



Ontario Clean Water Agency
Agence Ontarienne Des Eaux

WIARTON
DRINKING WATER SYSTEM

Large Municipal Residential

SECTION 11
ANNUAL REPORT

For the period of
JANUARY 1, 2016 TO DECEMBER 31, 2016

Prepared by the Ontario Clean Water Agency
For The Town of South Bruce Peninsula

Drinking Water System Number:	220002681
Drinking Water System Name:	Warton Drinking Water System
Drinking Water System Owner:	Town of South Bruce Peninsula
Drinking Water System Category:	Large Municipal Residential
Reporting Period:	January 1, 2016 to December 31, 2016

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?

Yes.

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

Town of South Bruce Peninsula
315 George Street
Warton, Ontario
N0H 2T0

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

- Oxenden Distribution System (260004215)
- Oliphant Drinking Water System (220007695)

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?

Yes

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 Warton Drinking Water System (DWS) is a Class III Treatment and Class II Distribution System.

The Warton Water Treatment Plant is supplied by Colpoy's Bay (Georgian Bay). The treatment system consists of the following:

- Travelling screens and a standby bar screen (at the low lift station)
- Sodium hypochlorite (pre-chlorination for zebra mussel control and chlorination after filtration)
- Coagulation and Flocculations
- Filtration (dual media gravity filters)
- Waste Residual Management (filter backwash wastewater sedimentation tank with sludge withdrawal. Sludge is discharged to the sanitary sewer and the supernatant is dechlorinated and then discharged to Colpoy's Bay)
- Polymer system (for enhancing settling in the wastewater sedimentation tank)
- Sodium Bisulphate feed system (prior to flocculation or to raw water well for dechlorination/pH)

correction and to the wastewater residual management system for dechlorination)

- UV Disinfection System
- Activated carbon feed system for taste and odour control, currently is not being used)
- Clearwell (for storage and to achieve required contact time)
- SCADA System (for monitoring and control)
- Diesel generator set (for emergency back-up power)

The distribution system consist of the following:

- Wiarton standpipe and Booster Station.
- Approximately 23.5 kilometers of distribution watermains

List of water treatment chemicals used during the reporting period:

- Sodium Hypochlorite 12%
- PAX-XL1900 Coagulation
- LIPQIPAM A-307PG Flocculation
- Sodium Metabisulfite

Significant expenses were incurred to:

- Install required equipment
- Repair required equipment
- Replace required equipment
- No significant expenses were incurred

Description of expenses:

- Replace cathodic protection system in Wiarton Standpipe
- Replace on-line turbidity analyzer at Wiarton WTP
- Rebuilt booster pump at Wiarton Booster Station

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
January 25, 2016	Total Coliforms	1	cfu/ 100 mL	Reviewed flushing and sampling procedures with operations staff. Re-sampled (upstream, at the site and downstream). When resampling the tap was flushed for 10 minutes prior to sampling. Samples were tested for E. coli and total coliforms. Results came back with 0 cfu/100 mL for e.coli and total coliform.	February 1, 2016

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
Raw (RW)	52	0	31	0	100	n/a	n/a	n/a
Treated (TW)	52	0	0	0	0	52	0	2
Distribution (DW)	170	0	0	0	1	53	0	3

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, On-Line (NTU) - Filt1	8760	0.0244	1.2796*
Turbidity, On-Line (NTU) - Filt2	8760	0.0317	0.4017
Free Chlorine Residual, On-Line (mg/L) - TW	8760	0.459**	1.9983
Free Chlorine Residual, In-House (mg/L) - DW	730	0.71	2.8

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

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

*Occurred on March 12, 2016. Turbidity was > 1 NTU for 12 seconds. Not reportable, monthly filter efficiency was achieved.

**Occurred on November 7, 2016. Chlorine residual dropped due to UV system being started up and minimum flow through UV. Operators onsite monitoring system. Increased flow to tower to improve the residual.

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	MDWL Allowable Annual Average Concentration
March 19, 2015 094-102 (Issue 2)	Total Suspended Solids (Filter backwash - composite)	January 4, 2016 April 4, 2016 July 4, 2016 October 3, 2016	8.75 mg/L	25 mg/L

NOTE: Quarterly samples are required as per MDWL 094-102, Issue 2.

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

	Sample Date (yyyy/mm/dd)	Sample Result	Exceedance
Antimony: Sb (ug/L) - TW	2016/01/04	0.08	No
Arsenic: As (ug/L) - TW	2016/01/04	0.2	No
Barium: Ba (ug/L) - TW	2016/01/04	12.9	No
Boron: B (ug/L) - TW	2016/01/04	10.2	No
Cadmium: Cd (ug/L) - TW	2016/01/04	<MDL 0.003	No
Chromium: Cr (ug/L) - TW	2016/01/04	0.08	No
Mercury: Hg (ug/L) - TW	2016/01/04	<MDL 0.01	No
Selenium: Se (ug/L) - TW	2016/01/04	0.11	No
Uranium: U (ug/L) - TW	2016/01/04	0.352	No
Fluoride (mg/L) - TW	2013/01/07	0.08	No
Nitrite (mg/L) - TW	2016/01/04	<MDL 0.003	No
Nitrite (mg/L) - TW	2016/04/06	<MDL 0.003	No
Nitrite (mg/L) - TW	2016/07/04	<MDL 0.003	No
Nitrite (mg/L) - TW	2016/10/03	<MDL 0.003	No
Nitrate (mg/L) - TW	2016/01/04	0.27	No
Nitrate (mg/L) - TW	2016/04/06	0.259	No
Nitrate (mg/L) - TW	2016/07/04	0.235	No
Nitrate (mg/L) - TW	2016/10/03	0.231	No
Sodium: Na (mg/L) - TW	2013/01/07	6.46	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: Fluoride and Sodium are to be sampled every 60 months. The most current samples for Sodium were taken on January 7, 2013. The next set of Sodium samples are to be taken in January 2018. The most current samples for Fluoride were taken on January 7, 2013. The next set of Fluoride samples are to be taken in January 2018.

