

Part III Form 2
Section 11. ANNUAL REPORT.

Drinking-Water System Number:	220007034
Drinking-Water System Name:	WALTERS FALLS WATER SYSTEM
Drinking-Water System Owner:	TOWNSHIP OF CHATSWORTH
Drinking-Water System Category:	SMALL 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: <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>
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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 Walter's Falls Water Treatment Plant & Distribution System is owned by The Corporation of the Township of Chatsworth. The Walter's Falls Water Treatment Plant & Distribution System is operated by the Ontario Clean Water Agency.

The following is a description of the Walter's Falls Water Treatment Plant and Distribution System.

Well 1

This well is located adjacent to the pumphouse 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 pumphouse. 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 pumphouse and wells.

Well 2

This well is located adjacent to the pumphouse 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 pumphouse. 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 pumphouse and wells.

Pumphouse

Treated Water

The well system has been categorized as a GUDI system and 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.

The Walter's Falls Well Supply has equivalent treatment that has been accepted which is cartridge filtration, UV and chlorination. The operations staff must maintain free chlorine residual of at least 0.50 mg/l for water depths of 0.8m or higher in the clear well to maintain 4-log virus inactivation by chlorination.

The current Municipal Drinking Water Licence specifies rated capacities for two stages of treatment. The first stage (ultra-violet light treatment) and the second stage, discharging water into the distribution system from the clear well. The rated capacity for the first stage is 455 L/min (7.58 L/s) and 655.2 cubic metres per day. The rated capacity for the second stage is slightly higher at 680 L/min (11.2 L/s and 979.5 cubic metres per day). The first stage of treatment is regulated by manual flow-control valves and verified by an online flow meter reading that is capable of reading the instantaneous raw water flow rate for either well.

Raw water from each well is pumped to a common header. After the common header, raw water passes through piping complete with a raw water flow meter. Raw water is then directed through a cartridge filter. The cartridge filter unit has a treatment capacity of 54.7 m³/hr when equipped with 12 cartridge filters, restricting particles 1 (one) micron and larger. The filtered water is then directed to one of two ultraviolet lights, one duty, and one standby. Each UV light is capable of a light flux density of at least 40 mJ/cm², capable of meeting the requirements of 3-log reduction of *Giardia lamblia*.

Each unit is designed to handle a flow rate of 27.3 m³/hour (7.6 L/s).

Following UV disinfection, the water is treated with a 6 % sodium hypochlorite solution. Sodium hypochlorite is injected into each of the raw water well headers. The chlorination equipment includes one 150 L sodium hypochlorite solution tank and two positive displacement duty chlorine pumps and one standby chlorination pump. Both chlorine feed pumps are mounted. Treated water is then directed into one of the two clear wells. The underground clear wells have a total capacity of 110 cubic meters and provide chlorine contact storage, and provide two-hour storage to meet fire flow requirements.

There are four high lift pumps, one rated at 3.78 L/s, at 43.9 m total dynamic head (TDH) and the other three (3) pumps are each rated at 48.92 L/s at 46 m TDH. The pump rated at 43.9 m TDH is the primary pump utilized to pump treated water into the distribution system.

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 pumphouse and well pumps in the event of power outages.

Distribution System

This distribution system has approximately 45 service connections and supplies water to residences in the Hamlet of Walter's Falls. There is no distribution water storage in Walter's Falls.

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. H2Flow – Annual inspection/ service of UV system
2. Diesel generator annual maintenance

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	12	0 - 42	0 - 56	N/A	N/A
Raw - RW2	12	0 - 23	1 - 67	N/A	N/A
Treated - TW	N/A	N/A	N/A	N/A	N/A
Distribution - DW	26	0 - 0	0 - 0	26	0 - 80

Note:

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

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	0.09-0.63 NTU's
Turbidity (Well #2)	12	0.19-0.80 NTU's
Filter Effluent		
Turbidity	8760	0.00-1.54 NTU's
Treated Water		
Chlorine Residual (TW) (free)	8760	0.80-1.80 mg/L
Distribution System		
Chlorine Residual (free)	102	0.39-1.43 mg/L

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
11/18/2003	UV Transmittance	Jan 1, 2017 To Dec 31, 2017	99.2 %	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 263 mg/L to 297 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: 220007034
 Drinking-Water System Name: WALTER'S FALLS DRINKING WATER SYSTEM
 Drinking-Water System Owner: Title Holder: Corporation/Company
 Drinking-Water System Category: Small 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) - TW	2016/06/01	1.27	6.0	No	No
Arsenic: As (ug/L) - TW	2016/06/01	0.5	25.0	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	2017/01/11	<MDL 0.003	1.0	No	No
Nitrite (mg/L) - TW	2017/04/24	<MDL 0.003	1.0	No	No
Nitrite (mg/L) - TW	2017/07/10	<MDL 0.003	1.0	No	No
Nitrite (mg/L) - TW	2017/10/10	<MDL 0.003	1.0	No	No
Nitrate (mg/L) - TW	2017/01/11	2.11	10.0	No	No
Nitrate (mg/L) - TW	2017/04/24	3.63	10.0	No	No
Nitrate (mg/L) - TW	2017/07/10	3.17	10.0	No	No
Nitrate (mg/L) - TW	2017/10/10	2.48	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.

