2025 ANNUAL DRINKING WATER SYSTEM REPORT

Port Dover Drinking Water System

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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 28th of each year.

This report covers the period from January 1st, 2025 to December 31st, 2025, and the information provided complies with the reporting requirements of Section 11 of O. Reg. 170/03.

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 O. Reg. 170/03 – Section 11

As required by Section 11 Annual reports, this report includes the following information for the reporting period noted above:

- A brief description of the drinking water system, including a list of water treatment chemicals used by the system;
- 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 required under O. Reg. 170/03, an approval, the municipal drinking water licence (MDWL) or an order, including an Ontario Water Resources Act (OWRA) order;
- A description of any corrective actions taken;
- A description of any major expenses incurred to install, repair or replace required equipment;

- A statement of where a report prepared under Schedule 22 (Drinking Water Summary Report) will be available for inspection by any member of the public during normal business hours without charge; and
- A summary of Schedule 15.1 Lead sampling details.

3. Evidence of Compliance

Availability of the Annual Report

In accordance with O. Reg. 170/03 – Section 11, a copy of the Annual Report for each drinking water system will be posted, by the end of February each year, on the Norfolk County website at norfolkcounty.ca.

A Summary Report on regulatory compliance and system capability is also required annually under Schedule 22 of O. Reg. 170/03. This report summarizes any known failures, duration and corrective measures taken to meet the requirements of the Safe Drinking Water Act (SDWA), regulations, the system's approval, drinking water works permit (DWWP), municipal drinking water licence (MDWL), and any order applicable. The Summary Report is presented to Norfolk County Council for acceptance before March 31st of each year. The Summary report is made available to the public in April on the Norfolk County website noted above or by request from the Environmental Services.

Copies of the Summary Report and Annual Reports for each drinking water system are available to the public, free of charge, at the following location:

Gilbertson Administration Building

12 Gilbertson Drive, Simcoe, Ontario, N3Y 4N5

Hours: Monday to Friday, 8:30 a.m. to 4:30 p.m.

Description of the Municipal Drinking Water System

The Port Dover Drinking Water System (Port Dover DWS) 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 (Port Dover WTP) 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 5,000m^3 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 helps to maintain a constant system pressure. There are approximately 403 fire hydrants and approximately 66,240m of water main and transmission main ranging in size from 150mm to 500mm in diameter. The piping material consists of cast iron, Polyvinyl Chloride (PVC), ductile iron, asbestos cement, high density polyethylene (HDPE) and ductile iron pipe.

Water Treatment Chemicals

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

- Sodium Hypochlorite
- Carbon Dioxide
- Poly Aluminum Chloride

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 (2025)
General Operations Maintenance and Repair in Water Treatment Plants and Distribution System	$187,510.60
Phase 2 WTP Upgrades	$4,204,255.42
Elevated Storage Tank Chlorine Booster	$75,652.78
Replacement of Watermains	$637,295.27

4. Microbiological Sampling and Testing

E. coli and Total Coliform

As per Schedule 10 Microbiological Sampling and Testing, of O. Reg. 170/03, sampling and analysis for *E. coli* and total coliforms was conducted weekly on the raw and treated water at the water treatment plant and in the distribution system. The results from the 2025 sampling program for the Port Dover DWS are shown in the table below.

Table 2 – *E. coli* and Total Coliform Sampling Results

Location	Number of Samples	Range of *E. coli* Results (cfu/100mL)	Range of Total Coliform Results (cfu/100mL)
Raw	52	0 – 10	0 – 310
Treated	52	0 – 0	0 – 0
Distribution	229	0 – 0	0 – 0

Heterotrophic Plate Count (HPC)

As per Schedule 10 Microbiological Sampling and Testing, of O. Reg. 170/03, sampling and analysis for HPC was conducted weekly on the raw and treated water at the water treatment plant and on 25% of the required distribution system samples. HPC results greater than 500cfu/1mL (colony forming units per 1 mL) may indicate a change in water quality but are not considered an indicator of unsafe drinking water. The results from the 2025 sampling program for the Port Dover DWS are shown in the table below.

Table 3 – HPC Sampling Results

Location	Number of Samples	Number of HPC Samples	Range of HPC Results (cfu/1mL)
Treated	52	52	<10 – 200
Distribution System	229	60	<10 – 410

5. Chemical Sampling and Testing

As per Schedule 13 Chemical sampling and testing, of O. Reg. 170/03, sampling and testing for chemical parameters listed in Schedule 13, Schedule 23 and Schedule 24, is required at varying frequencies. The 2025 results for chemical sampling and testing are provided in Appendix A - Summary of Chemical Results.

