



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
Period being reported:	January 1 – December 31, 2016

<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 [X] No []</p> <p>Is your annual report available to the public at no charge on a web site on the Internet? Yes [X] No []</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: <div style="border: 1px solid black; padding: 2px; display: inline-block;">N/A</div> </p> <p>Did you provide a copy of your annual report to all Designated Facilities you serve? Yes [] No []</p> <p>Number of Interested Authorities you report to: <div style="border: 1px solid black; padding: 2px; display: inline-block;">N/A</div> </p> <p>Did you provide a copy of your annual report to all Interested Authorities you report to for each Designated Facility? Yes [] No []</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 6 elevated tanks, located in Chatham, Paincourt, Mitchell's Bay, Eberts, Dresden 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



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

North Kent Distribution System	
Dresden Elevated Tank inspection & cleaning	\$7,000
Ebert's Standpipe corrosion protection repair	\$5,500
Ebert's Booster Station flow meter replacement	\$8,000
Ebert's Standpipe safety upgrades	\$11,000
Dresden Elevated Tank Safety Upgrades	\$25,650
Thamesville Distribution System	
Thamesville Standpipe safety upgrades	\$5,500
Chatham Water Treatment	
Highlift pump motors VFD service	\$3,000
Reservoir ROV inspections	\$3,500
Pain Court Elevated Tank upgrades	\$3,550
Mitchell's Bay Elevated Tank upgrades	\$5,100
Cyclone replacement parts	\$7,699
Grande Pointe flow meter replacement	\$8,500
Sample Station rehabilitation	\$9,037
Instrumentation upgrades	\$9,794
Filter engineering assessments investigation	\$11,000
Sludge pumping & piping	\$26,015

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
Apr 18	Boil Water Advisory	Main Break Repair		2 consecutive sample sets satisfactory	Apr 18 & 19
May 24	Boil Water Advisory	Main Replacement		2 consecutive sample sets satisfactory	May 25 & 26
Jun 22	Total Coliforms in a distribution sample	2	cfu/100mL	Flush & Resample	Jun 22
Jun 28	Total Coliforms in a distribution sample	1	cfu/100mL	Flush & Resample	Jun 29
Jul 6	Total Coliforms in a distribution sample	2	cfu/100mL	Flush & Resample	July 6
Aug 17	Total Coliforms in a distribution sample	1	cfu/100mL	Flush & Resample	Aug 17
Sep 13	Chlorine residual at Point of Entry	4.04	mg/L	Adjust Chlorine dosage	Sep 13
Sep 28	Total Coliforms in a distribution sample	1	cfu/100mL	Flush & Resample	Sep 28
Oct 26	Total Coliforms in a distribution sample	2	cfu/100mL	Flush & Resample	Oct 26
Nov 25	Boil Water Advisory	Service Repair		2 consecutive sample sets satisfactory	Nov 25 & 26

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	10-1500	0	0
Treated	52	0-0	0-0	52	0
Distribution	1664	0-0	0-2	1170	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	0.012 – 0.502
Chlorine	8760	1.32 – 1.76
Fluoride (If the DWS provides fluoridation)	8760	0.28 – 0.63

***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	423	ug/L
		Feb	747	
		Mar	663	
		Apr	550	
		May	493	
		Jun	720	
		Jul	1060	
		Aug	750	
		Sept	2867	
		Oct	550	
		Nov	2200	
		Dec	470	
MDWL 027-102: Pg. 12 Residue Management Table 3: Monthly No limit	Chlorine	Jan	0.00	mg/L free chlorine
		Feb	0.00	
		Mar	0.00	
		Apr	0.00	
		May	0.00	
		Jun	0.00	
		Jul	0.00	
		Aug	0.00	
		Sept	0.00	
		Oct	0.00	
		Nov	0.00	
		Dec	0.00	



MDWL 027-102: Pg. 12 Residue Management Table 3: Monthly No limit	Total Phosphorous	Jan Feb Mar Apr May Jun Jul Aug Sept Oct Nov Dec	0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.06 0.00 0.02 0.00	mg/L
MDWL 027-102: Pg. 12 Residue Management Table 3: Annual Avg Concentration Limit: 25 mg/L	Total Suspended Solids	Jan Feb Mar Apr May Jun Jul Aug Sept Oct Nov Dec Annual Avg Concentration	8 9 8 13 20 4 6 9 37 6 20 10 12.5	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 16/16	Sample Date May 9/16	Sample Date Aug 22/16	Sample Date Dec 5/16	Exceedance
Antimony – ug/L			ND		No
Arsenic- ug/L			ND		No
Barium – ug/L			19		No
Boron – ug/L			18		No
Cadmium – ug/L			ND		No
Chromium – ug/L			ND		No
Lead – ug/L	See Schedule 15.1 Summary				
Mercury – mg/L			ND		No
Selenium – ug/L			ND		No
Sodium – mg/L	8.7	8.7	8.7	9.8	No
Uranium – ug/L			0.17		No
Fluoride – mg/L	0.53	0.55	0.47	0.44	No
Nitrate – mg/L	0.15	0.14	0.23	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	NA		

