



OPTIONAL ANNUAL REPORT TEMPLATE

Drinking-Water System Number:	220003378
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, 2017

<p><u>Complete if your Category is Large Municipal Residential or Small Municipal Residential</u></p> <p>Does your Drinking-Water System serve more than 10,000 people? Yes [<input checked="" type="checkbox"/>] No [<input type="checkbox"/>]</p> <p>Is your annual report available to the public at no charge on a web site on the Internet? Yes [<input checked="" type="checkbox"/>] No [<input type="checkbox"/>]</p> <p>Location where Summary Report required under O. Reg. 170/03 Schedule 22 will be available for inspection.</p> <div style="border: 1px solid black; padding: 5px;"> <p>Chatham-Kent P.U.C. 325 Grand Ave. East P.O. Box 1191 Chatham, ON N7M 5L8</p> </div>	<p><u>Complete for all other Categories.</u></p> <p>Number of Designated Facilities served: <input type="text" value="N/A"/></p> <p>Did you provide a copy of your annual report to all Designated Facilities you serve? Yes [<input type="checkbox"/>] No [<input type="checkbox"/>]</p> <p>Number of Interested Authorities you report to: <input type="text" value="N/A"/></p> <p>Did you provide a copy of your annual report to all Interested Authorities you report to for each Designated Facility? Yes [<input type="checkbox"/>] No [<input type="checkbox"/>]</p>
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Note: For the following tables below, additional rows or columns may be added or an appendix may be attached to the report

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 Actiflo 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

1. Controller for Turbidity Analyzer	\$2,500
2. Thamesville Distribution System Pressure Transmitter	\$2,800
3. Sample Station Installations	\$4,000
4. Dresden Elevated Tank Hypochlorite Pump	\$6,714
5. Repair Kit for Flow Control Valves at Surge Tower	\$7,500
6. High Lift Pump VFD Service	\$8,000
7. Dover Booster Station Flow Meter Replacement	\$8,000
8. Mitchell's Bay Elevated Tank Wash	\$9,000
9. Cyclone Replacement Parts	\$9,500
10. Pain Court Elevated Tank Safety Upgrades	\$10,000
11. Dissolved Oxygen Analyzer at Surge Tower	\$10,000
12. Laser Turbidity Analyzers for Filters (4)	\$10,000
13. Raw Water Line Inspection and Parts	\$16,000
14. Actiflo Recirculation Pump Rebuild	\$22,000
15. PAC Pumps	\$25,500
16. Security Camera Installation	\$30,000
17. Capacity Assessment Study	\$75,000
18. SCADA Upgrades	\$75,000
19. High Lift Pump #3 Upgrades	\$165,000

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
July 18	Total Coliforms in a distribution sample	2	cfu/100mL	Flushing Re-sample and test	July 19, 20, 21
July 19	Total Coliform in a distribution sample	1	cfu/100mL	Flushing Re-sample and test	July 19
July 20	Total Coliforms in a distribution sample	71	cfu/100mL	Flushing Re-sample and test	July 20, 21
Aug 2	Total Coliform in a distribution sample	1	cfu/100mL	Flushing Re-sample and test	Aug 2
Aug 16	Total Coliform in a distribution sample	1	cfu/100mL	Flushing Re-sample and test	Aug 16
Aug 16	Total Coliforms in a distribution sample	6	cfu/100mL	Flushing Re-sample and test	Aug 16
Sep 7	Total Coliforms in a distribution sample	10	cfu/100mL	Flushing Re-sample and test	Sept 7
Sep 7	Total Coliform in a distribution sample	1	cfu/100mL	Flushing Re-sample and test	Sept 7
Oct 30	Free chlorine residual in the distribution system	0.02	mg/L	Flushing Re-sample and test	Oct 30
Dec 6, 7	Free chlorine residual in the distribution system	>4.00	mg/L	Repair leaking chlorine line, modifications to the hypochlorite pump control system	Dec 7

Microbiological testing done under the Schedule 10, 11 or 12 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 - 10	3 - 1500	N/A	N/A
Treated	52	0 - 0	0 - 0	52	<10 - 70
Distribution	1625	0 - 0	0 - 71	1609	<10 - >3000

Operational testing done under Schedule 7, 8 or 9 of Regulation 170/03 during the period covered by this Annual Report.

