



ONTARIO CLEAN WATER AGENCY
AGENCE ONTARIENNE DES EAUX

CHATSWORTH
DRINKING WATER SYSTEM

Large Municipal Residential

SECTION 11
ANNUAL REPORT

For the period of
JANUARY 1, 2022 TO DECEMBER 31, 2022

Prepared by the Ontario Clean Water Agency
For the Township of Chatsworth

This report was prepared in accordance with the requirements of [O.Reg 170/03, Section 11, Annual reports](#) for the following system and reporting period:

Drinking Water System Number:	210003011
Drinking Water System Name:	Chatsworth Drinking Water System
Drinking Water System Owner:	Township of Chatsworth
Drinking Water System Category:	Large Municipal Residential
Reporting Period:	January 1, 2022 – December 31, 2022

Does your Drinking Water System serve more than 10,000 people?

No

Is your Annual Report available to the public at no charge on a website on the Internet?

Yes

Note: If a large municipal residential system serves more than 10,000 people, the owner of the system shall ensure that a copy of every report prepared under this section is available to the public at no charge on a website on the Internet. O. Reg. 170/03, Section 11. (10)

Location where Summary Report required under O. Reg 170/03, Schedule 22 will be available for inspection. (O. Reg 170/03, Section 11.(6)(5)):

- Township of Chatsworth Municipal Office, 316837 Highway 6, RR1 Chatsworth, ON, N0H 1G0
- <https://chatsworth.ca/living-here/water-services/#annual-water-reports>

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
N/A	N/A

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?

N/A

How system users are notified that the annual report is available, and is free of charge:

- | | |
|-------------------------------------|--|
| <input checked="" type="checkbox"/> | Public access/notice via the web |
| <input checked="" type="checkbox"/> | Public access/notice via Government Office |
| <input type="checkbox"/> | Public access/notice via a newspaper |
| <input checked="" type="checkbox"/> | Public access/notice via Public Request |

- Public access/notice via a Public Library
 Public access/notice via other method: _____

Description of Drinking Water System (O.Reg 170/03, Section 11.(6)(a)):

The Chatsworth Drinking Water System is owned by The Corporation of the Township of Chatsworth and is operated by the Ontario Clean Water Agency.

The Chatsworth Drinking Water System is a large municipal water system which draws 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 105 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.

The Chatsworth Drinking Water System's source water has been categorized as Groundwater Under the Direct Influence of Surface Water (GUDI). As such, the minimum log removal/inactivation required is 2 log for Cryptosporidium Oocysts, 3 log for Giardia Cysts and 4 log for viruses. The Chatsworth Drinking Water System achieves these credits from UV and chlorine disinfection.

Raw water is pumped from either Well No. 1 or Well No. 2 into a common discharge header. It then passes through a 5 micron nominal size cartridge filter with a filtration capacity of 8.9 L/s. The filtered water is monitored by an online turbidity analyzer and then directed through one of two ultraviolet disinfection reactors; one (1) duty, and one (1) standby. Each UV reactor has the capacity to provide a minimum dosage of 40 mJ/cm². Water is then directed past a flow meter before it is treated with sodium hypochlorite for primary and secondary disinfection. Treated water free chlorine residual is monitored by an online analyzer prior to being directed into the distribution system.

The Chatsworth Drinking Water System was established in 1984. The standpipe situated on side road #1 was replaced with a glass-fused-to-steel standpipe in 2018. The Water Distribution system consists of Polyvinyl Chloride (PVC) pipes that 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 242 service connections in the Chatsworth distribution system.

