

Optional Annual Report Template

Drinking-Water System Number:	220000754
Drinking-Water System Name:	Whitby Water Treatment Plant
Drinking-Water System Owner:	Regional Municipality of Durham
Drinking-Water System Category:	Large Municipal Residential System
Period being reported:	January 1 to December 31, 2007

<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 [<input checked="" type="checkbox"/>] No []</p> <p>Is your annual report available to the public at no charge on a web site on the Internet? Yes [<input checked="" type="checkbox"/>] No []</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;"> Regional Municipality of Durham Works Department 605 Rossland Rd. E 5th Floor Whitby, Ontario L1N 6A3 </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

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 []

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 – Durham Region Works Dept.

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 – Bi-annual newsletter to residents

Describe your Drinking-Water System

The **Whitby Water Treatment Plant** is a surface water treatment facility that supplies quality potable water to approximately 105,148 residents in the Town of Whitby and in the Community of Brooklin. Raw water is drawn from Lake Ontario through the 1,350 mm diameter intake pipe extending 1,710 metres into the lake. The intake structure is located at a depth of 16 metres. The **treatment plant** facility has a rated maximum flow of 118,000 m³/day (26.0 MIGD) and utilizes the following unit processes and systems: zebra mussel control, screening, pre-chlorination, low lift pumping, coagulation, flocculation, direct filtration, post chlorination, water storage, and high lift pumping. The four filters are dual media sand/anthracite type with hydraulic scour backwash. The process is controlled and monitored by a SCADA (Supervisory Control and Data Acquisition System).

The **distribution system** delivers the treated water through approximately 530 kilometres of watermains in four (4) pressure zones, and includes two (2) reservoirs and three (3) booster stations. Additional chlorination is applied at the booster stations when required. The distribution system in Whitby is interconnected with the distribution system of Oshawa.

List all water treatment chemicals used over this reporting period

Chlorine (disinfection)
 Sodium bisulphite (dechlorination)
 Aluminum sulphate (coagulant agent)
 Hydrofluosilicic acid (fluoride)

Were any significant expenses incurred to?

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

Please provide a brief description and a breakdown of monetary expenses incurred

Watermains Replacement - \$5,231,000
 Repair of vent piping in filter bay - \$23,500
 Spare starter for High Lift pumps 22,000
 High Lift pump repair - \$18,795
 Low Lift pump repair - \$16,970
 Repair to Industrial Water Supply Pump - \$13,937
 Joint repair at Garrard Rd Reservoir - \$11,515
 Filter effluent valve, actuator, flow tube - \$10,000
 Chlorine Scrubber - \$310,836

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
May 14	Turbidity (Plant)	1.25	NTU	Water plant shut down to prevent flow into the distribution system. Flushed area downstream of water plant. Water in the clearwell was directed to waste, then refilled and drained to waste three times. Bacteriological samples were taken at the water plant and in the distribution system. Results of analyses performed on the samples met the Ontario Drinking Water Quality Standards. Turbidity was restored to below 1.0 NTU as required by the Ontario Drinking Water Systems Regulation.	May 14
May 26	Chlorine Residual (Distribution)	0.00	mg/L	Continuous monitoring equipment went to zero due to equipment failure. The continuous monitoring equipment was repaired that day. Chlorine residual was verified to be above 0.05 mg/L as required by the Ontario Drinking Water Systems Regulation.	May 26
Jul 05	Turbidity (Plant)	>1.5	NTU	Filter isolated from treatment. Water in the clearwell was directed to waste. Filter was washed, Turbidity was restored to below 1.0 NTU as required by the Ontario Drinking Water Systems Regulation.	Jul 05
Aug 17	Total Coliforms (Distribution)	3	CFU/100mL	Resamples were taken upstream, downstream and at the location that gave rise to the adverse. Results of the analyses performed on the resamples met the Ontario Drinking Water Quality Standards.	Aug 17,18
Aug 24	Fluoride (Plant)	>1.5	mg/L	Fluoridation stopped and water plant shutdown to prevent flow into the distribution system. Fluoride equipment was repaired. Fluoridation and water flow to the	Aug 24

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

				distribution system resumed to normal operating standards that day.	
Aug 26	Chlorine residual (Plant)	0.00	mg/L	Continuous monitoring equipment went to zero due to power loss. Power restored to continuous monitoring equipment. Chlorine residual was verified to be above the requirements of the Ontario Drinking Water Systems Regulation.	Aug 26
Sep 04	Chlorine residual (Plant)	0.00	mg/L	Continuous monitoring equipment went to zero due to equipment failure. Chlorine residual was verified to be above the requirements of the Ontario Drinking Water Systems Regulation.	Sep 04
Sep 08	Chlorine residual (Plant)	0.00	mg/L	Continuous monitoring equipment went to zero due to equipment failure. New continuous monitoring equipment was installed. Chlorine residual was verified to be above the requirements of the Ontario Drinking Water Systems Regulation.	Sep 08,10

Microbiological testing done under the Schedule 10, 11 or 12 of Regulation 170/03, during this reporting period.