	Number of Grab Samples	Range of Results (min #)-(max #)
Turbidity	8760	0.013 – 0.557
Chlorine	8760	1.23 – 1.96
Fluoride (If the DWS provides fluoridation)	8760	0.21 – 0.83

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

***NOTE:** Record the unit of measure if it is **not** milligrams per litre.*

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	Result	Unit of Measure
MDWL 027-102: Pg. 12 Residue Management Table 3: Monthly No limit	Total Aluminum	Jan 4	380	ug/L
		Feb 7	617	ug/L
		Mar 8	350	ug/L
		Apr 5	713	ug/L
		May 2	700	ug/L
		Jun 6	437	ug/L
		Jul 5	597	ug/L
		Aug 1	780	ug/L
		Sep 7	1600	ug/L
		Oct 4	2700	ug/L
		Nov 8	447	ug/L
		Dec 6	693	ug/L



7MDWL 027-102: Pg. 12 Residue Management Table 3: Monthly No limit	Chlorine	Jan 4	0.00	mg/L free chlorine
		Feb 7	0.00	mg/L free chlorine
		Mar 8	0.00	mg/L free chlorine
		Apr 5	0.00	mg/L free chlorine
		May 2	0.00	mg/L free chlorine
		Jun 6	0.00	mg/L free chlorine
		Jul 5	0.00	mg/L free chlorine
		Aug 1	0.00	mg/L free chlorine
		Sep 7	0.00	mg/L free chlorine
		Oct 4	0.00	mg/L free chlorine
		Nov 8	0.00	mg/L free chlorine
		Dec 6	0.00	mg/L free chlorine
MDWL 027-102: Pg. 12 Residue Management Table 3: Monthly No limit	Total Phosphorous	Jan 4	0.02	mg/L
		Feb 7	0.02	mg/L
		Mar 8	0.02	mg/L
		Apr 5	0.02	mg/L
		May 2	0.02	mg/L
		Jun 6	0.02	mg/L
		Jul 5	0.02	mg/L
		Aug 1	0.02	mg/L
		Sep 7	0.02	mg/L
		Oct 4	0.06	mg/L
		Nov 8	0.02	mg/L
		Dec 6	0.02	mg/L
MDWL 027-102: Pg. 12 Residue Management Table 3: Annual Avg Concentration Limit: 25 mg/L	Total Suspended Solids	Jan 4	5.3	mg/L
		Feb 7	3.3	mg/L
		Mar 8	4.0	mg/L
		Apr 5	11.0	mg/L
		May 2	10.0	mg/L
		Jun 6	10.0	mg/L
		Jul 5	10.0	mg/L
		Aug 1	6.3	mg/L
		Sep 7	20.6	mg/L
		Oct 4	26.0	mg/L
		Nov 8	4.7	mg/L
		Dec 6	24.7	mg/L
		Annual Avg Concentration	11.3	mg/L

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

*only for drinking water systems testing under Schedule 15.2; this includes large municipal non-residential systems, small municipal non-residential systems, non-municipal seasonal residential systems, large non-municipal non-residential systems, and small non-municipal non-residential systems

	Sample Date Feb 22/17	Sample Date May 8/17	Sample Date Aug 21/17	Sample Date Nov 20/17	Exceedance
Antimony – ug/L			ND		No
Arsenic- ug/L			ND		No
Barium – ug/L			21		No
Boron – ug/L			20		No
Cadmium – ug/L			ND		No
Chromium – ug/L			ND		No
Lead – ug/L	Summary of lead testing under Schedule 15.1				
Mercury – mg/L			ND		No
Selenium – ug/L			ND		No
Sodium – ug/L	7300	9600	8900	7800	No
Uranium – ug/L			0.21		No
Fluoride – mg/L	0.46	0.48	0.72	0.54	No
Nitrate – mg/L	0.32	ND	0.28	ND	No
Nitrite – mg/L	ND	ND	ND	ND	No

Summary of lead testing under Schedule 15.1 during this reporting period

(applicable to the following drinking water systems; large municipal residential systems, small municipal residential systems, and non-municipal year-round residential systems)

Location Type	Number of Samples	Range of Lead Results (min#) – (max #)	Number of Exceedances
Residential	NA		
Non Residential	NA		
Distribution	8	<0.50 - <0.50	0

Summary of Organic parameters sampled during this reporting period or the most recent sample results. Results measured in ug/L unless otherwise indicated.

