

ANNUAL REPORT

Drinking-Water System Number:	220003332
Drinking-Water System Name:	Wheatley Drinking Water System
Drinking-Water System Owner:	Municipality of Chatham-Kent
Drinking-Water System Category:	Large Municipal Residential
Period being reported:	January 1 – December 31, 2020

Does your Drinking-Water System serve more than 10,000 people? Yes [X] No []

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.

Chatham-Kent PUC Office
325 Grand Ave E
Box 1191
Chatham, ON
N7M 5L8

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
<i>Non Municipal Year Round Residential in Lakeshore:</i>	
1. 3 rd Concession Waterline Association	260086125
2. 3 rd &4 th Concession Waterline Association	260086203
3. KOA Waterline Association	260086138
4. Richardson Sideroad Waterline Association	260086190
5. Tecumseh Road Waterline Association	260086151
6. Tilbury Townline Waterline Association	260086164
<i>Non Municipal Year Round Residential in Chatham-Kent:</i>	
1. D & O Waterline Association	260091793
2. Mint Waterline Distribution System	260091767



<i>Small Drinking Water System in Lakeshore:</i> 1. Cedar Inn Waterline Association	768003593
<i>Large Municipal Year Round Residential in Leamington:</i> Leamington (Wheatley) Distribution System	260087048

Did you provide a copy of your annual report to all Drinking-Water System owners that are connected to you and to whom you provide all of its drinking water?

Yes ☒ No ☐

Indicate how you notified system users that your annual report is available, and is free of charge.

☒ **Public access/notice via the web**

☒ **Public access/notice via Government Office**

☐ **Public access/notice via a newspaper**

☒ **Public access/notice via Public Request**

☒ **Public access/notice via a Public Library**

☐ **Public access/notice via other method** _____

Describe your Drinking-Water System

The Wheatley Water Treatment Plant draws raw water from Lake Erie. Large debris is screened out of the raw water as it is drawn into the treatment plant. Chlorine is added at the raw intake to control the growth of zebra mussels within the intake pipe. The raw water then passes through a 35 micron microstrainer to remove algae and other fine particles. Aluminum Sulphate and Polymer are added to achieve more effective settling in the clarifier. Activated carbon is added in the clarifier and is primarily used to remove dissolved organic matter that causes taste, odor and colour in drinking water. The water then passes through the gravity filters into the clearwell where it is disinfected with chlorine before being pumped into the distribution system. The distribution system pressure is regulated by an elevated storage tower in Wheatley with a capacity of 1454 m³. The elevated storage tower in the community of Tilbury has a capacity of 6181 m³.

List all water treatment chemicals used over this reporting period

1. Chlorine Gas
2. Sodium Hypochlorite
3. Aluminum Sulphate
4. Activated Carbon
5. Betz Dearborn Klar-Aid IC1179 (Polymer)

Were any significant expenses incurred to?

- ☒ [X] Install required equipment
☒ [X] Repair required equipment
☒ [X] Replace required equipment

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

Chlorine Room Maintenance	\$ 8,600
Actuator Replacement (Backwash Valve)	7,400
New Cl2 Pump (Tilbury)	6,000
New Cl2 Analyzer (Tilbury)	6,000
Replacement DR3900 unit (lab)	5,800
Emergency Intake (winter months)	4,700
Annual Flowmeter Calibrations	4,600
Annual Analyzer Calibrations	4,500
TU 5300 Turbidimeter (spare)	4,400
Spare Sensor and Probes for On Line Chlorine Analyzers	2,500
Rechlorination BRV / PRV (Tilbury)	2,000
Valve Chamber Inspections and Repairs	1,800
High Lift Pump Repairs	1,700
Valve Chamber Work	1,200
Valve Chamber Work	1,050
Manhole Lifting Device (Valve Chambers)	800
Chlorine Alarm Sensor Calibration	430
Singer Needle Valve Repair (High Lift #1)	430
PLC Battery Replacement	400
New pH Probe	360
Seals and Brushings for High Lift Pumps	170

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
January 7	Total Coliforms E.coli	48 20	cfu/100mL	Flush, resample and test (2 consecutive sets)	January 7 & 8
January 7	Total Coliforms E.coli	129 78	cfu/100mL	Flush, resample and test (2 consecutive sets)	January 7 & 8
June 16	Total Coliform	1	cfu/100mL	Flush, resample and test	June 16



