MUNICIPALITY OF
PORT HOPE
ENVIRONMENTAL SERVICES

Drinking Water System

2025 Annual and Summary Report



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March 3, 2026

Municipality of Port Hope
56 Queen Street
Port Hope, ON
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RE: 2025 Annual and Summary Report – Port Hope Drinking Water System No. 260058006

Dear Mr. Mike Melinyshyn:

We are pleased to provide the 2025 Annual and Summary Report for the Municipality of Port Hope's Drinking Water System, as outlined in Section 11 and Schedule 22 of Ontario Regulation 170/03, made under the *Safe Drinking Water Act 2002.*

This report includes information from January 1, 2025, to December 31, 2025.

Sincerely,

Mike Stewart
Manager, Water
Municipality of Port Hope

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2025 Annual Drinking Water System Report

System Information

Drinking-Water System Number:	**260058006**
Drinking-Water System Name:	**Port Hope Drinking Water System**
Drinking-Water System Owner:	**The Corporation of the Municipality of Port Hope**
Drinking-Water System Category:	**Large Municipal Residential System**
Reporting Period:	**January 1, 2025 to December 31, 2025**

Does your Drinking-Water System serve more than 10,000 people?

Yes

Is your annual report available to the public at no charge on a web site on the Internet?

Yes – please visit www.porthope.ca

Location where Summary Report required under O. Reg. 170/03 Schedule 22 will be available for inspection.

Port Hope Municipal Town Hall
56 Queen Street
Port Hope, ON L1A 3Z9

*Also available at the Municipal Libraries (Mary J Benson Branch and the Community Hub) and the Water Treatment Plant.

List all Drinking-Water Systems (if any), which receive all of their drinking water from your system:

N/A

Indicate how you notified system users that your annual report is available and is free of charge.

[X] Public access/notice via the web

[X] Public access/notice via Government Office

[ ] Public access/notice via a newspaper

[X] Public access/notice via Public Request

[X] Public access/notice via a Public Library

[ ] Public access/notice via other method:

Description of the Drinking Water System

Port Hope Drinking Water System is classified as Large Municipal Residential System and consists of the Water Treatment Plant (WTP) and the Distribution System. The WTP provides ultrafiltration water treatment for the water system. The WTP is located at 35 Marsh St in the Municipality of Port Hope, County of Northumberland, Ontario. The Municipality is the Owner and Operator of the Port Hope Drinking Water System that serves the community of Port Hope with a population of approximately 17,300.

Drinking Water Quality Management System

Port Hope Drinking Water System is operated by an accredited Operating Authority and in accordance with the Municipal Drinking Water Licence # 146-101, the Drinking Water Works Permit # 146-201 and the Municipality's Drinking Water Quality Management System Operational Plan # 146-401.

The following describes the components of the Port Hope Drinking Water System:

Raw Water Source

The water supply for Port Hope WTP is obtained from Lake Ontario. Lake Ontario water is of good quality and can be described as a large body of clear-coloured water with low turbidity. The Lake water's temperature ranges from 0°C (winter) to approximately 25°C (summer). The raw water source is classified as surface water, which means that it is considered to be an unprotected source. Raw water requires full treatment at Port Hope's WTP to make it drinkable or potable.

Intake Structure

Raw water is taken into a 750 mm diameter intake pipe through the intake structure. The existing intake structure and 750 mm intake piping was retrofitted to include a 900 mm on shore addition. The intake is utilized to draw water from Lake Ontario to the low lift pumping station. The low lift pumping station is where water undergoes coarse screening.

Raw Water Pumping

The raw water pumping station consists of several raw water chambers, one (1) raw water travelling screen, two (2) manually cleaned screens (i.e., for standby purposes), and three (3) low lift pumps (with provision for a fourth). Raw water is dosed as required with chlorine

for Zebra Mussel control prior to the ultrafiltration process. The raw water quality is monitored by Operations staff at the WTP.

Water Treatment

Facility Type	Facility Name	Class	Certificate No.	Issue Date
Water Treatment Plant	Port Hope Water Treatment Plant	II	WT No. 3552	July 25, 2005

Raw water is treated by passing through the ultrafiltration system. The ultrafiltration process removes organics and solids as well as safeguards against giardia and cryptosporidium contamination. The water treatment facilities consist of a Zenon ZeeWeed 1000 membrane ultrafiltration system which includes four (4) membrane tanks (each tank contains two (2) filtration cassettes with a total capacity for four cassettes) and associated cleaning and backwashing equipment. Following ultrafiltration, filtered water is disinfected by using a chlorine gas system (primary disinfection). The post-chlorination is used to maintain a fixed chlorine residual level in the water leaving the WTP. Following the disinfection process, the water is pumped to the distribution system. Five (5) high lift pumps (with provision for a sixth) pump treated water to the distribution system. The WTP has a rated capacity of 20,300 m^3/day. It is expected that this capacity will provide potable water to the Municipality of Port Hope for a period greater than the 20-year planning period.

Process Wastewater System

The WTP provides process residue management consisting of equalization storage and solids separation. Two (2) equalization tanks precede two (2) parallel tube settling units. Settled solids at the base of each wastewater clarifier are pumped via a sewage pumping station (located outside the WTP) to the sanitary sewer. The wastewater supernatant is continuously analyzed for total chlorine residual and dechlorinated prior to a discharge to Lake Ontario.

