



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, 2018 to December 31, 2018

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 water department at (519) 268-7490 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 46.4km 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
- Repair required equipment
- Replace required equipment

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

- Clearwell pump (CWP-2) replacement = \$26,000.00
- Standby Generator repair = \$6,900.00
- Backwash pump replacement (BWP-1) = \$2,700.00
- Clearwell ventilation system installation and access ladder replacement = \$16,500.00

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

Incident Date	Parameter	Result	Unit of Measure	Corrective Action	Corrective Action Date
<i>No incidences during this period</i>					

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	373	0 - 1	0 - 36	1	0 - <10
Treated Water	55	0 - 0	0 - 0	55	<10 - 280
Distribution Water	212	0 - 0	0 - 0	50	<10 - 10

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 / Storage Reservoirs - treated water (TW)	577,046	0.00 – 10.20 ntu	0.07 ntu
Chlorine (free) / Storage Reservoirs – treated water (TW)	577,046	0.00 – 5.00 mg/L	1.59 mg/L
Fluoride (if the DWS provides fluoridation) / Storage Reservoirs – treated water (TW)	<i>Fluoride is not added to this system</i>	—	
Chlorine (free) / 3922 Hamilton Road – Distribution water (DW)	365	0.47– 1.64 mg/L	1.14mg/L

Turbidity levels recorded below 0.04 ntu and above 0.19 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 1.01 mg/L or above 2.21 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. Hardness in the Dorchester Drinking Water System is approximately 267mg/L (equivalent to 15.61 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: 4 Schedule C, table 5 (2017 12 12)	Trihalomethanes (Total) THM	monthly	98.5 (annual running 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	15 Feb 2018	0.06	µg/L	no
Arsenic	15 Feb 2018	0.3	µg/L	no
Barium	15 Feb 2018	81.0	µg/L	no
Boron	15 Feb 2018	24	µg/L	no
Cadmium	15 Feb 2018	0.003 <MDL	µg/L	no
Chromium	15 Feb 2018	0.81	µg/L	no
*Lead	see summary below			
Mercury	15 Feb 2018	0.01 <MDL	µg/L	no
Selenium	15 Feb 2018	0.22	µg/L	no
Sodium (every 5 years)	18 Feb 2015	24.8	mg/L	yes
Uranium	15 Feb 2018	0.89	µg/L	no
Fluoride (every 5 years)	15 Feb 2017	0.13	mg/L	no
Nitrite	15 Feb 2018	0.003 <MDL	mg/L	no
	15 May 2018	0.003 <MDL	mg/L	no
	15 Aug 2018	0.003 <MDL	mg/L	no
	15 Nov 2018	0.003 <MDL	mg/L	no
Nitrate	15 Feb 2018	1.39	mg/L	no
	15 May 2018	1.65	mg/L	no
	15 Aug 2018	1.84	mg/L	no
	15 Nov 2018	1.24	mg/L	no

Summary of LEAD testing under Schedule 15.1 during this reporting period –
 Summer: (June 15/2018 – October 15/2018) Winter: December 15/2018 – April 15/2019)

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 ALKALINITY range of results (mg/L) acceptable level 30-500 mg/L	Any Change in Water Chemistry? (ie. variance in Alkalinity sample results)
Summer	N/R	N/R	222 - 228	no
Winter	N/R	N/R	237 - 238	no

