



Ontario Clean Water Agency
Agence Ontarienne Des Eaux

**WALTER'S FALLS
DRINKING WATER SYSTEM**

Small Municipal Residential

**SECTION 11
ANNUAL REPORT**

**For the period of
JANUARY 1, 2018 TO DECEMBER 31, 2018**

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

Drinking Water System Number:	220007034
Drinking Water System Name:	Walter's Falls Drinking Water System
Drinking Water System Owner:	Township of Chatsworth
Drinking Water System Category:	Small Municipal Residential
Reporting Period:	January 1, 2018 to December 31, 2018

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

No.

Is your annual report available to the public at no charge on a web site on the Internet?

No

Location where the Summary Report required under O. Reg. 170/03 Schedule 22 will be available for inspection:

Township of Chatsworth Municipal Office
Rural Route, No. 1
Chatsworth, Ontario
N0H 1G0

Drinking-Water Systems (if any), which receive all of their drinking water from your system:

n/a.

Did you provide a copy of the 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 type="checkbox"/> | Public access/notice via Public Request |
| <input type="checkbox"/> | Public access/notice via a Public Library |
| <input type="checkbox"/> | Public access/notice via other method: _____ |

Description of Drinking Water System:

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

Well 1

This well is located adjacent to the pump house and within the fenced-in area. It is a 200 mm diameter, 42.7 m deep drilled groundwater production well (Well TW-1/89). The 2001 Engineer's Report states that they are of the opinion that the well is under the direct influence of surface water (GUDI). Analytical results obtained from the well and from Walter's Creek at the Mill Pond were analyzed for various chemical and physical parameters and similar results were obtained, suggesting the creek is having an influence on the well water supply. The Well is equipped with a submersible well pump rated at 455 L/min @ 32.0 m total dynamic head with a 150 mm diameter discharge line to the pump house. It operates on a demand basis. Warning signs on the fence advise the farmer farming the adjacent field to restrict the use of agricultural fertilizers and pesticides near the pump house and wells.

Well 2

This well is located adjacent to the pump house and within the fenced-in area. It is a 200 mm diameter, 42.7 m deep drilled groundwater production well (Well TW-2/89). The 2001 Engineer's Report states that they are of the opinion that the well is under the direct influence of surface water (GUDI). Analytical results obtained from the well and from Walter's Creek at the Mill Pond were analyzed for various chemical and physical parameters and similar results were obtained, suggesting the creek is having an influence on the well water supply.

The well is equipped with a submersible well pump rated at 455 L/min @ 32.0 m total dynamic head with a 150 mm diameter discharge line to the pump house. It operates on a demand basis. Warning signs on the fence advise the farmer farming the adjacent field to restrict the use of agricultural fertilizers and pesticides near the pump house and wells.

The Walter's Falls 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 Walter's Falls Drinking Water System achieves these credits from UV and chlorine disinfection.

Raw water from each well is pumped to a common header. Raw water is directed through the raw water flow meter and then through a cartridge filter. The cartridge filter unit has a treatment capacity of 15.2 L/s when equipped with 12 cartridge filters, restricting particles one (1) micron and larger. Filtered water is then directed to one of two ultraviolet disinfection reactors; one (1) duty, and one (1) standby. Each UV disinfection reactor is capable of providing a minimum dosage of 40 mJ/cm². Following UV disinfection, the water is treated with sodium hypochlorite for primary and secondary disinfection.

Treated water is then directed into one of the two clear wells. The underground clear wells have a total capacity of 110 cubic meters, provide chlorine contact storage, and provide two-hour storage to meet fire flow requirements.

There are four high lift pumps, the duty pump is rated at 226.8 L/min, at 43.9 m total dynamic head (TDH) and the other three (3) pumps are each rated at 1,135.2 L/min at 46 m TDH. There are five 450 L capacity pressure tanks. The pressure tanks provide storage and prevent the short cycling of the duty high lift pump. The working pressure range of the duty pump is set at 60 to 75 PSI.

A 75 kW standby diesel generator is used to provide power to the pump house and well pumps in the event of power outages.

The Walter's Falls Distribution system has approximately 14 fire hydrants and 50 service connections.