June 18	Free Chlorine	>4.0	mg/L	Self-Corrected	June 18
July 14	Total Coliforms E.coli	18 1	cfu/100mL	Flush, resample and test (2 consecutive sets)	July 17
July 29	Total Coliforms	16	cfu/100mL	Flush, resample and test	July 30

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

	Number of Samples	Range of E.coli Or Fecal Results (min #)-(max #)	Range of Total Coliform Results (min #)-(max #)	Number of HPC Samples	Range of HPC Results (min #)-(max #)
Raw	54	0 – 16	0 – 590	0	
Treated	54	0 – 1	0 – 18	54	<10 – 60
Distribution	731	0 – 78	0 – 129	707	<10 – 2700

**** NDOGT – No Data Overgrown with Target Organisms**

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

	Number of Grab Samples	Range of Results (min #)-(max #)
Turbidity Filters	8760	0.0005 – 0.966 NTU
Chlorine Reservoir Outlet	8760	0.631 – 1.68 mg/L
Fluoride	Not Provided	

NOTE: For continuous monitors use 8760 as the number of samples.

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 2020	Result	Unit of Measure
Municipal Drinking Water License # 027-102 Table 3 and Table 7 Pages 12 & 15 Limit: 25 mg/L	Residue Management Suspended Solids	January	10	mg/L
		February	1.7	
		March	5	
		April	3.7	
		May	39	
		June	8	
		July	4.7	
		August	31.7	
		December	11	
		12 Month Avg	*12.8	mg/L

Note: No Residue Management sampled from September to November.

* The average result for May was used in this calculation.



Summary of Inorganic parameters tested during this reporting period or the most recent sample results

Parameter	Sample Date	Result Value	MAC Limit	Unit of Measure	Exceedance
Antimony	Aug 17	<0.50	6	ug/L	No
Arsenic	Aug 17	<1.0	10	ug/L	No
Barium	Aug 17	17	1000	ug/L	No
Boron	Aug 17	15	5000	ug/L	No
Cadmium	Aug 17	<0.090	5	ug/L	No
Chromium	Aug 17	<5.0	50	ug/L	No
*Lead	See Schedule 15.1 Summary				
Mercury	Aug 17	<0.00010	0.001	mg/L	No
Selenium	Aug 17	<2.0	50	ug/L	No
Sodium	Nov 16	6.9	20	mg/L	No
Uranium	Aug 17	<0.10	20	ug/L	No
Fluoride	Nov 16	<0.10	1.5	mg/L	No
Nitrite	Nov 16	<0.010	1	mg/L	No
Nitrate	Nov 16	0.10	10	mg/L	No
Nitrite + Nitrate	Nov 16	0.10	-	mg/L	No

Summary of lead testing under Schedule 15.1 during this reporting period

Location Type	Number of Samples	Range of Lead Results ug/L (min#) – (max #)	MAC Limit ug/L	Number of Exceedances / Adverses
Residential	0			
Non-Residential	0			
Distribution	28	<0.50 – 2.4	10	0

Summary of Organic parameters sampled during this reporting period or the most recent sample results

Parameter	Sample Date	Result Value	MAC Limits	Unit of Measure	Exceedance
Alachlor	Aug 17	<0.50	5	ug/L	No
Atrazine + N-dealkylated metabolites	Aug 17	<1.0	5	ug/L	No
Azinphos-methyl	Aug 17	<2.0	20	ug/L	No
Benzene	Aug 17	<0.10	1	ug/L	No
Benzo(a)pyrene	Aug 17	<0.0050	0.01	ug/L	No
Bromoxynil	Aug 17	<0.50	5	ug/L	No
Carbaryl	Aug 17	<5.0	90	ug/L	No
Carbofuran	Aug 17	<5.0	90	ug/L	No
Carbon Tetrachloride	Aug 17	<0.10	2	ug/L	No
Chlorpyrifos (Dursban)	Aug 17	<1.0	90	ug/L	No
Diazinon	Aug 17	<1.0	20	ug/L	No
Dicamba	Aug 17	<1.0	120	ug/L	No
1,2-Dichlorobenzene	Aug 17	<0.20	200	ug/L	No
1,4-Dichlorobenzene	Aug 17	<0.20	5	ug/L	No
1,2-Dichloroethane	Aug 17	<0.20	5	ug/L	No



