



OPTIONAL ANNUAL REPORT TEMPLATE

Drinking-Water System Number:	260015587
Drinking-Water System Name:	Highgate Drinking Water System
Drinking-Water System Owner:	Municipality of Chatham-Kent
Drinking-Water System Category:	Large Municipal Residential
Period being reported:	January - December 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 [] No [X]</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 PUC Office 325 Grand Ave E 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"/></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: <input type="text"/></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>
--	---

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

Ground water for the Highgate Drinking Water System is obtained from two deep wells. The raw water is pumped by the submersible well pumps and is filtered through a five micron pre-filter, followed by filtration through a one micron post-filter. The filtered water is disinfected with sodium hypochlorite before being stored in ten pressure tanks with a common header pipe. Upon exiting the pressure tanks, the filtered water is disinfected once more, this time by an ultraviolet system. The disinfected water then passes through a static mixer before entering the contact chamber. The treated water subsequently exits the contact chamber and enters the distribution system.

Fluoride is naturally occurring in the source water in concentrations greater than the 1.5 mg/L Ontario Drinking Water Quality Standard. Sodium is also naturally occurring in the source water in concentrations greater than the 20 mg/L aesthetic objective.

List all water treatment chemicals used over this reporting period

Sodium Hypochlorite

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

Annual UV Reference Sensor Verification.....	\$770
Cartridge Filter Replacement.....	\$2,850



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
May 22	Low pressure at discharge to the distribution system for 3 minutes, 2 seconds due to duty pump failure to start	<20	psi	Standby well pump was started	May 22

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	104	0 – 0	0 – 12	NA	NA
Treated	52	0 – 0	0 – 0	52	<10 – 70
Distribution	122	0 – 0	0 – 0	52	<10 – 210

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 - Raw	93	0.066 – 0.776 NTU
Turbidity – Filtrate	365	0.069 – 0.174 NTU
Chlorine	8760	0.29 – 3.88 mg/L
Fluoride (If the DWS provides fluoridation)	Fluoride is Naturally Occurring	

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 2017	Result Well 1	Result Well 2	Unit of Measure
Municipal Drinking Water Licence # 027-103 Table 6 Quarterly	Raw - Organic Nitrogen	Jan 16, 2017 Apr 3, 2017 Jul 10, 2017 Oct 16, 2017	0.13 0.32 <0.10 <0.10	0.18 0.10 <0.10 <0.10	mg/L
as above Table 6 Quarterly	Raw - Methane	Jan 16, 2017 Apr 3, 2017 Jul 10, 2017 Oct 16, 2017	32 30 33 28	25 23 26 37	L/m3
as above Table 5 Quarterly Limit: 1.5 mg/L	Point of Entry - Fluoride	Jan 16, 2017 Apr 3, 2017 Jul 10, 2017 Oct 16, 2017		1.8 1.8 1.7 1.8	mg/L
as above Table 5 Quarterly Limit: 20 mg/L	Point of Entry - Sodium	Jan 16, 2017 Apr 3, 2017 Jul 10, 2017 Oct 16, 2017		100 91 95 99	mg/L

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

Parameter	Sample Date	Result Value	Unit of Measure	Exceedance
Antimony	Jul 18, 2016	<0.50	ug/L	No
Arsenic	Jul 18, 2016	<1.0	ug/L	No
Barium	Jul 18, 2016	380	ug/L	No
Boron	Jul 18, 2016	700	ug/L	No
Cadmium	Jul 18, 2016	<0.10	ug/L	No
Chromium	Jul 18, 2016	<5.0	ug/L	No
Lead	See Schedule 15.1 Summary			
Mercury	Jul 18, 2016	<0.10	mg/L	No
Selenium	Jul 18, 2016	<2.0	ug/L	No
Sodium	Oct. 16, 2017	99	mg/L	Yes - Reported Jul 18, 2014 AWQI # 118989
Uranium	Jul 18, 2016	<0.10	ug/L	No
Fluoride	Oct. 16, 2017	1.8	mg/L	Yes - Reported Jan 16, 2015 AWQI # 122303
Nitrite	Oct. 16, 2017	<0.010	mg/L	No
Nitrate	Oct. 16, 2017	<0.10	mg/L	No

*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

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 ug/L (min#) – (max #)	Number of Exceedances / Adverses
Residential	NA	NA	NA
Non-Residential	NA	NA	NA
Distribution	2	<0.50 - 0.57	0

Summary of Organic parameters sampled during this reporting period or the most recent sample results