List of water treatment chemicals used during the reporting period:

- Sodium Hypochlorite 6%

Significant expenses were incurred to:

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

Description of expenses:

- Installed new pressure gauge on filter influent line.
- Purchased new chlorine pumps and chlorine storage tank
- Two replacement pilot and speed control valves on high lift recirculation system Full rebuild on the duty high lift pump surge/check valve
- Replaced Treated Water turbidity analyzer
- Annual inspection / Service of UV system performed by H2Flow
- Installed new UV dosing monitoring interlock with SCADA pack

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:

Date of Incident	Parameter	Result	Unit of Measure	Corrective Action	Corrective Action Date
n/a	n/a	n/a	n/a	n/a	n/a

Table 1. Microbiological testing done under Schedule 10, 11 or 12 of Regulation 170/03 during this reporting Period

Location	Number of Samples	Range of E.coli Results		Range of Total Coliforms Results		Number of HPC Samples	Range of HPC Samples	
		Minimum	Maximum	Minimum	Maximum		Minimum	Maximum
Well 1 (RW)	12	0	5	0	280	n/a	n/a	n/a
Well 2 (RW)	12	0	15	0	500	n/a	n/a	n/a
Distribution (DW)	27	0	0	0	0	27	0	8

Table 2. Operational testing done under Schedule 7, 8 or 9 during the period covered by this Annual Report.

	Number of Grab Samples	Range of Results	
		Minimum	Maximum
Turbidity, In-House (NTU) – RW1	12	0.08	1.18
Turbidity, In-House (NTU) – RW2	12	0.18	3.45
Turbidity, On-Line (NTU) - Filter	8760	0	1.0
Free Chlorine Residual, On-Line (mg/L) - TW	8760	0.74	4.99*
Free Chlorine Residual, In-House (mg/L) - DW	113	0.53	1.91

NOTE: Record the unit of measure if it is not milligrams per litre.

NOTE: For continuous monitors use 8760 as the number of samples

**Chlorine briefly spiked on August 23, 2018. Chlorine dosing pump siphoned into clearwell. Operators flushed clearwell to prevent chlorine from being directed to the distribution system and monitored distribution system residuals.*

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 Order of MDWL	Parameter	Date Sampled	Result	Unit of Measure
11/18/2003	UV Transmittance	2018	88%	Scale 1 – 100%

Table 4. Summary of Inorganic parameters tested during this reporting period or most recent sample results

Parameter	Sample Date (yyyy/mm/dd)	Sample Result	Exceedance
Antimony: Sb (µg/L) - TW	2016/06/01	1.27	No
Arsenic: As (µg/L) - TW	2016/06/01	0.5	No
Barium: Ba (µg/L) - TW	2016/06/01	6.75	No
Boron: B (µg/L) - TW	2016/06/01	10.0	No
Cadmium: Cd (µg/L) - TW	2016/06/01	0.005	No
Chromium: Cr (µg/L) - TW	2016/06/01	0.38	No
Mercury: Hg (µg/L) - TW	2016/06/01	<MDL 0.01	No
Selenium: Se (µg/L) - TW	2016/06/01	0.15	No
Uranium: U (µg/L) - TW	2016/06/01	0.165	No
Fluoride (mg/L) - TW	2017/01/11	0.07	No
Nitrite (mg/L) - TW	2018/01/08	<MDL 0.003	No
Nitrite (mg/L) - TW	2018/04/09	<MDL 0.003	No
Nitrite (mg/L) - TW	2018/07/03	<MDL 0.003	No
Nitrite (mg/L) - TW	2018/10/01	<MDL 0.003	No
Nitrate (mg/L) - TW	2018/01/08	3.48	No
Nitrate (mg/L) - TW	2018/04/09	3.55	No
Nitrate (mg/L) - TW	2018/07/03	3.37	No
Nitrate (mg/L) - TW	2018/10/01	2.25	No
Sodium: Na (mg/L) - TW	2017/01/11	11.9	No

NOTE: 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.

NOTE: Schedule 23, Schedule 24, Sodium and Fluoride are scheduled to be taken every 60 months. The most recent Schedule 23 was sampled in June 2016, the next Schedule 23 is scheduled for May 2021. The most recent Sodium was sampled in January 2017, the next scheduled Sodium will be in January 2022. The most current reportable sample for Fluoride was sampled January 2017, the next Fluoride is scheduled to be sampled in January 2022.

Table 5. Summary of lead testing under Schedule 15.1 during this reporting period.