Water Distribution System

Facility Type	Facility Name	Class	Certificate No.	Issue Date
Distribution System	Port Hope Water Distribution	III	WD No. 719	April 22, 2007

Due to Port Hope's hilly terrain, the community has been divided into two pressure zones. Zone 1 is located in the lower elevation areas (east end) of the community, whereas Zone

2 is located in the higher elevation areas (west end). Zone 2 pressure and flows are maintained via a booster pumping station, elevated water tower and an in-ground reservoir/ pumping station. Zone 1 pressure and flows are maintained via the WTP pumping station and standpipe.

Water Storage Facilities

At the WTP, potable water storage consists of twined reservoirs that have a total rated capacity of 4943 m^3. Off-site storage facility in Zone 1 includes a standpipe with a rated capacity of 1,080 m^3. Storage facilities in Zone 2 include an in-ground reservoir with a rated capacity of 2,270 m^3 and an elevated tank that can hold up to 3,000 m^3 of water.

Supervisory Control and Data Acquisition (SCADA)

The SCADA system consists of numerous PLC and computer systems that controls and monitors the drinking water system, while always tracking the water quality. Operational staff monitor and control these systems to ensure their proper operation and water quality. All Operational Staff for Port Hope Drinking Water System are fully certified by the Ministry of the Environment, Conservation and Parks (Ministry).

List all water treatment chemicals used over this reporting period:

Chemical Systems

All chemicals and materials used in the operation of the Port Hope Drinking Water System which came into contact with drinking water, met the AWWA and the ANSI safety criteria standards NSF/60 and NSF/61.

Table 1 - Descriptions of Chemical Feed Systems at the Port Hope WTP

Treatment System	Chemical	Purpose	Chemical Concentration (%)
Membrane Filtration	Sodium Hypochlorite	Membrane cleaning (CEB & high pH CIP)	12
Membrane Filtration	Citric Acid	Membrane cleaning (low pH CIP)	50
Membrane Filtration	Hydrochloric Acid	Membrane cleaning (low pH CIP)	30 - 40
Membrane Filtration	Sodium Bisulphite	Dechlorination of membrane cleaning wastewater	38
Membrane Filtration	Sodium Hydroxide	Membrane wastewater pH control	50

Treatment System	Chemical	Purpose	Chemical Concentration (%)
Membrane Filtration	Polyaluminum Chloride	Membrane Pre-treatment	N/A
Waste Residual Management System	Sodium Bisulphite	Dechlorination of wastewater supernatant from clarifier/thickeners	38
Disinfection Systems	Chlorine gas	• Zebra mussel control • Primary disinfection at inlet of chlorine contact chambers • Secondary disinfection at high lift chambers	100

Table 2 - Summary of Annual Chemical Usage at Port Hope WTP

Treatment System	Chemical	Volume (Litre) or Weight (kg)	Range of Monthly Quantities Used
Membrane Filtration	Sodium Hypochlorite	18,474 L	1,498 – 1,782 L
Membrane Filtration	Citric Acid	6,256 L	470 - 688 L
Membrane Filtration	Hydrochloric Acid	860 L	60 – 100 L
Membrane Filtration	Sodium Bisulphite	10,360 L	781 – 1,089 L
Membrane Filtration	Sodium Hydroxide	3,123 L	241 – 324 L
Membrane Filtration Pre-treatment	Poly-aluminum Chloride	3,269 L	262 – 374 L
Waste Residual Management System	Sodium Bisulphite	-	Combined with membrane volumes
Disinfection Systems	Chlorine gas for Zebra mussel control	-	Volume included in Primary disinfection
Disinfection Systems	Chlorine gas for primary disinfection at inlet of chlorine contact chambers	3,399 kg	236 – 395 kg
Disinfection Systems	Chlorine gas for secondary disinfection at high lift chambers	609 kg	3 – 103 kg

Were any significant expenses incurred to?
[X] Install required equipment

[X] Repair required equipment

[X] Replace required equipment

Please provide a brief description and a breakdown of monetary expenses incurred:

Preventative maintenance activities for equipment are scheduled and completed routinely along with other lifecycle replacement needs. In addition to the PM activities, the following capital expenditures were incurred throughout this Reporting Period.

Description	Monetary Expenses
Zone 1 Floating Storage Detailed Design	$ 23,245
Upgrade Booster Station Pump P2503 and Additional Generator	$ 356,669
Watermain Reconstruction on Walton Street	$ 1,066,311
Neptune Water Meter Replacement Program	$ 2,442,036
Train 2 Membrane Replacement	$ 140,775
Primary Chlorine Injection Redundancy	$ 9,032
Backpulse Tank Repairs and Redundancy	$ 35,388
Truck 4 – Cube Van	$ 48,702

Notices submitted in accordance with subsection 18(1) of the Safe Drinking Water Act or section 16-4 of Schedule 16 of O.Reg.170/03 and reported to Spills Action Centre during this Reporting Period:

Table 3 - Summary of Reportable Incidents

Incident Date	Parameter	Result	Unit of Measure	Corrective Action	Corrective Action Completed
June 5, 2025	Continuous Monitoring of Free Chlorine Residual required to achieve	N/A	N/A	Power was restored to analyzer immediately. Chlorine residual grab samples taken. Treated water microbiological sampling (Total Coliform, E.	June 11, 2025

	primary disinfection – minimum testing and recording frequency of 5 minutes not achieved.			Coli, and Heterotrophic Plate Count) completed and tested. Results received: TC=0, EC=0, HPC=0. Preventative measures taken included locking out power source and installing a physical barrier to analyzer, larger label added to help identify analyzer power supply and alarm programming was added on SCADA.	