If the result obtained for a parameter listed Schedule 23 or Schedule 24 exceeds half the Maximum Allowable Concentration (MAC) found in O. Reg. 169/03 Ontario Drinking Water Quality Standards (ODWQS), sampling and testing frequency shall be increased to once every three (3) months.

Additional sampling and testing for Microcystin is required for the Port Dover DWS, as per the MDWL – Schedule C: 7.0 Harmful Algal Blooms.

6. Operational Monitoring

As per Schedule 7 Operational checks, of O. Reg. 170/03, operational checks were conducted including raw and treated water turbidity, and treated and distribution water free chlorine residuals.

Turbidity

Turbidity is measured in Nephelometric Turbidity Units (NTU). Under O. Reg. 170/03 The raw water turbidity is sampled weekly, and the treated water turbidity is monitored continuously. The results from the 2025 turbidity monitoring program for the Port Dover DWS are shown in the table below.

Table 4 – Turbidity Monitoring Results

Location	Number of Grab Samples	Range of Turbidity Results (NTU)
Raw Water	365	0.02 – 29.00
Suez Plant 1 Outlet Turbidity	8760*	0.015 – 1.000
DAF Filter No. 1 Turbidity	8760*	0.041 – 0.209
DAF Filter No. 2 Turbidity	8760*	0.020 – 0.185
DAF Filter No. 3 Turbidity	8760*	0.035 – 0.231

*Continuous Monitoring

Chlorine Residual

As per 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. The minimum required free chlorine residual in the distribution system is 0.05 mg/L, any samples below this must be reported as an AWQI and addressed via corrective actions. The results from the 2025 free chlorine residual monitoring program for the Port Dover DWS are shown in the table below.

Table 5 – Chlorine Residual Monitoring Results

Location	Number of Grab Samples	Range of Free Chlorine Residual Results (mg/L)
Chlorine 12”	8760*	0.000 – 3.421
Chlorine 16”	8760*	0.834 – 2.144
Distribution System	594	0.25 – 1.78

*Continuous Monitoring

7. Adverse Test Results

As per Schedule 16 Reporting adverse test results and other problems, of O. Reg. 170/03, there were three (3) AWQI's issued for the Port Dover DWS. The table below describes the date the adverse occurred, the parameter, the result, the corrective action taken and the date resolved.

Table 6 – AWQI Summary

Incident Date (dd/mm/yyyy)	Parameter	Result	Corrective Action	Date Resolved (dd/mm/yyyy)
03/01/2025	Operational	Turbidity monthly percentiles outside limit for membrane filtration due to entrapped air.	Repairs were made to turbidimeter. Installation of de-bubbler and a new desiccant pack.	03/01/2025
04/06/2025	Operational	Point of Entry (POE) chlorine analyzer stopped reading.	Mid-reservoir & water tower chlorine analyzers functioning, verifying proper chlorine dosage maintained. No indication of any further issues in treatment process. Operator collected five (5) distribution system chlorine residuals & calibrated analyzer.	05/06/2025
31/10/2025	Operational	Operator not on site to witness tie-in of commissioned watermain. Operator returned, opened valves connecting to DWS without	Operator dispatched to close valve at end of watermain section to flush and sample. Two sets of samples collected; received acceptable results	04/11/2025

Incident Date (dd/mm/yyyy)	Parameter	Result	Corrective Action	Date Resolved (dd/mm/yyyy)
		witnessing disinfection / connection.	and opened valve to connect.	

8. Appendix A: Summary of Chemical Results

Understanding Chemical Sampling and Testing 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 O. Reg. 169/03 Ontario Drinking Water Quality Standards (ODWQS). The Method Detection Limit (MDL) is the lowest amount to which the laboratory can confidently measure.

The following tables summarize the sampling and testing results for the parameters listed in Schedule 13 (fluoride, nitrate/nitrite, sodium), during the reporting period or the most recent sample results for the Port Dover DWS.

