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

Optional Annual Report Template

Drinking-Water System Number:	**220000852**
Drinking-Water System Name:	Bowmanville 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

Complete if your Category is Large Municipal Residential or Small Municipal Residential

Does your Drinking-Water System serve more than 10,000 people? Yes [✓] No [ ]

Is your annual report available to the public at no charge on a web site on the Internet? Yes [✓] No [ ]

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

Regional Municipality of Durham
Works Department
605 Rossland Rd. E.
5th Floor
Whitby, Ontario
L1N 6A3

Complete for all other Categories.

Number of Designated Facilities served:

Did you provide a copy of your annual report to all Designated Facilities you serve?
Yes [ ] No [ ]

Number of Interested Authorities you report to:

Did you provide a copy of your annual report to all Interested Authorities you report to for each Designated Facility?
Yes [ ] No [ ]

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 **Bowmanville Water Treatment Plant** is a surface water treatment facility that supplies quality potable water to approximately 34,118 consumers in the Community of Bowmanville in the municipality of Clarington. Raw water is drawn from Lake Ontario through a 1,050mm diameter intake pipe extending 1,260m into the lake. The intake structure is located at a depth of 12m.
The **treatment plant** facility has a rated capacity of 36,368 m^3/day (8.0 MIGD) and utilizes the following unit processes and systems: zebra mussel control, screening, pre-chlorination, low lift pumping, coagulation, flocculation, direct filtration, post chlorination, storage, and high lift pumping. One (1) filter is a dual media sand/anthracite type - the remaining two filters are multimedia sand/anthracite/gravel type - two (2) with hydraulic scour and one (1) with air 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 165 kilometres of watermains in two (2) pressure zones and includes one (1) reservoir, an elevated storage tank, and one (1) booster station. Additional chlorination is applied at the reservoir facility.

List all water treatment chemicals used over this reporting period

Chlorine (disinfectant)
Sodium hypochlorite (disinfectant)
Polyaluminum chloride (coagulant agent)

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

Watermain replacement - $462,000
Anthracite replacement for Filters #1,2 & 3 - $20,000

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
Apr 16	Turbidity	>1.0	NTU	False adverse water quality incident. Results were determined to be false due to a problem with the new turbidity analyzer.	Apr 16
May 16	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.	May 16
Jun 27	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.	Jun 27
Aug 22	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.	Aug 22
Oct 31	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 31
Nov 28	Total Coliform (Distribution)	16	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.	Nov 28

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	53	<1-<1	<1-9	--	--	--	--	53	<1-7800
Treated	107	--	--	A	A	107	<1-11	--	--
Distribution	614	--	--	A	A-P(4)*	332	<1-2700	7	<1-<1
	50	<1-<1	<1-16(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	0.01-0.21
Free Chlorine – Plant	8760	0.75-3.45
Free Chlorine – Distribution	1902	0.52-3.20
Fluoride (If the DWS provides fluoridation)	--	

***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
September 13, 2006	Raw Water			
	Gross Beta	Jan – Dec	0.07-0.13	Bq/L
	Tritium	Jan – Dec	3.4-13	Bq/L
	Treated Water*			
	Gross Alpha	Jan - Nov	<0.04	Bq/L
	Gross Beta	Jan - Nov	0.05-0.07	Bq/L
	Tritium	Jan - Nov	<5-13	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