Location Type	Number of Samples	Range of Lead Results		Number of Exceedances
		Minimum	Maximum	
Plumbing	n/a	n/a	n/a	n/a
Distribution (µg/L)	2	0.23	0.44	0

NOTE: The Walter's Falls Drinking Water System qualifies for the plumbing exemption as per Ontario Regulation 170/03 Schedule 15.1-5 (9) (10). Distribution sampling for lead occurs every 36 months. One (1) distribution lead sample is taken during each sampling period (i.e. 2 samples for the sampling year). The most recent distribution lead sampling occurred in 2018. The next round of lead sampling is scheduled for 2021.

Table 6. Summary of Organic parameters sampled during this reporting period or most recent sample results.

Parameter	Sample Date	Result Value	Exceedance
Alachlor (µg/L) - TW	2016/06/01	<MDL 0.02	No
Atrazine + N-dealkylated metabolites (µg/L) - TW	2016/06/01	<MDL 0.01	No
Azinphos-methyl (µg/L) - TW	2016/06/01	<MDL 0.05	No
Benzene (µg/L) - TW	2016/06/01	<MDL 0.32	No
Benzo(a)pyrene (µg/L) - TW	2016/06/01	<MDL 0.004	No
Bromoxynil (µg/L) - TW	2016/06/01	<MDL 0.33	No
Carbaryl (µg/L) - TW	2016/06/01	<MDL 0.05	No
Carbofuran (µg/L) - TW	2016/06/01	<MDL 0.01	No
Carbon Tetrachloride (µg/L) - TW	2016/06/01	<MDL 0.16	No
Chlorpyrifos (µg/L) - TW	2016/06/01	<MDL 0.02	No
Diazinon (µg/L) - TW	2016/06/01	<MDL 0.02	No
Dicamba (µg/L) - TW	2016/06/01	<MDL 0.2	No
1,2-Dichlorobenzene (µg/L) - TW	2016/06/01	<MDL 0.41	No
1,4-Dichlorobenzene (µg/L) - TW	2016/06/01	<MDL 0.36	No
1,2-Dichloroethane (µg/L) - TW	2016/06/01	<MDL 0.35	No
1,1-Dichloroethylene (µg/L) - TW	2016/06/01	<MDL 0.33	No
Dichloromethane (Methylene Chloride) (µg/L) - TW	2016/06/01	<MDL 0.35	No
2,4-Dichlorophenol (µg/L) - TW	2016/06/01	<MDL 0.15	No
2,4-Dichlorophenoxy acetic acid (2,4-D) (µg/L) - TW	2016/06/01	<MDL 0.19	No
Diclofop-methyl (µg/L) - TW	2016/06/01	<MDL 0.4	No
Dimethoate (µg/L) - TW	2016/06/01	<MDL 0.03	No
Diquat (µg/L) - TW	2016/06/01	<MDL 1.0	No
Diuron (µg/L) - TW	2016/06/01	<MDL 0.03	No
Glyphosate (µg/L) - TW	2016/06/01	<MDL 1.0	No
Malathion (µg/L) - TW	2016/06/01	<MDL 0.02	No
Metolachlor (µg/L) - TW	2016/06/01	<MDL 0.01	No
Metribuzin (µg/L) - TW	2016/06/01	<MDL 0.02	No
Monochlorobenzene (Chlorobenzene) (µg/L) - TW	2016/06/01	<MDL 0.3	No
Paraquat (µg/L) - TW	2016/06/01	<MDL 1.0	No
PCB (µg/L) - TW	2016/06/01	<MDL 0.04	No
Pentachlorophenol (µg/L) - TW	2016/06/01	<MDL 0.15	No
Phorate (µg/L) - TW	2016/06/01	<MDL 0.01	No
Picloram (µg/L) - TW	2016/06/01	<MDL 1.0	No
Prometryne (µg/L) - TW	2016/06/01	<MDL 0.03	No
Simazine (µg/L) - TW	2016/06/01	<MDL 0.01	No
Terbufos (µg/L) - TW	2016/06/01	<MDL 0.01	No
Tetrachloroethylene (µg/L) - TW	2016/06/01	<MDL 0.35	No
2,3,4,6-Tetrachlorophenol (µg/L) - TW	2016/06/01	<MDL 0.2	No
Triallate (µg/L) - TW	2016/06/01	<MDL 0.01	No
Trichloroethylene (µg/L) - TW	2016/06/01	<MDL 0.44	No
2,4,6-Trichlorophenol (µg/L) - TW	2016/06/01	<MDL 0.25	No
Trifluralin (µg/L) - TW	2016/06/01	<MDL 0.12	No
Vinyl Chloride (µg/L) - TW	2016/06/01	<MDL 0.02	No
Trihalomethane: Total (µg/L) Annual Average - DW	2018 (Quarterly)	12.25	No
HAA Total (µg/L) Annual Average - DW	2018 (Quarterly)	5.3	n/a

NOTE: Schedule 23, Schedule 24, Sodium and Fluoride are scheduled to be taken every 60 months. The most recent Schedule 24 was sampled in January 2016, the next Schedule 24 is scheduled for January 2021.

