



ANNUAL REPORT

Drinking-Water System Number:	260003378
Drinking-Water System Name:	Chatham 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 No

Is your annual report available to the public at no charge on a web site on the Internet? Yes 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
None	

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 Kent County Raw Pumping Station serves the Chatham Water Treatment Plant, as well as the South Chatham-Kent Water Treatment Plant. Raw water from Lake Erie is pumped to the stand pipe at Cedar Springs, and then flows by gravity to the Surge Tower in Chatham. The treatment process at the Chatham WTP involves Actiflow micro-sand ballasted clarifiers, which include coagulation, injection of microsand and clarification, as well as settling and filtration. In addition, for colour events involving manganese, sodium permanganate and powdered activated carbon filtration may be used. The Distribution System includes 4 elevated tanks, located in Chatham, Paincourt, Mitchell's Bay and Dresden as well as 2 standpipes located in Eberts and Thamesville. Fluoride is also added to the water to prevent tooth decay. The residue management process includes equalization, flocculation, clarification, thickening and dewatering. Supernatant from these clarifiers is discharged into the Thames River after dechlorination. Remaining solids residuals are treated at the Chatham Water Pollution Control Plant.

List all water treatment chemicals used over this reporting period

1. Chlorine Gas
2. Fluoride
3. Polyaluminum Chloride
4. Sodium Bisulphite
5. Sodium Permanganate
6. PAC
7. 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

Pain Court Tower Rehabilitation	\$ 2,200,000
Filter #4 Rehabilitation and Filter Air Scour System Installation	1,500,000
Highlift Pressure Relief Valve	150,000
Variable Frequency Drive for High Lift #1	99,700
Backwash Valves (2)	37,500
Mixer in Equalization Tank	21,000
Cyclone Parts	13,800
Filter Level Indicators	10,600
Uninterruptible Power Supply Replacements (5)	13,000
Recirculating Pump Parts	8,900
Polyaluminum Chloride Motor and Gear Box	5,000
Grounding Wire Replacement	4,300
Chlorine Tubing Replacement	3,000
Backwash Flowmeter	2,700
Vacuum Compressor Parts	1,400

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 17	Total Coliform (North Kent)	1	cfu/100mL	Flush, resample & test.	January 17
March 3	Total Coliform	1	cfu/100mL	Flush, resample & test.	March 4
March 22	Total Coliforms	20	cfu/100mL	Flush, resample & test.	March 23
June 23	Total Coliform	1	cfu/100mL	Flush, resample & test.	June 23
June 24	Total Coliforms	9	cfu/100mL	Flush, resample & test.	June 25
August 5	Total Coliform	1	cfu/100mL	Flush, resample & test.	August 5
August 5	Total Coliforms	41	cfu/100mL	Flush, resample & test.	August 5



August 25	Total Coliform	1	cfu/100mL	Flush, resample & test.	August 26
November 9	Total Coliforms E. coli	14 1	cfu/100mL	Flush, resample & test (2 consecutive sets).	November 11 & 12
November 9	Total Coliforms	28	cfu/100mL	Flush, resample & test.	November 11
December 1	Boil Water Advisory due to Main Repair			Flush, resample & test (2 consecutive sets).	December 1 & 2

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	52	0 – NDOGT	0 – NDOGT	0	
Treated	52	0 – 0	0 – 0	52	<10 – 10
Distribution	895	0 – 1	0 – 41	879	<10 – 70

** 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 – 0.927 NTU
Chlorine Reservoir 1 Outlet	8760	0.23 – 2.39 mg/L
Fluoride (Provided)	8760	0.16 – 0.80 mg/L

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	Jan Result	Feb Result	Mar Result	Apr Result	May Result	Jun Result	Jul Result	Aug Result	Sept Result	Oct Result	Nov Result	Dec Result
Municipal Drinking Water License # 027-102 Pages 12 & 15 Tables 3 & 7 Monthly No Limit	Residue Management: Total Aluminum (ug/L)	800	1800	578	590	600	953	2400	1133	4353	167	770	390
Municipal Drinking Water License # 027-102 Pages 12 & 15 Tables 3 & 7 Monthly No Limit	Residue Management: Free Chlorine (mg/L)	0.03	0.05	0.05	0.03	0.007	0.003	0.03	0.09	0.06	0.01	0.03	0.01
Municipal Drinking Water License # 027-102 Pages 12 & 15 Tables 3 & 7 Monthly No Limit	Residue Management: Total Phosphorus (mg/L)	<0.02	0.02	<0.02	<0.02	<0.02	<0.02	0.04	<0.02	0.04	<0.02	<0.02	<0.02
Municipal Drinking Water License # 027-102 Pages 12 & 15 Tables 3 & 7 Annual Average Concentration Limit: 25 mg/L	Residue Management: Total Suspended Solids (mg/L)	10.3	22.3	7.3	13.7	9.7	8.3	17.3	8.7	29	4.7	5.7	4.7
		Annual Average: 11.8											

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	<0.0001	0.001	mg/L	No
Selenium	Aug 17	<2.0	50	ug/L	No
Sodium	Aug 17	8.4	20	mg/L	No
Uranium	Aug 17	<0.10	20	ug/L	No
Fluoride	Continuous Monitoring Required: See Operational Section				
Nitrite	Nov 11	<0.010	1	mg/L	No
Nitrate	Nov 11	0.10	10	mg/L	No
Nitrite + Nitrate	Nov 11	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	8	<0.50 – <0.50	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)	Jan 13 Jan 13 Feb 11 Apr 06 Apr 06 May 4 Jul 13 Jul 13 Aug 17 Oct 19 Oct 19 Nov 16	24.0 18.0 12 24.0 17.0 6.1 19.0 19.0 16.0 22.0 17.0 6.0	80	ug/L	No
Running Annual Average:		16.7			
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)	Jan 13	38.6	100	ug/L	No
	Jan 13	31.6			
	Jan 13 (lab dup)	31.8			
	Feb 11	22.2			
	Apr 06	31.7			
	Apr 06	30.7			
	Apr 06 (lab dup)	30.3			
	May 4	30.2			
	Jul 13	29.2			
	Jul 13	42.6			
	Aug 17	44.6			
	Oct 19	47.2			
	Oct 19	46.6			
Nov 16	21.7				
Running Annual Average:		34.8			
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 or the most recent sample results.

Parameter	Sample Date	Result: Point of Entry	Unit of Measure
Alkalinity	Nov 16	85	mg/L
Aluminum	Nov 16	41	ug/L
Colour	Nov 16	<2	TCU
Fluoride	Continuous Monitoring Required: See Operational Section		
Hardness	Nov 16	110	mg/L
pH	Nov 16	7.83	

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