Parameter	Sample Date	Result Value	Unit of Measure	Exceedance
Alachlor	Jul 18, 2016	<0.50	ug/L	No
Atrazine + N-dealkylated metabolites	Jul 18, 2016	<1.0	ug/L	No
Azinphos-methyl	Jul 18, 2016	<2.0	ug/L	No
Benzene	Jul 18, 2016	<0.10	ug/L	No
Benzo(a)pyrene	Jul 18, 2016	<0.0090	ug/L	No
Bromoxynil	Jul 18, 2016	<0.50	ug/L	No
Carbaryl	Jul 18, 2016	<5.0	ug/L	No
Carbofuran	Jul 18, 2016	<5.0	ug/L	No
Carbon Tetrachloride	Jul 18, 2016	<0.10	ug/L	No
Chlorpyrifos	Jul 18, 2016	<1.0	ug/L	No
Diazinon	Jul 18, 2016	<1.0	ug/L	No
Dicamba	Jul 18, 2016	5.0	ug/L	No
1,2-Dichlorobenzene	Jul 18, 2016	<0.20	ug/L	No
1,4-Dichlorobenzene	Jul 18, 2016	<0.20	ug/L	No
1,2-Dichloroethane	Jul 18, 2016	<0.20	ug/L	No
1,1-Dichloroethylene (vinylidene chloride)	Jul 18, 2016	<0.10	ug/L	No
Dichloromethane	Jul 18, 2016	<0.50	ug/L	No
2-4 Dichlorophenol	Jul 18, 2016	<0.50	ug/L	No
2,4-Dichlorophenoxy acetic acid (2,4-D)	Jul 18, 2016	<1.0	ug/L	No
Diclofop-methyl	Jul 18, 2016	<0.90	ug/L	No
Dimethoate	Jul 18, 2016	<2.5	ug/L	No
Diquat	Jul 18, 2016	<7.0	ug/L	No
Diuron	Jul 18, 2016	<10.0	ug/L	No
Glyphosate	Jul 18, 2016	<10.0	ug/L	No
Haloacetic Acids (NOTE: show latest annual average) 2017 - Distribution S.S. Locations Dist. SS #3 Main St. E - Jan. 16, 2017 Dist. SS #3 Main St. E. – Apr. 3, 2017 Dist. SS #2 Queen St. – Jul. 10, 2017 Dist. SS #5 King St. N – Oct. 16, 2017	Jan 16, 2017 Apr 3, 2017 Jul 10, 2017 Oct 16, 2017 2017 Avg	5.4 <5.0 5.0 6.2 5.4	ug/L	No
Metolachlor	Jul 18, 2016	<0.50	ug/L	No
Metribuzin	Jul 18, 2016	<5.0	ug/L	No



2 Methal-4-chlorophenoxyacetic acid (MCPA)	Jul 25, 2016	0.05	ug/L	No
Monochlorobenzene	Jul 18, 2016	<0.10	ug/L	No
Paraquat	Jul 18, 2016	<1.0	ug/L	No
Pentachlorophenol	Jul 18, 2016	<0.50	ug/L	No
Phorate	Jul 18, 2016	<0.50	ug/L	No
Picloram	Jul 18, 2016	<5.0	ug/L	No
Polychlorinated Biphenyls(PCB)	Jul 18, 2016	<0.05	ug/L	No
Prometryne	Jul 18, 2016	<0.25	ug/L	No
Simazine	Jul 18, 2016	<1.0	ug/L	No
THM (NOTE: show latest annual average) 2016 POE: Jul 18, 2016 – 14.0 ug/L	Jan 16, 2017 Apr 3, 2017 July 10, 2017 Oct 16, 2017 2017 Avg	64.0 66.6 108.0 101.0 84.9	ug/L	No
Terbufos	Jul 18, 2016	<0.50	ug/L	No
Tetrachloroethylene	Jul 18, 2016	<0.10	ug/L	No
2,3,4,6-Tetrachlorophenol	Jul 18, 2016	<0.50	ug/L	No
Triallate	Jul 18, 2016	<1.0	ug/L	No
Trichloroethylene	Jul 18, 2016	<0.10	ug/L	No
2,4,6-Trichlorophenol	Jul 18, 2016	<0.50	ug/L	No
Trifluralin	Jul 18, 2016	<1.0	ug/L	No
Vinyl Chloride	Jul 18, 2016	<0.20	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
Fluoride – POE	1.8	mg/L	Jan 16, 2017
Fluoride – POE	1.8	mg/L	Apr 3, 2017
Fluoride – POE	1.7	mg/L	Jul 17, 2017
Fluoride – POE	1.8	mg/L	Oct 16, 2017
THM - Distribution	84.9	ug/L	Running Average

Summary of additional voluntary sampling and testing during this reporting period.

Parameter	Result Value	Unit of Measure	Date of Sample
NA			