2025 Annual Drinking Water System Summary Report

Dereham Centre Drinking Water System

1. GENERAL INFORMATION

Oxford County (the County) prepares a report summarizing system operation and water quality for every municipal drinking water system annually. The reports detail information required for Annual Reports and Summary Reports under Ontario Regulation (O. Reg.) 170/03 of the *Safe Drinking Water Act,* 2002 including the latest water quality testing results, water quantity statistics and any adverse conditions that may have occurred for the previous year. They are available for review by the end of February on the County website at www.oxfordcounty.ca/services-for-you/water-wastewater/drinking-water/ or by contacting the Public Works Department.

All efforts have been made to ensure the information presented in this report is accurate. If you have any questions or comments concerning the report, please contact the County at the address and phone number listed below or by email at water@oxfordcounty.ca.

Drinking Water System:	Dereham Centre Drinking Water System
Drinking Water System Number:	220001510
Reporting Period:	January 1, 2025 – December 31, 2025

Drinking Water System Owner & Contact Information:

Oxford County Public Works Department - Water Services
P.O. Box 1614
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Woodstock, ON N4S 7Y3
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1.1 System Description

The Dereham Centre Drinking Water System (DWS) is a small municipal water system as defined by O. Reg. 170/03 and serves a population of approximately 80 people. The system consists of one secure groundwater well and a treatment facility. The water is treated with sodium hypochlorite for disinfection and in 2025 approximately 110 L of sodium hypochlorite was used. This chemical is certified to meet standards set by the Standards Council of Canada or American National Standards Institute. The water is filtered to remove arsenic.

The treatment facility houses pumps, MD-80 filters to improve water quality, treatment and monitoring equipment, and a 37 m^3 underground reservoir. A standby generator is available to run the facility in the event of a power failure. The system is maintained by licensed water system operators, who operate treatment and monitoring equipment and collect samples as specified by O. Reg. 170/03. Alarms automatically notify operators in the event of failure of critical operational requirements. The Dereham Centre DWS does not supply drinking water to any other drinking water systems.

1.2 Major Expenses

Planning for major drinking water system expenses is included within Oxford County's Water Services Master Plan and managed according to our Asset Management and Capital Replacement Program.

The Dereham Center Drinking Water System is one of 14 water systems with revenues and expenses pooled for economy-of-scale purposes. The systems are combined into the Township Water financial system and in 2025 had a forecasted operating and maintenance expenditures of approximately $4,370,000.

In addition to regular operational and maintenance expenditures, Capital Improvement Projects for the Townships systems were forecasted to be $2,500,000 for improvements to water treatment systems and replacement of distribution mains in the Township System.

Township Capital Improvement Projects included:

- $530,000 repair and maintenance on wells, water pump stations, and water treatment facilities;
- $190,000 for distribution replacements; and
- $50,000 for facilities improvements.

Capital Improvement projects for all systems included:

- $1,577,000 to implement a Countywide SCADA Master Plan for all water systems.

2. MICROBIOLOGICAL TESTING

2.1 *E. coli* and Total Coliform

Bacteriological tests for *E. coli* and total coliforms are required weekly from the raw water at the facility and from the distribution system. Samples of treated water are not required for Small Municipal systems but may be taken periodically. Extra samples are taken after major repairs or maintenance work. Any *E. coli* or total coliform results above the Maximum Allowable Concentration (MAC) of 0 colonies per 100 mL in treated water samples must be reported to the Ministry of Environment, Conservation and Parks (MECP) and the Medical Officer of Health (MOH). Resamples and any other required actions are taken as quickly as possible. The results from the annual sampling program are shown on the table below. There were no adverse test results from 104 treated water samples taken in 2025.

Source	*Number of Samples*	*Range of E. coli Min - Max MAC = 0 (colonies / 100 mL)*	*Range of Total Coliform Min - Max MAC = 0 (colonies / 100 mL)*
Raw	52	0	0
Treated	52	0	0
Distribution	52	0	0

2.2 Heterotrophic Plate Count (HPC)

HPC analyses are completed weekly from the distribution water for small systems. HPC should be less than 500 colonies per 1 mL. Results over 500 colonies per 1 mL may indicate a change in water quality but it is not considered an indicator of unsafe water. Annual results are shown in the table below:

Source	*Number of Samples*	*Range of HPC Min – Max (colonies / mL)*
Distribution	52	0 - 10

3. CHEMICAL TESTING

The *Safe Drinking Water Act,* 2002 requires periodic testing of the water for approximately 60 different chemical parameters. The latest results for all parameters are provided in Appendix ‘A’. The sampling frequency varies for different types and sizes of water systems. If the concentration of a parameter is above half of the MAC under the Ontario Drinking Water Quality Standards, an increased testing frequency of once every three months is required by O. Reg. 170/03. Where concerns regarding a parameter exist, the MECP can also require additional sampling be undertaken.