❖ 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	15 Feb 2018	0.020 <MDL	µg/L	no
Atrazine + N-dealkylated metabolites	15 Feb 2018	0.010 <MDL	µg/L	no
Azinphos-methyl	15 Feb 2018	0.050 <MDL	µg/L	no
Benzene	15 Feb 2018	0.320 <MDL	µg/L	no
Benzo(a)pyrene	15 Feb 2018	0.004 <MDL	µg/L	no
Bromoxynil	15 Feb 2018	0.330 <MDL	µg/L	no
Carbaryl	15 Feb 2018	0.050 <MDL	µg/L	no
Carbofuran	15 Feb 2018	0.010 <MDL	µg/L	no
Carbon Tetrachloride	15 Feb 2018	0.160 <MDL	µg/L	no
Chlorpyrifos	15 Feb 2018	0.020 <MDL	µg/L	no
Diazinon	15 Feb 2018	0.020 <MDL	µg/L	no
Dicamba	15 Feb 2018	0.200 <MDL	µg/L	no
1,2-Dichlorobenzene	15 Feb 2018	0.410 <MDL	µg/L	no
1,4-Dichlorobenzene	15 Feb 2018	0.360 <MDL	µg/L	no
1,2-Dichloroethane	15 Feb 2018	0.350 <MDL	µg/L	no
1,1-Dichloroethylene (vinylidene chloride)	15 Feb 2018	0.330 <MDL	µg/L	no
Dichloromethane	15 Feb 2018	0.350 <MDL	µg/L	no
2-4 Dichlorophenol	15 Feb 2018	0.150 <MDL	µg/L	no
2,4-Dichlorophenoxy acetic acid (2,4-D)	15 Feb 2018	0.190 <MDL	µg/L	no
Diclofop-methyl	15 Feb 2018	0.400 <MDL	µg/L	no
Dimethoate	15 Feb 2018	0.030 <MDL	µg/L	no
Diquat	15 Feb 2018	1.000 <MDL	µg/L	no
Diuron	15 Feb 2018	0.030 <MDL	µg/L	no
Glyphosate	15 Feb 2018	1.000 <MDL	µg/L	no
Malathion	15 Feb 2018	0.020 <MDL	µg/L	no

Total Haloacetic Acids (HAA5)	15 Feb 2018	130	µg/L	no
	18 May 2018	64	µg/L	no
	15 Aug 2018	114	µg/L	no
	15 Nov 2018	100	µg/L	no
Metolachlor	15 Feb 2018	0.010 <MDL	µg/L	no
Metribuzin	15 Feb 2018	0.020 <MDL	µg/L	no
Monochlorobenzene	15 Feb 2018	0.300 <MDL	µg/L	no
Paraquat	15 Feb 2018	1.000 <MDL	µg/L	no
Pentachlorophenol	15 Feb 2018	0.150 <MDL	µg/L	no
Phorate	15 Feb 2018	0.010 <MDL	µg/L	no
Picloram	15 Feb 2018	1.000 <MDL	µg/L	no
Polychlorinated Biphenyls(PCB)	15 Feb 2018	0.040 <MDL	µg/L	no
Prometryne	15 Feb 2018	0.030 <MDL	µg/L	no
Simazine	15 Feb 2018	0.010 <MDL	µg/L	no
Trihalomethanes (Total) (NOTE: show latest annual average)	annual average	98.5	µg/L	no
Terbufos	15 Feb 2018	0.010 <MDL	µg/L	no
Tetrachloroethylene	15 Feb 2018	0.350 <MDL	µg/L	no
2,3,4,6-Tetrachlorophenol	15 Feb 2018	0.200 <MDL	µg/L	no
Triallate	15 Feb 2018	0.010 <MDL	µg/L	no
Trichloroethylene	15 Feb 2018	0.440 <MDL	µg/L	no
2,4,6-Trichlorophenol	15 Feb 2018	0.250 <MDL	µg/L	no
Trifluralin	15 Feb 2018	0.020 <MDL	µg/L	no
Vinyl Chloride	15 Feb 2018	0.170 <MDL	µg/L	no

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 Criteria
Sodium (Na)	2015 02 18 (every 60 months)	24.8	mg/L	<20 mg/L
Trihalomethanes (total)	annual running average	98.5	µg/L	<100 µg/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/images/pdf/Environment_PDF/MLHUSodiumDorchester.pdf in order to help people on sodium restricted diets control their sodium intake. The most recent sodium sample (February 18th, 2015) returned with a resulting concentration of 24.8 mg/L.

Trihalomethanes (THMs)

A Trihalomethane (THM) sample is required monthly from the distribution system. THM is 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 allowable level (annual running average) for THMs in a drinking water supply in Ontario is 100 micrograms per litre (µg/L).