



THORNDALE  
DRINKING WATER  
SYSTEM

2023  
ANNUAL REPORT

**ONTARIO REGULATION 170/03**  
**Part III Form 2**  
**Section 11**

**28 FEBRUARY 2024**



ANNUAL REPORT – THORNDALE DWS

Drinking-Water System Number:	220006115
Drinking-Water System Name:	Thorndale Drinking Water System
Drinking-Water System Owner:	Municipality of Thames Centre
Drinking-Water System Category:	Large Municipal Residential
Period being reported:	January 1, 2023 to December 31, 2023

**For Large Municipal Residential Water Systems**

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

Yes [ ] No [X]

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

Yes [X] No [ ]

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

- Available by calling Thames Centre Environmental Services at (519) 268-7334 ext 745 or on Thames Centre website at [www.thamescentre.on.ca](http://www.thamescentre.on.ca) or at the municipal offices at 4305 Hamilton Road, Dorchester, ON N0L 1G3

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

Drinking Water System Name	Drinking Water System Number
None	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
- [X] Public access/notice via Public Request
- [X] Public access/notice via a Public Library

**Describe your Drinking-Water System**

The Thorndale Drinking Water System consists of 2 (two) groundwater wells, a treatment system, reservoirs, and an elevated water tank. There are approximately 19.29 km of watermain supplying water throughout the Village of Thorndale.

Raw well water is chlorinated before it enters into a 31m<sup>3</sup> contact chamber with concrete baffles to achieve the necessary contact time. Water flows from the contact chamber through a 52m<sup>3</sup> by-pass chamber then to two separate reservoirs. A Milonic level control system in the by-pass chamber monitors the liquid levels and controls the well pumps. The disinfection system and iron sequestering systems both include duty and stand-by chemical feed pumps and storage tanks located in a chemical room with secondary containment.



# Ontario Drinking-Water Systems Regulation O. Reg. 170/03

Two (2) vertical turbine pumps along with one (1) emergency stand-by pump direct water from the water plant storage reservoirs to the 1,650m<sup>3</sup> elevated water tank based on the liquid level condition within the elevated water storage tank.

**List all water treatment chemicals used over this reporting period**

- sodium hypochlorite
- sodium silicate

**Were any significant expenses incurred to?**

- Install required equipment
- Repair required equipment
- Replace required equipment

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

- Installation of a VFD on Well #2 = \$4,940
- Installation of a Chlorine analyzer in the plant Clear Well = \$10,704

**Provide details on the 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**

Adverse Incident Date	Parameter	Corrective Action	Adverse Water Quality Indicator # (AWQI)	Sample Result(s)	Maximum Allowable Concentration (MAC)
There were no Adverse Water Quality test results in 2023					

**Microbiological testing done under the Schedule 10, 11 or 12 of Regulation 170/03 during this reporting period.**

Sample Source	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 #)
Raw Water	107	0 - 0	0 - 44	not required	not required
Treated Water	52	0 - 0	0 - 0	52	<10 - 200
Distribution Water	151	0 - 0	0 - 0	43	<10 - 680

**Operational testing done under Schedule 7, 8 or 9 of Regulation 170/03 during the period covered by this Annual Report.**

Sample Analysis / Sample Source	Number of Grab Samples	Range of Results (min #)-(max #)	Average Level recorded
Turbidity / Well #1 – Raw Water (RW)	52	0.08 – 0.41 ntu	0.25 ntu
Turbidity / Well #2 - Raw Water (RW)	52	0.09 – 3.90 ntu	1.02 ntu
Turbidity / Storage Reservoirs - Treated Water (TW)	525,726	0.00 – 2.06 ntu	0.47 ntu

Chlorine (free) / Storage Reservoirs – treated water (TW)	525,726	0.00 – 2.00 mg/L	1.20 mg/L
Fluoride (If the DWS provides fluoridation)/ Storage Reservoirs – treated water (TW)	<i>Fluoride is not added to this system</i>	-----	-----
Chlorine (free) / 265 Upper Queen – Distribution water (DW)	365	0.76 – 1.30 mg/L	1.04 mg/L

Turbidity levels recorded below 0.17 ntu and above 0.92 ntu were instantaneous results directly caused by composite analyzer failure or maintenance activities and are not indicative of actual water system levels. Chlorine levels recorded in the storage reservoirs below 0.55 mg/L or above 1.68 mg/L were instantaneous results directly caused by composite analyzer or chemical dosing pump maintenance activities and are not indicative of actual water system levels.