Table 7 – Port Dover WTP Fluoride, Nitrate/Nitrite, Sodium (Schedule 13)

Parameter	Sample Date (dd/mm/yyyy)	Result Value	Unit of Measure	Exceedance
Fluoride	05/05/2025	0.11	mg/L	No
Nitrate	10/02/2025 05/05/2025 11/08/2025 03/11/2025	0.150 0.224 0.040 0.126	mg/L mg/L mg/L mg/L	No No No No
Nitrite	10/02/2025 05/05/2025 11/08/2025 03/11/2025	0.003<MDL 0.003<MDL 0.003<MDL 0.003<MDL	mg/L mg/L mg/L mg/L	No No No No
Sodium	05/05/2025	12.7	mg/L	No

The following tables summarize the sampling and testing results for the Inorganic Parameters listed in Schedule 23, during the reporting period or the most recent sample results for the Port Dover DWS.

Table 8 – Port Dover WTP Inorganic Parameters (Schedule 23)

Parameter	Sample Date (dd/mm/yyyy)	Result Value	Unit of Measure	Exceedance
Antimony	05/05/2025	0.6<MDL	ug/L	No
Arsenic	05/05/2025	0.7	ug/L	No
Barium	05/05/2025	22.6	ug/L	No
Boron	05/05/2025	17	ug/L	No
Cadmium	05/05/2025	0.003<MDL	ug/L	No
Chromium	05/05/2025	0.19	ug/L	No
Lead	Exempt			
Mercury	05/05/2025	0.01>MDL	ug/L	No
Selenium	05/05/2025	0.160	ug/L	No
Uranium	05/05/2025	0.359	ug/L	No

The following tables summarize the sampling and testing results for the Organic Parameters listed in Schedule 24, during the reporting period or the most recent sample results for the Port Dover DWS.

Table 9 – Port Dover WTP Organic Parameters (Schedule 24)

Parameter	Sample Date (dd/mm/yyyy)	Result Value	Unit of Measure	Exceedance
Alachlor	05/05/2025	0.02 <MDL	ug/L	No
Atrazine + N-dealkylated metobolites	05/05/2025	0.06	ug/L	No
Azinphos-methyl	05/05/2025	0.05 <MDL	ug/L	No
Benzene	05/05/2025	0.32 <MDL	ug/L	No
Benzo(a)pyrene	05/05/2025	0.004 <MDL	ug/L	No
Bromoxynil	05/05/2025	0.33 <MDL	ug/L	No
Carbaryl	05/05/2025	0.05 <MDL	ug/L	No
Carbofuran	05/05/2025	0.01 <MDL	ug/L	No
Carbon Tetrachloride	05/05/2025	0.17 <MDL	ug/L	No
Chlorpyrifos	05/05/2025	0.02 <MDL	ug/L	No
Diazinon	05/05/2025	0.02 <MDL	ug/L	No
Dicamba	05/05/2025	0.20 <MDL	ug/L	No
1,2-Dichlorobenzene	05/05/2025	0.41 <MDL	ug/L	No
1,4-Dichlorobenzene	05/05/2025	0.36 <MDL	ug/L	No
1,2-Dichloroethane	05/05/2025	0.35 <MDL	ug/L	No

Parameter	Sample Date (dd/mm/yyyy)	Result Value	Unit of Measure	Exceedance
1,1-Dichloroethylene (vinylidene chloride)	05/05/2025	0.33 <MDL	ug/L	No
Dichloromethane	05/05/2025	0.35 <MDL	ug/L	No
2-4 Dichlorophenol	05/05/2025	0.15 <MDL	ug/L	No
2,4-Dichlorophenoxy acetic acid (2,4-D)	05/05/2025	0.19 <MDL	ug/L	No
Diclofop-methyl	05/05/2025	0.40 <MDL	ug/L	No
Dimethoate	05/05/2025	0.06 <MDL	ug/L	No
Diquat	05/05/2025	1 <MDL	ug/L	No
Diuron	05/05/2025	0.03 <MDL	ug/L	No
Glyphosate	05/05/2025	1 <MDL	ug/L	No
Malathion	05/05/2025	0.02 <MDL	ug/L	No
MCPA	05/05/2025	0.00012 <MDL	mg/L	No
Metolachlor	05/05/2025	0.02	ug/L	No
Metribuzin	05/05/2025	0.02 <MDL	ug/L	No
Monochlorobenzene	05/05/2025	0.3 <MDL	ug/L	No
Paraquat	05/05/2025	1 <MDL	ug/L	No
Pentachlorophenol	05/05/2025	0.15 <MDL	ug/L	No
Phorate	05/05/2025	0.01 <MDL	ug/L	No
Picloram	05/05/2025	1 <MDL	ug/L	No
Polychlorinated Biphenyls(PCB)	05/05/2025	0.04 <MDL	ug/L	No
Prometryne	05/05/2025	0.03 <MDL	ug/L	No
Simazine	05/05/2025	0.01 <MDL	ug/L	No
Terbufos	05/05/2025	0.01 <MDL	ug/L	No
Tetrachloroethylene	05/05/2025	0.35 <MDL	ug/L	No
2,3,4,6-Tetrachlorophenol	05/05/2025	0.20 <MDL	ug/L	No
Triallate	05/05/2025	0.01 <MDL	ug/L	No
Trichloroethylene	05/05/2025	0.44 <MDL	ug/L	No
2,4,6-Trichlorophenol	05/05/2025	0.25 <MDL	ug/L	No
Trifluralin	05/05/2025	0.02 <MDL	ug/L	No
Vinyl Chloride	05/05/2025	0.17 <MDL	ug/L	No