Information on the health effects and allowable limits of components in drinking water may be found on the MECP web page through the link provided in Appendix ‘A’. Additional information on common chemical parameters specific to the Dereham Centre system is provided below.

3.1 Hardness

These are aesthetic parameters that may affect the appearance of the water but are not related to health. Well water commonly has high levels of hardness and other minerals from being in contact with underground rock formations. Many households have water softeners to help reduce white calcium deposits and improve the efficiency of soaps. This information is included here to help residents set the water softener at the level recommended by the manufacturer. Samples for hardness are collected at a minimum every 3 years from raw water. The hardness for the Dereham Centre Drinking Water System is 230 mg/L (13 grains/gallon) based on an historical running average an operational conditions.

3.2 Required Additional Testing

Under O. Reg. 170/03, additional quarterly sampling is required when a parameter listed in Schedule 23 or 24 exceeds half of the MAC. Based on the latest test results no additional testing is required under O. Reg. 170/03.

Although Dereham Centre treated water does not exceed half of the MAC for arsenic (10 µg/L), a requirement to test for arsenic levels quarterly in both the raw and treated water is listed in the Municipal Drinking Water Licence. Annual raw water and treated water results are summarized in the following table:

Source	*Number of Samples*	*Range of Arsenic Min - Max (Average) (µg/L)*	MAC (µg/L)	MDL (µg/L)
Raw	4	(5.3 - 11.7) 9.93	10	0.2
Treated	4	(3.7 - 3.9) 3.83	10	0.2

** Treated annual average also listed under Schedule 23 inorganic parameters in Appendix A.*

4. OPERATIONAL MONITORING

4.1 Chlorine Residual

Free chlorine levels of the treated water are continuously monitored at the discharge point of the Water Treatment Facility. In the distribution system, free chlorine is checked twice weekly at various locations. As a target, free chlorine residual within the distribution system should be above 0.20 mg/L. A free chlorine level lower than 0.05 mg/L must be reported and corrective actions taken. A summary of the chlorine residual readings is provided in the table below. There were no reportable incidents in 2025.

4.2 Turbidity

Turbidity of treated water is continuously monitored at the treatment facility as a change in turbidity can indicate an operational problem. As a minimum, turbidity for each well is required to be tested monthly. Turbidity is measured in nephelometric turbidity units

(NTU). Under O. Reg. 170/03 turbidity in groundwater from a secure well or a well with effective in-situ filtration is not reportable, however, turbidity should be < 1 NTU at the treatment plant and < 5 NTU in the distribution system. A summary of the annual monitoring results is provided in the following table.

Parameter	*Number of Tests or Monitoring Frequency*	*Range of Results (Min – Max) and Average*
Chlorine residual after treatment (mg/L)	Continuous	(0.73 - 5) 1.13
Chlorine residual in distribution (mg/L)	104	(0.77 - 1.61) 1.08
Well 2 turbidity before treatment (NTU)	51	(0.08 - 7.68) 0.49
Turbidity after treatment (NTU)	Continuous	(0.02 - 5.15) 0.04

5. WATER QUANTITY

Continuous monitoring of flow rates from supply wells into the treatment system and from the Water Treatment Facility into the distribution system is required by O. Reg. 170/03. A PTTW is not required where water taking is less than 50 m^3/day as is the case for Dereham Centre. The Municipal Drinking Water License (MDWL) issued by the MECP regulates the amount of water that can be utilized over a given time period. Terms used to evaluate capacity and current values for the Dereham Centre DWS are provided in the following table.

Capacity Term	*Description*	*Capacity (m^3/day)*
Supply Capacity	The limiting capacity of either the PTTW or MDWL.	50
Dynamic Supply Capacity	Accounts for any current constraints on the water supply (such as offline wells, reduced well capacity, water quality considerations).	50
Firm Capacity	Firm Capacity is defined as the removal of the highest producing well in an emergency or operational / maintenance situation with the ability to transport a maximum of 100 m^3/day to maintain system integrity if appropriate.	50
Dynamic Firm Capacity	Considers the removal of the largest production well and other current system constraints. Trucked in water may be considered for some systems.	50

This system is comprised of one supply well and does not have a permit to supply over 50 m^3/day. As such all capacities are limited to 50 m^3/day.

A summary comparing flows in 2025 to current capacities is provided in the following table and presented graphically in Appendix ‘B’.

