



Chatham-Kent

Public Utilities Commission

2025 Annual Drinking Water Summary Report

Bothwell Drinking Water System

Reporting Period of January 1st – December 31st, 2025



This Annual Drinking Water Summary Report is prepared in accordance with the following requirements:

Ontario Regulation 170/03 – Drinking Water Systems	
Section 11	Annual Reports
Schedule 22	Summary Reports for Municipalities

1. INTRODUCTION AND BACKGROUND

1.1. System Description

Drinking-Water System Number:	260002551
Drinking-Water System Name:	Bothwell Distribution System
Drinking-Water System Owner:	PUC for the Municipality of Chatham-Kent
Drinking-Water System Category:	Large Municipal Residential
Municipal Drinking Water Licence:	027-104
Drinking Water Works Permit:	027-204
Period being reported:	January 1 – December 31, 2025

Source Water:

Surface Water	Lake Erie
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Treatment:

Tri-County Drinking Water System	Treated water supplied from the Tri-County Water Treatment Plant
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Distribution:

A pump station at the Glencoe Stand Pipe, pumps directly to Newbury, Wardsville, Appin, Melbourne and Bothwell, and rural areas by the Glencoe pipeline.

The Bothwell Distribution System is connected to the Southwest Middlesex Distribution System by a metering chamber at the corner of Hagerty Drive and Trillium Drive, in the former Mosa Township. The Bothwell Distribution System consists of approximately 19 km of watermains which services the community of Bothwell. Population served is approximately 1,100.

Secondary Disinfection	Chlorination – Sodium Hypochlorite
Storage	Bothwell Elevated Tank



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

Drinking Water System Name	Drinking Water System Number
None	

1.3. Description and breakdown of monetary expenses incurred

Expense	Cost (\$)
External Laboratory Analysis	10,437
Chemical Metering Pump Equipment	645

2. WATER QUANTITY

2.1. System Performance

According to the Municipal Drinking Water License, rated capacity is determined by the maximum daily treated volume from the treatment subsystem to the distribution system.

As the Bothwell Drinking Water System is a distribution system without treatment, there is no rated capacity associated with the water system.

Rated Capacity: Maximum Daily Treated Volume m ³ /day	Maximum Daily Volume m ³ /day	Maximum Daily Treated Volume vs Rated Capacity %
Not Applicable	1,322	Not Applicable

2.2. Total Distribution Water from the distribution system into the Elevated Tank:

The following table outlines total monthly flow, average daily flow, and maximum daily flow supplied to the Bothwell Elevated Tank, from the distribution system.

Month	Total Monthly Flow m ³ /day	Average Daily Flow m ³ /day	% of Rated Capacity	Maximum Daily Flow m ³ /day	% of Rated Capacity
Limits			Not Applicable		Not Applicable
January	7,566	244		1,322	
February	5,747	205		528	
March	6,168	199		399	
April	6,104	203		306	
May	6,757	218		406	
June	8,020	267		476	
July	8,049	260		414	
August	7,568	244		367	
September	7,202	240		392	
October	7,708	249		520	
November	7,985	266		427	
December	7,247	234		355	
	Total Yearly Flow m³/day	Average Daily Flow m³/day	Maximum %	Maximum m³/day	Maximum %
	86,121	236		1,322	

2.3. Total Distribution Water flows from the distribution system into the Elevated Tank (5 years):

The following table outlines historic total monthly flows from January 2021 until the end of the reporting period.

Month	2021 Total Monthly Flow m ³ /day	2022 Total Monthly Flow m ³ /day	2023 Total Monthly Flow m ³ /day	2024 Total Monthly Flow m ³ /day	2025 Total Monthly Flow m ³ /day
January	6,678	7,370	7,724	7,337	7,566
February	5,414	6,824	6,171	7,402	5,747
March	6,709	6,735	6,585	7,687	6,168
April	6,567	6,647	6,769	6,845	6,104
May	8,893	8,030	8,302	7,788	6,757
June	8,045	8,464	9,012	8,450	8,020
July	7,589	10,292	7,854	8,968	8,049
August	8,314	7,892	7,633	8,367	7,568
September	8,760	7,645	8,089	8,025	7,202
October	7,732	7,767	8,112	8,219	7,708
November	7,817	7,589	7,501	7,932	7,985
December	7,626	7,855	7,709	8,250	7,247
	Total Yearly Flow m³/day	Total Yearly Flow m³/day	Total Yearly Flow m³/day	Total Yearly Flow m³/day	Total Yearly Flow m³/day
	90,144	93,110	91,462	92,794	86,121