Table 7. 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	n/a	n/a	n/a

NOTE: This is required only if DWS category is large municipal residential, small municipal residential, large municipal non-residential, small municipal non-residential, large non municipal non-residential)

Appendix A

Annual Summary for parameters tested during 2018 or the most recent sample results

Table 4 – Inorganic Parameters

Table 6 – Organic Parameters

Drinking-Water System Number: 220007034
 Drinking-Water System Name: WALTER'S FALLS DRINKING WATER SYSTEM
 Drinking-Water System Owner: Township of Chatsworth
 Drinking-Water System Category: Small Municipal Residential
 Period being reported: 01/2018 12/2018

Table 4 - Summary of Inorganic parameters tested during this reporting period or the most recent sample results
 (Including maximum allowable concentrations - MAC)

TREATED WATER	Sample Date (yyyy/mm/dd)	Sample Result	MAC	No. of Exceedances	
				MAC	1/2 MAC
Antimony: Sb (ug/L) - TW	2016/06/01	1.27	6.0	No	No
Arsenic: As (ug/L) - TW	2016/06/01	0.5	10.0	No	No
Barium: Ba (ug/L) - TW	2016/06/01	6.75	1000.0	No	No
Boron: B (ug/L) - TW	2016/06/01	10.0	5000.0	No	No
Cadmium: Cd (ug/L) - TW	2016/06/01	0.005	5.0	No	No
Chromium: Cr (ug/L) - TW	2016/06/01	0.38	50.0	No	No
Mercury: Hg (ug/L) - TW	2016/06/01	<MDL 0.01	1.0	No	No
Selenium: Se (ug/L) - TW	2016/06/01	0.15	50.0	No	No
Uranium: U (ug/L) - TW	2016/06/01	0.165	20.0	No	No
Additional Inorganics					
Fluoride (mg/L) - TW	2017/01/11	0.07	1.5	No	No
Nitrite (mg/L) - TW	2018/01/08	<MDL 0.003	1.0	No	No
Nitrite (mg/L) - TW	2018/04/09	<MDL 0.003	1.0	No	No
Nitrite (mg/L) - TW	2018/07/03	<MDL 0.003	1.0	No	No
Nitrite (mg/L) - TW	2018/10/01	<MDL 0.003	1.0	No	No
Nitrate (mg/L) - TW	2018/01/08	3.48	10.0	No	No
Nitrate (mg/L) - TW	2018/04/09	3.55	10.0	No	No
Nitrate (mg/L) - TW	2018/07/03	3.37	10.0	No	No
Nitrate (mg/L) - TW	2018/10/01	2.25	10.0	No	No
Sodium: Na (mg/L) - TW	2017/01/11	11.9	20*	No	Yes

*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.

Drinking-Water System Number: 220007034
 Drinking-Water System Name: WALTER'S FALLS DRINKING WATER SYSTEM
 Drinking-Water System Owner: Township of Chatsworth
 Drinking-Water System Category: Small Municipal Residential
 Period being reported: 01/2018 12/2018

Table 6 - Summary of Organic parameters sampled during this reporting period or the most recent sample results
 (Including maximum allowable concentrations - MAC)

