

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, 2024

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 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 standpipe 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 as directed by the Chatham-Kent Public Health Unit.

The residue management process includes equalization, flocculation, clarification, thickening and dewatering. Supernatant from these clarifiers is discharged into the Thames River after de-chlorination. 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. 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

Expense	Cost (\$)
Wyandott Street, Chatham Reconstruction (Watermain)	516,000
Backwash Pump & Motor	315,000
Chlorine Gas	315,000
PAX-XL1900 Coagulant	300,000
Stern PAC Coagulant	120,000
Laboratory Analysis	65,245
Sodium Permanganate	60,000
Powered Activated Carbon	60,000
SCADA, Controls, Communication & Associated Equipment	53,000
Hydrofluosilicic Acid	50,000
Backwash Pump Electrical Components	42,000
Online Analyzers	31,000
Backwash Pump Isolation Valve	29,000
Surge Tower Isolation Valves & Pressure Relief Valves	29,000
Settled Water Pump # 1 Rebuild	20,000
Microsand Media	15,000
Equalization Tank Pump	13,000
Sodium Permanganate Pump Equipment	10,000
Sodium Hypochlorite	10,000
Fluoride System Scale	9,700
Chlorination System Equipment	9,000
Actiflow Cyclone Equipment	1,300

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 & AWQI No.	Parameter	Result	Unit of Measure	Corrective Action	Corrective Action Date
Jul 8 # 165511	Total Coliform in a Distribution Sample	1	cfu/100mL	Flushing Re-sample and test 0 E.coli, 0 Coliforms	Jul 10
Aug 12 # 165996	Total Coliform in a Distribution Sample	1	cfu/100mL	Flushing Re-sample and test 0 E.coli, 0 Coliforms	Aug 14
Dec 10 # 167050	Filter Discharge Turbidity	> 1.98	NTU	Reservoir drained, cleaned and disinfected. Sample and test 0 E.coli, 0 Coliforms	Dec 10 - 19



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	< 2 – < 100	< 2 – 7,800	0	
Treated	53	0 – 0	0 – 1	53	< 10 – 20
Distribution	1,559	0 – 0	0 – 0	1,545	< 10 – 80

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 (Filter Discharge)	8760	0.017 – > 1.98 NTU
Chlorine (Reservoir # 2 Discharge)	8760	1.29 – 2.28
Chlorine (Reservoir # 1 Discharge)	8760	0.63 – 2.38
Fluoride (Provided)	8760	0.07 – 0.85 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)	600	3,076	1,537	673	970	963	4	853	496	540	310	193
Municipal Drinking Water License # 027-102 Pages 12 & 15 Tables 3 & 7 Monthly No Limit	Residue Management: Free Chlorine (mg/L)	0.05	0.05	0.08	0.05	0.04	0.07	0.14	0.06	0.04	0.04	0.02	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	0.02	0.02	0.02	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)	5	15	10	5	5	5	26	9	4	5	3	4
		Annual Average: 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 12	< 0.050	6	ug/L	No
Arsenic	Aug 12	< 1.0	10	ug/L	No
Barium	Aug 12	17	1000	ug/L	No
Boron	Aug 12	18	5000	ug/L	No
Cadmium	Aug 12	< 0.090	5	ug/L	No
Chromium	Aug 12	< 5.0	50	ug/L	No
*Lead	See Schedule 15.1 Summary				
Mercury	Aug 12	< 0.0001	0.001	mg/L	No
Selenium	Aug 12	< 2.0	50	ug/L	No
Sodium	Aug 12	7.9	20	mg/L	No
Uranium	Aug 12	< 0.10	20	ug/L	No
Fluoride	Continuous Monitoring: See Operational Section Above				
Nitrite	Aug 12	< 0.010	1	mg/L	No
Nitrate	Aug 12	0.27	10	mg/L	No
Nitrite + Nitrate	Aug 12	0.27	-	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 12	< 0.50	5	ug/L	No
Atrazine + N-dealkylated metabolites	Aug 12	< 1.0	5	ug/L	No
Azinphos-methyl	Aug 12	< 2.0	20	ug/L	No
Benzene	Aug 12	< 0.10	1	ug/L	No
Benzo(a)pyrene	Aug 12	< 0.005	0.01	ug/L	No
Bromoxynil	Aug 12	< 0.50	5	ug/L	No
Carbaryl	Aug 12	< 5.0	90	ug/L	No
Carbofuran	Aug 12	< 5.0	90	ug/L	No
Carbon Tetrachloride	Aug 12	< 0.10	2	ug/L	No
Chlorpyrifos (Dursban)	Aug 12	< 1.0	90	ug/L	No
Diazinon	Aug 12	< 1.0	20	ug/L	No
Dicamba	Aug 12	< 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 12	< 0.50	50	ug/L	No
2-4 Dichlorophenol	Aug 12	< 0.25	900	ug/L	No
2,4-Dichlorophenoxy acetic acid (2,4-D)	Aug 12	< 1.0	100	ug/L	No