List of water treatment chemicals used by the system during the reporting period (O.Reg 170/03, Section 11.(6)(a)):

- Sodium Hypochlorite 6%

Significant expenses were incurred to:

- | | |
|-------------------------------------|---------------------------------------|
| <input checked="" type="checkbox"/> | Install required equipment |
| <input checked="" type="checkbox"/> | Repair required equipment |
| <input checked="" type="checkbox"/> | Replace required equipment |
| <input type="checkbox"/> | No significant expenses were incurred |

Description of major expenses during the reporting period to install, repair or replace required equipment (O.Reg 170/03, Section 11.(6)(e)):

- Replacement relays for MCC
- Replacement UV quartz sleeves
- UV sensor re-calibration
- Replacement turbidity analyzer
- Replacement cartridge filter

Summary of any reports/notices submitted to the Ministry and/or Spills Action Centre in accordance with subsection 18(1) of the Safe Drinking-Water Act or section 16-4 of Schedule 16 of O.Reg.170/03 during the reporting period, including a description of any corrective actions taken under Schedule 17 or 18 (O. Reg 170/03, Section 11.(6)(b),(d)):

Incident Date (yyyy/mm/dd)	Parameter	Result	Unit of Measure	Corrective Action	Corrective Action Date (yyyy/mm/dd)
N/A	N/A	N/A	N/A	N/A	N/A

Table 1. Microbiological testing done under the Schedule 11 of Regulation 170/03 during this reporting period (O.Reg 170/03, Section 11.(6)(c)).

Location	Number of Samples	Range of E. Coli or Fecal Results		Range of Total Coliform Results		Number of HPC Samples	Range of HPC Samples	
		Min.	Max.	Min.	Max.		Min.	Max.
Well 1	52	0	46	0	720	N/A	N/A	N/A
Well 2	52	0	52	0	760	N/A	N/A	N/A
Treated	52	0	0	0	0	52	0	3
Distribution	104	0	0	0	0	52	0	3

Table 2. Operational testing done under Schedule 7 of Regulation 170/03 during the period covered by this Annual Report (O. Reg 170/03, Section 11.(6)(c)).

Parameter & Location	Number of Samples	Range of Results	
		Min.	Max.
Well #1 Turbidity (NTU)	12	0.46	1.86
Well #2 Turbidity (NTU)	12	0.11	0.80
Filter Turbidity (NTU)	8760	0.00	0.30
Treated Chlorine Residual (mg/L)	8760	0.78	2.00
Distribution Chlorine Residual (mg/L)	416	0.47	1.77

Note: The number of samples used for continuous monitoring units is 8760.

Table 3. Summary of additional testing and sampling results carried out in accordance with the requirement of an approval, municipal drinking water licence or order (including OWRA) or other legal instrument. (O. Reg 170/03, Section 11.(6)(c))

Legal Instrument & Issue Date (yyyy/mm/dd)	Parameter	Date Sampled	Number of Samples	Annual Average	Allowable Annual Average
N/A	N/A	N/A	N/A	N/A	N/A

Table 4. Summary of Inorganic parameters tested during this reporting period or the most recent sample results (O.Reg 170/03, Section 11.(6)(c))

Parameter & Location	Sample Date (yyyy/mm/dd)	Sample Result	Maximum Allowable Concentration (MAC)	Exceedance of MAC
Antimony: Sb (µg/L) - TW2	2022/01/10	<MDL 0.6	6.0	No
Antimony: Sb (µg/L) - TW1	2022/01/10	<MDL 0.6	6.0	No
Arsenic: As (µg/L) - TW2	2022/01/10	<MDL 0.2	10.0	No
Arsenic: As (µg/L) - TW1	2022/01/10	<MDL 0.2	10.0	No
Barium: Ba (µg/L) - TW2	2022/01/10	8.62	1000.0	No
Barium: Ba (µg/L) - TW1	2022/01/10	9.06	1000.0	No
Boron: B (µg/L) - TW2	2022/01/10	12.0	5000.0	No
Boron: B (µg/L) - TW1	2022/01/10	11.0	5000.0	No
Cadmium: Cd (µg/L) - TW2	2022/01/10	<MDL 0.003	5.0	No
Cadmium: Cd (µg/L) - TW1	2022/01/10	<MDL 0.003	5.0	No
Chromium: Cr (µg/L) - TW2	2022/01/10	0.22	50.0	No
Chromium: Cr (µg/L) - TW1	2022/01/10	0.25	50.0	No
Mercury: Hg (µg/L) - TW2	2022/01/10	<MDL 0.01	1.0	No
Mercury: Hg (µg/L) - TW1	2022/01/10	<MDL 0.01	1.0	No
Selenium: Se (µg/L) - TW2	2022/01/10	0.16	50.0	No

