



**ANNUAL REPORT**

<b>Drinking-Water System Number:</b>	220003332
<b>Drinking-Water System Name:</b>	Wheatley Drinking Water System
<b>Drinking-Water System Owner:</b>	Municipality of Chatham-Kent
<b>Drinking-Water System Category:</b>	Large Municipal Residential
<b>Period being reported:</b>	January 1 – December 31, 2021

**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:**

<b>Drinking Water System Name</b>	<b>Drinking Water System Number</b>
<i>Non Municipal Year Round Residential in Lakeshore:</i>	
1. 3 <sup>rd</sup> Concession Waterline Association	260086125
2. 3 <sup>rd</sup> &4 <sup>th</sup> 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 m<sup>3</sup>. The elevated storage tower in the community of Tilbury has a capacity of 6181 m<sup>3</sup>.

**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 Motor Control Center Panel for Filters	\$ 35,800
Tilbury Reservoir Flow Meter	19,000
Replacement Level Transmitter for Filters	14,000
Upgrades to Filter Backwash Panels	11,900
Replacement Flow Meters for Clarifier Discharges (2)	11,200
Tilbury Tower Battery	10,000
Back Flow Preventer	9,800
Replacement Rotork Valve for Waste Tank Discharge	7,500
New Chlorine Analyzer with pH	5,100
Annual Flowmeter and Analyzer Calibrations	3,300
Variable Frequency Drive Repairs for High Lift Pumps 1 and 3	2,700
Chlorinator Maintenance	2,200
E-Poly Pump Repair Kits (stock)	1,300
High Lift Pump Needle Valve Replacement	750
Annual Hoist Inspections	700

**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 & AWQI No.	Parameter	Result	Unit of Measure	Corrective Action	Corrective Action Date

**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 #)
<b>Raw</b>	52	0 – 54	0 – 420	0	
<b>Treated</b>	52	0 – 0	0 – 0	52	<10 – <10
<b>Distribution</b>	730	0 – 0	0 – 0	705	<10 – 10

\*\* 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 #)
<b>Turbidity</b> Filters	8760	0.001 – 0.972 NTU
<b>Chlorine</b> Reservoir Outlet	8760	0.39 – 1.95 mg/L
<b>Fluoride</b>	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 2021	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 06	10	mg/L
		February 03	2.3	
		March 03	17	
		April 7	91.6	
		April 26	2	
		April 27	2.7	
		April 28	3	
		May 05	4	
		June 02	5	
		July 07	20	
		August 04	15.3	
		September 01	5.7	
		October 06	3.3	
November 08	3.3			
December 13	6.3			
		12 Month Avg	<b>12.8</b>	mg/L

**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	August 16	<0.50	6	ug/L	No
Arsenic	August 16	<1.0	10	ug/L	No
Barium	August 16	17	1000	ug/L	No
Boron	August 16	16	5000	ug/L	No
Cadmium	August 16	<0.090	5	ug/L	No
Chromium	August 16	<5.0	50	ug/L	No
*Lead	See Schedule 15.1 Summary				
Mercury	August 16	<0.00010	0.001	mg/L	No
Selenium	August 16	<2.0	50	ug/L	No
Sodium	November 15	8.1	20	mg/L	No
Uranium	August 16	<0.10	20	ug/L	No
Fluoride	November 15	<0.10	1.5	mg/L	No
Nitrite	November 15	<0.010	1	mg/L	No
Nitrate	November 15	<0.10	10	mg/L	No
Nitrite + Nitrate	November 15	<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 – 0.99	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	August 16	<0.50	5	ug/L	No
Atrazine + N-dealkylated metabolites	August 16	<1.0	5	ug/L	No
Azinphos-methyl	August 16	<2.0	20	ug/L	No
Benzene	August 16	<0.10	1	ug/L	No
Benzo(a)pyrene	August 16	<0.0050	0.01	ug/L	No
Bromoxynil	August 16	<0.50	5	ug/L	No
Carbaryl	August 16	<5.0	90	ug/L	No
Carbofuran	August 16	<5.0	90	ug/L	No
Carbon Tetrachloride	August 16	<0.10	2	ug/L	No
Chlorpyrifos (Dursban)	August 16	<1.0	90	ug/L	No
Diazinon	August 16	<1.0	20	ug/L	No
Dicamba	August 16	<1.0	120	ug/L	No
1,2-Dichlorobenzene	August 16	<0.20	200	ug/L	No
1,4-Dichlorobenzene	August 16	0.49	5	ug/L	No
1,2-Dichloroethane	August 16	<0.20	5	ug/L	No