### Hardness

This is an aesthetic parameter that may affect the appearance of the water but is 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 set the water softener at the level recommended by the manufacturer. The most recent Hardness (CaCO<sub>3</sub>) sample (February 15<sup>th</sup>, 2023) returned with a result of 315 mg/L (equivalent to 18.42 grains).

### 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	Unit of Measure
Not applicable				

### Summary of INORGANIC parameters tested during this reporting period or the most recent sample results (required sampling frequency = every 36 months)

Parameter	Sample Date	Result Value	Unit of Measure	Exceedance
Antimony	15 Feb 2023	0.60 <MDL	µg/L	no
Arsenic	15 Feb 2023	1.8	µg/L	no
Barium	15 Feb 2023	117	µg/L	no
Boron	15 Feb 2023	99	µg/L	no
Cadmium	15 Feb 2023	0.003	µg/L	no
Chromium	15 Feb 2023	0.25	µg/L	no
*Lead	see results below			
Mercury	15 Feb 2023	0.01 <MDL	µg/L	no
Selenium	15 Feb 2023	0.06	µg/L	no
Sodium (every 60 months) Re-sample	<b>15 Feb 2022</b> <b>23 Feb 2022</b>	<b>28.7</b> <b>33.1</b>	<b>mg/L</b>	<b>yes</b>
Uranium	15 Feb 2023	0.052	µg/L	no
Fluoride (every 60 months)	15 Feb 2023	1.44	mg/L	no
Nitrite (quarterly)	15 Feb 2023	0.003 <MDL	mg/L	no
	16 May 2023	0.003 <MDL		no
	15 Aug 2023	0.003 <MDL		no
	15 Nov 2023	0.003 <MDL		no
Nitrate (quarterly)	15 Feb 2023	0.007	mg/L	no

	16 May 2023	0.007		no
	15 Aug 2023	0.006 <MDL		no
	15 Nov 2023	0.006 <MDL		no

**\* Summary of LEAD testing under Schedule 15.1 during this reporting period**

**Summer: (June 15/2023 – October 15/2023) Winter: (December 15/2023 – April 15/2024)**

Sampling Period	Residential Samples LEAD range of results (µg/L) acceptable level <10 µg/L	Non-Residential Samples LEAD range of results (µg/L) acceptable level <10 µg/L	Distribution Samples LEAD range of results (µg/L) acceptable level <10 µg/L	Any Change in Water Chemistry? (ie. variance in Alkalinity sample results)	Distribution System Samples ALKALINITY range of results (mg/L) acceptable level 30-500 mg/L
Summer	N/R	N/R	0.06 – 0.12	no	185 - 185
Winter	N/R	N/R	0.06 – 0.16	no	187 - 187

❖ N/R = not required - water system qualified for MECP Reduced Sampling (O.Reg170/03 schedule 15.1-5)

**Summary of ORGANIC parameters sampled during this reporting period or the most recent sample results (required sampling frequency = every 36 months)**

Parameter	Sample Date	Result Value	Unit of Measure	Exceedance
Alachlor	15 Feb 2023	0.020 <MDL	µg/L	no
Atrazine + N-dealkylated metabolites	15 Feb 2023	0.010 <MDL	µg/L	no
Azinphos-methyl	15 Feb 2023	0.050 <MDL	µg/L	no
Benzene	15 Feb 2023	0.320 <MDL	µg/L	no
Benzo(a)pyrene	15 Feb 2023	0.004 <MDL	µg/L	no
Bromoxynil	15 Feb 2023	0.330 <MDL	µg/L	no
Carbaryl	15 Feb 2023	0.050 <MDL	µg/L	no
Carbofuran	15 Feb 2023	0.010 <MDL	µg/L	no
Carbon Tetrachloride	15 Feb 2023	0.170 <MDL	µg/L	no
Chlorpyrifos	15 Feb 2023	0.020 <MDL	µg/L	no
Diazinon	15 Feb 2023	0.020 <MDL	µg/L	no
Dicamba	15 Feb 2023	0.200 <MDL	µg/L	no
1,2-Dichlorobenzene	15 Feb 2023	0.410 <MDL	µg/L	no
1,4-Dichlorobenzene	15 Feb 2023	0.360 <MDL	µg/L	no
1,2-Dichloroethane	15 Feb 2023	0.350 <MDL	µg/L	no
1,1-Dichloroethylene (vinylidene chloride)	15 Feb 2023	0.330 <MDL	µg/L	no
Dichloromethane	15 Feb 2023	0.350 <MDL	µg/L	no
2-4 Dichlorophenol	15 Feb 2023	0.150 <MDL	µg/L	no
2,4-Dichlorophenoxy acetic acid (2,4-D)	15 Feb 2023	0.190 <MDL	µg/L	no
Diclofop-methyl	15 Feb 2023	0.400 <MDL	µg/L	no
Dimethoate	15 Feb 2023	0.060 <MDL	µg/L	no