Selenium: Se (µg/L) - TW1	2022/01/10	0.15	50.0	No
Uranium: U (µg/L) - TW2	2022/01/10	0.493	20.0	No
Uranium: U (µg/L) - TW1	2022/01/10	0.478	20.0	No
Fluoride (mg/L) - TW	2022/01/10	0.06	1.5	No
Nitrite (mg/L) - TW2	2022/01/10	<MDL 0.003	1.0	No
Nitrite (mg/L) - TW2	2022/04/25	<MDL 0.003	1.0	No
Nitrite (mg/L) - TW2	2022/07/11	<MDL 0.003	1.0	No
Nitrite (mg/L) - TW2	2022/10/26	<MDL 0.003	1.0	No
Nitrite (mg/L) - TW1	2022/01/10	<MDL 0.003	1.0	No
Nitrite (mg/L) - TW1	2022/04/25	<MDL 0.003	1.0	No
Nitrite (mg/L) - TW1	2022/07/11	<MDL 0.003	1.0	No
Nitrite (mg/L) - TW1	2022/10/26	<MDL 0.003	1.0	No
Nitrate (mg/L) - TW2	2022/01/10	1.09	10.0	No
Nitrate (mg/L) - TW2	2022/04/25	0.775	10.0	No
Nitrate (mg/L) - TW2	2022/07/11	1.21	10.0	No
Nitrate (mg/L) - TW2	2022/10/26	1.47	10.0	No
Nitrate (mg/L) - TW1	2022/01/10	1.01	10.0	No
Nitrate (mg/L) - TW1	2022/04/25	0.3	10.0	No
Nitrate (mg/L) - TW1	2022/07/11	1.18	10.0	No
Nitrate (mg/L) - TW1	2022/10/26	1.47	10.0	No

Parameter & Location	Sample Date (yyyy/mm/dd)	Sample Result	Aesthetic Objective (AO)	Exceedance	
				AO	> 20 mg/L
Sodium: Na (mg/L) - TW2	2019/01/08	3.04	200 ^d	No	No
Sodium: Na (mg/L) - TW1	2019/01/08	3.72	200 ^d	No	No

Note: MDL = Minimum Detection Limit

^cSodium is reportable every 60 months. Next set of sodium samples is scheduled to be sampled in 2024.

^dThere is no regulatory Maximum Allowable Concentration (MAC) Sodium. The aesthetic objective (AO) 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.

Table 5: Summary of lead testing under Schedule 15.1 during this reporting period (O.Reg 170/03, Section 11.(6)(g))

Location/Type & Parameter	Number of Samples	Range of Results		Number of Lead Exceedances (MAC = 10 µ/L)
		Min.	Max.	
Period: January 1 to April 15				
Plumbing – Lead (µg/L) ^a	N/A	N/A	N/A	N/A
Distribution – Lead (µg/L) ^b	N/A	N/A	N/A	N/A
Distribution – Alkalinity (mg/L as CaCO ₃)	2	296	297	N/A
Distribution – pH	2	7.58	7.70	N/A
Period: June 15 to October 15				
Plumbing – Lead (µg/L) ^a	N/A	N/A	N/A	N/A
Distribution – Lead (µg/L) ^b	N/A	N/A	N/A	N/A
Distribution – Alkalinity (mg/L as CaCO ₃)	1	313	313	N/A
Distribution – pH	1	7.14	7.14	N/A
Period: December 15 to 31				
Plumbing – Lead (µg/L) ^a	N/A	N/A	N/A	N/A
Distribution – Lead (µg/L) ^b	N/A	N/A	N/A	N/A
Distribution – Alkalinity (mg/L as CaCO ₃)	N/A	N/A	N/A	N/A
Distribution - pH	N/A	N/A	N/A	N/A

Note: this is required for large municipal residential systems, small municipal residential systems or non-municipal year-round residential system.

