution system at all water treatment plants and wells. The free chlorine in the water distribution system must be above 0.05 mg/L, if it is below this, it must be reported and corrective actions taken. The results from the 2024 chlorine residual monitoring program for the Port Dover Drinking Water System are shown in the table below.

Location	Number of Grab Samples	Range of Results	Unit of Measure
Chlorine	8760	0.53 – 2.67	mg/L
Chlorine Residual Distribution System	574	0.25 – 2.05	mg/L

7. Adverse Results

In accordance with Schedule 16 – Reporting of Adverse Test Results and Other Problems of O. Reg. 170/03, there was five Adverse Water Quality Incident (AWQI) issued for the Port Dover Drinking Water System. The following table describes the date the adverse occurred, the parameter, the result, the corrective action taken and the corrective action date.

Incident Date	Parameter	Result	Corrective Action	Corrective Action Date
20/06/2024	Operational	SCADA stopped recording post chlorine continuous	Power to the PLC was cycled to restore the SCADA reading for the post chlorine analyzer. SCADA Coordinator set up an interlock to send an alarm if	22/06/2024

Incident Date	Parameter	Result	Corrective Action	Corrective Action Date
		analyzer, system had held the last reading of 1.58mg/l	the SCADA reading flat lines for more that 90 seconds. No further action was required.	
14/07/2024	Operational	Turbidity analyzer on the membrane trailer malfunctioned causing the unit to read higher than 0.1 NTU (average of 0.111 NTU) from July 14-18, 2024.	Turbidimeter was cleaned and calibrated, internal vial was replaced as vial was etched and cleaning of the turbidimeter vial was added to quarterly maintenance. No further action was required.	06/08/2024
09/09/2024	Low Distribution Chlorine	Less than 0.05 mg/L chlorine residual in the distribution system.	The distribution system was flushed until the residual was restored. No further action was required.	09/09/2024
01/10/2024	Low Distribution Chlorine	At 15:20 operations were flushing the Emily St blow-off and observed a free chlorine residual of 0.02mg/L.	The distribution system was flushed until the residual was restored. No further action was required.	01/10/2024
01/01/2025	Operational	Turbidity monthly percentiles outside limit for membrane filtration.	Resolved issue of entrapped air within the sample line. Added an alarm to the membrane discharge turbidimeter to call operations if the NTU reading exceeds	01/06/2025



Incident Date	Parameter	Result	Corrective Action	Corrective Action Date
			0.10 NTU for thirty minutes. No further action was required.	

APPENDIX A: SUMMARY OF CHEMICAL RESULTS

UNDERSTANDING CHEMICAL TEST RESULTS

The following tables summarize the laboratory results of the chemical testing Norfolk County is required to complete. Different parameters are required to be tested for at different frequencies as noted below. Results are shown as concentrations with units of either milligrams per litre (mg/L) or micrograms per litre (ug/L). 1 mg/L is equal to 1000 ug/L. The Maximum Acceptable Concentration (MAC) is the highest amount of a parameter that is acceptable in Municipal drinking water and can be found in the MECP Drinking Water Standards. The Method Detection Limit (MDL) is the lowest amount to which the laboratory can confidently measure. There was no additional testing or sampling carried out in accordance with the requirement of an approval, order or other legal instrument.

The following tables summarize the Inorganic parameters tested for during the reporting period or the most recent sample results for the Port Dover Drinking Water System.

Port Dover Filtration Plant

Parameter	Sample Date	Result Value	Unit of Measure	Exceedance
Antimony	29/04/2024	0.6<MDL	ug/L	No
Arsenic	29/04/2024	0.7	ug/L	No
Barium	29/04/2024	23.9	ug/L	No
Boron	29/04/2024	26	ug/L	No
Cadmium	29/04/2024	0.005	ug/L	No
Chromium	29/04/2024	0.15	ug/L	No
Lead	Exempt			
Mercury	29/04/2024	0.01>MDL	ug/L	No
Selenium	29/04/2024	0.150	ug/L	No
Sodium	11/05/2020	12.4	mg/L	No
Fluoride	11/05/2020	0.12		
Uranium	29/04/2024	0.379	ug/L	No
Nitrite	29/04/2024	0.003<MDL	ug/L	No



Parameter	Sample Date	Result Value	Unit of Measure	Exceedance
		0.003<MDL	ug/L	No
		0.003<MDL	ug/L	No
		0.003<MDL	ug/L	No
Nitrate	12/02/2024	0.230	ug/L	No
	29/04/2024	0.276	ug/L	No
	12/08/2024	0.117	ug/L	No
	04/11/2024	0.164	ug/L	No

The following tables summarize the Organic parameters tested for during the reporting period or the most recent sample results for the Port Dover Drinking Water.