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	No of Samples
Antimony	Jan 15 – Nov 19	<0.0004-0.0005	mg/L	No	4
Arsenic	Jan 15 – Nov 19	<0.0004-0.0007	mg/L	No	4
Barium	Jan 15 – Nov 19	0.020-0.0269	mg/L	No	4
Boron	Jan 15 – Nov 19	0.018-0.023	mg/L	No	4
Cadmium	Jan 15 – Nov 19	<0.0001	mg/L	No	4
Chromium	Jan 15 – Nov 19	<0.0003	mg/L	No	4
Lead -Distribution	May 03, May 14	<0.0007	mg/L	No	2
Mercury	Jan 15 – Nov 19	<0.01-<0.02	ug/L	No	4
Selenium	Jan 15 – Nov 19	<0.002	mg/L	No	4
Sodium	Jan 01 – Dec 03	12.6-15.1	mg/L	No	16
Uranium	Jan 15 – Nov 19	<0.002	mg/L	No	4
Fluoride	Jan 01 – Dec 03	0.06-0.14	mg/L	No	16
Nitrite	Jan 01 – Dec 03	<0.002-<0.05	mg/L	No	16
Nitrate	Jan 01 – Dec 03	0.23-0.68	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	Jul 23, Nov 26	<0.4	ug/L	No	2
Aldicarb	Jul 23, Nov 26	<3.5	ug/L	No	2
Aldrin + Dieldrin	Jul 23, Nov 26	<0.006	ug/L	No	2
Atrazine + N-dealkylated metobolites	Jul 23, Nov 26	<0.2	ug/L	No	2
Azinphos-methyl	Jul 23, Nov 26	<0.2-<0.3	ug/L	No	2
Bendiocarb	Jul 23, Nov 26	<3.0	ug/L	No	2
Benzene	Jul 23, Nov 26	<0.1	ug/L	No	2
Benzo(a)pyrene	Jul 23, Nov 26	<0.01	ug/L	No	2
Bromoxynil	Jul 23, Nov 26	<0.4	ug/L	No	2
Carbaryl	Jul 23, Nov 26	<0.2	ug/L	No	2
Carbofuran	Jul 23, Nov 26	<4.0	ug/L	No	2
Carbon Tetrachloride	Jul 23, Nov 26	<0.2	ug/L	No	2
Chlordane (Total)	Jul 23, Nov 26	<0.006	ug/L	No	2
Chlorpyrifos	Jul 23, Nov 26	<0.2	ug/L	No	2
Cyanazine	Jul 23, Nov 26	<0.2-<0.3	ug/L	No	2
Diazinon	Jul 23, Nov 26	<0.2	ug/L	No	2
Dicamba	Jul 23, Nov 26	<0.4	ug/L	No	2
1,2-Dichlorobenzene	Jul 23, Nov 26	<0.1	ug/L	No	2
1,4-Dichlorobenzene	Jul 23, Nov 26	<0.1	ug/L	No	2
Dichlorodiphenyltrichloroethane (DDT) + metabolites	Jul 23, Nov 26	<0.008	ug/L	No	2
1,2-Dichloroethane	Jul 23, Nov 26	<0.1	ug/L	No	2

1,1-Dichloroethylene (vinylidene chloride)	Jul 23, Nov 26	<0.3	ug/L	No	2
Dichloromethane	Jul 23, Nov 26	<0.5	ug/L	No	2
2,4-Dichlorophenol	Jul 23, Nov 26	<0.4	ug/L	No	2
2,4-Dichlorophenoxy acetic acid (2,4-D)	Jul 23, Nov 26	<0.8	ug/L	No	2
Diclofop-methyl	Jul 23, Nov 26	<0.4	ug/L	No	2
Dimethoate	Jul 23, Nov 26	<0.3	ug/L	No	2
Dinoseb	Jul 23, Nov 26	<0.5	ug/L	No	2
Diquat	Jul 23, Nov 26	<0.1	ug/L	No	2
Diuron	Jul 23, Nov 26	<0.2	ug/L	No	2
Glyphosate	Jul 23, Nov 26	<2.0	ug/L	No	2
Heptachlor + Heptachlor Epoxide	Jul 23, Nov 26	<0.008	ug/L	No	2
Lindane (Total)	Jul 23, Nov 26	<0.005	ug/L	No	2
Malathion	Jul 23, Nov 26	<0.2	ug/L	No	2
Methoxychlor	Jul 23, Nov 26	<0.009	ug/L	No	2
Metolachlor	Jul 23, Nov 26	<0.2	ug/L	No	2
Metribuzin	Jul 23, Nov 26	<0.2-<0.3	ug/L	No	2
Monochlorobenzene	Jul 23, Nov 26	<0.1	ug/L	No	2
Paraquat	Jul 23, Nov 26	<0.1	ug/L	No	2
Parathion	Jul 23, Nov 26	<0.2	ug/L	No	2
Pentachlorophenol	Jul 23, Nov 26	<0.4	ug/L	No	2
Phorate	Jul 23, Nov 26	<0.2	ug/L	No	2
Picloram	Jul 23, Nov 26	<0.7	ug/L	No	2
Polychlorinated Biphenyls(PCB)	Jul 23, Nov 26	<0.02	ug/L	No	2
Prometryne	Jul 23, Nov 26	<0.2	ug/L	No	2
Simazine	Jul 23, Nov 26	<0.2	ug/L	No	2
THM - Distribution (NOTE: show latest annual average)	Jan 01 – Dec 03	50	ug/L	No	12
Temephos	Jul 23, Nov 26	<3	ug/L	No	2
Terbufos	Jul 23, Nov 26	<0.2	ug/L	No	2
Tetrachloroethylene	Jul 23, Nov 26	<0.3	ug/L	No	2
2,3,4,6-Tetrachlorophenol	Jul 23, Nov 26	<0.5	ug/L	No	2
Triallate	Jul 23, Nov 26	<2.0	ug/L	No	2
Trichloroethylene	Jul 23, Nov 26	<0.1	ug/L	No	2
2,4,6-Trichlorophenol	Jul 23, Nov 26	<0.5	ug/L	No	2
2,4,5-Trichlorophenoxy acetic acid (2,4,5-T)	Jul 23, Nov 26	<0.5	ug/L	No	2
Trifluralin	Jul 23, Nov 26	<0.006	ug/L	No	2
Vinyl Chloride	Jul 23, Nov 26	<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)