^a*Plumbing samples are not applicable as this system qualifies for the plumbing exemption per O. Reg 170/03 Schedule 15.1-5 (9) (10).*

^b*Distribution lead samples are taken every 36 months. The next set of distribution lead samples is scheduled to be sampled during the winter period of December 15, 2023 to April 15, 2024 and summer period of June 15, 2024 to October 15, 2024.*

Table 6: Summary of Organic parameters sampled during this reporting period or the most recent sample results (O.Reg 170/03, Section 11.(6)(c)).

Parameter & Location	Sample Date (yyyy/mm/dd)	Sample Result	Maximum Allowable Concentration (MAC)	Exceedance of MAC
Alachlor (µg/L) - TW2	2022/01/10	<MDL 0.02	5.0	No
Alachlor (µg/L) - TW1	2022/01/10	<MDL 0.02	5.0	No
Atrazine + N-dealkylated metabolites (µg/L) - TW2	2022/01/10	<MDL 0.01	5.0	No
Atrazine + N-dealkylated metabolites (µg/L) - TW1	2022/01/10	<MDL 0.01	5.0	No
Azinphos-methyl (µg/L) - TW2	2022/01/10	<MDL 0.05	20.0	No
Azinphos-methyl (µg/L) - TW1	2022/01/10	<MDL 0.05	20.0	No

Drinking Water System Regulation: O. Reg 170/03
 Section 11 Annual Report: January 1, 2022 to December 31, 2022
 Township of Chatsworth: Chatsworth Drinking Water System

Parameter & Location	Sample Date (yyyy/mm/dd)	Sample Result	Maximum Allowable Concentration (MAC)	Exceedance of MAC
Benzene (µg/L) - TW2	2022/01/10	<MDL 0.32	1.0	No
Benzene (µg/L) - TW1	2022/01/10	<MDL 0.32	1.0	No
Benzo(a)pyrene (µg/L) - TW2	2022/01/10	<MDL 0.004	0.01	No
Benzo(a)pyrene (µg/L) - TW1	2022/01/10	<MDL 0.004	0.01	No
Bromoxynil (µg/L) - TW2	2022/01/10	<MDL 0.33	5.0	No
Bromoxynil (µg/L) - TW1	2022/01/10	<MDL 0.33	5.0	No
Carbaryl (µg/L) - TW2	2022/01/10	<MDL 0.05	90.0	No
Carbaryl (µg/L) - TW1	2022/01/10	<MDL 0.05	90.0	No
Carbofuran (µg/L) - TW2	2022/01/10	<MDL 0.01	90.0	No
Carbofuran (µg/L) - TW1	2022/01/10	<MDL 0.01	90.0	No
Carbon Tetrachloride (µg/L) - TW2	2022/01/10	<MDL 0.17	2.0	No
Carbon Tetrachloride (µg/L) - TW1	2022/01/10	<MDL 0.17	2.0	No
Chlorpyrifos (µg/L) - TW2	2022/01/10	<MDL 0.02	90.0	No
Chlorpyrifos (µg/L) - TW1	2022/01/10	<MDL 0.02	90.0	No
Diazinon (µg/L) - TW2	2022/01/10	<MDL 0.02	20.0	No
Diazinon (µg/L) - TW1	2022/01/10	<MDL 0.02	20.0	No
Dicamba (µg/L) - TW2	2022/01/10	<MDL 0.2	120.0	No
Dicamba (µg/L) - TW1	2022/01/10	<MDL 0.2	120.0	No
1,2-Dichlorobenzene (µg/L) - TW2	2022/01/10	<MDL 0.41	200.0	No
1,2-Dichlorobenzene (µg/L) - TW1	2022/01/10	<MDL 0.41	200.0	No
1,4-Dichlorobenzene (µg/L) - TW2	2022/01/10	<MDL 0.36	5.0	No
1,4-Dichlorobenzene (µg/L) - TW1	2022/01/10	<MDL 0.36	5.0	No
1,2-Dichloroethane (µg/L) - TW2	2022/01/10	<MDL 0.35	5.0	No
1,2-Dichloroethane (µg/L) - TW1	2022/01/10	<MDL 0.35	5.0	No
1,1-Dichloroethylene (µg/L) - TW2	2022/01/10	<MDL 0.33	14.0	No
1,1-Dichloroethylene (µg/L) - TW1	2022/01/10	<MDL 0.33	14.0	No
Dichloromethane (Methylene Chloride) (µg/L) - TW2	2022/01/10	<MDL 0.35	50.0	No
Dichloromethane (Methylene Chloride) (µg/L) - TW1	2022/01/10	<MDL 0.35	50.0	No
2,4-Dichlorophenol (µg/L) - TW2	2022/01/10	<MDL 0.15	900.0	No
2,4-Dichlorophenol (µg/L) - TW1	2022/01/10	<MDL 0.15	900.0	No