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	Units in ug/L	Exceedance
Alachlor	Aug 22/16	ND	YES	NO
Atrazine + N-dealkylated metabolites	Aug 22/16	ND	YES	NO
Azinphos - methyl	Aug 22/16	ND	YES	NO
Benzene	Aug 22/16	ND	YES	NO
Benzo(a)pyrene	Aug 22/16	ND	YES	NO
Bromoxynil	Aug 22/16	ND	YES	NO
Carbaryl	Aug 22/16	ND	YES	NO
Carbofuran	Aug 22/16	ND	YES	NO
Carbon Tetrachloride	Aug 22/16	ND	YES	NO
Chloropyrifos	Aug 22/16	ND	YES	NO
Diazinon	Aug 22/16	ND	YES	NO
Dicamba	Aug 22/16	ND	YES	NO
1,2 - Dichlorobenzene	Aug 22/16	ND	YES	NO
1,4 - Dichlorobenzene	Aug 22/16	ND	YES	NO
1,2 - Dichloroethane	Aug 22/16	ND	YES	NO
1,1- Dichloroethylene (vinylidenechloride)	Aug 22/16	ND	YES	NO
Dichloromethane	Aug 22/16	ND	YES	NO
2,4 - Dichlorophenol	Aug 22/16	ND	YES	NO
2,4 - Dichlorophenoxy acetic acid (2,4 - D)	Aug 22/16	ND	YES	NO
Diclofop - methyl	Aug 22/16	ND	YES	NO
Dimethoate	Aug 22/16	ND	YES	NO
Diquat	Aug 22/16	ND	YES	NO
Diuran	Aug 22/16	ND	YES	NO
Glyphosate	Aug 22/16	ND	YES	NO
Malathion	Aug 22/16	ND	YES	NO
Metolachlor	Aug 22/16	ND	YES	NO
Metribuzin	Aug 22/16	ND	YES	NO
Monochlorobenzene (chlorobenzene)	Aug 22/16	ND	YES	NO
Paraquat	Aug 22/16	ND	YES	NO
Pentachlorophenol	Aug 22/16	ND	YES	NO
Phorate	Aug 22/16	ND	YES	NO
Picloram	Aug 22/16	ND	YES	NO
Polychlorinated Byphenyls (PCB)	Aug 22/16	ND	YES	NO
Prometryne	Aug 22/16	ND	YES	NO
Simazine	Aug 22/16	ND	YES	NO

Trihalomethanes – sampled quarterly	Feb 16 May 9 Aug 22 Dec 5	34.2 33.3 51.1 <u>43.4</u> 40.5	YES	NO
Running Annual Average				
Terbufos	Aug 22/16	ND	YES	NO
Tetrachloroethylene (perchloroethylene)	Aug 22/16	ND	YES	NO
2,3,4,6 - Tetrachlorophenol	Aug 22/16	ND	YES	NO
Triallate	Aug 22/16	ND	YES	NO
Trichloroethylene	Aug 22/16	ND	YES	NO
2,4,6 - Trichlorophenol	Aug 22/16	ND	YES	NO
Trifluralin	Aug 22/16	ND	YES	NO
Vinyl Chloride	Aug 22/16	ND	YES	NO
MPCA	Aug 22/16	ND	YES	NO

**ADDITIONAL
POINT OF ENTRY**

Parameter	Sample Date Feb 16/16	Sample Date May 9/16	Sample Date Aug 22/16	Sample Date Dec 5/16
pH	7.63	7.78	7.65	7.74
HARDNESS – mg/L	110	110	120	120
ALKALINITY – mg/L	83	87	91	88
COLOUR - TCU	ND	ND	ND	ND
FLUORIDE – mg/L	0.53	0.55	0.47	0.44
ALUMINUM – mg/L	0.074	0.120	0.130	0.100

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	June 6	<0.15	<0.15	ppb
Microcystin	June 13	0.18	<0.24	ppb
Microcystin	June 30	<0.15	<0.15	ppb
Microcystin	June 27	<0.15	<0.15	ppb
Microcystin	July 4	<0.15	<0.15	ppb
Microcystin	July 11	<0.15	<0.15	ppb
Microcystin	July 17	<0.15	<0.15	ppb
Microcystin	July 25	<0.15	<0.15	ppb
Microcystin	Aug 2	<0.15	<0.15	ppb
Microcystin	Aug 8	<0.15	<0.15	ppb
Microcystin	Aug 15	<0.15	<0.15	ppb
Microcystin	Aug 22	<0.15	<0.15	ppb
Microcystin	Aug. 29	<0.15	<0.15	ppb
Microcystin	Sept. 6	<0.15	<0.15	ppb
Microcystin	Sept. 12	<0.15	<0.15	ppb
Microcystin	Sept. 19	<0.15	<0.15	ppb
Microcystin	Sept. 26	<0.15	<0.15	ppb
Microcystin	Oct. 3	<0.15	<0.15	ppb
Microcystin	Oct. 11	<0.15	<0.15	ppb
Microcystin	Oct. 17	<0.15	<0.15	ppb
Microcystin	Oct. 24	<0.15	<0.15	ppb
Microcystin	Oct. 31	<0.15	<0.15	ppb
Microcystin	Nov. 7	<0.15	<0.15	ppb
Microcystin	Nov. 14	<0.15	<0.15	ppb
Microcystin	Nov. 21	<0.15	<0.15	ppb
Microcystin	Nov. 28	<0.15	<0.15	ppb