

Optional Annual Report Template

Drinking-Water System Number:	220008890
Drinking-Water System Name:	Ajax 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 **Ajax Water Treatment Plant** is a surface water treatment facility that supplies quality potable water to approximately 191,775 residents in the Town of Ajax and in the City of Pickering. Raw water is drawn from Lake Ontario through a 2,100mm diameter intake pipe extending 2,506m into the lake. The intake structure has a diameter of 9m and draws water from approximately 18m away. The intake structure is located at a depth of 18m.

The **treatment plant** facility has a rated capacity of 163,500 m³/day (36 MIGD) and utilizes the following unit processes and systems: zebra mussel control, screening, pre-chlorination, low lift pumping, coagulation, flocculation, direct filtration, post-chlorination / dechlorination, water storage, and high lift pumping. The six (6) filters are dual media type with air scour backwash. Four (4) of the filters use Granulated Activated Carbon (GAC) and two (2) use anthracite. The process is controlled and monitored by a SCADA (Supervisory Control and Data Acquisition) system.

The **distribution system** delivers the treated water through approximately 696 kilometres of watermains in six (6) pressure zones and includes three (3) reservoirs, one (1) elevated tank, and five (5) booster stations. Additional chlorination is applied at one (1) of the booster station facilities.

List all water treatment chemicals used over this reporting period

Sodium hypochlorite (disinfectant)
 Aluminum sulphate (coagulant agent)
 Hydrofluosilicic acid (fluoride)
 Sodium bisulphite (dechlorination)
 Sulfuric acid (zebra mussel control and pH adjustment)

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

Removal, disposal and installation of GAC filter media - \$124,202
 Cathodic Protection of Watermains - \$108,500
 High lift pump motor repair - \$14,250
 Chemical pumps replacement - \$12,992
 Valve actuator replacement at Cherrywood Reservoir/Pumping Station - \$11,125

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

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
Jan 28	Low Pressure (Distribution)	--	--	Pressure restored to operational standards within 30 minutes. Affected area was flushed and bacteriological samples were taken. Results of analyses performed on the samples met the Ontario Drinking Water Quality Standards.	Jan 28
Jun 14	Chlorine Residual (Plant)	0.01	mg/L	Dechlorination adjusted. Chlorine residual was restored within operational standards within four minutes. Primary disinfection was achieved.	Jun 14
Aug 31	Chlorine Residual (Plant)	<0.05	mg/L	Dechlorination adjusted. Chlorine residual was restored within operational standards within three minutes. Distribution system immediately downstream of plant was flushed. Primary disinfection was achieved.	Aug 31
Oct 11	Total Coliform (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.	Oct 11
Oct 30	Total Coliform (Distribution)	1	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.	Oct 30
Nov 16	Filter placed into service prior to bacti sample. (Plant)	--	--	Filter isolated from treatment process immediately upon discovery. Disinfection of filter had been performed prior to placing filter into	Nov 16

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

				service however bacteriological samples were not collected for verification prior to placing back in service Bacteriological samples were taken. Results of the analyses performed on the samples met the Ontario Drinking Water Quality Standards. Filter was placed back into service.
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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	205	<1-22	<1-750	--	--	--	--	205	<1-1500
Treated	206	--	--	A	A	206	<1-150	--	--
Distribution	1639	--	--	A	A-P(1)*	924	<1-320	3	<1-<1
	121	<1-<1	<1-1(1)*						

MF: Membrane Filter; P/A Presence/Absence; BKG: Background Bacteria; HPC: Heterotrophic Bacteria; M: Estimated Count
 *Number in parentheses represents 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	0.011-0.357 NTU
Free Chlorine – Plant	8760	0.01-3.00
Free Chlorine - Distribution	2910	0.22-2.00
Fluoride (If the DWS provides fluoridation)	8760	0.18-0.85

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
May 25, 2006	Raw Water			
	Gross Beta	Jan – Dec	0.07-0.11	Bq/L
	Tritium	Jan – Dec	3.0-10	Bq/L
	Treated Water*			
	Gross Alpha	Jan – Nov	<0.04	Bq/L
	Gross Beta	Jan – Nov	0.05-0.06	Bq/L
	Tritium	Jan – Nov	<5-14	Bq/L
	Cesium-134	Jan – Nov	<0.3	Bq/L
	Cesium-137	Jan – Nov	<0.3	Bq/L
	Cobalt-60	Jan – Nov	<0.3	Bq/L
	Iodine-131	Jan – Nov	<0.3	Bq/L
	Residue Management			
	Chlorine Residual	Jan 10– Dec 11	0.00-0.18	mg/L
	Suspended Solids	Jan 10– Dec 11	7.7-16.5	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	<0.0004-0.0008	mg/L	No	4
Arsenic	Mar 21 – Nov 28	<0.0004-0.0005	mg/L	No	4
Barium	Jun 06, Oct 31	0.0228-0.0237	mg/L	No	2
Boron	Jun 06, Oct 31	0.021-0.0282	mg/L	No	2
Cadmium	Mar 21 – Nov 28	<0.0001-<0.0001	mg/L	No	4
Chromium	Mar 21 – Nov 28	<0.0003-0.0003	mg/L	No	4
Lead - Distribution	Mar 20	<0.0007	mg/L	No	1
Mercury	Jun 06, Oct 31	<0.01-<0.01	ug/L	No	2
Selenium	Mar 21 – Nov 28	<0.0001<0.002	mg/L	No	4
Sodium	Mar 21 – Nov 28	15.7-18.0	mg/L	No	3
Uranium	Jun 06, Oct 31	<0.002-0.004	mg/L	No	2
Nitrite	Jan 01 – Dec 04	<0.002-<0.05	mg/L	No	15
Nitrate	Jan 01 – Dec 04	0.31-0.69	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	May 23, Nov 22	<0.4	ug/L	No	2
Aldicarb	May 23, Nov 22	<3.5	ug/L	No	2
Aldrin + Dieldrin	May 23, Nov 22	<0.006	ug/L	No	2
Atrazine + N-dealkylated metabolites	May 23, Nov 22	<0.1	ug/L	No	2