1,1-Dichloroethylene (vinylidene chloride)	Aug 17	<0.10	14	ug/L	No
Dichloromethane	Aug 17	<0.50	50	ug/L	No
2-4 Dichlorophenol	Aug 17	<0.25	900	ug/L	No
2,4-Dichlorophenoxy acetic acid (2,4-D)	Aug 17	<1.0	100	ug/L	No
Diclofop-methyl	Aug 17	<0.90	9	ug/L	No
Dimethoate	Aug 17	<2.5	20	ug/L	No
Diquat	Aug 17	<7.0	70	ug/L	No
Diuron	Aug 17	<10	150	ug/L	No
Ethylbenzene	Aug 17	<0.10	140	ug/L	No
Glyphosate	Aug 17	<10	280	ug/L	No
Haloacetic Acids (HAA)	Feb 10 Feb 10 (lab dup) May 13 Aug 17 Aug 17(lab dup) Nov 16	18 20 22 26 30 24	80	ug/L	No
Running Annual Average:		23.3			
Malathion	Aug 17	<5.0	190	ug/L	No
2 Methyl-4-chlorophenoxyacetic acid (MCPA)	Aug 17	<10	100	ug/L	No
Metolachlor	Aug 17	<0.50	190	ug/L	No
Metribuzin (Sencor)	Aug 17	<5.0	80	ug/L	No
Monochlorobenzene	Aug 17	<0.10	80	ug/L	No
Paraquat	Aug 17	<1.0	10	ug/L	No
Pentachlorophenol	Aug 17	<0.50	60	ug/L	No
Phorate	Aug 17	<0.50	2	ug/L	No
Picloram	Aug 17	<5.0	190	ug/L	No
Polychlorinated Biphenyls(PCB)	Aug 17	<0.05	3	ug/L	No
Prometryne	Aug 17	<0.25	1	ug/L	No
Simazine	Aug 17	<1.0	10	ug/L	No
Terbufos	Aug 17	<0.50	1	ug/L	No
Tetrachloroethylene	Aug 17	<0.10	10	ug/L	No
2,3,4,6-Tetrachlorophenol	Aug 17	<0.50	100	ug/L	No
Trihalomethanes (THM)	Feb 10 May 4 Aug 17 Nov 16 Nov 16 (lab dup)	22.9 30.5 48.2 38.0 37.6	100	ug/L	No
Running Annual Average:		34.9			
Toluene	Aug 17	<0.20	60	ug/L	No
Triallate	Aug 17	<1.0	230	ug/L	No
Trichloroethylene	Aug 17	<0.10	5	ug/L	No
2,4,6-Trichlorophenol	Aug 17	<0.50	5	ug/L	No
Trifluralin	Aug 17	<1.0	45	ug/L	No
Vinyl Chloride	Aug 17	<0.20	1	ug/L	No
Xylenes	Aug 17	<0.10	90	ug/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	Result Value	Unit of Measure	Date of Sample
None			

Summary of additional voluntary sampling and testing during this reporting period.

Parameter	Sample Date	Result: Point of Entry	Unit of Measure
Alkalinity	Nov 16	73	mg/L
Aluminum	Nov 16	24	ug/L
Colour	Nov 16	<2	TCU
Fluoride	Nov 16	<0.10	mg/L
Hardness	Nov 16	110	mg/L
pH	Nov 16	7.52	

Parameter	Sample Date	Result: Raw – Before Treatment	Result: Point of Entry	Unit of Measure
Microcystin	May 25	<0.150	<0.150	ug/L
	Jun 01	<0.150	<0.150	
	Jun 08	<0.150	<0.150	
	Jun 15	<0.150	<0.150	
	Jun 22	<0.150	<0.150	
	Jun 29	<0.150	<0.150	
	Jul 06	<0.150	<0.150	
	Jul 13	<0.150	<0.150	
	Jul 20	<0.150	<0.150	
	Jul 27	<0.150	<0.150	
	Aug 04	<0.150	<0.150	
	Aug 10	<0.150	<0.150	
	Aug 17	<0.150	<0.150	
	Aug 24	<0.150	<0.150	
	Aug 31	<0.150	<0.150	
	Sept 08	<0.150	<0.150	
	Sept 14	<0.150	<0.150	
	Sept 21	<0.150	<0.150	
	Sept 28	<0.150	<0.150	
	Oct 05	<0.150	<0.150	
	Oct 13	<0.150	<0.150	
	Oct 19	<0.150	<0.150	
	Oct 26	<0.150	<0.150	