

Drinking-Water Systems Regulation O. Reg. 170/03

**Part III Form 2
Section 11. ANNUAL REPORT.**

Drinking-Water System Number:	210003011
Drinking-Water System Name:	Chatsworth Water System
Drinking-Water System Owner:	Township of Chatsworth
Drinking-Water System Category:	Large Municipal Residential
Period being reported:	January 1, 2017 – 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 [] No [X]</p> <p>Is your annual report available to the public at no charge on a web site on the Internet? Yes [] No [X]</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>Township of Chatsworth Municipal Office Rural Route, No. 1 Chatsworth, Ontario N0H 1G0</p> </div>	<p><u>Complete for all other Categories.</u></p> <p>Number of Designated Facilities served:</p> <div style="border: 1px solid black; width: 100px; height: 20px; margin: 5px 0;"></div> <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:</p> <div style="border: 1px solid black; width: 100px; height: 20px; margin: 5px 0;"></div> <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
Not applicable	Not applicable

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 [NA]

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 – Include notice in water billings**

Describe your Drinking-Water System

The Chatsworth Water Treatment Plant & Distribution System is owned by The Corporation of the Township of Chatsworth. The Chatsworth Water Treatment Plant & Distribution System is operated by the Ontario Clean Water Agency.

The following is a description of the Chatsworth Water Treatment Plant and Distribution System.

The Village of Chatsworth is serviced by a large municipal water system which derives its raw water from two (2) municipally owned wells. Each well is equipped with pumping equipment capable of pumping at 529.8 L/min at 67.1 m total dynamic head. Well No. 1 and Well No. 2 are equally rated at 569.0 L/min and are not meant to run simultaneously. Both wells are located within the same pumphouse. The pumphouse is located in Part Lot 5, Concession 1 East, Toronto Sydenham Road, former Township of Holland. Well #1 is a 33.6 meter deep drilled well. Well #2 is a 20.9 meter deep drilled well.

The wells are approximately 130 m from the Spey River, and have been determined by Henderson, Paddon & Associates Ltd. as being groundwater under some influence of surface water. When the wells were constructed, approximately 1.6 m of fill was added to the site to ensure good drainage around and away from the site, and as a safety measure to protect against flooding from the Spey River. Henderson, Paddon & Associates Ltd. also concluded that both Well No. 1 and Well No. 2 draw from the same aquifer.

Pumphouse

The Chatsworth water system has been categorized as GUDI. The minimum treatment requirement is 2 log removal/inactivation of cryptosporidium, 3 log inactivation/removal of giardia and 4 log removal/inactivation of viruses using chemically assisted filtration. An equivalent treatment that has been accepted is cartridge filtration, UV and chlorination.

Raw water is pumped from either Well No. 1 or Well No. 2 into a common 100 mm diameter discharge line. It then passes through a cartridge filter. The cartridge filter is 5 micron nominal size and has a treatment capacity of 8.9 L/sec. The filtered water is then directed through one of two ultraviolet disinfection reactors which have a light flux of at least 40 mJ/cm². The water is then treated with sodium hypochlorite for primary and secondary disinfection. Treated water is directed past a flow meter, free chlorine residual analyzer and a turbidity meter prior to treated water being directed into the distribution system.

Distribution System

The Chatsworth water system services approximately 567 people. The water works was established in 1984 and includes an 854 cubic meter steel standpipe. Distribution system piping consists of PVC construction and mains range in size from 150 mm to 200 mm in diameter. There are approximately 37 fire hydrants, 1 blow off, 1 hydrant flusher, 4 sampling stations and 220 connections in the Chatsworth distribution system.

Stand Pipe Reservoir

The stand pipe has an approximate 854 cubic meter capacity and is located on Sideroad #1.

List all water treatment chemicals used over this reporting period

Sodium Hypochlorite 6% Solution NSF, Disinfection

Were any significant expenses incurred to?

- Install required equipment
- Repair required equipment
- Replace required equipment

Please provide a brief description of any significant expenses incurred

1. Replacement of faulty unit heater fan motor
2. OCWA Engineering – inspection of Chatsworth Standpipe for RFP
3. Ken Elder Electric – building flood alarm installed
4. H2Flow – annual inspection/ service of UV system

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
No Incidents to Report in 2017					

Table 1

Microbiological testing done under the Schedule 10 of Regulation 170/03, during this reporting period.