3. OPERATIONAL TESTING

3.1. Operational testing done under Schedule 7 of Regulation 170/03 during the period covered by this Annual Report:

As the Bothwell Drinking Water System is a distribution system without treatment, the operational testing done under Schedule 7 of Regulation 170/03 during the reporting period is not applicable.

The operational testing is conducted by the donor system (Tri-County Water Drinking Water System).

The operational testing reported below illustrates the chlorine concentration supplied from the Elevated Tank to the distribution system.

Parameter	Number of Grab Samples	Range of Results (min #) - (max #)
Turbidity	Not Applicable	
Chlorine (Distribution - Elevated Tank Discharge)	8760	0.46 – 2.37 mg/L
Fluoride	Not Applicable	

NOTE: For continuous monitors use 8760 as the number of samples.

4. WATER QUALITY MONITORING

4.1. Microbiological Testing done under the Schedule 10 of Regulation 170/03, during this reporting period:

As per Schedule 10 of Regulation 170/03, the Bothwell Distribution System is required to take the following samples:

Distribution Water:

At least eight distribution samples, plus one additional distribution sample for every 1,000 people served by the system, are taken every month, with at least one of the samples being taken in each week. Each distribution sample is tested for E.coli and TC and 25% of distribution samples are tested for HPC.

	Number of Samples	Range of E. coli Results (min #) - (max #)	Range of Total Coliform Results (min #) - (max #)	Number of HPC Samples	Range of HPC Results (min #) - (max #)
Tower Inlet	52	0 – 0	0 – 0	50	< 10 – 20
Distribution	289	0 – 0	0 – 0	285	< 10 – 40

4.2. Summary of Inorganic parameters tested during this reporting period or the most recent sample results:

As the Bothwell Drinking Water System is a distribution system without treatment, the summary of Inorganic parameters tested during the reporting period is not applicable.

As per Schedule 13 of Regulation 170/03, the donor system (Tri-County Water Drinking Water System) is required to take a treated water sample to be tested for the parameters outlined in Schedule 13 and 23.

Parameter	Sample Date	Result Value	MAC* Limit	Unit of Measure	Exceedance
Antimony			6	ug/L	
Arsenic			10	ug/L	
Barium			1,000	ug/L	
Boron			5,000	ug/L	
Cadmium			5	ug/L	
Chromium			50	ug/L	
Mercury			0.001	mg/L	
Selenium			50	ug/L	
Sodium			20	mg/L	
Uranium			20	ug/L	
Fluoride			1.5	mg/L	
Nitrite			1	mg/L	
Nitrate			10	mg/L	
Nitrite + Nitrate			-	mg/L	

* MAC: Maximum Acceptable Concentration

4.3. Summary of Organic parameters sampled during this reporting period or the most recent sample results:

As the Bothwell Drinking Water System is a distribution system without treatment, the summary of Organic parameters tested during the reporting period is not applicable.

As per Schedule 13 of Regulation 170/03, the donor system (Tri-County Water Drinking Water System) is required to take a treated water sample to be tested for the parameters outlined in Schedule 24.

Parameter	Sample Date	Result Value	MAC* Limit	Unit of Measure	Exceedance
Alachlor			5	ug/L	
Atrazine + N-dealkylated metabolites			5	ug/L	
Azinphos-methyl			20	ug/L	
Benzene			1	ug/L	
Benzo(a)pyrene			0.01	ug/L	
Bromoxynil			5	ug/L	
Carbaryl			90	ug/L	
Carbofuran			90	ug/L	
Carbon Tetrachloride			2	ug/L	
Chlorpyrifos (Dursban)			90	ug/L	
Diazinon			20	ug/L	
Dicamba			120	ug/L	
1,2-Dichlorobenzene			200	ug/L	
1,4-Dichlorobenzene			5	ug/L	
1,2-Dichloroethane			5	ug/L	
1,1-Dichloroethylene (vinylidene chloride)			14	ug/L	
Dichloromethane			50	ug/L	
2,4-Dichlorophenol			900	ug/L	
2,4-Dichlorophenoxy acetic acid (2,4-D)			100	ug/L	
Diclofop-methyl			9	ug/L	
Dimethoate			20	ug/L	
Diquat			70	ug/L	
Diuron			150	ug/L	
Ethylbenzene			140	ug/L	
Glyphosate			280	ug/L	
Malathion			190	ug/L	
2 Methyl-4-chlorophenoxyacetic acid (MCPA)			100	ug/L	
Metolachlor			190	ug/L	
Metribuzin (Sencor)			80	ug/L	
Monochlorobenzene			80	ug/L	