<b>1,1-Dichloroethylene (vinylidene chloride)</b>	August 16	<0.10	14	ug/L	No
<b>Dichloromethane</b>	August 16	<0.50	50	ug/L	No
<b>2-4 Dichlorophenol</b>	August 16	<0.25	900	ug/L	No
<b>2,4-Dichlorophenoxy acetic acid (2,4-D)</b>	August 16	<1.0	100	ug/L	No
<b>Diclofop-methyl</b>	August 16	<0.90	9	ug/L	No
<b>Dimethoate</b>	August 16	<2.5	20	ug/L	No
<b>Diquat</b>	August 16	<7.0	70	ug/L	No
<b>Diuron</b>	August 16	<10	150	ug/L	No
<b>Ethylbenzene</b>	August 16	<0.10	140	ug/L	No
<b>Glyphosate</b>	August 16	<10	280	ug/L	No
<b>Haloacetic Acids (HAA)</b>	Feb 16 May 3 Aug 16 Aug 16(lab dup) Nov 15	19 18 28 27 22	80	ug/L	No
<b>Running Annual Average:</b>		<b>21.6</b>			
<b>Malathion</b>	August 16	<5.0	190	ug/L	No
<b>2 Methyl-4-chlorophenoxyacetic acid (MCPA)</b>	August 16	<10	100	ug/L	No
<b>Metolachlor</b>	August 16	<0.50	190	ug/L	No
<b>Metribuzin (Sencor)</b>	August 16	<5.0	80	ug/L	No
<b>Monochlorobenzene</b>	August 16	<0.10	80	ug/L	No
<b>Paraquat</b>	August 16	<1.0	10	ug/L	No
<b>Pentachlorophenol</b>	August 16	<0.50	60	ug/L	No
<b>Phorate</b>	August 16	<0.50	2	ug/L	No
<b>Picloram</b>	August 16	<5.0	190	ug/L	No
<b>Polychlorinated Biphenyls(PCB)</b>	August 16	<0.05	3	ug/L	No
<b>Prometryne</b>	August 16	<0.25	1	ug/L	No
<b>Simazine</b>	August 16	<1.0	10	ug/L	No
<b>Terbufos</b>	August 16	<0.50	1	ug/L	No
<b>Tetrachloroethylene</b>	August 16	<0.10	10	ug/L	No
<b>2,3,4,6-Tetrachlorophenol</b>	August 16	<0.50	100	ug/L	No
<b>Trihalomethanes (THM)</b>	Feb 16 May 3 Aug 16 Nov 15	25.8 32.0 54.5 44.2	100	ug/L	No
<b>Running Annual Average:</b>		<b>39.1</b>			
<b>Toluene</b>	August 16	<0.20	60	ug/L	No
<b>Triallate</b>	August 16	<1.0	230	ug/L	No
<b>Trichloroethylene</b>	August 16	<0.10	5	ug/L	No
<b>2,4,6-Trichlorophenol</b>	August 16	<0.50	5	ug/L	No
<b>Trifluralin</b>	August 16	<1.0	45	ug/L	No
<b>Vinyl Chloride</b>	August 16	<0.20	1	ug/L	No
<b>Xylenes</b>	August 16	<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.**

<b>Parameter</b>	<b>Sample Date</b>	<b>Result: Point of Entry</b>	<b>Unit of Measure</b>
Alkalinity	November 15	78	mg/L
Aluminum	November 15	18	ug/L
Colour	November 15	3	TCU
Fluoride	November 15	<0.10	mg/L
Hardness	November 15	110	mg/L
pH	November 15	7.54	

<b>Parameter</b>	<b>Sample Date</b>	<b>Result: Raw – Before Treatment</b>	<b>Result: Point of Entry</b>	<b>Unit of Measure</b>
Microcystin	May 31	<0.150	<0.150	ug/L
	Jun 07	<0.150	<0.150	
	Jun 14	<0.150	<0.150	
	Jun 21	<0.150	<0.150	
	Jun 28	<0.150	<0.150	
	Jul 05	<0.150	<0.150	
	Jul 12	<0.150	<0.150	
	Jul 19	<0.150	<0.150	
	Jul 26	<0.150	<0.150	
	Aug 03	<0.150	<0.150	
	Aug 09	<0.150	<0.150	
	Aug 16	<0.150	<0.150	
	Aug 23	<0.150	<0.150	
	Aug 30	<0.150	<0.150	
	Sept 07	<0.150	<0.150	
	Sept 13	<0.150	<0.150	
	Sept 20	<0.150	<0.150	
	Sept 27	<0.150	<0.150	
	Oct 04	<0.150	<0.150	
	Oct 12	<0.150	<0.150	
Oct 18	<0.150	<0.150		
Oct 25	<0.150	<0.150		