	Number of Samples	Range of E.Coli Results MF	Range of Total Coliform Results MF	E.Coli Results P/A	Total Coliform Results P/A	Number of HPC Samples	Range of HPC Results (min #)-(max #)	Number of BKG Samples	Range of BKG Results (min #)-(max #)
Raw	201	<1-12	<1-910	--	--	201	<1-2,000	--	--
Treated	205	--	--	A	A	205	<1-52	--	--
	1	<1	--	--	--	1	1	--	--
Distribution	782	--	--	A	A	529	<1-410	1	<1
	153	<1-<1	<1-3(1)*						

MF: Membrane Filter; P/A Presence/Absence; BKG: Background Bacteria; HPC: Heterotrophic Bacteria; M: Estimated Count
 *Number in parentheses represents the number of exceedance(s).

Operational testing done under Schedule 7, 8 or 9 of Regulation 170/03 during the period covered by this Annual Report.

	Number of Grab Samples	Range of Results (min #)-(max #)
Turbidity – filter effluent	8760	0.017-3.011 NTU
Free Chlorine – Plant	8760	0.00-3.17
Free Chlorine -- Distribution	4586	0.00-2.76
Fluoride (If the DWS provides fluoridation)	8760	0.11->1.5

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

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

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
April 19, 2005/ January 22, 2007	Raw Water			
	Gross Beta	Jan – Dec	0.07-0.14	Bq/L
	Tritium	Jan – Dec	2.7-9.9	Bq/L
	Treated Water			
	Gross Alpha	Jan 01- Dec 01	<0.04	Bq/L
	Gross Beta	Jan 01- Dec 01	0.06-0.07	Bq/L
	Tritium	Jan 01- Dec 01	<5-14	Bq/L
	Cesium-134	Jan 01- Dec 01	<0.3	Bq/L
	Cesium-137	Jan 01- Dec 01	<0.3	Bq/L
	Cobalt-60	Jan 01- Dec 01	<0.3	Bq/L
	Iodine-131	Jan 01- Dec 01	<0.3	Bq/L
	Residue Management			
Suspended Solids	Jan 05 – Dec 06	0.9-23.5	mg/L	

To date, the treated water radionuclides results for December have not been received. The results will be updates as the information becomes available.

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

Parameter	Sample Date	Result Value	Unit of Measure	Exceedance	Number of Samples
Antimony	Mar 21 – Nov 28	<0.0004-0.0007	mg/L	No	4
Arsenic	Mar 21 – Nov 28	<0.0004-0.0004	mg/L	No	4
Barium	Jun 06, Oct 31	0.0222-0.0245	mg/L	No	2
Boron	Jun 06, Oct 31	0.019-0.0286	mg/L	No	2
Cadmium	Mar 21 – Nov 28	<0.0001	mg/L	No	4
Chromium	Mar 21 – Nov 28	<0.0003-0.0003	mg/L	No	4
Lead – Distribution	Mar 21-Jun 18	<0.0007-0.0087	mg/L	No	30
Mercury	Jun 06, Oct 31	<0.01	ug/L	No	2
Selenium	Mar 21 – Nov 28	<0.0001-<0.002	mg/L	No	4

Sodium	Mar 21 – Nov 28	13.3-15.5	mg/L	No	3
Uranium	Jun 06, Oct 31	0.0003-<0.002	mg/L	No	2
Nitrite	Jan 01 – Dec 04	<0.002-<0.05	mg/L	No	15
Nitrate	Jan 01 – Dec 04	0.25-0.71	mg/L	No	15