Paraquat			10	ug/L	
Pentachlorophenol			60	ug/L	
Phorate			2	ug/L	
Picloram			190	ug/L	
Polychlorinated Biphenyls (PCB)			3	ug/L	
Prometryne			1	ug/L	
Simazine			10	ug/L	
Terbufos			1	ug/L	
Tetrachloroethylene			10	ug/L	
2,3,4,6-Tetrachlorophenol			100	ug/L	
Toluene			60	ug/L	
Triallate			230	ug/L	
Trichloroethylene			5	ug/L	
2,4,6-Trichlorophenol			5	ug/L	
Trifluralin			45	ug/L	
Vinyl Chloride			1	ug/L	
Xylenes			90	ug/L	

* MAC: Maximum Acceptable Concentration

As per Schedule 13 of Regulation 170/03, The Bothwell Drinking Water System is required to ensure that at least one distribution sample is taken in each calendar quarter, from a point in the drinking water system's distribution system, or plumbing that is connected to the drinking water system, that is likely to have an elevated potential for the formation of Trihalomethanes (THMs). The results of THM sampling shall be monitored and expressed as a running annual average of quarterly results.

Parameter	Sample Date	Result Value	RAA Value	MAC* Limit	Unit of Measure	Exceedance
THMs	Jan 13	56.5	73.2	100	ug/L	No
	Apr 14	46.6	72.7			No
	Jul 14	68.0	72.5			No
	Oct 06	115.0	71.5			No

* MAC: Maximum Acceptable Concentration

As per Schedule 13 of Regulation 170/03, the Bothwell Drinking Water System is required to ensure that at least one distribution sample is taken in each calendar quarter, from a point in the drinking water system's distribution system or plumbing that is connected to the drinking water system, that is likely to have an elevated potential for the formation of haloacetic acids (HAAs). The results of HAA sampling shall be monitored and expressed as a running annual average of the quarterly results.

Parameter	Sample Date	Result Value	RAA Value	MAC* Limit	Unit of Measure	Exceedance
HAAs	Jan 13	24.0	38.5	80	ug/L	No
	Apr 14	25.0	36.5			No
	Jul 14	33.0	35.0			No
	Oct 06	60.0	35.5			No

* MAC: Maximum Acceptable Concentration

4.4. Summary of Lead analysis during this reporting period:

As per Schedule 15.1 of Regulation 170/03, the Bothwell Drinking Water System qualifies for reduced lead sampling. A minimum of 2 distribution samples must be taken and tested for lead during each of the following periods in the relevant 12-month period:

1. The period from December 15 to April 15.
2. The period from June 15 to October 15.

Any results displayed as less than (<) are below the detection limit of the accredited third-party laboratory.

Location Type	Number of Samples	Range of Lead Results (min #) - (max #)	MAC* Limit	Unit of Measure	Number of Exceedances / Adverses
Residential	0		10	ug/L	
Non-Residential	0				
Distribution	4	< 0.50 – < 0.50			0

* MAC: Maximum Acceptable Concentration

4.5. List any Inorganic or Organic parameter(s) that exceeded half the standard prescribed in Schedule 2 of Ontario Drinking Water Quality Standards.

As per Schedule 13-5 of Regulation 170/03, if a test result for any of the inorganic or organic parameters listed in Schedule 23/24 exceeds half of the standard prescribed for the parameter in Schedule 2 to the Ontario Drinking Water Quality Standards, the frequency of sampling and testing for that parameter under that section shall be increased so that at least one water sample is taken and tested every three months.