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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) - TW	2016/06/01	<MDL 0.02	5.00	No	No
Atrazine + N-dealkylated metabolites (ug/L) - TW	2016/06/01	<MDL 0.01	5.00	No	No
Azinphos-methyl (ug/L) - TW	2016/06/01	<MDL 0.05	20.00	No	No
Benzene (ug/L) - TW	2016/06/01	<MDL 0.32	1.00	No	No
Benzo(a)pyrene (ug/L) - TW	2016/06/01	<MDL 0.004	0.01	No	No
Bromoxynil (ug/L) - TW	2016/06/01	<MDL 0.33	5.00	No	No
Carbaryl (ug/L) - TW	2016/06/01	<MDL 0.05	90.00	No	No
Carbofuran (ug/L) - TW	2016/06/01	<MDL 0.01	90.00	No	No
Carbon Tetrachloride (ug/L) - TW	2016/06/01	<MDL 0.16	2.00	No	No
Chlorpyrifos (ug/L) - TW	2016/06/01	<MDL 0.02	90.00	No	No
Diazinon (ug/L) - TW	2016/06/01	<MDL 0.02	20.00	No	No
Dicamba (ug/L) - TW	2016/06/01	<MDL 0.2	120.00	No	No
1,2-Dichlorobenzene (ug/L) - TW	2016/06/01	<MDL 0.41	200.00	No	No
1,4-Dichlorobenzene (ug/L) - TW	2016/06/01	<MDL 0.36	5.00	No	No
1,2-Dichloroethane (ug/L) - TW	2016/06/01	<MDL 0.35	5.00	No	No
1,1-Dichloroethylene (ug/L) - TW	2016/06/01	<MDL 0.33	14.00	No	No
Dichloromethane (Methylene Chloride) (ug/L) - TW	2016/06/01	<MDL 0.35	50.00	No	No
2,4-Dichlorophenol (ug/L) - TW	2016/06/01	<MDL 0.15	900.00	No	No
2,4-Dichlorophenoxy acetic acid (2,4-D) (ug/L) - TW	2016/06/01	<MDL 0.19	100.00	No	No
Dicofop-methyl (ug/L) - TW	2016/06/01	<MDL 0.4	9.00	No	No
Dimethoate (ug/L) - TW	2016/06/01	<MDL 0.03	20.00	No	No
Diquat (ug/L) - TW	2016/06/01	<MDL 1.0	70.00	No	No
Diuron (ug/L) - TW	2016/06/01	<MDL 0.03	150.00	No	No
Glyphosate (ug/L) - TW	2016/06/01	<MDL 1.0	280.00	No	No
Malathion (ug/L) - TW	2016/06/01	<MDL 0.02	190.00	No	No
Metolachlor (ug/L) - TW	2016/06/01	<MDL 0.01	50.00	No	No
Metribuzin (ug/L) - TW	2016/06/01	<MDL 0.02	80.00	No	No
Monochlorobenzene (Chlorobenzene) (ug/L) - TW	2016/06/01	<MDL 0.3	80.00	No	No
Paraquat (ug/L) - TW	2016/06/01	<MDL 1.0	10.00	No	No
PCB (ug/L) - TW	2016/06/01	<MDL 0.04	3.00	No	No
Pentachlorophenol (ug/L) - TW	2016/06/01	<MDL 0.15	60.00	No	No
Phorate (ug/L) - TW	2016/06/01	<MDL 0.01	2.00	No	No
Picloram (ug/L) - TW	2016/06/01	<MDL 1.0	190.00	No	No
Prometryne (ug/L) - TW	2016/06/01	<MDL 0.03	1.00	No	No
Simazine (ug/L) - TW	2016/06/01	<MDL 0.01	10.00	No	No
Terbufos (ug/L) - TW	2016/06/01	<MDL 0.01	1.00	No	No
Tetrachloroethylene (ug/L) - TW	2016/06/01	<MDL 0.35	10.00	No	No
2,3,4,6-Tetrachlorophenol (ug/L) - TW	2016/06/01	<MDL 0.2	100.00	No	No
Triallate (ug/L) - TW	2016/06/01	<MDL 0.01	230.00	No	No
Trichloroethylene (ug/L) - TW	2016/06/01	<MDL 0.44	5.00	No	No
2,4,6-Trichlorophenol (ug/L) - TW	2016/06/01	<MDL 0.25	5.00	No	No
2-methyl-4-chlorophenoxyacetic acid (MCPA) (ug/L)	2016/06/01	<MDL 0.12	100.00	No	No
Trifluralin (ug/L) - TW	2016/06/01	<MDL 0.02	45.00	No	No
Vinyl Chloride (ug/L) - TW	2016/06/01	<MDL 0.17	1.00	No	No
DISTRIBUTION WATER					
Trihalomethane: Total (ug/L) Annual Average - DW	2017/01/01	18.25	100.00	No	No
HAA Total (ug/L) Annual Average - DW	2017/01/01	5.325		N/A	N/A