**Summary of Inorganic Raw Water Analysis Following Abnormal Lake Inversion**

Parameter	Sample Date	Result Value	Unit of Measure
Antimony	August 27	<0.50	ug/L
Arsenic	August 27	1.4	ug/L
Barium	August 27	23	ug/L
Boron	August 27	18	ug/L
Cadmium	August 27	<0.090	ug/L
Chromium	August 27	<5.0	ug/L
Mercury	August 27	<0.00010	mg/L
Selenium	August 27	<2.0	ug/L
Sodium	August 27	8.5	mg/L
Uranium	August 27	0.27	ug/L

**Summary of Organic Raw Water Analysis Following Abnormal Lake Inversion**

Parameter	Sample Date	Result Value	Unit of Measure
Alachlor	August 27	<0.50	ug/L
Atrazine + N-dealkylated metabolites	August 27	<1.0	ug/L
Azinphos-methyl	August 27	<2.0	ug/L
Benzene	August 27	<0.10	ug/L
Benzo(a)pyrene	August 27	<0.0050	ug/L
Bromoxynil	August 27	<0.50	ug/L
Carbaryl	August 27	<5.0	ug/L
Carbofuran	August 27	<5.0	ug/L
Carbon Tetrachloride	August 27	<0.10	ug/L
Chlorpyrifos (Dursban)	August 27	<1.0	ug/L
Diazinon	August 27	<1.0	ug/L
Dicamba	August 27	<1.0	ug/L
1,2-Dichlorobenzene	August 27	<0.20	ug/L
1,4-Dichlorobenzene	August 27	<0.20	ug/L
1,2-Dichloroethane	August 27	<0.20	ug/L
1,1-Dichloroethylene (vinylidene chloride)	August 27	<0.10	ug/L
Dichloromethane	August 27	<0.50	ug/L
2-4 Dichlorophenol	August 27	<0.25	ug/L
2,4-Dichlorophenoxy acetic acid (2,4-D)	August 27	<1.0	ug/L
Diclofop-methyl	August 27	<0.90	ug/L
Dimethoate	August 27	<2.5	ug/L
Diquat	August 27	<7.0	ug/L
Diuron	August 27	<10	ug/L
Ethylbenzene	August 27	<0.10	ug/L
Glyphosate	August 27	<10	ug/L
Malathion	August 27	<5.0	ug/L
2 Methyl-4-chlorophenoxyacetic acid (MCPA)	August 27	<10	ug/L
Metolachlor	August 27	<0.50	ug/L
Metribuzin (Sencor)	August 27	<5.0	ug/L
Monochlorobenzene	August 27	<0.10	ug/L
Paraquat	August 27	<1.0	ug/L
Pentachlorophenol	August 27	<0.50	ug/L
Phorate	August 27	<0.50	ug/L
Picloram	August 27	<5.0	ug/L
Polychlorinated Biphenyls(PCB)	August 27	<0.05	ug/L



Prometryne	August 27	<0.25	ug/L
Simazine	August 27	<1.0	ug/L
Terbufos	August 27	<0.50	ug/L
Tetrachloroethylene	August 27	<0.10	ug/L
2,3,4,6-Tetrachlorophenol	August 27	<0.50	ug/L
Toluene	August 27	<0.20	ug/L
Triallate	August 27	<1.0	ug/L
Trichloroethylene	August 27	<0.10	ug/L
2,4,6-Trichlorophenol	August 27	<0.50	ug/L
Trifluralin	August 27	<1.0	ug/L
Vinyl Chloride	August 27	<0.20	ug/L
Xylenes	August 27	<0.10	ug/L

### Summary of Additional Raw Water Analysis Following Abnormal Lake Inversion

Parameter	Sample Date	Result Value	Unit of Measure
2-Methylisoborneol	September 2	<3	ng/L
Geosmin	September 2	<3	ng/L