Parameter	Sample Date	Results Value	Unit of Measure	Exceedance
Alachlor	Aug 21/17	ND	ug/L	No
Atrazine + N-dealkylated metabolites	Aug 21/17	ND	ug/L	No
Azinphos - methyl	Aug 21/17	ND	ug/L	No
Benzene	Aug 21/17	ND	ug/L	No
Benzo(a)pyrene	Aug 21/17	ND	ug/L	No
Bromoxynil	Aug 21/17	ND	ug/L	No
Carbaryl	Aug 21/17	ND	ug/L	No
Carbofuran	Aug 21/17	ND	ug/L	No
Carbon Tetrachloride	Aug 21/17	ND	ug/L	No
Chloropyrifos	Aug 21/17	ND	ug/L	No
Diazinon	Aug 21/17	ND	ug/L	No
Dicamba	Aug 21/17	ND	ug/L	No
1,2 - Dichlorobenzene	Aug 21/17	ND	ug/L	No
1,4 - Dichlorobenzene	Aug 21/17	ND	ug/L	No
1,2 - Dichloroethane	Aug 21/17	ND	ug/L	No
1,1- Dichloroethylene (vinylidenechloride)	Aug 21/17	ND	ug/L	No
Dichloromethane	Aug 21/17	ND	ug/L	No
2,4 - Dichlorophenol	Aug 21/17	ND	ug/L	No
2,4 - Dichlorophenoxy acetic acid (2,4 - D)	Aug 21/17	ND	ug/L	No
Diclofop - methyl	Aug 21/17	ND	ug/L	No
Dimethoate	Aug 21/17	ND	ug/L	No
Diquat	Aug 21/17	ND	ug/L	No
Diuran	Aug 21/17	ND	ug/L	No
Glyphosate	Aug 21/17	ND	ug/L	No
Haloacetic acid– sampled quarterly (NOTE: show latest annual average) Mitchell’s Bay Elev. Tank - Feb 22/17 Mitchell’s Bay Elev. Tank - May 8/17 Grande Pointe Valve Chamber - Aug 21/17 Pain Court Tower- Nov 20/17 Running Annual Average:	Feb 22 May 8 Aug 21 Nov 20 Average	22 21 24 15 20.5	ug/L	No
Malathion	Aug 21/17	ND	ug/L	No
2-Methyl-4-chlorophenoxyacetic acid (MCPA) mg/L	Aug 21/17	ND	ug/L	No
Metolachlor	Aug 21/17	ND	ug/L	No
Metribuzin	Aug 21/17	ND	ug/L	No
Monochlorobenzene (chlorobenzene)	Aug 21/17	ND	ug/L	No
Paraquat	Aug 21/17	ND	ug/L	No
Pentachlorophenol	Aug 21/17	ND	ug/L	No

Phorate	Aug 21/17	ND	ug/L	No
Picloram	Aug 21/17	ND	ug/L	No
Polychlorinated Byphenyls (PCB)	Aug 21/17	ND	ug/L	No
Prometryne	Aug 21/17	ND	ug/L	No
Simazine	Aug 21/17	ND	ug/L	No
Trihalomethanes ug/L– sampled quarterly	Feb 22 May 8 Aug 21 Nov 20	37.3 37.6 52.9 36.3	ug/L	No
Running Annual Average:	Average	41.0		
Terbufos	Aug 21/17	ND	ug/L	No
Tetrachloroethylene (perchloroethylene)	Aug 21/17	ND	ug/L	No
2,3,4,6 - Tetrachlorophenol	Aug 21/17	ND	ug/L	No
Triallate	Aug 21/17	ND	ug/L	No
Trichloroethylene	Aug 21/17	ND	ug/L	No
2,4,6 - Trichlorophenol	Aug 21/17	ND	ug/L	No
Trifluralin	Aug 21/17	ND	ug/L	No
Vinyl Chloride	Aug 21/17	ND	ug/L	No

**ADDITIONAL
POINT OF ENTRY**

Parameter	Sample Date Feb 22/17	Sample Date May 8/17	Sample Date Aug 21/17	Sample Date Nov 20/17
pH	7.59	7.92	7.81	7.79
HARDNESS – mg/L	110	120	120	110
ALKALINITY – mg/L	84	89	93	87
COLOUR - TCU	ND	ND	ND	ND
FLUORIDE – mg/L	0.46	0.48	0.72	0.54
ALUMINUM – ug/L	51	90	180	86

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	Date Sampled	Result: Point of Entry	Result: Distribution	Unit of Measure
Microcystin	May 29	<0.150	<0.150	ppb
Microcystin	Jun 5	<0.150	<0.150	ppb
Microcystin	Jun 12	<0.150	<0.150	ppb
Microcystin	Jun 19	<0.150	<0.150	ppb
Microcystin	Jun 26	<0.150	<0.150	ppb
Microcystin	Jul 4	<0.150	<0.150	ppb
Microcystin	Jul 10	<0.150	<0.150	ppb
Microcystin	Jul 17	<0.150	<0.150	ppb
Microcystin	Jul 24	<0.150	<0.150	ppb
Microcystin	Jul 31	<0.150	<0.150	ppb
Microcystin	Aug 8	<0.150	<0.150	ppb
Microcystin	Aug 14	<0.150	<0.150	ppb
Microcystin	Aug 21	<0.150	<0.150	ppb
Microcystin	Aug 28	<0.150	<0.150	ppb
Microcystin	Sep 5	<0.150	<0.150	ppb
Microcystin	Sep 11	<0.150	<0.150	ppb
Microcystin	Sep 18	<0.150	<0.150	ppb
Microcystin	Sep 25	<0.150	<0.150	ppb
Microcystin	Oct 2	<0.150	<0.150	ppb
Microcystin	Oct 10	<0.150	<0.150	ppb
Microcystin	Oct 16	<0.150	<0.150	ppb
Microcystin	Oct 23	<0.150	<0.150	ppb
Microcystin	Oct 30	<0.150	<0.150	ppb
Microcystin	Nov 6	<0.150	<0.150	ppb
Microcystin	Nov 14	<0.150	<0.150	ppb
Microcystin	Nov 20	<0.150	<0.150	ppb
Microcystin	Nov 27	<0.150	<0.150	ppb