Microbiological Testing completed under Schedule 10, 11, or 12 of Regulation 170/03 during this Reporting Period:

Table 4 - Microbiological Testing Summary

Type of Sample	Number of Samples	Range of E.Coli Or Fecal Results (min #) – (max #)	Range of Total Coliform Results (min #) – (max #)	Number of HPC Samples	Range of HPC Results (min #) – (max #)
Raw	52	0-NDOGT[1]	0-NDOGT[1]	N/A	N/A
Treated	54	0	0	54	0-6
Distribution	364	0	0	364	0-20

Operational Testing completed under Schedule 7, 8, or 9 of Regulation 170/03 during the Reporting Period covered by this Annual Report:

[1] NDOGT stands for No DATA: Overgrown with Target Bacteria. Prior, and subsequent data sets within normal range.

Table 5 - Operational Testing Summary

Parameters	Number of Grab Samples[2]	Range of Results (min #)-(max #)	Annual Average	Unit of Measure
Raw Turbidity	8760	0.00 – 99.98	2.10	NTU
Treated Turbidity	8760	0.00 – 1.53	0.04	NTU
Primary Chlorine	8760	0.64 – 4.15	1.21	mg/L
Post-Chlorination Chlorine	8760	0.21 – 3.42	1.51	mg/L
Distribution Chlorine (Grab Samples)	1413	0.25 – 2.09	1.32	mg/L
Distribution Chlorine (Reservoir)	8760	0.98 – 3.03	1.47	mg/L
Distribution Chlorine (Elevated Tank)	8760	0.83 – 2.43	1.48	mg/L
Fluoride (If the DWS provides Fluoridation)	N/A	N/A	N/A	N/A

Table 6 - Summary of additional testing and sampling carried out in accordance with the requirement of an Approval, Order, or other Legal Instrument

Date of legal instrument issued	Parameter	Date Sampled	Result (min#) – (max #)	Unit of Measure
August 1, 2025 Municipal Drinking Water License 146-101	Process Wastewater, Total Chlorine Residual	Continuously	0.00 Running Annual Average	mg/L
August 1, 2025 Municipal Drinking Water License 146-101	Process Wastewater, Total suspended solids	Monthly	14.00 Running Annual Average	mg/L
August 1, 2025 Municipal Drinking Water License 146-101	Uranium (Treated Water)	Weekly	0.348-0.579	ug/L
August 1, 2025 Municipal Drinking Water License 146-101	Arsenic (Treated Water)	Weekly	0.80-1.10	ug/L

[2] For continuous monitors, 8760 is used as the number of samples.

Table 7 - Summary of Inorganic parameters tested during this Reporting Period or the most recent Sample Results

Parameter	Sample Date	Result Value	Unit of Measure	Exceedance
Antimony	August 6, 2025	0.6 <MDL	ug/L	No
Arsenic	August 6, 2025	1.0	ug/L	No
Barium	August 6, 2025	23.5	ug/L	No
Boron	August 6, 2025	21	ug/L	No
Cadmium	August 6, 2025	0.003	ug/L	No
Chromium	August 6, 2025	0.24	ug/L	No
Lead[3]	N/A			
Mercury	August 6, 2025	0.01 <MDL	ug/L	No
Selenium	August 6, 2025	0.15	ug/L	No
Sodium	August 6, 2025	13.9	mg/L	No
Uranium	August 6, 2025	0.406	ug/L	No
Fluoride	August 6, 2025	0.20	mg/L	No
Nitrite	April 2, 2025	0.003 <MDL	mg/L	No
Nitrate	April 2, 2025	0.575 (MAX for year)	mg/L	No

Table 8 - Summary of Lead Testing under Schedule 15.1 during this Reporting Period

Sampling Period	Location Type	Number of Samples	Range of Lead Results (ug/L), (min – max)	Number of Exceedances
Winter Sampling Period[4]		0		
Summer Sampling Period[5]		0		

[3] Only for drinking water systems testing under Schedule 15.2; this includes large municipal non-residential systems, small municipal non-residential systems, non-municipal seasonal residential systems, large non-municipal non-residential systems, and small non-municipal non-residential systems.
[4] Winter Sampling Period runs from December 15 – April 15. The last lead sample collected in accordance with the Regulation was sampled on February 6, 2024.
[5] Summer Sampling Period runs from June 15 – October 15. The last sample collected in accordance with the Regulation was sampled on September 4, 2024.

The Port Hope Drinking Water System is exempt from sampling in accordance with Section 15.1, 5(9) under Schedule 15 of. O. Reg. 170/03. Sampling and testing for Lead is not required until the Winter 2026/2027 and Summer 2027 sampling periods.

