THORNDALE DRINKING WATER SYSTEM

2024 ANNUAL REPORT

ONTARIO REGULATION 170/03
Part III Form 2
Section 11

28 FEBRUARY 2025

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, 2024 to December 31, 2024**

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 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 31m3 contact chamber with concrete baffles to achieve the necessary contact time. Water flows from the contact chamber through a 52m3 by-pass chamber then to two separate reservoirs. A Miltonic level control system in the clearwell 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.

Two (2) vertical turbine pumps along with one (1) emergency stand-by pump direct water from the water plant storage reservoirs to the 1,650m3 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
[**X**] Replace required equipment

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

- Water meter upgrade program = $60,000

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 2024					

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	105	0 - 0	0 – 0	not required	not required
Treated Water	52	0 - 0	0 – 0	52	<10 - 10
Distribution Water	148	0 - 0	0 - 0	40	<10 – 20

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 – 0.51 ntu	0.22 ntu
Turbidity / Well #2 - Raw Water (RW)	52	0.10 – 0.38 ntu	0.21 ntu
Turbidity / Storage Reservoirs - Treated Water (TW)	529,836	0.00 – 2.06 ntu	0.43 ntu
Chlorine (free) / Storage Reservoirs – treated water (TW)	529,836	0.00 – 2.00 mg/L	1.21 mg/L
Fluoride (If the DWS provides fluoridation)/ Storage Reservoirs – treated water (TW)	*Fluoride is not added to this system*	------	------

Chlorine (free) / 265 Upper Queen – Distribution water (DW)	366	0.79 – 1.33 mg/L	1.06 mg/L

Storage Reservoir (TW) turbidity levels recorded below 0.32 ntu and above 0.98 ntu were instantaneous results directly caused by composite analyzer failure or maintenance activities and are not indicative of actual water system levels.
Storage Reservoir (TW) chlorine levels recorded in the storage reservoirs below 0.84 mg/L or above 1.71 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 (CaCO3) sample (February 13th, 2024) returned with a result of 265 mg/L (equivalent to 15.50 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	13 Feb 2024	0.60 <MDL	µg/L	no
Arsenic	13 Feb 2024	1.5	µg/L	no
Barium	13 Feb 2024	106	µg/L	no
Boron	13 Feb 2024	92	µg/L	no
Cadmium	13 Feb 2024	0.003	µg/L	no
Chromium	13 Feb 2024	0.08 <MDL	µg/L	no
*Lead	see results below			
Mercury	13 Feb 2024	0.01 <MDL	µg/L	no
Selenium	13 Feb 2024	0.04 <MDL	µg/L	no
Sodium (every 60 months) Re-sample	**15 Feb 2022** **23 Feb 2022**	**28.7** **33.1**	**mg/L**	**yes**
Uranium	13 Feb 2024	0.039	µg/L	no
Fluoride (every 60 months)	15 Feb 2023	1.44	mg/L	no
Nitrite (quarterly)	13 Feb 2024 14 May 2024 15 Aug 2024 12 Nov 2024	0.003 <MDL 0.003 <MDL 0.003 <MDL 0.003 <MDL	mg/L	no no no no
Nitrate (quarterly)	13 Feb 2024 14 May 2024 15 Aug 2024 12 Nov 2024	0.006 <MDL 0.006 <MDL 0.006 <MDL 0.006 <MDL	mg/L	no no no no

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

Summer: (June 15/2024 – October 15/2024) Winter: (December 15/2024 – April 15/2025)

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	N/R	no	190 - 192
Winter	N/R	N/R	N/R	no	189 - 190

❖ 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	13 Feb 2024	0.020 <MDL	µg/L	no
Atrazine + N-dealkylated metobolites	13 Feb 2024	0.010 <MDL	µg/L	no
Azinphos-methyl	13 Feb 2024	0.050 <MDL	µg/L	no
Benzene	13 Feb 2024	0.320 <MDL	µg/L	no
Benzo(a)pyrene	13 Feb 2024	0.004 <MDL	µg/L	no
Bromoxynil	13 Feb 2024	0.330 <MDL	µg/L	no
Carbaryl	13 Feb 2024	0.050 <MDL	µg/L	no
Carbofuran	13 Feb 2024	0.010 <MDL	µg/L	no
Carbon Tetrachloride	13 Feb 2024	0.170 <MDL	µg/L	no
Chlorpyrifos	13 Feb 2024	0.020 <MDL	µg/L	no
Diazinon	13 Feb 2024	0.020 <MDL	µg/L	no
Dicamba	13 Feb 2024	0.200 <MDL	µg/L	no
1,2-Dichlorobenzene	13 Feb 2024	0.410 <MDL	µg/L	no
1,4-Dichlorobenzene	13 Feb 2024	0.360 <MDL	µg/L	no
1,2-Dichloroethane	13 Feb 2024	0.350 <MDL	µg/L	no
1,1-Dichloroethylene (vinylidene chloride)	13 Feb 2024	0.330 <MDL	µg/L	no
Dichloromethane	13 Feb 2024	0.350 <MDL	µg/L	no
2-4 Dichlorophenol	13 Feb 2024	0.150 <MDL	µg/L	no
2,4-Dichlorophenoxy acetic acid (2,4-D)	13 Feb 2024	0.190 <MDL	µg/L	no
Diclofop-methyl	13 Feb 2024	0.400 <MDL	µg/L	no
Dimethoate	13 Feb 2024	0.060 <MDL	µg/L	no
Diquat	13 Feb 2024	1.000 <MDL	µg/L	no
Diuron	13 Feb 2024	0.030 <MDL	µg/L	no
Glyphosate	13 Feb 2024	1.000 <MDL	µg/L	no

Malathion	13 Feb 2024	0.020<MDL	µg/L	no
Metolachlor	13 Feb 2024	0.010 <MDL	µg/L	no
Metribuzin	13 Feb 2024	0.020 <MDL	µg/L	no
Monochlorobenzene	13 Feb 2024	0.300 <MDL	µg/L	no
HAA (running annual average)	13 Feb 2024 14 May 2024 15 Aug 2024 12 Nov 2024	8.23	µg/L	no
Paraquat	13 Feb 2024	1.000 <MDL	µg/L	no
Pentachlorophenol	13 Feb 2024	0.150 <MDL	µg/L	no
Phorate	13 Feb 2024	0.010 <MDL	µg/L	no
Picloram	13 Feb 2024	1.000 <MDL	µg/L	no
Polychlorinated Biphenyls(PCB)	13 Feb 2024	0.040 <MDL	µg/L	no
Prometryne	13 Feb 2024	0.030 <MDL	µg/L	no
Simazine	13 Feb 2024	0.010 <MDL	µg/L	no
THM (running annual average)	13 Feb 2024 14 May 2024 15 Aug 2024 13 Feb 2024	22	µg/L	no
Terbufos	13 Feb 2024	0.010 <MDL	µg/L	no
Tetrachloroethylene	13 Feb 2024	0.350 <MDL	µg/L	no
2,3,4,6-Tetrachlorophenol	13 Feb 2024	0.200 <MDL	µg/L	no
Triallate	13 Feb 2024	0.010 <MDL	µg/L	no
Trichloroethylene	13 Feb 2024	0.440 <MDL	µg/L	no
2,4,6-Trichlorophenol	13 Feb 2024	0.250 <MDL	µg/L	no
Trifluralin	13 Feb 2024	0.020 <MDL	µg/L	no
Vinyl Chloride	13 Feb 2024	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 23rd, 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 15th, 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