Diclofop-methyl	Aug 12	< 0.90	9	ug/L	No
Dimethoate	Aug 12	< 2.5	20	ug/L	No
Diquat	Aug 12	< 7.0	70	ug/L	No
Diuron	Aug 12	< 10	150	ug/L	No
Ethylbenzene	Aug 12	< 0.10	140	ug/L	No
Glyphosate	Aug 12	< 10	280	ug/L	No
CHWT/NKDS/THDS Haloacetic Acids (HAA) (Distribution)	Quarter 1 Quarter 2 Quarter 3 Quarter 4	15 16 17 17	80	ug/L	No
Running Annual Average		16			
Malathion	Aug 12	< 5.0	190	ug/L	No
2 Methyl-4-chlorophenoxyacetic acid (MCPA)	Aug 12	< 10	100	ug/L	No
Metolachlor	Aug 12	< 0.50	190	ug/L	No
Metribuzin (Sencor)	Aug 12	< 5.0	80	ug/L	No
Monochlorobenzene	Aug 19	< 0.10	80	ug/L	No
Paraquat	Aug 12	< 1.0	10	ug/L	No
Pentachlorophenol	Aug 12	< 0.50	60	ug/L	No
Phorate	Aug 12	< 0.50	2	ug/L	No
Picloram	Aug 12	< 5.0	190	ug/L	No
Polychlorinated Biphenyls(PCB)	Aug 12	< 0.05	3	ug/L	No
Prometryne	Aug 12	< 0.25	1	ug/L	No
Simazine	Aug 12	< 1.0	10	ug/L	No
Terbufos	Aug 12	< 0.50	1	ug/L	No
Tetrachloroethylene	Aug 19	< 0.10	10	ug/L	No
2,3,4,6-Tetrachlorophenol	Aug 14	< 0.50	100	ug/L	No
CHWT/NKDS/THDS Trihalomethanes (THM) (Distribution)	Quarter 1 Quarter 2 Quarter 3 Quarter 4	31 26 35 44	100	ug/L	No
Running Annual Average:		34			
Toluene	Aug 19	< 0.20	60	ug/L	No
Triallate	Aug 12	< 1.0	230	ug/L	No
Trichloroethylene	Aug 12	< 0.10	5	ug/L	No
2,4,6-Trichlorophenol	Aug 12	< 0.50	5	ug/L	No
Trifluralin	Aug 12	< 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 or the most recent sample results.

Parameter	Sample Date	Result: Treated - Point of Entry	Unit of Measure
Alkalinity	Nov 18	94	mg/L
Aluminum	Nov 18	17	ug/L
Colour	Nov 18	< 2	TCU
Hardness	Nov 18	110	mg/L

Parameter	Sample Date	Result: Treated - Point of Entry	Unit of Measure
Microcystin	May 27	<0.150	ug/L
	Jun 3	<0.150	
	Jun 10	<0.150	
	Jun 17	<0.150	
	Jun 24	<0.150	
	Jul 2	<0.150	
	Jul 8	<0.150	
	Jul 15	<0.150	
	Jul 22	<0.150	
	Jul 29	<0.150	
	Aug 6	<0.150	
	Aug 12	<0.150	
	Aug 19	<0.150	
	Aug 26	<0.150	
	Sept 3	<0.150	
	Sept 9	<0.150	
	Sept 16	<0.150	
	Sept 17	<0.150	
	Sept 18	<0.150	
	Sept 23	<0.150	
	Sept 30	<0.150	
	Oct 7	<0.150	
	Oct 15	<0.150	
	Oct 21	<0.150	
	Oct 28	<0.150	