Drinking Water System Regulation: O. Reg 170/03
 Section 11 Annual Report: January 1, 2022 to December 31, 2022
 Township of Chatsworth: Chatsworth Drinking Water System

Parameter & Location	Sample Date (yyyy/mm/dd)	Sample Result	Maximum Allowable Concentration (MAC)	Exceedance of MAC
2,4-Dichlorophenoxy acetic acid (2,4-D) (µg/L) - TW2	2022/01/10	<MDL 0.19	100.0	No
2,4-Dichlorophenoxy acetic acid (2,4-D) (µg/L) - TW1	2022/01/10	<MDL 0.19	100.0	No
Diclofop-methyl (µg/L) - TW2	2022/01/10	<MDL 0.4	9.0	No
Diclofop-methyl (µg/L) - TW1	2022/01/10	<MDL 0.4	9.0	No
Dimethoate (µg/L) - TW2	2022/01/10	<MDL 0.06	20.0	No
Dimethoate (µg/L) - TW1	2022/01/10	<MDL 0.06	20.0	No
Diquat (µg/L) - TW2	2022/01/10	<MDL 1.0	70.0	No
Diquat (µg/L) - TW1	2022/01/10	<MDL 1.0	70.0	No
Diuron (µg/L) - TW2	2022/01/10	<MDL 0.03	150.0	No
Diuron (µg/L) - TW1	2022/01/10	<MDL 0.03	150.0	No
Glyphosate (µg/L) - TW2	2022/01/10	<MDL 1.0	280.0	No
Glyphosate (µg/L) - TW1	2022/01/10	<MDL 1.0	280.0	No
Malathion (µg/L) - TW2	2022/01/10	<MDL 0.02	190.0	No
Malathion (µg/L) - TW1	2022/01/10	<MDL 0.02	190.0	No
Metolachlor (µg/L) - TW2	2022/01/10	<MDL 0.01	50.0	No
Metolachlor (µg/L) - TW1	2022/01/10	<MDL 0.01	50.0	No
Metribuzin (µg/L) - TW2	2022/01/10	<MDL 0.02	80.0	No
Metribuzin (µg/L) - TW1	2022/01/10	<MDL 0.02	80.0	No
Monochlorobenzene (Chlorobenzene) (µg/L) - TW2	2022/01/10	<MDL 0.3	80.0	No
Monochlorobenzene (Chlorobenzene) (µg/L) - TW1	2022/01/10	<MDL 0.3	80.0	No
Paraquat (µg/L) - TW2	2022/01/10	<MDL 1.0	10.0	No
Paraquat (µg/L) - TW1	2022/01/10	<MDL 1.0	10.0	No
PCB (µg/L) - TW2	2022/01/10	<MDL 0.04	3.0	No
PCB (µg/L) - TW1	2022/01/10	<MDL 0.04	3.0	No
Pentachlorophenol (µg/L) - TW2	2022/01/10	<MDL 0.15	60.0	No
Pentachlorophenol (µg/L) - TW1	2022/01/10	<MDL 0.15	60.0	No
Phorate (µg/L) - TW2	2022/01/10	<MDL 0.01	2.0	No
Phorate (µg/L) - TW1	2022/01/10	<MDL 0.01	2.0	No
Picloram (µg/L) - TW2	2022/01/10	<MDL 1.0	190.0	No
Picloram (µg/L) - TW1	2022/01/10	<MDL 1.0	190.0	No
Prometryne (µg/L) - TW2	2022/01/10	<MDL 0.03	1.0	No
Prometryne (µg/L) - TW1	2022/01/10	<MDL 0.03	1.0	No
Simazine (µg/L) - TW2	2022/01/10	<MDL 0.01	10.0	No
Simazine (µg/L) - TW1	2022/01/10	<MDL 0.01	10.0	No
Terbufos (µg/L) - TW2	2022/01/10	<MDL 0.01	1.0	No
Terbufos (µg/L) - TW1	2022/01/10	<MDL 0.01	1.0	No