Location	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 - RW1	52	0 - 1	0 - 24		
Raw - RW2	52	0 - 2	0 - 22		
Treated - TW	52	0 - 0	0 - 0	52	0 - 2
Distribution - DW	104	0 - 0	0 - 0	52	0 - 5

Note:

- RW1 – Raw Water Well #1
- RW2 – Raw Water Well #2
- TW – Treated Water
- DW – Distribution Water

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Table 2

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

Parameter	Number of Grab Samples	Range of Results (min #)-(max #)
Raw Water		
Turbidity (Well #1)	12	0.09-0.62 NTU's
Turbidity (Well #2)	12	0.08-0.60 NTU's
Filter Effluent		
Turbidity	8760	0.026-1.394 NTU's
Treated Water		
Chlorine Residual (TW) (free)	8760	0.00-2.00 mg/L
Distribution System		
Chlorine Residual (free)	360	0.35-1.48 mg/L
<p>*The above noted 0.00 for the minimum chlorine residual was due to a low chlorine alarm which locked out the pumps at the required CT free chlorine residual of 0.55 mg/L allowing no untreated water out to the distribution system. The operator back flushed the pump house to waste until the chlorine residual was 1.24 mg/L at the POE. The pumphouse was restarted when the analyzer was reading 1.39 mg/L.</p>		

Table 3

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
11/19/2008	UV Transmittance	Jan 1, 2017 To Dec 31, 2017	99.0 %	Scale 1- 100%

Table 4

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

Please refer to Appendix A

Table 5

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	Lead Results and Comments
Plumbing	Relief from All Plumbing Requirements
Distribution	No Lead Testing in the Distribution in 2017 Alkalinity tested during the two regulated sample periods had results between 269 mg/L to 285 mg/L

Table 6

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

Please refer to Appendix A

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
N/A			

(Only if DWS category is large municipal residential, small municipal residential, large municipal non residential, non municipal year round residential, large non municipal non residential)

APPENDIX A

ANNUAL SUMMARY for parameters tested during 2017
or the most recent sample results

Table 4 – Inorganic Parameters

Table 6 – Organic Parameters

Location:

TW – Treated Water

DW – Distribution Water

Drinking-Water System Number: 210003011
 Drinking-Water System Name: CHATSWORTH DRINKING WATER SYSTEM
 Drinking-Water System Owner: Title Holder: Corporation/Company
 Drinking-Water System Category: Large Municipal Residential
 Period being reported: 01/2017 12/2017