Table 9 - Summary of Organic parameters sampled during this Reporting Period:

Parameter	Sample Date	Result Value	Unit of Measure	Exceedance
Alachlor	August 6, 2025	0.02 <MDL	ug/L	No
Atrazine + N-dealkylated metobolites	August 6, 2025	0.07	ug/L	No
Azinphos-methyl	August 6, 2025	0.05 <MDL	ug/L	No
Benzene	August 6, 2025	0.32 <MDL	ug/L	No
Benzo(a)pyrene	August 6, 2025	0.004 <MDL	ug/L	No
Bromoxynil	August 6, 2025	0.33 <MDL	ug/L	No
Carbaryl	August 6, 2025	0.05 <MDL	ug/L	No
Carbofuran	August 6, 2025	0.01 <MDL	ug/L	No
Carbon Tetrachloride	August 6, 2025	0.17 <MDL	ug/L	No
Chlorpyrifos	August 6, 2025	0.02 <MDL	ug/L	No
Diazinon	August 6, 2025	0.02 <MDL	ug/L	No
Dicamba	August 6, 2025	0.20 <MDL	ug/L	No
1,2-Dichlorobenzene	August 6, 2025	0.41 <MDL	ug/L	No
1,4-Dichlorobenzene	August 6, 2025	0.36 <MDL	ug/L	No
1,2-Dichloroethane	August 6, 2025	0.35 <MDL	ug/L	No
1,1-Dichloroethylene	August 6, 2025	0.33 <MDL	ug/L	No
Dichloromethane	August 6, 2025	0.35 <MDL	ug/L	No
2-4 Dichlorophenol	August 6, 2025	0.15 <MDL	ug/L	No
2,4-Dichlorophenoxy acetic acid (2,4-D)	August 6, 2025	0.19 <MDL	ug/L	No
Diclofop-methyl	August 6, 2025	0.40 <MDL	ug/L	No
Dimethoate	August 6, 2025	0.06 <MDL	ug/L	No
Diquat	August 6, 2025	1 <MDL	ug/L	No
Diuron	August 6, 2025	0.03<MDL	ug/L	No
Glyphosate	August 6, 2025	1 <MDL	ug/L	No
Malathion	August 6, 2025	0.02 <MDL	ug/L	No
MCPA	August 6, 2025	0.00012 <MDL	ug/L	No
Metolachlor	August 6, 2025	0.01	ug/L	No
Metribuzin	August 6, 2025	0.02 <MDL	ug/L	No
Monochlorobenzene	August 6, 2025	0.3 <MDL	ug/L	No
Paraquat	August 6, 2025	1 <MDL	ug/L	No

Parameter	Sample Date	Result Value	Unit of Measure	Exceedance
Pentachlorophenol	August 6, 2025	0.15 <MDL	ug/L	No
Phorate	August 6, 2025	0.01 <MDL	ug/L	No
Picloram	August 6, 2025	1 <MDL	ug/L	No
Polychlorinated Biphenyls(PCB)	August 6, 2025	0.04 <MDL	ug/L	No
Prometryne	August 6, 2025	0.03 <MDL	ug/L	No
Simazine	August 6, 2025	0.01 <MDL	ug/L	No
THM (Running Annual Average of Quarterly Results**)**	2025	47	ug/L	No
HAA (Running Annual Average of Quarterly Results**)**	2025	26	ug/L	No
Terbufos	August 6, 2025	0.01 <MDL	ug/L	No
Tetrachloroethylene	August 6, 2025	0.35 <MDL	ug/L	No
2,3,4,6-Tetrachlorophenol	August 6, 2025	0.20 <MDL	ug/L	No
Triallate	August 6, 2025	0.01 <MDL	ug/L	No
Trichloroethylene	August 6, 2025	0.44 <MDL	ug/L	No
2,4,6-Trichlorophenol	August 6, 2025	0.25 <MDL	ug/L	No
Trifluralin	August 6, 2025	0.02 <MDL	ug/L	No
Vinyl Chloride	August 6, 2025	0.17 <MDL	ug/L	No

Table 10 - Inorganic or Organic parameter(s) that have exceeded half the standard prescribed in Schedule 2 of Ontario Drinking Water Quality Standards

Parameters	Result Value	Unit of Measure	Date of Sample
N/A			

2025 Summary Report to Council

In accordance with Schedule 22 of Ontario Regulation 170/03, a Summary Report shall be prepared no later than March 31st for the preceding year and supplied to members of Municipal Council.

The Report shall list the requirements of the Act, Regulations, Drinking Water Works Permit (DWWP), Municipal Drinking Water Licence (MDWL), and any Orders applicable to the system that were not met at any time during the period covered by the Report.

The Report must also include a summary of the quantities and flow rates of potable (drinkable) water supplied during the reporting period, including monthly average and maximum daily flows. A comparison of these flows, to the rated capacity and flow rates approved in the system Drinking Water Works Permit and Municipal Drinking Water Licence, must also be provided.

Acts, Regulations, and Prescribed Instruments applicable to the Port Hope Drinking Water System (DWS)

The Port Hope DWS is governed by, and must operate their DWS in accordance with the following Acts and Regulations at minimum:

- Safe Drinking Water Act, 2002;
  - O. Reg. 170/03 – Drinking Water Systems;
  - O. Reg. 128/04 – Certification of Drinking Water System Operators and WQA;
  - O. Reg. 169/03 – Ontario Drinking Water Quality Standards;
- Environmental Protection Act, where applicable;
- Clean Water Act, where applicable;
- Municipal Drinking Water Licence 146-101;
- Municipal Drinking Water Works Permit 146-201; and
- Permit to Take Water 2205-7DQHGN.

Compliance with Prescribed Instruments, Acts and Regulations

Safe Drinking Water Act

The Municipality, acting as the Operating Authority for the operation of the Port Hope Drinking Water System, endeavors to be fully compliant with Ontario Acts, Regulations and Orders. The 2025 Ministry inspection commenced on November 25, 2025, with a site tour of the DWS. The inspection was completed on December 17, 2025. One (1)

reportable incident, listed above in Table 3 and below in the following paragraph, occurred during the reporting period which resulted in one (1) non-compliant event noted in the inspection report. No best management practices were identified. An inspection rating record of 95.46% was received.