Diquat	15 Feb 2023	1.000 <MDL	µg/L	no
Diuron	15 Feb 2023	0.030 <MDL	µg/L	no
Glyphosate	15 Feb 2023	1.000 <MDL	µg/L	no
Malathion	15 Feb 2023	0.020 <MDL	µg/L	no
Metolachlor	15 Feb 2023	0.010 <MDL	µg/L	no
Metribuzin	15 Feb 2023	0.020 <MDL	µg/L	no
Monochlorobenzene	15 Feb 2023	0.300 <MDL	µg/L	no
HAA (running annual average)	15 Feb 2023 16 May 2023 15 Aug 2023 15 Nov 2023	8.43	µg/L	no
Paraquat	15 Feb 2023	1.000 <MDL	µg/L	no
Pentachlorophenol	15 Feb 2023	0.150 <MDL	µg/L	no
Phorate	15 Feb 2023	0.010 <MDL	µg/L	no
Picloram	15 Feb 2023	1.000 <MDL	µg/L	no
Polychlorinated Biphenyls(PCB)	15 Feb 2023	0.040 <MDL	µg/L	no
Prometryne	15 Feb 2023	0.030 <MDL	µg/L	no
Simazine	15 Feb 2023	0.010 <MDL	µg/L	no
THM (running annual average)	15 Feb 2023 16 May 2023 15 Aug 2023 15 Nov 2023	20.00	µg/L	no
Terbufos	15 Feb 2023	0.010 <MDL	µg/L	no
Tetrachloroethylene	15 Feb 2023	0.350 <MDL	µg/L	no
2,3,4,6-Tetrachlorophenol	15 Feb 2023	0.200 <MDL	µg/L	no
Triallate	15 Feb 2023	0.010 <MDL	µg/L	no
Trichloroethylene	15 Feb 2023	0.440 <MDL	µg/L	no
2,4,6-Trichlorophenol	15 Feb 2023	0.250 <MDL	µg/L	no
Trifluralin	15 Feb 2023	0.020 <MDL	µg/L	no
Vinyl Chloride	15 Feb 2023	0.170 <MDL	µg/L	no

❖ MDL = the method detection limit - the minimum concentration of a substance that can be measured and reported with 99% confidence that the concentration is greater than zero.

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

Parameter	Sample Date	Result Value	Unit of Measure	ODWS MAC maximum allowable concentration
Sodium (Na)	15 Feb 2022	28.7	mg/L	20 mg/L
Sodium (Na) resample	23 Feb 2022	33.1	mg/L	20 mg/L

**Sodium**

Sodium levels in drinking water are tested once every five years. The aesthetic objective is 200 mg/L meaning at levels less than this, sodium will not impair the taste of the water. When sodium levels are above 20 mg/L the MECP and MOH are notified. Middlesex London Health Unit (MLHU) provide a "Fact Sheet" on sodium in drinking water which is included annually in January water bills and is available at



<https://www.thamescentre.on.ca/sites/default/files/2019-05/MLHUSodiumThorndale.pdf> in order to help people on sodium restricted diets control their sodium intake. The most recent sodium sample (February 23<sup>rd</sup>, 2022) returned with a resulting concentration of 33.1 mg/L.

## **Fluoride**

Where water supplies contain naturally occurring fluoride at levels higher than 1.5mg/L but less than 2.4mg/L the Ministry of Health and Long-Term Care recommends an approach through local boards of health to raise public and professional awareness to control excessive exposure to fluoride from other sources. The most recent fluoride sample (February 15<sup>th</sup>, 2023) returned with a resulting concentration of 1.44 mg/L. Middlesex London Health Unit (MLHU) provides a “Fact Sheet” on fluoride in drinking water which is included annually in water bills and is available at <https://www.thamescentre.on.ca/sites/default/files/2019-05/Thorndale%20Fluoride%20%28Feb%202018%29.pdf>