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, 2015

Complete if your Category is Large Municipal Residential or Small Municipal Residential

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 P.U.C.
325 Grand Ave. East
P.O. Box 1191
Chatham, ON
N7M 5L8

Complete for all other Categories.

Number of Designated Facilities served:

N/A

Did you provide a copy of your annual report to all Designated Facilities you serve?
Yes [ ] No [ ]

Number of Interested Authorities you report to: N/A

Did you provide a copy of your annual report to all Interested Authorities you report to for each Designated Facility?
Yes [ ] No [ ]

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.

[X] Public access/notice via the web
[X] Public access/notice via Government Office
[ ] Public access/notice via a newspaper
[X] Public access/notice via Public Request
[X] 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 color events involving manganese, 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

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

Powder Activated Carbon System & Sodium Permanganate System	$1,400,000
Replacement section of Hyprescon Pipe at Chatham WTP	$ 100,000
Air Scour System for Lamella Cleaning	$ 122,519
SCADA Upgrades	$ 68,331
Radio Communication Upgrade	$ 35,331
Lowlift VFD Replacement	$ 29,160
New Portable Generators	$ 18,565
Sludge Pump Replacement	$ 14,690
Actiflo Replacement Parts	$ 14,003
Dover Booster Station Roof Replacement	$ 10,463
Sample Station Repair/Replacement	$ 7,650
PACL Pump Replacement	$ 7,177
Chlorine System Upgrades	$ 5,306
1720E Turbidimeter Replacement	$ 5,304
Raw Water Flow Meter Repair	$ 3,076

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
Jan 29	Low CL2 in the Dist. System	<0.05	mg/L	Flushed for 14 mins to get a 0.70 mg/L Free CL2 result. 3 Bacti samples returned satisfactory, and the issue was resolved Jan 30.	Flushed and sampled: Jan 29
July 15	Total Coliform	4	Cfu/100 ml	Upstream, at-the-site and downstream sample results returned satisfactory	July 18
July 16	Total Coliform	10	Cfu/100 ml	Upstream, at-the-site and downstream sample results returned satisfactory	July 18
July 22	Total Coliform	4	Cfu/100 ml	Upstream, at-the-site and downstream sample results returned satisfactory	July 24
Aug 26	Low CL2 in the Dist. System	<0.05	mg/L	Flushed for 2hrs to get a 0.35 mg/L Free CL2 result	August 26
Oct 1	Low CL2 in the Dist. System	<0.05	mg/L	3 Bacti samples returned satisfactory, and the issue was resolved Oct 2.	Flushed and sampled: Oct 1
Oct 1	Low CL2 in the Dist. System	<0.05	mg/L	3 Bacti samples returned satisfactory, and the issue was resolved Oct 2.	Flushed and sampled: Oct 1
Nov17	Boil Water Advisory	Low pressure		2 days of consecutive samples returned clear, the issue was resolved on Nov 20	Nov 19

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	0-30	0-1500	0	0-0
Treated	52	0-0	0-0	52	<10-10
Distribution	1612	0-0	0-10	1142	<10-640

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	0.09-0.74
Chlorine	8760	0.73-2.02
Fluoride (If the DWS provides fluoridation)	8760	0.15-0.83

***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 Feb Mar Apr May Jun Jul Aug Sept Oct Nov Dec	445 1293 3167 2367 960 520 357 547 3233 460 387 580	ug/L

MDWL 027-102: Pg. 12 Residue Management Table 3: Monthly No limit	Chlorine	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 0.00 0.00 0.00 0.00	mg/L free chlorine
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 0.05 0.00 0.00 0.02	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	21 9 17 15 7 5 2 11 32 4 3 8 10	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 17/15	Sample Date May 19/15	Sample Date Aug 17/15	Sample Date Nov 16/15	Exceedance
Antimony – ug/L			ND		No
Arsenic- ug/L			ND		No
Barium – ug/L			21		No
Boron – ug/L			19		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	9.6	9.5	9.5	8.0	No
Uranium – ug/L			0.22		No
Fluoride – mg/L	0.67	0.61	0.56	0.34	No
Nitrate – mg/L	ND	ND	ND	0.20	No
Nitrite – mg/L	ND	ND	0.16	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	0.50-5.2	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	Units in ug/L	Exceedance
Alachlor	Aug 17/15	N/D	Yes	No
Aldicarb	Aug 17/15	N/D	Yes	No
Aldrin + Dieldrin	Aug 17/15	N/D	Yes	No
Atrazine + N-dealkylated metabolites	Aug 17/15	N/D	Yes	No
Azinphos - methyl	Aug 17/15	N/D	Yes	No
Bendiocarb	Aug 17/15	N/D	Yes	No
Benzene	Aug 17/15	N/D	Yes	No
Benzo(a)pyrene	Aug 17/15	N/D	Yes	No
Bromoxynil	Aug 17/15	N/D	Yes	No
Carbaryl	Aug 17/15	N/D	Yes	No
Carbofuran	Aug 17/15	N/D	Yes	No
Carbon Tetrachloride	Aug 17/15	N/D	Yes	No
Chlordane (Total)	Aug 17/15	N/D	Yes	No
Chloropyrifos	Aug 17/15	N/D	Yes	No
Cyanazine	Aug 17/15	N/D	Yes	No
Diazinon	Aug 17/15	N/D	Yes	No
Dicamba	Aug 17/15	N/D	Yes	No
1,2 - Dichlorobenzene	Aug 17/15	N/D	Yes	No
1,4 - Dichlorobenzene	Aug 17/15	N/D	Yes	No
Dichlorodiphenyltrichloroethane - (DDT)	Aug 17/15	N/D	Yes	No
1,2 - Dichloroethane	Aug 17/15	N/D	Yes	No
1,1- Dichloroethylene (vinylidenechloride)	Aug 17/15	N/D	Yes	No
Dichloromethane	Aug 17/15	N/D	Yes	No
2,4 - Dichlorophenol	Aug 17/15	N/D	Yes	No
2,4 - Dichlorophenoxy acetic acid (2,4 - D)	Aug 17/15	N/D	Yes	No
Diclofop - methyl	Aug 17/15	N/D	Yes	No
Dimethoate	Aug 17/15	N/D	Yes	No
Dinoseb	Aug 17/15	N/D	Yes	No
Diquat	Aug 17/15	N/D	Yes	No
Diuran	Aug 17/15	N/D	Yes	No
Glyphosate	Aug 17/15	N/D	Yes	No
Heptachlor + Heptachlor Epoxide	Aug 17/15	N/D	Yes	No
Lindane (Total)	Aug 17/15	N/D	Yes	No
Malathion	Aug 17/15	N/D	Yes	No
Methoxychlor	Aug 17/15	N/D	Yes	No
Metolachlor	Aug 17/15	N/D	Yes	No
Metribuzin	Aug 17/15	N/D	Yes	No
Monochlorobenzene (chlorobenzene)	Aug 17/15	N/D	Yes	No