One notice was submitted to the Ministry in accordance with section 16-3 of Schedule 16 of O.Reg.170/03 and reported to the Haliburton Kawartha Pineridge District Health Unit (now called Lakelands Public Health) and the Spills Action Centre during this Reporting Period. Corrective actions were taken immediately. No Boil Water Advisory was issued by the Health Unit. Chlorine residual grab samples were taken. Treated water microbiological sampling (Total Coliform, E. Coli, and Heterotrophic Plate Count) was completed and tested, revealing no adverse effects to public health. Details of the reportable event can be found in Table 3 – Summary of Reportable Incidents above.

SAI Global conducted an offsite surveillance system audit on the Municipality of Port Hope's Drinking Water Quality Management System (QMS) on March 24, 2025. No non-conformances or opportunities for improvement were identified during the audit. The audit determined that the QMS is effectively implemented, maintained, and meets the requirements of the Drinking Water Quality Management Standard Version 2.0 – 2017.

In accordance with Schedule C, Condition 7.0 of the Port Hope Municipal Drinking Water Licence, a Harmful Algal Bloom Monitoring, Reporting, and Sampling Plan (Plan) shall be developed, kept up to date and shall be implemented when a potential harmful algal bloom is suspected or occurring. During the Reporting Period, monitoring of harmful algal blooms was conducted from June 1, 2025, until October 31, 2025. No harmful algal blooms were identified or suspected through visual inspection. No reporting or sampling was required during the Reporting Period. The Plan was reviewed and revised on August 6, 2025, to align with new conditions listed in our new MDWL. Prior to the next implementation period (June 1, 2026-October 31, 2026), the Plan will be reviewed and adjusted, where necessary, based on observations made within the 2025 monitoring period and suspected or occurring HABSs reported outside the monitoring period in areas defined for visual observation in the Plan.

Clean Water Act

The Ganaraska Source Protection Plan was approved by the Ministry and came into effect on January 1, 2015. The Municipality has put necessary internal processes in place with the Planning, Fire and Emergency Services and Works and Engineering Departments to ensure compliance with the Source Protection Plan. The vulnerable

scores for the Port Hope Intake Protection Zone are too low to create prescribed significant drinking water threats within the Intake Protection Zone (IPZ) 1 and IPZ 2. The current local significant drinking water threats (SDWT) have been identified through an event-based modelling approach and are mitigated through emergency preparedness and sound operational practices.

In accordance with Schedule C, Condition 8.0 of the Port Hope Municipal Drinking Water Licence, an Assessment of Fuel Storage and Handling shall be prepared and at minimum shall, identify all locations that are part of the DWS where fuel is stored or handled within an IPZ, document each locations evaluation to determine if the fuel storage and handling poses a SDWT, and determine and document, where applicable, risk management measures that shall be implemented should the location pose a SDWT. Furthermore, any proposed alteration in the DWS, where fuel storage and handling alterations are involved, shall be assessed against circumstances under which an alteration could pose a SDWT. In 2025, the initial evaluations of eight (8) locations within the DWS where fuel is stored and handled resulting in zero (0) SDWTs identified. One (1) proposed alteration at the Victoria Street Booster Station was assessed to identify SDWTs under the Clean Water Act, 2006, resulting in zero (0) SDWTs identified. The Assessment of Fuel Storage and Handling is part of the Significant Drinking Water Threat Assessment Report for Proposed Alterations for Sewage Collection, Stormwater Management, and the Drinking Water System. The Assessment Report has been updated to include these assessments.

On April 9, 2025, Port Hope Fire Department reported a spill to the Spills Action Centre, due to firefighting measures that took place at Azko Nobel Wood Coatings Ltd., on 155 Rose Glen Road North where potential hazardous material had entered the catch basin which discharges into the Lake Ontario watershed. Corrective actions were taken to prevent contaminants from entering Lake Ontario. All parties involved were satisfied that there was no impact to the raw water intake or drinking water. No further action was required by the Water Department.

On December 28, 2025, the Port Hope Water Department reported a spill to the Spills Action Centre, due to a watermain break that occurred at the northwest corner of the Walton Street bridge. Approximately 1200 cubic meters of drinking water, containing approximately 1.50 mg/L of free chlorine, entered the Ganaraska River. Corrective actions were taken. All parties involved were satisfied that there was no impact to the raw water intake or drinking water. No further action was required by the Water Department.

Permit to Take Water

In accordance with Permit to Take Water number 3130-AW2KR4, the Port Hope Water Treatment Plant is permitted to take 52,700 m3/day from Lake Ontario, at a maximum flow rate of 609.95 Litres/second. Throughout the Reporting Period, the Municipality of Port Hope WTP remained within compliance limits identified in the Permit to Take Water for the facility. A maximum daily taking of 8,474 m^3 was recorded on June 24, 2025. The maximum flow rate recorded was 325.38 L/s on April 1, 2025. For further details on Raw Water taking throughout the reporting period, see Table 11 – Monthly Summary of Net Daily Raw Water Volumes below.

Raw Water Flow Rates

A summary of the daily quantities of water being taken from Lake Ontario (i.e., net daily raw water volumes) are shown in Table 11. As shown, the highest daily raw water volume of 8,474 m^3/day has not exceeded 52,700 m^3/ day as stipulated in the Permit to Take Water.