Flow Summary	*Supply Capacity (m^3/day)*	*Dynamic Supply Capacity (m^3/day)*	*Max Daily Flow (m^3/day)*	*Average Daily Flow (m^3/day)*	*Average Monthly Flow (m^3/month)*	*Total Yearly Flow (m^3/year)*
Dereham Centre Water Treatment Facility	50	50	21	9	264	3,167

6. NON-COMPLIANCE FINDINGS AND ADVERSE RESULTS

This section documents any known incidents of non-compliance or adverse results and the associated corrective actions taken to resolve the issue. Non-compliance issues are typically identified by either the Operating Authority or the MECP Drinking Water Inspectors. The issues and associated required actions are documented in the system's Annual Inspection Report. All non-compliance issues are investigated, corrective actions taken and documented using the County's Drinking Water Quality Management System (DWQMS) procedures.

6.1 Non-Compliance Findings

At the time that this report was drafted, the 2025 Annual MECP Inspection for the Dereham Centre Drinking Water System had not yet taken place.

6.2 Adverse Results

Any adverse bacteriological or chemical results or observations of operational conditions that may indicate adverse water quality are reported as required and corrective actions are taken. There were no adverse water quality incidents in 2025.

APPENDIX 'A': SUMMARY OF CHEMICAL RESULTS

UNDERSTANDING CHEMICAL TEST RESULTS

The following tables summarize the laboratory results of the chemical testing the County is required to complete. Different types of parameters are required to be tested for at different frequencies as noted below. Explanations on the health impacts of these parameters can be found in the MECP document PSIB 4449e01 titled "Technical Support Document for Ontario Drinking Water Standards, Objectives and Guidelines" available at https://cvc.ca/wp-content/uploads/2011/03/std01_079707.pdf.

Results are shown as concentrations with units of either milligrams per litre (mg/L) or micrograms per litre (µg/L) where 1 mg/L is equal to 1000 µg/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. A result of "ND" stands for "Not Detected" and means that the concentration of the chemical is lower than the laboratory's equipment is capable of measuring. In the event that some samples results are ND, and other results are above the MDL, the value of the MDL will be used in place of the ND where an average result must be calculated. Where all collected samples are ND the average sample result will be assumed to be ND.

Nitrate and nitrite samples are required every three months in normal operation.

Parameter	*Number of Samples*	*Result Range Min – Max (mg/L)*	*Average Result (mg/L)*	*MAC (mg/L)*	*MDL (mg/L)*
Nitrite	4	ND	ND	1.0	0.003
Nitrate	4	0.008 - 0.021	0.011	10.0	0.006

Trihalomethane (THM) and total Haloacetic Acids (HAA) are by-products of the disinfection process. The samples are required every three months from the distribution system.

Parameter	*Number of Samples*	*Annual Average (µg/L)*	*MAC (µg/L)*	*MDL (µg/L)*
Trihalomethane (THM)	4	8.4	100	0.37
Haloacetic Acids (HAA)	4	ND	80	5.3

The following table summarizes the most recent test results for sodium and fluoride. Testing and reporting any adverse results is required every five years.

Parameter	*Sample Date*	*Result Value (mg/L)*	*MAC (mg/L)*	*MDL (mg/L)*
Sodium	August 16, 2021	11.6	20*	0.01
Fluoride	August 16, 2021	0.59	1.5**	0.06

*Sodium levels between 20 – 200 mg/L must be reported every five years.
**Natural levels of fluoride between 1.5 – 2.4 mg/L must be reported every five years.

The following table summarizes the most recent results for the Lead Testing Program. Lead samples are taken every three years. Levels of alkalinity and pH are monitored twice per year in the distribution system to ensure water quality is consistent and does not facilitate leaching of lead into the water.

Parameter	*Number of Samples*	*Result Range (Min - Max)*	*Acceptable Level*
Distribution Alkalinity 2025	2	226 – 238 mg/L	30 – 500 mg/L
Distribution pH 2025	2	7.39 - 7.86	6.5 – 8.5
Distribution Lead 2024	2	0.12 - 0.27 µg/L	10 µg/L MAC

The following table summarizes the most recent test results for Schedule 23. Testing is required every five years for secure groundwater wells in small systems.