Table 4

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

TREATED WATER	Sample Date (yyyy/mm/dd)	Sample Result	MAC	No. of Exceedances	
				MAC	1/2 MAC
Antimony: Sb (ug/L) - TW2	2017/01/11	<MDL 0.02	6.0	No	No
Antimony: Sb (ug/L) - TW1	2017/01/11	<MDL 0.02	6.0	No	No
Antimony: Sb (ug/L) - TW					
Arsenic: As (ug/L) - TW2	2017/01/11	<MDL 0.2	25.0	No	No
Arsenic: As (ug/L) - TW1	2017/01/11	<MDL 0.2	25.0	No	No
Arsenic: As (ug/L) - TW					
Barium: Ba (ug/L) - TW2	2017/01/11	7.48	1000.0	No	No
Barium: Ba (ug/L) - TW1	2017/01/11	7.56	1000.0	No	No
Barium: Ba (ug/L) - TW					
Boron: B (ug/L) - TW2	2017/01/11	10.0	5000.0	No	No
Boron: B (ug/L) - TW1	2017/01/11	12.0	5000.0	No	No
Boron: B (ug/L) - TW					
Cadmium: Cd (ug/L) - TW2	2017/01/11	<MDL 0.003	5.0	No	No
Cadmium: Cd (ug/L) - TW1	2017/01/11	<MDL 0.003	5.0	No	No
Cadmium: Cd (ug/L) - TW					
Chromium: Cr (ug/L) - TW2	2017/01/11	0.63	50.0	No	No
Chromium: Cr (ug/L) - TW1	2017/01/11	0.67	50.0	No	No
Chromium: Cr (ug/L) - TW					
Mercury: Hg (ug/L) - TW2	2017/01/11	<MDL 0.01	1.0	No	No
Mercury: Hg (ug/L) - TW1	2017/01/11	<MDL 0.01	1.0	No	No
Mercury: Hg (ug/L) - TW					
Selenium: Se (ug/L) - TW2	2017/01/11	0.24	50.0	No	No
Selenium: Se (ug/L) - TW1	2017/01/11	0.25	50.0	No	No
Selenium: Se (ug/L) - TW					
Uranium: U (ug/L) - TW2	2017/01/11	0.495	20.0	No	No
Uranium: U (ug/L) - TW1	2017/01/11	0.495	20.0	No	No
Uranium: U (ug/L) - TW					
Additional Inorganics					
Fluoride (mg/L) - TW2	2017/01/11	0.06	1.5	No	No
Fluoride (mg/L) - TW1	2017/01/11	0.06	1.5	No	No
Fluoride (mg/L) - TW					
Nitrite (mg/L) - TW2	2017/01/11	<MDL 0.003	1.0	No	No
Nitrite (mg/L) - TW2	2017/04/24	<MDL 0.003	1.0	No	No
Nitrite (mg/L) - TW2	2017/07/10	<MDL 0.003	1.0	No	No
Nitrite (mg/L) - TW2	2017/10/10	<MDL 0.003	1.0	No	No
Nitrite (mg/L) - TW1	2017/01/11	<MDL 0.003	1.0	No	No
Nitrite (mg/L) - TW1	2017/04/24	<MDL 0.003	1.0	No	No
Nitrite (mg/L) - TW1	2017/07/10	<MDL 0.003	1.0	No	No
Nitrite (mg/L) - TW1	2017/10/10	<MDL 0.003	1.0	No	No
Nitrate (mg/L) - TW2	2017/01/11	0.508	10.0	No	No
Nitrate (mg/L) - TW2	2017/04/24	0.226	10.0	No	No
Nitrate (mg/L) - TW2	2017/07/10	0.197	10.0	No	No

Nitrate (mg/L) - TW2	2017/10/10	0.662	10.0	No	No
Nitrate (mg/L) - TW1	2017/01/11	1.05	10.0	No	No
Nitrate (mg/L) - TW1	2017/04/24	0.27	10.0	No	No
Nitrate (mg/L) - TW1	2017/07/10	0.288	10.0	No	No
Nitrate (mg/L) - TW1	2017/10/10	0.836	10.0	No	No
Sodium: Na (mg/L) - TW2	2014/01/13	5.56	20*	No	No
Sodium: Na (mg/L) - TW1	2014/01/13	4.72	20*	No	No

*There is no "MAC" for Sodium. The aesthetic objective for sodium in drinking water is 200 mg/L. The local Medical Officer of Health should be notified when the sodium concentration exceeds 20 mg/L so that this information may be communicated to local physicians for their use with patients on sodium restricted diets.

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 Period being reported: 01/2017 12/2017