Table 11 - Monthly Summary of Net Daily Raw Water Volumes

Month	Daily Average Raw Water Volume per Month (m^3/day)	Maximum Daily Raw Water Volume in Month (m^3/day)	Maximum Flow Rate (l/s)
January	4,264	5,600	254.24
February	4,332	5,513	170.92
March	4,373	5,280	323.63
April	4,583	5,773	325.38
May	4,717	5,788	202.20
June	5,533	8,474	212.52
July	5,954	7,413	325.28
August	5,181	6,861	317.32
September	4,642	5,528	188.85
October	4,495	5,796	289.29
November	4,108	4,804	303.95
December	4,142	5,208	314.52
Average	**4,694**		
Maximum		**8,474**	**325.38**

Drinking Water Works Permit/Municipal Drinking Water Licence

Summary of Water Quantities and Flow Rates

This section provides a summary of records related to flow rates of treated water, wastewater, and membrane instantaneous flow rates.

This section provides a summary and discussion on the quantity of treated water supplied in 2025 compared to the rated capacity specified in the Municipal Drinking Water Licence, including monthly average and maximum daily flows.

There are sufficient membrane modules installed to produce Phase 1 flows of 14,000 m^3/day. This flow rate is a total net daily production of treated water.

Given that there's downtime for cleaning, backwashing and membrane integrity tests, the instantaneous flow rate into the membranes is higher than the plant rated capacity as defined above. The current recovery rate is 92%, which provides an instantaneous factor of approximately 1.11 l/s. Thus, requiring an instantaneous raw water flow rate into the membranes of 15,540 m^3/day.

A summary of the above is provided below:

- Current plant rated capacity (net treated water production) = 14,000 m^3/day.
- Current instantaneous raw water flow rate at plant rated capacity = 15,540 m^3/day.
- Current maximum daily flow rate from membranes = 8,091 m^3/day. This has increased 1,981 m^3/day compared to 2024 and decreased only 72 m^3/day compared to 2023 and 41 m^3/day compared to 2022.

Membrane Instantaneous Flow Rates

A summary of the combined instantaneous flow rate from the membranes is shown in Table 12 – Monthly Summary of Combined Instantaneous Flowrate from Membranes below. As shown, the maximum instantaneous flow rate from the membranes has not exceeded the anticipated instantaneous raw water flow rate of 15,540 m^3/day.

Table 12 - Monthly Summary of Combined Instantaneous Flowrate from Membranes

Month	Daily Average Per Month	Maximum Instantaneous Flow Rate (l/s)	Maximum Instantaneous Flow Rate (m^3/day)
January	3,952	61	5,262
February	3,885	58	5,033

Month	Daily Average Per Month	Maximum Instantaneous Flow Rate (l/s)	Maximum Instantaneous Flow Rate (m^3/day)
March	4,088	57	4,891
April	4,246	63	5,412
May	4,370	62	5,338
June	5,219	94	8,091
July	5,615	80	6,903
August	4,908	75	6,480
September	4,421	62	5,338
October	4,327	64	5,559
November	3,951	54	4,683
December	3,957	59	5,059
Average	**4,412**	**66**	
Maximum		**94**	**8,091**

Treated Water Flow Rates

A summary of the treated water flows is shown in Table 13 – Monthly Summary of Treated Water Flows. As shown, the plant rated capacity of 20,300 m^3/day was not exceeded. The maximum daily water demand reached 33.34% of the plant rated capacity, averaging 24.43% over the year.

Table 13 - Monthly Summary of Treated Water Flows

Month	Daily Average per Month (m^3/day)	Maximum Daily (m^3/day)	% Max/ Rated Capacity	Maximum Flow Rate (l/s)
January	3,657	4,425	21.80	220.13
February	3,626	4,069	20.05	217.85
March	3,804	4,681	23.06	235.28
April	3,957	4,670	23.00	243.12
May	4,086	4,785	23.57	242.89
June	4,874	6,768	33.34	227.89

Month	Daily Average per Month (m^3/day)	Maximum Daily (m^3/day)	% Max/ Rated Capacity	Maximum Flow Rate (l/s)
July	5,300	6,265	30.86	230.36
August	4,575	5,515	27.17	218.58
September	4,113	4,694	23.12	224.68
October	4,022	4,560	22.46	228.34
November	3,685	4,346	21.41	245.92
December	3,683	4,724	23.27	225.15
Average	**4,115**		**24.43**	**230.02**
Maximum		**6,768**	**33.34**	**245.92**

Wastewater Flow Rates

Wastewater is generated on-site from cleaning the membranes utilizing the following processes: backwashing, maintenance cleans, and recovery cleans. It has been anticipated that approximately 10% of the raw water volume is used for these processes, resulting in the plant recovery rate of approximately 90%.

Table 14 – Monthly Summary of Wastewater Flows shows that wastewater production, in any given month, has averaged 16.27% of the raw water flows, which is 6.27% more than the anticipated 10% wastewater production.