Parameter & Location	Sample Date (yyyy/mm/dd)	Sample Result	Maximum Allowable Concentration (MAC)	Exceedance of MAC
Tetrachloroethylene (µg/L) - TW2	2022/01/10	<MDL 0.35	10.0	No
Tetrachloroethylene (µg/L) - TW1	2022/01/10	<MDL 0.35	10.0	No
2,3,4,6-Tetrachlorophenol (µg/L) - TW2	2022/01/10	<MDL 0.2	100.0	No
2,3,4,6-Tetrachlorophenol (µg/L) - TW1	2022/01/10	<MDL 0.2	100.0	No
Triallate (µg/L) - TW2	2022/01/10	<MDL 0.01	230.0	No
Triallate (µg/L) - TW1	2022/01/10	<MDL 0.01	230.0	No
Trichloroethylene (µg/L) - TW2	2022/01/10	<MDL 0.44	5.0	No
Trichloroethylene (µg/L) - TW1	2022/01/10	<MDL 0.44	5.0	No
2,4,6-Trichlorophenol (µg/L) - TW2	2022/01/10	<MDL 0.25	5.0	No
2,4,6-Trichlorophenol (µg/L) - TW1	2022/01/10	<MDL 0.25	5.0	No
2-methyl-4-chlorophenoxyacetic acid (MCPA) (µg/L) - TW2	2022/01/10	<MDL 0.12	100.0	No
2-methyl-4-chlorophenoxyacetic acid (MCPA) (µg/L) - TW1	2022/01/10	<MDL 0.12	100.0	No
Trifluralin (µg/L) - TW2	2022/01/10	<MDL 0.02	45.0	No
Trifluralin (µg/L) - TW1	2022/01/10	<MDL 0.02	45.0	No
Trihalomethane: Total (µg/L) Annual Average - DW	2022 (Quarterly)	15.55	100.0	No
HAA Total (µg/L) Annual Average - DW	2022 (Quarterly)	5.30	80.0	No

Note: DW = Distribution Water, TW = Treated Water, MDL = Minimum Detection Limit, MAC = Maximum Allowable Concentration

Table 7: List of Inorganic or Organic parameter(s) that exceeded half the standard prescribed in Schedule 2 of Ontario Drinking Water Quality Standards for the reporting period.

Parameter & Location	Sample Date (yyyy/mm/dd)	Sample Result
N/A	N/A	N/A