MUNICIPALITY OF
Thames Centre

DORCHESTER DRINKING WATER SYSTEM

2024 ANNUAL REPORT

ONTARIO REGULATION 170/03
Part III Form 2
Section 11

28 FEBRUARY 2025

ANNUAL REPORT – DORCHESTER DWS

Drinking-Water System Number:	220002146
Drinking-Water System Name:	Dorchester 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 Dorchester Drinking Water System consists of 9 (nine) groundwater wells. The raw water from the production wells passes through a treatment system consisting of clear-wells, a chemical feed system, filtration system, ultraviolet disinfection, storage reservoirs, and high lift pumps. Operation of the treatment system is controlled based upon the liquid level condition within the elevated water storage tank in the village of Dorchester. The SCADA system indicates to the water treatment facility PLC when treated water is required to be pumped into the distribution system. During periods of low demand, the treatment system remains in the ready mode. The distribution system consists of approximately 47.51 km of water main contained within the urban boundaries of the village of Dorchester.

List all water treatment chemicals used over this reporting period
• sodium hypochlorite

Were any significant expenses incurred to?

[ ] Install required equipment
[X] Repair required equipment
[**X**] Replace required equipment

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

- Dorchester WTF clearwell #1 pump motor replaced = $10,170
- Dorchester WTF clearwell #1 pump VFD replaced = $8,283
- Production Well 2PW1 pumphouse roof replaced = $4.067
- Production Well 3PW-1 and 3PW-4A rehabilitation and replacement pump for 3PW1 = $47,856
- Production Well 3PW4A screen repair and well development = $25,552

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 Taken	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	363	0 – 0	0 – 31	Not required	Not required
Treated Water	52	0 - 0	0 - 0	52	<10 - 10
Distribution Water	203	0 - 0	0 - 0	59	<10 - 90

*NDOGHPC = No Data Overgrown With Heterotrophic Plate Count

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 Samples	Range of Results (min #)-(max #)	Average Level recorded
Turbidity / Well 2PW-1 - raw water (RW)	12	0.22 – 1.00	0.59
Turbidity / Well 3PW-1 - raw water (RW)	11	0.30 – 0.88	0.53
Turbidity / Well 3PW-2B - raw water (RW)	12	0.17 – 0.94	0.41
Turbidity / Well 3PW-3 - raw water (RW)	12	0.19 – 1.04	0.56
Turbidity / Well 3PW-4A - raw water (RW)	8	0.33 – 1.00	0.61

Turbidity / Well 3PW-5 - raw water (RW)	12	0.19 – 2.41	0.87
Turbidity / Well 3PW-6 - raw water (RW)	12	0.40 – 2.09	1.22
Turbidity / Well 3PW-7 - raw water (RW)	12	0.20 – 0.82	0.48
Turbidity / Well 3PW-8 - raw water (RW)	12	0.22 – 1.69	0.68
Turbidity / Treatment Plant Effluent - treated water (TW)	526,903	0.00 – 9.08 ntu	0.07 ntu
Chlorine (free) / Treatment Plant Effluent – treated water (TW)	526,903	0.00 – 4.99 mg/L	1.47 mg/L
Fluoride (if the DWS provides fluoridation) / Treatment Plant Effluent – treated water (TW)	*Fluoride is not added to this system*	Not required	Not required
Chlorine (free) / 3922 Hamilton Road – Distribution water (DW)	366	0.43 – 1.79 mg/L	1.13 mg/L

Treatment Pant Effluent (TW) turbidity levels recorded below 0.04 ntu and above 0.37 ntu were instantaneous results directly caused by composite analyzer failure or maintenance activities and are not indicative of actual water system levels.
Treatment Plant Effluent (TW) chlorine levels recorded in the effluent water below 1.00 mg/L or above 2.24 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 255 mg/L (equivalent to 18.65 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
Dorchester Drinking Water System MDWL Issue Number:5 Schedule C, table 5 (2020 11 23)	Trihalomethanes THM	monthly	85.71 (running annual average)	µg/L

Summary of INORGANIC parameters tested during this reporting period or the most recent sample results *(required sampling frequency = every 12 months)*

Parameter	Sample Date	Result Value	Unit of Measure	Exceedance
Antimony	13 Feb 2024	0.60 <MDL	µg/L	no
Arsenic	13 Feb 2024	0.4	µg/L	no
Barium	13 Feb 2024	74.7	µg/L	no
Boron	13 Feb 2024	17	µg/L	no

Cadmium	13 Feb 2024	0.005	µg/L	no
Chromium	13 Feb 2024	0.22	µg/L	no
*Lead	see summary below			
Mercury	13 Feb 2024	0.01 <MDL	µg/L	no
Selenium	13 Feb 2024	0.25	µg/L	no
Sodium (every 5 years)	**14 Feb 2020**	**28.2**	**mg/L**	**yes**
Uranium	13 Feb 2024	0.962	µg/L	no
Fluoride (every 5 years)	15 Feb 2022	0.14	mg/L	no
Nitrite	13 Feb 2024 15 May 2024 15 Aug 2024 20 Nov 2024	0.003 <MDL 0.003 <MDL 0.003 <MDL 0.003 <MDL	mg/L mg/L mg/L mg/L	no no no no
Nitrate	13 Feb 2024 15 May 2024 15 Aug 2024 20 Nov 2024	1.63 1.80 1.99 1.59	mg/L mg/L mg/L mg/L	no no no no

- MDI = 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.

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 System 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 30-500mg/L
Summer	N/R	N/R	N/R	no	233 - 233
Winter	N/R	N/R	N/R	no	229 - 241

- 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 12 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
HAA (running annual average)	13 Feb 2024 15 May 2024 15 Aug 2024 20 Nov 2024	70.80	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
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)	16 Jan 2024 13 Feb 2024 13 Mar 2024 16 Apr 2024 29 May 2024 14 Jun 2024 16 July 2024 15 Aug 2024 17 Sep 2024 22 Oct 2024 20 Nov 2024 18 Dec 2024	85.71	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)	14 Feb 2020 (every 60 months)	28.2	mg/L	20 mg/L
Sodium (Na) re-sample	21 Feb 2020	26.6	mg/L	20 mg/L

Sodium

Sodium levels in drinking water are sampled every 57 months. 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) provides 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/MLHUSodiumDorchester.pdf
The most recent sodium sample (February 21st, 2020) returned with a resulting concentration of 26.6 mg/L.

Trihalomethanes (THMs)

A Trihalomethane (THM) sample is required monthly from the distribution system. THMs are a by-product of the disinfection process. Chlorine is used to protect the water supply from microorganisms such as bacteria and viruses. When natural occurring organic material is present, chlorine can produce THMs. The current maximum allowable concentration, as a running annual average, for THMs in a drinking water supply in Ontario is 100 micrograms per litre (µg/L).

Haloacetic Acids (HAA)

A Haloacetic Acid (HAA) sample is required quarterly from the distribution system. HAAs are a sample requirement listed in the MECP Ontario Regulation 169/03 and level exceedances were reportable beginning January 1, 2020. Similar to THMs, HAAs are a by-product of the disinfection process. Chlorine is used to protect the water supply from microorganisms such as bacteria and viruses. When natural occurring organic material is present, chlorine can produce HAAs. The current maximum allowable concentration, as a running annual average, for HAAs in a drinking water supply in Ontario is 80 micrograms per litre (µg/L).