



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, 2019

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?

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

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

New Turbidimeters	\$ 22,700
New TU5300 Turbidimeters (5)	21,950
Chlorine Room Maintenance (Outside Contractor)	13,600
Clarifier #2 Blowdown Valve Replacement	8,100
Tower Chlorine Analyser (Tilbury DS)	5,500
New Benchtop Turbidimeter	5,500
Hypo Metering Pump for Rechlor. Stn. (Tilbury DS)	5,000
New Probes and Supplies for Chlorine Analyzers	4,600
Annual Instrument Calibrations	3,850
New Rollers (for Carbon Pump Repairs)	2,400
6" Spool Piece for Back Wash Drain	1,850
New Radio Equipment for the SCADA System	1,500
Waste Discharge Flow Meter Maintenance	1,300
SCBA Bottle Transport Case	680
Maintenance Kit for Compressors	570
O ₂ Sensors for Portable Gas Detectors	460
Replacement UPS (2)	300

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
June 5	Residual Free Chlorine	>4.00	mg/L	Self-Corrected, ball check maintenance & review of programming	June 5
June 6	Residual Free Chlorine	>4.00	mg/L	Self-Corrected, review of SCADA/PLC programming	June 6
June 7	Total Coliform – New Hydrant Installation	33	cfu/100 mL	Flush & Resample	June 8
June 8&9	Residual Free Chlorine (Twice)	>4.00	mg/L	Self-Corrected, continued investigation & monitoring	June 10



July 19	Residual Free Chlorine	>4.00	mg/L	Self-Corrected	July 19
August 13	Residual Free Chlorine	>4.00	mg/L	Self-Corrected	August 13
August 27	Residual Free Chlorine	>4.00	mg/L	Self-Corrected, installation of new check valve	August 27
September 4	Total Coliform	4	cfu/100 mL	Flush & Resample	September 5
September 9	Residual Free Chlorine	>4.00	mg/L	Self-Corrected	September 9
October 7	Residual Free Chlorine	>4.00	mg/L	Self-Corrected	October 7
November 9	Total Coliform	2	cfu/100 mL	Flush & Resample	November 11

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	53	0 – 30	0 – 960	0	
Treated	54	0 – 0	0 – 0	54	<10 – 1370
Distribution	584	0 – 0	0 – 4	572	<10 – 1210

** 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	0.001 – 0.997 NTU
Chlorine Reservoir Outlet	8760	0.65 – 1.86 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 2019	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	Jul 2	13	mg/L
		Aug 6	18	
		Sep 3	16	
		Oct 7	18	
		Nov 12	3	
		Dec 2	7	
		12 Month Avg	13	

* From October 2018 to July 2019 the Wheatley WTP Backwash Water was discharged via sanitary sewer to the Wheatley WPCP for treatment.