Paraquat	Aug 17/15	N/D	Yes	No
Parathion	Aug 17/15	N/D	Yes	No
Pentachlorophenol	Aug 17/15	N/D	Yes	No
Phorate	Aug 17/15	N/D	Yes	No
Picloram	Aug 17/15	N/D	Yes	No
Polychlorinated Byphenyls (PCB)	Aug 17/15	N/D	Yes	No
Prometryne	Aug 17/15	N/D	Yes	No
Simazine	Aug 17/15	N/D	Yes	No
Trihalomethanes – sampled quarterly **Running Annual Average**	42.5 35.7 44.3 46.7 42.3		Yes	No
Temephos	Aug 17/15	N/D	Yes	No
Terbufos	Aug 17/15	N/D	Yes	No
Tetrachloroethylene (perchloroethylene)	Aug 17/15	N/D	Yes	No
2,3,4,6 - Tetrachlorophenol	Aug 17/15	N/D	Yes	No
Triallate	Aug 17/15	N/D	Yes	No
Trichloroethylene	Aug 17/15	N/D	Yes	No
2,4,6 - Trichlorophenol	Aug 17/15	N/D	Yes	No
2,4,5 - Trichlorophenoxy acetic acid (2,4,5-T)	Aug 17/15	N/D	Yes	No
Trifluralin	Aug 17/15	N/D	Yes	No
Vinyl Chloride	Aug 17/15	N/D	Yes	No

ADDITIONAL
POINT OF ENTRY

Parameter	**Sample Date Feb 17/15**	**Sample Date May 19/15**	**Sample Date Aug 17/15**	**Sample Date Nov 16/15**
pH	7.8	6.9	7.62	7.84
HARDNESS – **mg/L**	120	120	120	110
ALKALINITY – **mg/L**	92	96	90	86
COLOUR - **TCU**	ND	ND	ND	ND
FLUORIDE – **mg/L**	0.67	0.61	0.56	0.34
ALUMINUM – **mg/L**	0.073	0.130	0.00	0.120

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	Unit of Measure
Microcystin	June 15/15	0.18	ppb
Microcystin	June 22/15	<0.14	ppb
Microcystin	June 29/25	<0.14	ppb
Microcystin	July 6/15	<0.14	ppb
Microcystin	July 13/15	<.0.14	ppb
Microcystin	July 20/15	<0.14	ppb
Microcystin	July 27/15	<0.14	ppb
Microcystin	Aug 4/15	<0.14	ppb
Microcystin	Aug 10/15	<0.14	ppb
Microcystin	Aug 17/15	<0.14	ppb
Microcystin	Aug 24/15	<0.14	ppb
Microcystin	Aug 31/15	<0.14	ppb
Microcystin	Sept 8/15	<0.14	ppb
Microcystin	Sept 14/15	<0.14	ppb
Microcystin	Sept 21/15	<0.14	ppb
Microcystin	Sept 28/15	<0.14	ppb
Microcystin	Oct 5/15	<0.14	ppb
Microcystin	Oct 13/15	<0.14	ppb
Microcystin	Oct 19/15	<0.14	ppb
Microcystin	Oct 26/15	<0.14	ppb
Microcystin	Nov 2/15	<0.14	ppb
Microcystin	Nov 9/15	0.18	ppb
Microcystin	Nov 16/15	<0.14	ppb
Microcystin	Nov 23/15	<0.14	ppb
Microcystin	Nov 30/15	<0.14	ppb