Table 6

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

TREATED WATER	Sample Date (yyyy/mm/dd)	Sample Result	MAC	Number of Exceedances	
				MAC	1/2 MAC
Alachlor (ug/L) - TW2	2017/01/11	<MDL 0.02	5.00	No	No
Alachlor (ug/L) - TW1	2017/01/11	<MDL 0.02	5.00	No	No
Atrazine + N-dealkylated metabolites (ug/L) - TW2	2017/01/11	<MDL 0.01	5.00	No	No
Atrazine + N-dealkylated metabolites (ug/L) - TW1	2017/01/11	<MDL 0.01	5.00	No	No
Azinphos-methyl (ug/L) - TW2	2017/01/11	<MDL 0.05	20.00	No	No
Azinphos-methyl (ug/L) - TW1	2017/01/11	<MDL 0.05	20.00	No	No
Benzene (ug/L) - TW2	2017/01/17	<MDL 0.32	1.00	No	No
Benzene (ug/L) - TW1	2017/01/11	<MDL 0.32	1.00	No	No
Benzo(a)pyrene (ug/L) - TW2	2017/01/11	<MDL 0.004	0.01	No	No
Benzo(a)pyrene (ug/L) - TW1	2017/01/11	<MDL 0.004	0.01	No	No
Bromoxynil (ug/L) - TW2	2017/01/11	<MDL 0.33	5.00	No	No
Bromoxynil (ug/L) - TW1	2017/01/11	<MDL 0.33	5.00	No	No
Carbaryl (ug/L) - TW2	2017/01/11	<MDL 0.05	90.00	No	No
Carbaryl (ug/L) - TW1	2017/01/11	<MDL 0.05	90.00	No	No
Carbofuran (ug/L) - TW2	2017/01/11	<MDL 0.01	90.00	No	No
Carbofuran (ug/L) - TW1	2017/01/11	<MDL 0.01	90.00	No	No
Carbon Tetrachloride (ug/L) - TW2	2017/01/17	<MDL 0.16	2.00	No	No
Carbon Tetrachloride (ug/L) - TW1	2017/01/11	<MDL 0.16	2.00	No	No
Chlorpyrifos (ug/L) - TW2	2017/01/11	<MDL 0.02	90.00	No	No
Chlorpyrifos (ug/L) - TW1	2017/01/11	<MDL 0.02	90.00	No	No
Diazinon (ug/L) - TW2	2017/01/11	<MDL 0.02	20.00	No	No
Diazinon (ug/L) - TW1	2017/01/11	<MDL 0.02	20.00	No	No
Dicamba (ug/L) - TW2	2017/01/11	<MDL 0.2	120.00	No	No
Dicamba (ug/L) - TW1	2017/01/11	<MDL 0.2	120.00	No	No
1,2-Dichlorobenzene (ug/L) - TW2	2017/01/17	<MDL 0.41	200.00	No	No
1,2-Dichlorobenzene (ug/L) - TW1	2017/01/11	<MDL 0.41	200.00	No	No
1,4-Dichlorobenzene (ug/L) - TW2	2017/01/17	<MDL 0.36	5.00	No	No
1,4-Dichlorobenzene (ug/L) - TW1	2017/01/11	<MDL 0.36	5.00	No	No
1,2-Dichloroethane (ug/L) - TW2	2017/01/17	<MDL 0.35	5.00	No	No
1,2-Dichloroethane (ug/L) - TW1	2017/01/11	<MDL 0.35	5.00	No	No
1,1-Dichloroethylene (ug/L) - TW2	2017/01/17	<MDL 0.33	14.00	No	No
1,1-Dichloroethylene (ug/L) - TW1	2017/01/11	<MDL 0.33	14.00	No	No
Dichloromethane (Methylene Chloride) (ug/L) - TW2	2017/01/17	<MDL 0.35	50.00	No	No
Dichloromethane (Methylene Chloride) (ug/L) - TW1	2017/01/11	<MDL 0.35	50.00	No	No
2,4-Dichlorophenol (ug/L) - TW2	2017/01/11	<MDL 0.15	900.00	No	No
2,4-Dichlorophenol (ug/L) - TW1	2017/01/11	<MDL 0.15	900.00	No	No
2,4-Dichlorophenoxy acetic acid (2,4-D) (ug/L) - TW2	2017/01/11	<MDL 0.19	100.00	No	No
2,4-Dichlorophenoxy acetic acid (2,4-D) (ug/L) - TW1	2017/01/11	<MDL 0.19	100.00	No	No
Dicofop-methyl (ug/L) - TW2	2017/01/11	<MDL 0.4	9.00	No	No
Dicofop-methyl (ug/L) - TW1	2017/01/11	<MDL 0.4	9.00	No	No
Dimethoate (ug/L) - TW2	2017/01/11	<MDL 0.03	20.00	No	No
Dimethoate (ug/L) - TW1	2017/01/11	<MDL 0.03	20.00	No	No
Diquat (ug/L) - TW2	2017/01/11	<MDL 1.0	70.00	No	No
Diquat (ug/L) - TW1	2017/01/11	<MDL 1.0	70.00	No	No
Diuron (ug/L) - TW2	2017/01/11	<MDL 0.03	150.00	No	No
Diuron (ug/L) - TW1	2017/01/11	<MDL 0.03	150.00	No	No
Glyphosate (ug/L) - TW2	2017/01/11	<MDL 1.0	280.00	No	No