Parameter	*Sample Date*	*Result Value (µg/L)*	*MAC (µg/L)*	*MDL (µg/L)*
Antimony	November 25, 2024	ND	6	0.6
Arsenic	2025 Annual Average	3.83	10	0.2
Barium	November 25, 2024	227	1000	0.02
Boron	November 25, 2024	29	5000	2
Cadmium	November 25, 2024	ND	5	0.003
Chromium	November 25, 2024	0.13	50	0.08
Mercury	November 25, 2024	ND	1	0.01
Selenium	November 25, 2024	ND	50	0.04
Uranium	November 25, 2024	0.108	20	0.002

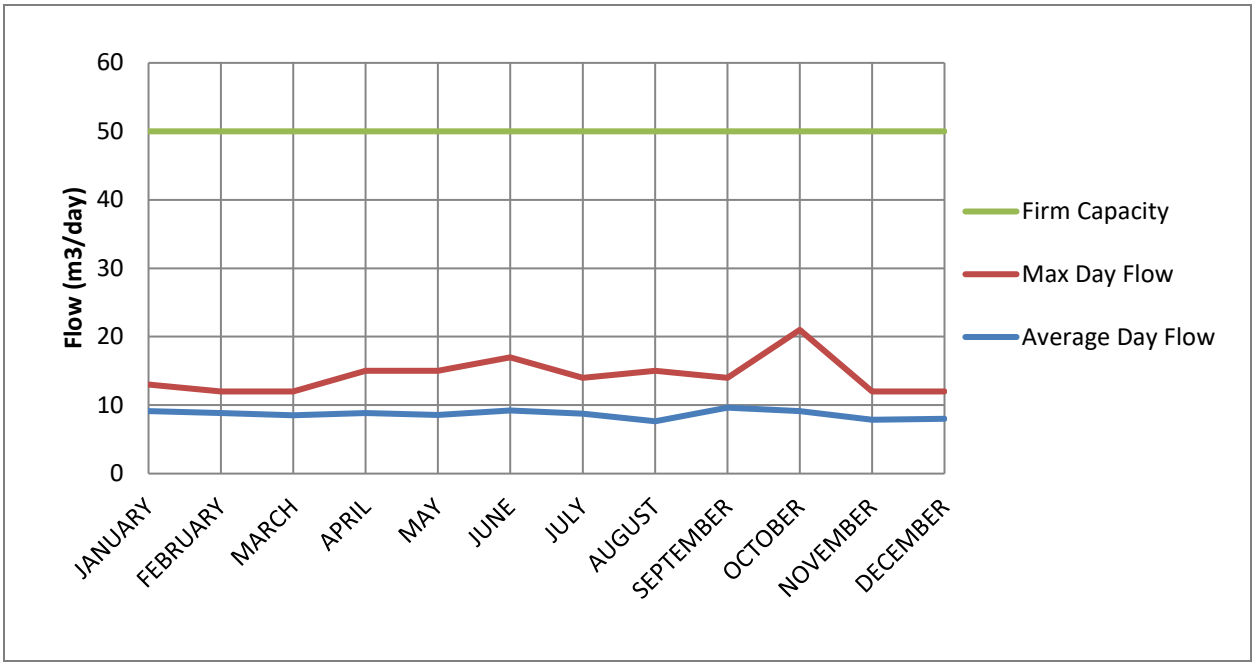
The following table summarizes the most recent test results for Schedule 24. Testing is required every five years for secure groundwater wells in small systems.

Parameter	*Sample Date*	*Result (µg/L)*	*MAC (µg/L)*	*MDL (µg/L)*
Alachlor	November 25, 2024	ND	5	0.02
Atrazine + N-dealkylated metabolites	November 25, 2024	ND	5	0.01
Azinphos-methyl	November 25, 2024	ND	20	0.05
Benzene	November 25, 2024	ND	1	0.32
Benzo(a)pyrene	November 25, 2024	ND	0.01	0.004
Bromoxynil	November 25, 2024	ND	5	0.33
Carbaryl	November 25, 2024	ND	90	0.05
Carbofuran	November 25, 2024	ND	90	0.01
Carbon Tetrachloride	November 25, 2024	ND	2	0.17
Chlorpyrifos	November 25, 2024	ND	90	0.02
Diazinon	November 25, 2024	ND	20	0.02
Dicamba	November 25, 2024	ND	120	0.20
1,2-Dichlorobenzene	November 25, 2024	ND	200	0.41
1,4-Dichlorobenzene	November 25, 2024	ND	5	0.36
1,2-Dichloroethane	November 25, 2024	ND	5	0.35
1,1-Dichloroethylene (vinylidene chloride)	November 25, 2024	ND	14	0.33
Dichloromethane	November 25, 2024	ND	50	0.35
2-4 Dichlorophenol	November 25, 2024	ND	900	0.15
2,4-Dichlorophenoxy acetic acid (2,4-D)	November 25, 2024	ND	100	0.19
Diclofop-methyl	November 25, 2024	ND	9	0.40
Dimethoate	November 25, 2024	ND	20	0.06
Diquat	November 25, 2024	ND	70	1