Table 14 - Monthly Summary of Wastewater Flows

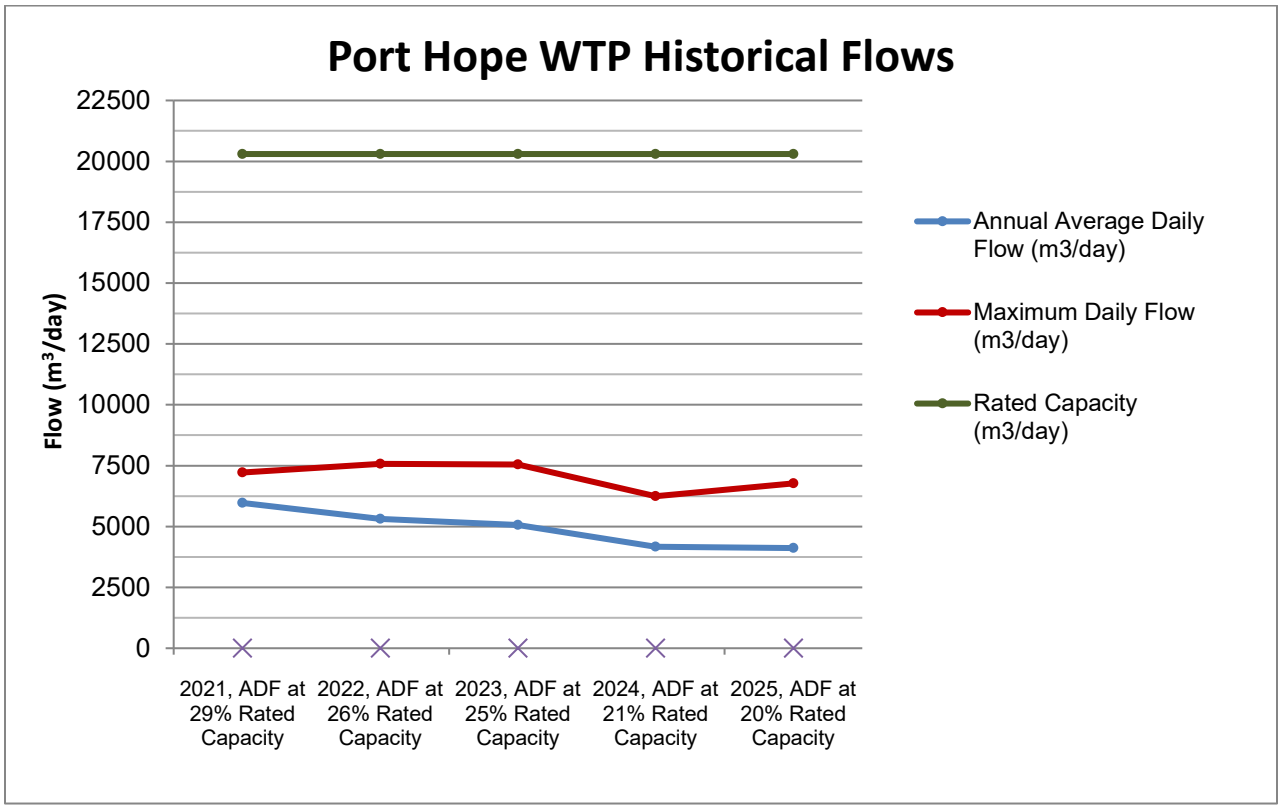
Month	Total Monthly Raw Water Volume (m^3)	Total Monthly Wastewater Volume (m^3)	% Wastewater/ Raw
January	132,195	22,618	17.11%
February	121,304	20,813	17.16%
March	135,570	22,238	16.40%
April	137,486	23,660	17.21%
May	146,221	24,194	16.55%
June	165,997	25,223	15.19%
July	184,563	28,025	15.18%
August	160,622	26,406	16.44%

Month	Total Monthly Raw Water Volume (m^3)	Total Monthly Wastewater Volume (m^3)	% Wastewater/ Raw
September	139,261	22,399	16.08%
October	139,333	21,505	15.43%
November	123,243	19,428	15.76%
December	128,405	21,418	16.68%
Average	**142,850**	**23,161**	**16.27%**
Maximum	**184,563**	**28,025**	**17.21%**

Historical Flow Comparison

Accounting for 24% of the facility's rated capacity, the 5-year Average Daily Flow (ADF) is 4,925 m^3/day. The following figure below shows the 5-year average daily flows for the years 2021 to 2025, including max daily flows and percentage of rated capacity, for each year, respectively.

Figure 1 - Historical Flow Comparison



Sampling Analytical Results

This section provides a summary of analytical results of sampling required by Ontario Drinking Water Quality Standards (ODWQS) and conditions in the Municipal Drinking Water Licence, Section 1.5 of Schedule C.

Microbiological

The bacteriological data in the raw, treated and distribution water supply are shown in Table 4 - Microbiology Testing Summary above. If either the treated or distribution water contain any total coliform (TC) or fecal coliform (FC), then the water quality is considered adverse. The corrective action in all cases is to report, resample, analyze and follow the instructions as directed by the Medical Officer of Health. The Municipality observed zero (0) incidents of adverse samples in 2025.

Turbidity

Permeate water turbidity readings from all four membrane trains averaged 0.02 NTU in 2025. Performance criteria for filtered water turbidity of less than or equal 0.1 NTU in 99% of the measurements were met for each filter train in 2025.