TREATED WATER	Sample Date (yyyy/mm/dd)	Sample Result	MAC	Number of Exceedances	
				MAC	1/2 MAC
Alachlor (µg/L) - TW	2016/06/01	<MDL 0.02	5.00	No	No
Atrazine + N-dealkylated metabolites (µg/L) - TW	2016/06/01	<MDL 0.01	5.00	No	No
Azinphos-methyl (µg/L) - TW	2016/06/01	<MDL 0.05	20.00	No	No
Benzene (µg/L) - TW	2016/06/01	<MDL 0.32	1.00	No	No
Benzo(a)pyrene (µg/L) - TW	2016/06/01	<MDL 0.004	0.01	No	No
Bromoxynil (µg/L) - TW	2016/06/01	<MDL 0.33	5.00	No	No
Carbaryl (µg/L) - TW	2016/06/01	<MDL 0.05	90.00	No	No
Carbofuran (µg/L) - TW	2016/06/01	<MDL 0.01	90.00	No	No
Carbon Tetrachloride (µg/L) - TW	2016/06/01	<MDL 0.16	2.00	No	No
Chlorpyrifos (µg/L) - TW	2016/06/01	<MDL 0.02	90.00	No	No
Diazinon (µg/L) - TW	2016/06/01	<MDL 0.02	20.00	No	No
Dicamba (µg/L) - TW	2016/06/01	<MDL 0.2	120.00	No	No
1,2-Dichlorobenzene (µg/L) - TW	2016/06/01	<MDL 0.41	200.00	No	No
1,4-Dichlorobenzene (µg/L) - TW	2016/06/01	<MDL 0.36	5.00	No	No
1,2-Dichloroethane (µg/L) - TW	2016/06/01	<MDL 0.35	5.00	No	No
1,1-Dichloroethylene (µg/L) - TW	2016/06/01	<MDL 0.33	14.00	No	No
Dichloromethane (Methylene Chloride) (µg/L) - TW	2016/06/01	<MDL 0.35	50.00	No	No
2,4-Dichlorophenol (µg/L) - TW	2016/06/01	<MDL 0.15	900.00	No	No
2,4-Dichlorophenoxy acetic acid (2,4-D) (µg/L) - TW	2016/06/01	<MDL 0.19	100.00	No	No
Diclofop-methyl (µg/L) - TW	2016/06/01	<MDL 0.4	9.00	No	No
Dimethoate (µg/L) - TW	2016/06/01	<MDL 0.03	20.00	No	No
Diquat (µg/L) - TW	2016/06/01	<MDL 1.0	70.00	No	No
Diuron (µg/L) - TW	2016/06/01	<MDL 0.03	150.00	No	No
Glyphosate (µg/L) - TW	2016/06/01	<MDL 1.0	280.00	No	No
Malathion (µg/L) - TW	2016/06/01	<MDL 0.02	190.00	No	No
Metolachlor (µg/L) - TW	2016/06/01	<MDL 0.01	50.00	No	No
Metribuzin (µg/L) - TW	2016/06/01	<MDL 0.02	80.00	No	No
Monochlorobenzene (Chlorobenzene) (µg/L) - TW	2016/06/01	<MDL 0.3	80.00	No	No
Paraquat (µg/L) - TW	2016/06/01	<MDL 1.0	10.00	No	No
PCB (µg/L) - TW	2016/06/01	<MDL 0.04	3.00	No	No
Pentachlorophenol (µg/L) - TW	2016/06/01	<MDL 0.15	60.00	No	No
Phorate (µg/L) - TW	2016/06/01	<MDL 0.01	2.00	No	No
Picloram (µg/L) - TW	2016/06/01	<MDL 1.0	190.00	No	No
Prometryne (µg/L) - TW	2016/06/01	<MDL 0.03	1.00	No	No
Simazine (µg/L) - TW	2016/06/01	<MDL 0.01	10.00	No	No
Terbufos (µg/L) - TW	2016/06/01	<MDL 0.01	1.00	No	No
Tetrachloroethylene (µg/L) - TW	2016/06/01	<MDL 0.35	10.00	No	No
2,3,4,6-Tetrachlorophenol (µg/L) - TW	2016/06/01	<MDL 0.2	100.00	No	No
Triallate (µg/L) - TW	2016/06/01	<MDL 0.01	230.00	No	No
Trichloroethylene (µg/L) - TW	2016/06/01	<MDL 0.44	5.00	No	No
2,4,6-Trichlorophenol (µg/L) - TW	2016/06/01	<MDL 0.25	5.00	No	No
2-methyl-4-chlorophenoxyacetic acid (MCPA) (µg/L) - TW	2016/06/01	<MDL 0.12	100.00	No	No
Trifluralin (µg/L) - TW	2016/06/01	<MDL 0.02	45.00	No	No
Vinyl Chloride (µg/L) - TW	2016/06/01	<MDL 0.17	1.00	No	No
DISTRIBUTION WATER					
Trihalomethane: Total (µg/L) Annual Average - DW	2018/01/01	12.25	100.00	No	No
HAA Total (µg/L) Annual Average - DW	2018/01/01	5.3		N/A	N/A