The following table summarizes the sampling and testing results for Trihalomethane (THM) and Haloacetic Acids (HAA) in the distribution system, during the reporting period or the most recent sample results for the Port Dover DWS. The regulatory limit is

based on the running annual average (RAA) of quarterly results and is 100ug/L for THM and 80ug/L for HAA.

Table 10 – Distribution System THM & HAA Results (Schedule 13)

Parameter	Sample Date (dd/mm/yyyy)	Result Value	Unit of Measure	Exceedance
Trihalomethane (THM) RAA = 38ug/L	10/02/2025 05/05/2025 11/08/2025 03/11/2025	27 28 65 58	ug/L ug/L ug/L ug/L	No
Haloacetic Acids (HAA) RAA = 21.9ug/L	10/02/2025 05/05/2025 11/08/2025 05/11/2025	11.0 18.6 26.6 27.6	ug/L ug/L ug/L ug/L	No

The following table summarizes the Microcystin sampling results, as required under the MDWL – Schedule C: 7.0 Harmful Algal Blooms, during the reporting period or the most recent sample results for the Port Dover DWS.

Table 11 – Microcystin Sampling Results

Sample Date (dd/mm/yyyy)	Raw Water Results	Treated Water Results	Unit of Measure	Exceedance
03/06/25	0.1<MDL	0.1<MDL	ug/L	No
10/06/25	0.1<MDL	0.1<MDL		
17/06/25	0.1<MDL	0.1<MDL		
24/06/25	0.1<MDL	0.1<MDL		
02/07/25	0.1<MDL	0.1<MDL		
08/07/25	0.1<MDL	0.1<MDL		
15/07/25	0.1<MDL	0.1<MDL		
22/07/25	0.1<MDL	0.1<MDL		
29/07/25	0.1<MDL	0.1<MDL		
05/08/25	0.1<MDL	0.1<MDL		
12/08/25	0.1<MDL	0.1<MDL		
19/08/25	0.1<MDL	0.1<MDL		
26/08/25	0.1<MDL	0.1<MDL		
02/09/25	0.1<MDL	0.1<MDL		
09/09/25	0.1<MDL	0.1<MDL		
16/09/25	0.1<MDL	0.1<MDL		
23/09/25	0.1<MDL	0.1<MDL		
01/10/25	0.1<MDL	0.1<MDL		
07/10/25	0.3	0.1<MDL		
14/10/25	0.1	0.1<MDL		
21/10/25	0.1<MDL	0.1<MDL		
28/10/25	0.1<MDL	0.1<MDL		

The following table summarizes the Lead sampling and testing results, as set out in Schedule 15.1 Lead, during the reporting period or the most recent sample results for the Port Dover DWS. Norfolk County follows the Reduced sampling schedule which requires pH and alkalinity samples be collected twice a year and lead samples collected every third year from the distribution system.

Table 12 – Lead Sampling & Testing (Schedule 15.1)

Parameter	Sample Date (dd/mm/yyyy)	Number of Samples	Range of Results	Number of Exceedances
Lead (ug/L)	04/03/2024 23/09/2024	3 3	0.15 – 0.18 0.20 – 0.45	0 0
pH	03/03/2025 22/09/2025	3 3	7.5 – 7.6 7.15 – 7.20	0 0
Alkalinity (mg/L)	03/03/2025 22/09/2025	3 3	109 – 110 112 – 116	0 0