Table 15 - Analysis of Permeate Water Turbidity Data

Month	Sampling Location	Train 1		Train 2		Train 3		Train 4	
		Average (NTU)	% <=0.1	Average (NTU)	% <=0.1	Average (NTU)	% <=0.1	Average (NTU)	% <=0.1
January	On-line	0.02	100.0	0.01	100.0	0.02	100.0	0.02	100.0
February	On-line	0.02	100.0	0.01	100.0	0.02	100.0	0.02	100.0
March	On-line	0.02	100.0	0.01	100.0	0.02	100.0	0.02	99.9
April	On-line	0.02	100.0	0.02	100.0	0.03	99.9	0.02	100.0
May	On-line	0.03	100.0	0.03	100.0	0.04	100.0	0.03	100.0
June	On-line	0.02	99.8	0.02	99.9	0.02	100.0	0.02	100.0
July	On-line	0.02	100.0	0.02	100.0	0.02	100.0	0.02	100.0
August	On-line	0.02	100.0	0.02	100.0	0.02	100.0	0.02	100.0
September	On-line	0.02	100.0	0.03	100.0	0.02	100.0	0.02	100.0
October	On-line	0.02	100.0	0.02	100.0	0.02	99.9	0.02	100.0
November	On-line	0.02	100.0	0.02	100.0	0.02	100.0	0.02	100.0
December	On-line	0.02	100.0	0.01	100.0	0.02	99.9	0.02	99.9

Month	Sampling Location	Train 1		Train 2		Train 3		Train 4	
		Average (NTU)	% <=0.1	Average (NTU)	% <=0.1	Average (NTU)	% <=0.1	Average (NTU)	% <=0.1
Average		**0.02**		**0.02**		**0.02**		**0.02**	

Disinfection

Primary and Post Chlorination Disinfection Chlorine Residuals
Primary disinfection: chlorine is added just prior to the dual cell contact chambers to target a free chlorine residual of 1.30 to 1.50 mg/l.

Post chlorination disinfection: chlorine is injected into the high lift equalization chambers, to maintain free chlorine residual of 1.50 mg/L, entering Zone 1 of the distribution system.

Table 16 - Summary of Primary and Post Chlorination Disinfection Free Chlorine Residuals

Location	Sample Count	Minimum Free Chlorine Residual (mg/L)	Average Free Chlorine Residual (mg/L)	Maximum Free Chlorine Residual (mg/L)
WTP – Primary Disinfection	continuous	0.64	1.21	4.15
WTP – Post Chlorination Disinfection	continuous	0.21	1.51	3.42

Secondary Disinfection Chlorine Residuals – Distribution System
The Procedure for Disinfection of Drinking Water in Ontario states that “the distribution system must be operated such that at all times and at all locations within the distribution system there is at least a detectable free chlorine residual of 0.05 mg/L at a pH 8.5 or lower.”

O. Reg. 170/03, Schedule 16-3.4 states that the distribution water quality is considered to be adverse if the free chlorine residual is measured to be less than 0.05 mg/L. The corrective action is to restore chlorination immediately and follow the instructions as directed by the Medical Officer of Health. All samples analyzed in 2025 met the regulatory requirement for free chlorine residual, being greater than 0.05 mg/L.

The Municipality has implemented the following objectives to comply with the Regulation:

- Scheduled flushing of dead-end water mains through automated flushing stations, blowoffs, and hydrants,
- Chlorine addition at the Zone 2 at the Elevated Tank and Reservoir, and
- Initiation of a “Capital Works” program to replace all 100 mm cast iron water mains and loop dead ends within the next ten (10) years.

Table 17 - Summary of Distribution Free Chlorine Residuals

Location	Sample Count	Minimum Distribution Chlorine Residual (mg/L)	Average Distribution Chlorine Residual (mg/L)	Maximum Distribution Chlorine Residual (mg/L)
Distribution – Jocelyn Street Reservoir	continuous	0.98	1.47	3.03
Distribution – Fox Rd. Elevated Water Tank	continuous	0.83	1.48	2.43
Distribution System, Grab Samples	1413	0.25	1.32	2.09

Supernatant Total Suspended Solids

Schedule C, Section 1.5 of the Municipal Drinking Water Licence states that the running annual average concentration of the suspended solids (TSS) in the effluent discharged from the Port Hope WTP into the natural environment shall not exceed 25 mg/L. Furthermore, as stated in Schedule C, Section 5.4, the total suspended solids composite sampling is required to be completed quarterly at the effluent discharge pipe. As shown below, the running annual average concentration of suspended solids has not exceeded the discharge limit of 25 mg/L and continuing efforts are made to optimize the process to ensure TSS content in the effluent remains below 25 mg/L.

Table 18 - Supernatant Discharge Total Suspended Solids

Location	Sample Count	Minimum Total Suspended Solids (mg/L)	Running Annual Average Total Suspended Solids (mg/L)	Maximum Total Suspended Solids (mg/L)
Supernatant Discharge at Outfall	12	6.0	14.00	45.0

Other Parameters

Table 19 lists deviations from Ontario Drinking Water Standards, Objectives and Guidelines (ODWSOG).

Table 19 - Deviations from ODWSOG

Parameter	Location	Operational Guideline (OG) /Aesthetic Objective (AO)	Annual Value(s) Observed	Comments
Raw Water Hardness (as $CaCO_3$)	Plant	80-100 mg/L (AO)	116 mg/L	Uncontrolled parameter
Treated Water Hardness (as $CaCO_3$)	Plant	80-100 mg/L (AO)	120 mg/L	Uncontrolled parameter
Treated Water Temperature	Plant	15 °C (OG)	4 – 25°C	Uncontrolled parameter

Abnormal or Emergency Drinking Water System Operating Conditions

There were no abnormal or emergency DWS operating conditions as a result of an emergency situation in 2025.

APPENDIX A

Ontario Ministry of the Environment, Conservation and Parks Compliance Inspection Results

(To view a copy of the Ontario Ministry of the Environment, Conservation and Parks Compliance Inspection Results, please contact mstewart@porthope.ca.)