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

Parameter	Sample Date	Result Value	Unit of Measure	Exceedance
Antimony	Aug 19	<0.50	ug/L	No
Arsenic	Aug 19	<1.0	ug/L	No
Barium	Aug 19	20	ug/L	No
Boron	Aug 19	20	ug/L	No
Cadmium	Aug 19	<0.10	ug/L	No
Chromium	Aug 19	<5.0	ug/L	No
*Lead	See Schedule 15.1 Summary			
Mercury	Aug 19	<0.0001	ug/L	No
Selenium	Aug 19	<2.0	ug/L	No
Sodium	Aug 19	8.9	mg/L	No
Uranium	Aug 19	<0.10	ug/L	No
Fluoride	Nov 18	<0.10	mg/L	No
Nitrite	Nov 18	<0.010	mg/L	No
Nitrate	Nov 18	<0.10	mg/L	No
Nitrite + Nitrate	Nov 18	<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 #)	Number of Exceedances / Adverses
Residential	0		
Non-Residential	0		
Distribution	28	<0.50 – 4.2	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 19	<0.50	5	ug/L	No
Atrazine + N-dealkylated metabolites	Aug 19	<1.0	5	ug/L	No
Azinphos-methyl	Aug 19	<2.0	20	ug/L	No
Benzene	Aug 19	<0.10	1	ug/L	No
Benzo(a)pyrene	Aug 19	<0.0050	0.01	ug/L	No
Bromoxynil	Aug 19	<0.50	5	ug/L	No
Carbaryl	Aug 19	<5.0	90	ug/L	No
Carbofuran	Aug 19	<5.0	90	ug/L	No
Carbon Tetrachloride	Aug 19	<0.10	2	ug/L	No
Chlorpyrifos (Dursban)	Aug 19	<1.0	90	ug/L	No
Diazinon	Aug 19	<1.0	20	ug/L	No
Dicamba	Aug 19	<1.0	120	ug/L	No
1,2-Dichlorobenzene	Aug 19	<0.20	200	ug/L	No
1,4-Dichlorobenzene	Aug 19	<0.20	5	ug/L	No
1,2-Dichloroethane	Aug 19	<0.20	5	ug/L	No
1,1-Dichloroethylene (vinylidene chloride)	Aug 19	<0.10	14	ug/L	No
Dichloromethane	Aug 19	<0.50	50	ug/L	No
2-4 Dichlorophenol	Aug 19	<0.25	900	ug/L	No
2,4-Dichlorophenoxy acetic acid (2,4-D)	Aug 19	<1.0	100	ug/L	No
Diclofop-methyl	Aug 19	<0.90	9	ug/L	No
Dimethoate	Aug 19	<2.5	20	ug/L	No
Diquat	Aug 19	<7.0	70	ug/L	No
Diuron	Aug 19	<10	150	ug/L	No
Ethylbenzene	Aug 19	<0.10	140	ug/L	No
Glyphosate	Aug 19	<10	280	ug/L	No
Haloacetic Acids (HAA)	Feb 11	22	-	ug/L	No
	May 6	29			
	Aug 20	23			
	Aug 20 dup	20			
	Nov 18	26			
Running Annual Average: 24.6					
Malathion	Aug 19	<5.0	190	ug/L	No
2 Methyl-4-chlorophenoxyacetic acid (MCPA)	Aug 19	<10	100	ug/L	No
Metolachlor	Aug 19	<0.50	190	ug/L	No
Metribuzin (Sencor)	Aug 19	<5.0	80	ug/L	No
Monochlorobenzene	Aug 19	<0.10	80	ug/L	No
Paraquat	Aug 19	<1.0	10	ug/L	No
Pentachlorophenol	Aug 19	<0.50	60	ug/L	No
Phorate	Aug 19	<0.50	2	ug/L	No
Picloram	Aug 19	<5.0	190	ug/L	No
Polychlorinated Biphenyls(PCB)	Aug 19	<0.05	3	ug/L	No
Prometryne	Aug 19	<0.25	1	ug/L	No
Simazine	Aug 19	<1.0	10	ug/L	No
Terbufos	Aug 19	<0.50	1	ug/L	No
Tetrachloroethylene	Aug 19	<0.10	10	ug/L	No
2,3,4,6-Tetrachlorophenol	Aug 19	<0.50	100	ug/L	No



Trihalomethanes (THM)	Feb 11 May 6 Aug 19 Nov 18	30.1 38.6 50.2 35.6	100	ug/L	No
Running Annual Average: 38.6					
Toluene	Aug 19	<0.20	60	ug/L	No
Triallate	Aug 19	<1.0	230	ug/L	No
Trichloroethylene	Aug 19	<0.10	5	ug/L	No
2,4,6-Trichlorophenol	Aug 19	<0.50	5	ug/L	No
Trifluralin	Aug 19	<1.0	45	ug/L	No
Vinyl Chloride	Aug 19	<0.20	1	ug/L	No
Xylenes	Aug 19	<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 18	77	mg/L
Aluminum	Nov 18	14	ug/L
Colour	Nov 18	<2	TCU
Fluoride	Nov 18	<0.10	mg/L
Hardness	Nov 18	110	mg/L
pH	Nov 18	7.35	



Parameter	Sample Date	Result: Raw – Before Treatment	Result: Point of Entry	Unit of Measure
Microcystin	May 27	<0.150	<0.150	ug/L
	Jun 3	<0.150	<0.150	
	Jun 10	<0.150	Broken Bottle	
	Jun 17	<0.150	<0.150	
	Jun 24	<0.150	<0.150	
	Jul 2	<0.150	<0.150	
	Jul 8	<0.150	<0.150	
	Jul 15	<0.150	<0.150	
	Jul 22	<0.150	<0.150	
	Jul 29	<0.150	<0.150	
	Aug 6	<0.150	<0.150	
	Aug 12	<0.150	<0.150	
	Aug 19	<0.150	<0.150	
	Aug 26	<0.150	<0.150	
	Sept 3	0.174	<0.150	
	Sept 9	<0.150	<0.150	
	Sept 16	<0.150	<0.150	
	Sept 23	<0.150	<0.150	
	Sept 30	<0.150	<0.150	
	Oct 7	<0.150	<0.150	
Oct 15	<0.150	<0.150		
Oct 21	<0.150	<0.150		
Oct 28	<0.150	<0.150		