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 (ug/L)	-	-	-	-

NOTE: This system now qualifies for the plumbing exemption as per Ontario Regulation 170/03 Schedule 15.1-5 (9) (10). Four (4) distribution lead samples are only taken every 36 months. (i.e. 2 samples per period). The most recent set of samples was taken in 2015. The next set of lead samples will be taken in 2018.

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

	Sample Date (yyyy/mm/dd)	Sample Result	Exceedance
Alachlor (ug/L) - TW	2016/01/04	<MDL 0.02	No
Atrazine + N-dealkylated metabolites (ug/L) - TW	2016/01/04	0.02	No
Azinphos-methyl (ug/L) - TW	2016/01/04	<MDL 0.05	No
Benzene (ug/L) - TW	2016/01/04	<MDL 0.32	No
Benzo(a)pyrene (ug/L) - TW	2016/01/04	<MDL 0.004	No
Bromoxynil (ug/L) - TW	2016/01/04	<MDL 0.33	No
Carbaryl (ug/L) - TW	2016/01/04	<MDL 0.05	No
Carbofuran (ug/L) - TW	2016/01/04	<MDL 0.01	No
Carbon Tetrachloride (ug/L) - TW	2016/01/04	<MDL 0.16	No
Chlorpyrifos (ug/L) - TW	2016/01/04	<MDL 0.02	No
Diazinon (ug/L) - TW	2016/01/04	<MDL 0.02	No
Dicamba (ug/L) - TW	2016/01/04	<MDL 0.2	No
1,2-Dichlorobenzene (ug/L) - TW	2016/01/04	<MDL 0.41	No
1,4-Dichlorobenzene (ug/L) - TW	2016/01/04	<MDL 0.36	No
1,2-Dichloroethane (ug/L) - TW	2016/01/04	<MDL 0.35	No
1,1-Dichloroethylene (ug/L) - TW	2016/01/04	<MDL 0.33	No
Dichloromethane (Methylene Chloride) (ug/L) - TW	2016/01/04	<MDL 0.35	No
2,4-Dichlorophenol (ug/L) - TW	2016/01/04	<MDL 0.15	No
2,4-Dichlorophenoxy acetic acid (2,4-D) (ug/L) - TW	2016/01/04	<MDL 0.19	No
Diclofop-methyl (ug/L) - TW	2016/01/04	<MDL 0.4	No
Dimethoate (ug/L) - TW	2016/01/04	<MDL 0.03	No
Diquat (ug/L) - TW	2016/01/04	<MDL 1.0	No
Diuron (ug/L) - TW	2016/01/04	<MDL 0.03	No
Glyphosate (ug/L) - TW	2016/01/04	<MDL 1.0	No
Malathion (ug/L) - TW	2016/01/04	<MDL 0.02	No
Metolachlor (ug/L) - TW	2016/01/04	<MDL 0.01	No
Metribuzin (ug/L) - TW	2016/01/04	<MDL 0.02	No
Monochlorobenzene (Chlorobenzene) (ug/L) - TW	2016/01/04	<MDL 0.3	No
Paraquat (ug/L) - TW	2016/01/04	<MDL 1.0	No
PCB (ug/L) - TW	2016/01/04	<MDL 0.04	No
Pentachlorophenol (ug/L) - TW	2016/01/04	<MDL 0.15	No
Phorate (ug/L) - TW	2016/01/04	<MDL 0.01	No
Picloram (ug/L) - TW	2016/01/04	<MDL 1.0	No
Prometryne (ug/L) - TW	2016/01/04	<MDL 0.03	No
Simazine (ug/L) - TW	2016/01/04	<MDL 0.01	No
Terbufos (ug/L) - TW	2016/01/04	<MDL 0.01	No
Tetrachloroethylene (ug/L) - TW	2016/01/04	<MDL 0.35	No
2,3,4,6-Tetrachlorophenol (ug/L) - TW	2016/01/04	<MDL 0.2	No
Triallate (ug/L) - TW	2016/01/04	<MDL 0.01	No
Trichloroethylene (ug/L) - TW	2016/01/04	<MDL 0.44	No
2,4,6-Trichlorophenol (ug/L) - TW	2016/01/04	<MDL 0.25	No
Trifluralin (ug/L) - TW	2016/01/04	<MDL 0.02	No
Vinyl Chloride (ug/L) - TW	2016/01/04	<MDL 0.17	No
Trihalomethane: Total (ug/L) Annual Average - DW	2016 (Quarterly)	27.75	No

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)