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

Parameter	Sample Date	Result Value	Unit of Measure	Exceedance	Number of Samples
Alachlor	Aug 30, Nov 22	<0.4	ug/L	No	2
Aldicarb	Aug 30, Nov 22	<3.5	ug/L	No	2
Aldrin + Dieldrin	Aug 30, Nov 22	<0.006	ug/L	No	2
Atrazine + N-dealkylated metabolites	Aug 30, Nov 22	<0.2	ug/L	No	2
Azinphos-methyl	Aug 30, Nov 22	<0.3	ug/L	No	2
Bendiocarb	Aug 30, Nov 22	<3.0	ug/L	No	2
Benzene	Aug 30, Nov 22	<0.1	ug/L	No	2
Benzo(a)pyrene	Aug 30, Nov 22	<0.01	ug/L	No	2
Bromoxynil	Aug 30, Nov 22	<0.4	ug/L	No	2
Carbaryl	Aug 30, Nov 22	<0.2	ug/L	No	2
Carbofuran	Aug 30, Nov 22	<4.0	ug/L	No	2
Carbon Tetrachloride	Aug 30, Nov 22	<0.2	ug/L	No	2
Chlordane (Total)	Aug 30, Nov 22	<0.006	ug/L	No	2
Chlorpyrifos	Aug 30, Nov 22	<0.2	ug/L	No	2
Cyanazine	Aug 30, Nov 22	<0.3	ug/L	No	2
Diazinon	Aug 30, Nov 22	<0.2	ug/L	No	2
Dicamba	Aug 30, Nov 22	<0.4	ug/L	No	2
1,2-Dichlorobenzene	Aug 30, Nov 22	<0.1	ug/L	No	2
1,4-Dichlorobenzene	Aug 30, Nov 22	<0.1	ug/L	No	2
Dichlorodiphenyltrichloroethane (DDT) + metabolites	Aug 30, Nov 22	<0.008	ug/L	No	2
1,2-Dichloroethane	Aug 30, Nov 22	<0.1	ug/L	No	2
1,1-Dichloroethylene (vinylidene chloride)	Aug 30, Nov 22	<0.3	ug/L	No	2
Dichloromethane	Aug 30, Nov 22	<0.5	ug/L	No	2
2,4-Dichlorophenol	Aug 30, Nov 22	<0.4	ug/L	No	2
2,4-Dichlorophenoxy acetic acid (2,4-D)	Aug 30, Nov 22	<0.8	ug/L	No	2
Diclofop-methyl	Aug 30, Nov 22	<0.4	ug/L	No	2
Dimethoate	Aug 30, Nov 22	<0.3	ug/L	No	2
Dinoseb	Aug 30, Nov 22	<0.5	ug/L	No	2
Diquat	Aug 30, Nov 22	<0.1	ug/L	No	2
Diuron	Aug 30, Nov 22	<0.2	ug/L	No	2
Glyphosate	Aug 30, Nov 22	<2.0	ug/L	No	2
Heptachlor + Heptachlor Epoxide	Aug 30, Nov 22	<0.008	ug/L	No	2
Lindane (Total)	Aug 30, Nov 22	<0.005	ug/L	No	2
Malathion	Aug 30, Nov 22	<0.2	ug/L	No	2
Methoxychlor	Aug 30, Nov 22	<0.009	ug/L	No	2
Metolachlor	Aug 30, Nov 22	<0.2	ug/L	No	2

Metribuzin	Aug 30, Nov 22	<0.3	ug/L	No	2
Monochlorobenzene	Aug 30, Nov 22	<0.1	ug/L	No	2
Paraquat	Aug 30, Nov 22	<0.1	ug/L	No	2
Parathion	Aug 30, Nov 22	<0.2	ug/L	No	2
Pentachlorophenol	Aug 30, Nov 22	<0.4	ug/L	No	2
Phorate	Aug 30, Nov 22	<0.2	ug/L	No	2
Picloram	Aug 30, Nov 22	<0.7	ug/L	No	2
Polychlorinated Biphenyls(PCB)	Aug 30, Nov 22	<0.02	ug/L	No	2
Prometryne	Aug 30, Nov 22	<0.2	ug/L	No	2
Simazine	Aug 30, Nov 22	<0.2	ug/L	No	2
THM – Distribution (NOTE: show latest annual average)	Jan 03 – Dec 05	33	ug/L	No	12
Temephos	Aug 30, Nov 22	<3	ug/L	No	2
Terbufos	Aug 30, Nov 22	<0.2	ug/L	No	2
Tetrachloroethylene	Aug 30, Nov 22	<0.3	ug/L	No	2
2,3,4,6-Tetrachlorophenol	Aug 30, Nov 22	<0.5	ug/L	No	2
Triallate	Aug 30, Nov 22	<2.0	ug/L	No	2
Trichloroethylene	Aug 30, Nov 22	<0.1	ug/L	No	2
2,4,6-Trichlorophenol	Aug 30, Nov 22	<0.5	ug/L	No	2
2,4,5-Trichlorophenoxy acetic acid (2,4,5-T)	Aug 30, Nov 22	<0.5	ug/L	No	2
Trifluralin	Aug 30, Nov 22	<0.006	ug/L	No	2
Vinyl Chloride	Aug 30, Nov 22	<0.2	ug/L	No	2

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
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(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)