

aPart III Form 2
Section 11. ANNUAL REPORT.

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, 2006

<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: <input style="width: 100px; height: 20px;" 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 style="width: 100px; height: 20px;" 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

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 101,354 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 ML/day (26 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 515 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

Leak Detection Survey of Watermains - \$7,785
 Replacement of Anthracite filter media - \$16,299
 Hydro Sub-Station Maintenance - \$12,295
 Installation of circuit breaker - \$15,681
 Low Lift Pumping area repairs - \$10,456
 High Lift Pump repairs - \$17,690
 Installation of Valmatic Swing Flex valve - \$11,500
 Installation of 6" pressure valve - \$13,000
 Repair of waste water transfer pump - \$16,997

Repairs to Industrial Water Supply Pump - \$13,937
 Watermain Replacement - \$893,000
 Replacement of Gas Chlorination Equipment - \$29,500
 Rehabilitation of 3 mechanical sluice gates - \$67,640

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 17	Chlorine Residual (Distribution)	0.00	mg/L	Continuous monitoring equipment went to zero following a power fluctuation. Chlorine residual was verified to be above 0.05 mg/L as required by the Ontario Drinking Water Systems Regulation.	May 17
May 26	Fluoride (Plant)	2.028	mg/L	Paused fluoridation until continuous monitoring equipment repaired and calibrated. Grab sample indicated fluoride did not exceed the Ontario Drinking Water Quality Standards.	May 26
Aug 31	Total Coliforms (Distribution)	Presence	--	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 31
Oct 11	Total Coliforms (Distribution)	3	CFU/100 mL	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.	Oct 11
Oct 12	Chlorine Residual (Distribution)	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 0.05 mg/L as required by the Ontario Drinking Water Systems Regulation.	Oct 12

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	206	<1-3	<1-260	--	--	--	--	206	<1-3500
Treated	208	--	--	A	A	170	<1-57	38	<1-<1
Distribution	792	--	--	A	A-P(1)*	440	<1-72	83	<1-<1
	111	<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	0.20-0.627 NTU
Free Chlorine – Plant	8760	1.08-3.99
Free Chlorine -- Distribution	2735	0.00-2.40
Fluoride (If the DWS provides fluoridation)	8760	0.020-2.028

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	Raw Water			
	Gross Beta	Jan 01 – Dec 31	0.07-0.14	Bq/L
	Tritium	Jan 01 – Dec 31	3.7-12.6	Bq/L
	Treated Water			
	Gross Alpha	Jan 01- Dec 01	<0.04-<0.04	Bq/L
	Gross Beta	Jan 01- Dec 01	0.06-0.07	Bq/L
	Tritium	Jan 01- Dec 01	<5-17	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 01 – Dec 31	0.9-160	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	Feb 13 – Nov 01	<0.0004	mg/L	No	4
Arsenic	Feb 13 – Nov 01	<0.0004-0.0006	mg/L	No	4
Barium	May 10, Nov 01	0.0207-0.0213	mg/L	No	2
Boron	May 10, Nov 01	0.020-0.024	mg/L	No	2
Cadmium	Feb 13 – Nov 01	<0.0001	mg/L	No	4
Chromium	Feb 13 – Nov 01	<0.0003-0.0019	mg/L	No	4
Lead – Distribution	Mar 08, Sep 13	<0.0007	mg/L	No	2
Mercury	May 10, Nov 01	<0.01	ug/L	No	2
Selenium	Feb 13 – Nov 01	<0.002	mg/L	No	4
Sodium	Feb 13 – Nov 01	13.4-15.6	mg/L	No	4
Uranium	May 10, Nov 01	<0.002	mg/L	No	2
Nitrite	Jan 03 – Dec 05	<0.02-<0.05	mg/L	No	16
Nitrate	Jan 03 – Dec 05	0.14-0.66	mg/L	No	16