Port Dover Filtration Plant

Parameter	Sample Date (d/m/y)	Result Value	Unit of Measure	Exceedance
Alachlor	29/04/2024	0.02 <MDL	ug/L	No
Atrazine + N-dealkylated metabolites	29/04/2024	0.07	ug/L	No
Azinphos-methyl	29/04/2024	0.05 <MDL	ug/L	No
Benzene	29/04/2024	0.32 <MDL	ug/L	No
Benzo(a)pyrene	29/04/2024	0.004 <MDL	ug/L	No
Bromoxynil	29/04/2024	0.33 <MDL	ug/L	No
Carbaryl	29/04/2024	0.05 <MDL	ug/L	No
Carbofuran	29/04/2024	0.01 <MDL	ug/L	No
Carbon Tetrachloride	29/04/2024	0.17 <MDL	ug/L	No
Chlorpyrifos	29/04/2024	0.02 <MDL	ug/L	No
Diazinon	29/04/2024	0.02 <MDL	ug/L	No
Dicamba	29/04/2024	0.20 <MDL	ug/L	No
1,2-Dichlorobenzene	29/04/2024	0.41 <MDL	ug/L	No
1,4-Dichlorobenzene	29/04/2024	0.36 <MDL	ug/L	No
1,2-Dichloroethane	29/04/2024	0.33 <MDL	ug/L	No
1,1-Dichloroethylene (vinylidene chloride)	29/04/2024	0.35 <MDL		
Dichloromethane	29/04/2024	0.35 <MDL	ug/L	No
2-4 Dichlorophenol	29/04/2024	0.15 <MDL	ug/L	No

Parameter	Sample Date (d/m/y)	Result Value	Unit of Measure	Exceedance
2,4-Dichlorophenoxy acetic acid (2,4-D)	29/04/2024	0.19 <MDL	ug/L	No
Diclofop-methyl	29/04/2024	0.40 <MDL	ug/L	No
Dimethoate	29/04/2024	0.06 <MDL	ug/L	No
Diquat	29/04/2024	1 <MDL	ug/L	No
Diuron	29/04/2024	0.03 <MDL	ug/L	No
Glyphosate	29/04/2024	1 <MDL	ug/L	No
Malathion	29/04/2024	0.02 <MDL	ug/L	No
MCPA	29/04/2024	0.00012 <MDL	mg/L	No
Metolachlor	29/04/2024	0.02	ug/L	No
Metribuzin	29/04/2024	0.02 <MDL	ug/L	No
Monochlorobenzene	29/04/2024	0.3 <MDL	ug/L	No
Paraquat	29/04/2024	1 <MDL	ug/L	No
Pentachlorophenol	29/04/2024	0.15 <MDL	ug/L	No
Phorate	29/04/2024	0.01 <MDL	ug/L	No
Picloram	29/04/2024	1 <MDL	ug/L	No
Polychlorinated Biphenyls(PCB)	29/04/2024	0.04 <MDL	ug/L	No
Prometryne	29/04/2024	0.03 <MDL	ug/L	No
Simazine	29/04/2024	0.01 <MDL	ug/L	No
Terbufos	29/04/2024	0.01 <MDL	ug/L	No
Tetrachloroethylene	29/04/2024	0.35 <MDL	ug/L	No
2,3,4,6-Tetrachlorophenol	29/04/2024	0.20 <MDL	ug/L	No
Triallate	29/04/2024	0.01 <MDL	ug/L	No
Trichloroethylene	29/04/2024	0.44 <MDL	ug/L	No
2,4,6-Trichlorophenol	29/04/2024	0.25 <MDL	ug/L	No
Trifluralin	29/04/2024	0.02 <MDL	ug/L	No
Vinyl Chloride	29/04/2024	0.17 <MDL	ug/L	No
Total Haloacetic Acid Average 21.9 ug/L	12/02/2024 29/04/2024 12/08/2024 04/11/2024	5.3 <MDL 21 29.2 21.4	ug/L ug/L ug/L ug/L	No
THM Annual Average 38 ug/L	12/02/2024 29/04/2024 12/08/2024 04/11/2024	15 33 69 44	ug/L ug/L ug/L ug/L	No



Microcystin Sample Results

Parameter	Sample Date (d/m/y)	Raw Water Results	Treated Water Results	Unit of Measure	Exceedance
Microcystin	06/04/24	0.1<MDL	0.1<MDL	Ug/L	No
	06/11/24	0.1<MDL	0.1<MDL		
	06/18/24	0.1<MDL	0.1<MDL		
	06/25/24	0.1<MDL	0.1<MDL		
	07/02/23	0.1<MDL	0.1<MDL		
	07/09/24	0.1<MDL	0.1<MDL		
	07/16/24	0.1<MDL	0.1<MDL		
	07/23/24	0.1<MDL	0.1<MDL		
	07/30/24	0.1<MDL	0.1<MDL		
	08/06/24	0.1<MDL	0.1<MDL		
	08/13/24	0.1<MDL	0.1<MDL		
	08/20/24	0.1<MDL	0.1<MDL		
	08/27/24	0.1<MDL	0.1<MDL		
	09/03/24	0.1<MDL	0.1<MDL		
	09/10/24	0.1<MDL	0.1<MDL		
	09/17/24	0.1<MDL	0.1<MDL		
	09/24/24	0.1<MDL	0.1<MDL		
	10/01/24	0.1<MDL	0.1<MDL		
	10/08/24	0.4	0.1<MDL		
	10/15/24	0.2	0.1<MDL		
10/22/24	0.1<MDL	0.1<MDL			

The following table summarizes the lead testing as set out in Schedule 15.1 of O. Reg. 170/03 during the reporting period.

Location Type	Sample Date (dd/mm/yyyy)	Number of Samples	Range of Lead Results (min#) – (max #) ug/L	Number of Exceedances
Plumbing		Exempt		
Distribution	04/03/2024	3	0.15 – 0.18	0
	23/09/2024	3	0.20 – 0.45	0