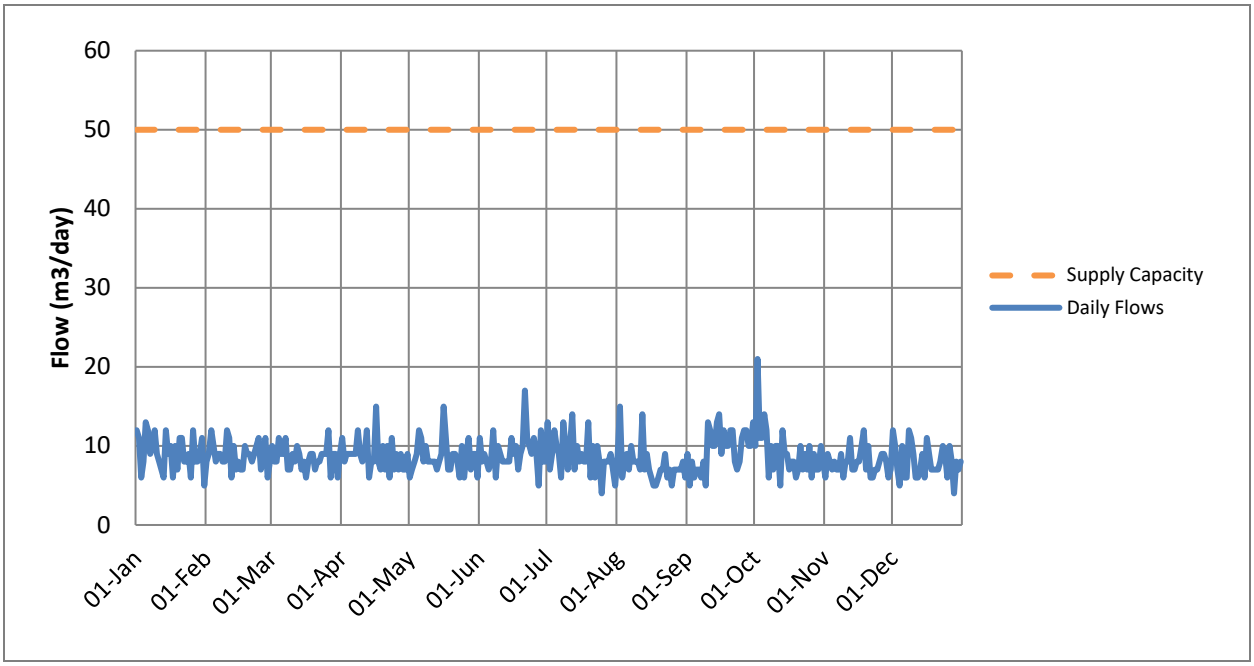
Parameter	*Sample Date*	*Result (µg/L)*	*MAC (µg/L)*	*MDL (µg/L)*
Diuron	November 25, 2024	ND	150	0.03
Glyphosate	November 25, 2024	ND	280	1
Malathion	November 25, 2024	ND	190	0.02
2-methyl-4chlorophenoxyacetic acid (MCPA)	November 25, 2024	ND	100	0.12
Metolachlor	November 25, 2024	ND	50	0.01
Metribuzin	November 25, 2024	ND	80	0.02
Monochlorobenzene	November 25, 2024	ND	80	0.30
Paraquat	November 25, 2024	ND	10	1
Pentachlorophenol	November 25, 2024	ND	60	0.15
Phorate	November 25, 2024	ND	2	0.01
Picloram	November 25, 2024	ND	190	1
Polychlorinated Biphenyls(PCB)	November 25, 2024	ND	3	0.04
Prometryne	November 25, 2024	ND	1	0.03
Simazine	November 25, 2024	ND	10	0.01
Terbufos	November 25, 2024	ND	1	0.01
Tetrachloroethylene	November 25, 2024	ND	10	0.35
2,3,4,6-Tetrachlorophenol	November 25, 2024	ND	100	0.20
Triallate	November 25, 2024	ND	230	0.01
Trichloroethylene	November 25, 2024	ND	5	0.44
2,4,6-Trichlorophenol	November 25, 2024	ND	5	0.25
Trifluralin	November 25, 2024	ND	45	0.02
Vinyl Chloride	November 25, 2024	ND	1	0.17

APPENDIX 'B': WATER QUANTITY SUMMARY

2025 Average vs Maximum Daily Flow Rates



2025 Daily Flow



In 2025, the Dereham Centre Supply Capacity, Dynamic Supply Capacity, and Firm Capacity were the same.