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	Apr 11, Nov 22	<0.4	ug/L	No	2
Aldicarb	Apr 11, Nov 22	<3.5	ug/L	No	2
Aldrin + Dieldrin	Apr 11, Nov 22	<0.006	ug/L	No	2
Atrazine + N-dealkylated metabolites	Apr 11, Nov 22	<0.01	ug/L	No	2
Azinphos-methyl	Apr 11, Nov 22	<0.2	ug/L	No	2
Bendiocarb	Apr 11, Nov 22	<3.0	ug/L	No	2
Benzene	Apr 11, Nov 22	<0.1	ug/L	No	2
Benzo(a)pyrene	Apr 11, Nov 22	<0.001-<0.01	ug/L	No	2
Bromoxynil	Apr 11, Nov 22	<0.4	ug/L	No	2
Carbaryl	Apr 11, Nov 22	<0.2	ug/L	No	2
Carbofuran	Apr 11, Nov 22	<4.0	ug/L	No	2
Carbon Tetrachloride	Apr 11, Nov 22	<0.2	ug/L	No	2
Chlordane (Total)	Apr 11, Nov 22	<0.006	ug/L	No	2
Chlorpyrifos	Apr 11, Nov 22	<0.2	ug/L	No	2
Cyanazine	Apr 11, Nov 22	<0.2	ug/L	No	2
Diazinon	Apr 11, Nov 22	<0.2	ug/L	No	2
Dicamba	Apr 11, Nov 22	<0.4	ug/L	No	2
1,2-Dichlorobenzene	Apr 11, Nov 22	<0.1	ug/L	No	2
1,4-Dichlorobenzene	Apr 11, Nov 22	<0.1	ug/L	No	2
Dichlorodiphenyltrichloroethane (DDT) + metabolites	Apr 11, Nov 22	<0.008	ug/L	No	2
1,2-Dichloroethane	Apr 11, Nov 22	<0.1	ug/L	No	2

1,1-Dichloroethylene (vinylidene chloride)	Apr 11, Nov 22	<0.3	ug/L	No	2
Dichloromethane	Apr 11, Nov 22	<0.5	ug/L	No	2
2,4-Dichlorophenol	Apr 11, Nov 22	<0.4	ug/L	No	2
2,4-Dichlorophenoxy acetic acid (2,4-D)	Apr 11, Nov 22	<0.6-<0.8	ug/L	No	2
Diclofop-methyl	Apr 11, Nov 22	<0.4	ug/L	No	2
Dimethoate	Apr 11, Nov 22	<0.3	ug/L	No	2
Dinoseb	Apr 11, Nov 22	<0.5	ug/L	No	2
Diquat	Apr 11, Nov 22	<0.1	ug/L	No	2
Diuron	Apr 11, Nov 22	<0.2	ug/L	No	2
Glyphosate	Apr 11, Nov 22	<2.0	ug/L	No	2
Heptachlor + Heptachlor Epoxide	Apr 11, Nov 22	<0.008	ug/L	No	2
Lindane (Total)	Apr 11, Nov 22	<0.005	ug/L	No	2
Malathion	Apr 11, Nov 22	<0.2	ug/L	No	2
Methoxychlor	Apr 11, Nov 22	<0.009	ug/L	No	2
Metolachlor	Apr 11, Nov 22	<0.2	ug/L	No	2
Metribuzin	Apr 11, Nov 22	<0.08	ug/L	No	2
Monochlorobenzene	Apr 11, Nov 22	<0.1	ug/L	No	2
Paraquat	Apr 11, Nov 22	<0.1	ug/L	No	2
Parathion	Apr 11, Nov 22	<0.2	ug/L	No	2
Pentachlorophenol	Apr 11, Nov 22	<0.4	ug/L	No	2
Phorate	Apr 11, Nov 22	<0.2	ug/L	No	2
Picloram	Apr 11, Nov 22	<0.7	ug/L	No	2
Polychlorinated Biphenyls(PCB)	Apr 11, Nov 22	<0.02	ug/L	No	2
Prometryne	Apr 11, Nov 22	<0.08	ug/L	No	2
Simazine	Apr 11, Nov 22	<0.08	ug/L	No	2
THM – Distribution (NOTE: show latest annual average)	Jan 04 – Dec 06	36	ug/L	No	12
Temephos	Apr 11, Nov 22	<3	ug/L	No	2
Terbufos	Apr 11, Nov 22	<0.2	ug/L	No	2
Tetrachloroethylene	Apr 11, Nov 22	<0.3	ug/L	No	2
2,3,4,6-Tetrachlorophenol	Apr 11, Nov 22	<0.5	ug/L	No	2
Triallate	Apr 11, Nov 22	<2.0	ug/L	No	2
Trichloroethylene	Apr 11, Nov 22	<0.1-<0.8	ug/L	No	2
2,4,6-Trichlorophenol	Apr 11, Nov 22	<0.5	ug/L	No	2
2,4,5-Trichlorophenoxy acetic acid (2,4,5-T)	Apr 11, Nov 22	<0.5	ug/L	No	2
Trifluralin	Apr 11, Nov 22	<0.006	ug/L	No	2
Vinyl Chloride	Apr 11, 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)