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

Azinphos-methyl	May 23, Nov 22	<0.2-<0.3	ug/L	No	2
Bendiocarb	May 23, Nov 22	<3.0	ug/L	No	2
Benzene	May 23, Nov 22	<0.1	ug/L	No	2
Benzo(a)pyrene	May 23, Nov 22	<0.01	ug/L	No	2
Bromoxynil	May 23, Nov 22	<0.4	ug/L	No	2
Carbaryl	May 23, Nov 22	<0.2	ug/L	No	2
Carbofuran	May 23, Nov 22	<4.0	ug/L	No	2
Carbon Tetrachloride	May 23, Nov 22	<0.2	ug/L	No	2
Chlordane (Total)	May 23, Nov 22	<0.006	ug/L	No	2
Chlorpyrifos	May 23, Nov 22	<0.2	ug/L	No	2
Cyanazine	May 23, Nov 22	<0.2-<0.3	ug/L	No	2
Diazinon	May 23, Nov 22	<0.2	ug/L	No	2
Dicamba	May 23, Nov 22	<0.1	ug/L	No	2
1,2-Dichlorobenzene	May 23, Nov 22	<0.1	ug/L	No	2
1,4-Dichlorobenzene	May 23, Nov 22	<0.1	ug/L	No	2
Dichlorodiphenyltrichloroethane (DDT) + metabolites	May 23, Nov 22	<0.008	ug/L	No	2
1,2-Dichloroethane	May 23, Nov 22	<0.1	ug/L	No	2
1,1-Dichloroethylene (vinylidene chloride)	May 23, Nov 22	<0.3	ug/L	No	2
Dichloromethane	May 23, Nov 22	<0.5	ug/L	No	2
2,4-Dichlorophenol	May 23, Nov 22	<0.4	ug/L	No	2
2,4-Dichlorophenoxy acetic acid (2,4-D)	May 23, Nov 22	<0.8	ug/L	No	2
Diclofop-methyl	May 23, Nov 22	<0.4	ug/L	No	2
Dimethoate	May 23, Nov 22	<0.3	ug/L	No	2
Dinoseb	May 23, Nov 22	<0.5	ug/L	No	2
Diquat	May 23, Nov 22	<0.1	ug/L	No	2
Diuron	May 23, Nov 22	<0.2	ug/L	No	2
Glyphosate	May 23, Nov 22	<2.0	ug/L	No	2
Heptachlor + Heptachlor Epoxide	May 23, Nov 22	<0.008	ug/L	No	2
Lindane (Total)	May 23, Nov 22	<0.005	ug/L	No	2
Malathion	May 23, Nov 22	<0.2	ug/L	No	2
Methoxychlor	May 23, Nov 22	<0.009	ug/L	No	2
Metolachlor	May 23, Nov 22	<0.2	ug/L	No	2
Metribuzin	May 23, Nov 22	<0.02-<0.3	ug/L	No	2
Monochlorobenzene	May 23, Nov 22	<0.1	ug/L	No	2
Paraquat	May 23, Nov 22	<0.1	ug/L	No	2
Parathion	May 23, Nov 22	<0.2	ug/L	No	2
Pentachlorophenol	May 23, Nov 22	<0.4	ug/L	No	2
Phorate	May 23, Nov 22	<0.2	ug/L	No	2
Picloram	May 23, Nov 22	<0.7	ug/L	No	2
Polychlorinated Biphenyls(PCB)	May 23, Nov 22	<0.02	ug/L	No	2
Prometryne	May 23, Nov 22	<0.2	ug/L	No	2
Simazine	May 23, Nov 22	<0.2	ug/L	No	2
THM – Distribution (NOTE: show latest annual average)	Jan 02 – Dec 04	26	ug/L	No	12
Temephos	May 23, Nov 22	<3	ug/L	No	2

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

Terbufos	May 23, Nov 22	<0.2	ug/L	No	2
Tetrachloroethylene	May 23, Nov 22	<0.3	ug/L	No	2
2,3,4,6-Tetrachlorophenol	May 23, Nov 22	<0.5	ug/L	No	2
Triallate	May 23, Nov 22	<2.0	ug/L	No	2
Trichloroethylene	May 23, Nov 22	<0.1	ug/L	No	2
2,4,6-Trichlorophenol	May 23, Nov 22	<0.5	ug/L	No	2
2,4,5-Trichlorophenoxy acetic acid (2,4,5-T)	May 23, Nov 22	<0.5	ug/L	No	2
Trifluralin	May 23, Nov 22	<0.006	ug/L	No	2
Vinyl Chloride	May 23, 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)