Parameter	Sample Date	Result Value	Half MAC*	Unit of Measure	Exceedance
<i>None during the reporting period</i>					

* MAC: Maximum Acceptable Concentration

4.6. Summary of additional testing and sampling carried out in accordance with the requirement of an approval, order or other legal instrument.

Parameter	Sample Date	Result Value	MAC*	Unit of Measure	Exceedance
<i>None during the reporting period</i>					

* MAC: Maximum Acceptable Concentration

4.7. Summary of additional voluntary sampling and testing during the reporting period or the most recent sample results.

Parameter	Sample Date	Result Value	MAC*	Unit of Measure	Exceedance
<i>None during the reporting period</i>					

* MAC: Maximum Acceptable Concentration

5. ADVERSE WATER QUALITY INCIDENTS

An adverse drinking water condition is identified by a test result or an observed event that that water may not be safe for consumption and/or detrimental to public health.

Adverse water quality indicators may be as a result of adverse test results that exceed the Ontario Drinking Water Quality Standards. Additional indicators of adverse water quality may be, but not limited to, inadequate filtration or disinfection, low distribution system pressure, evident or suspected contamination of the water system.

Depending on the severity of the adverse water quality indicator, the local Medical Officer of Health / Public Health Unit may issue a water advisory, such as a Boil Water Advisory or Do Not Drink Advisory.

Adverse water quality incidents require timely reporting to the local Medical Officer of Health / Public Health Unit and the Spills Action Centre (SAC) of the Ministry of the Environment, Conservation and Parks (MECP).

Adverse Water Quality Incidents	
<i>None during the reporting period</i>	
AWQI #:	Type:
Parameter:	
Result(s):	Limit:
Date Issued:	Date Resolved:
Details of Adverse:	
Actions Taken & Results Achieved:	

Boil Water Advisories	
<i>None during the reporting period</i>	
AWQI #:	Type:
Parameter:	
Result(s):	Limit:
Date Issued:	Date Rescinded:
Details of Boil Water Advisory:	
Affected Area:	
Actions Taken & Results Achieved:	

6. NON-COMPLIANCES

Failure to meet the standards outlined in provincial regulations, such as those set by the Safe Drinking Water Act, 2002, may result in non-compliance of such regulatory requirements. Additionally, failure to meet the requirements and conditions of the Municipal Drinking Water Licence and Drinking Water Works Permit may also result in a non-compliance.

Depending on the severity of the non-compliance, a non-compliance may affect the drinking water systems inspection rating, investigated with potential for charges/fines and provincial officers' orders issued all at the discretion of the Ministry of the Environment, Conservation and Parks (MECP).

Non-Compliances
<i>None during the reporting period</i>
Type:
Parameter:
Date(s) / Period:
Finding(s):
Criteria / Limit:
Details:
Action(s) Taken:

7. NON-CONFORMANCES

Not undertaking or consideration of drinking water system best management practices may result in a non-conformance of such practices. Best management practices are not mandatory or a regulatory requirement for implementation, but rather a recommendation by the Ministry of the Environment, Conservation and Parks (MECP), to improve the drinking water system or quality management system.

Non-Conformances
<i>None during the reporting period</i>
Type:
Parameter:
Date(s) / Period:
Finding(s):
Recommendation / Objective:
Action(s) Taken:

8. SPILL OF A POLLUTANT / DISCHARGE OF A CONTAMINANT

Spills of a pollutant or discharges of a contaminant to the natural environment which has or may have an adverse effect on or impairment of the natural environment. The requirements monitoring, reporting, remediation of spills and containment discharges are set out in the Environmental Protection Act, R.S.O. 1990 and the Municipal Drinking Water Licence.

Spills of a pollutant or discharges of a contaminant require timely reporting to the local Medical Officer of Health / Public Health Unit and the Spills Action Centre (SAC) of the Ministry of the Environment, Conservation and Parks (MECP).

Spills of a Pollutant / Discharge or a Contaminant	
<i>None during the reporting period</i>	
Incident #:	Spill / Contaminant Material:
Beginning Date:	Beginning Time:
End Date:	End Time:
Duration:	Volume:
Source of Spill:	
Location of Spill:	
Cause of Spill:	
Action(s) Taken:	