

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

## Part III Form 2 Section 11. ANNUAL REPORT.

<b>Drinking-Water System Number:</b>	220000852
<b>Drinking-Water System Name:</b>	Bowmanville Water Treatment Plant
<b>Drinking-Water System Owner:</b>	Regional Municipality of Durham
<b>Drinking-Water System Category:</b>	Large Municipal Residential System
<b>Period being reported:</b>	January 1 to December 31, 2006

<p><b><u>Complete if your Category is Large Municipal Residential or Small Municipal Residential</u></b></p> <p>Does your Drinking-Water System serve more than 10,000 people? Yes [<input checked="" type="checkbox"/>] No [ <input type="checkbox"/> ]</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 [ <input type="checkbox"/> ]</p> <p><b>Location where Summary Report required under O. Reg. 170/03 Schedule 22 will be available for inspection.</b></p> <div style="border: 1px solid black; padding: 5px; margin-top: 5px;">                 Regional Municipality of Durham                  Works Department                  605 Rossland Rd. E.                  5<sup>th</sup> Floor                  Whitby, Ontario                  L1N 6A3             </div>	<p><b><u>Complete for all other Categories.</u></b></p> <p><b>Number of Designated Facilities served:</b></p> <div style="border: 1px solid black; width: 100px; height: 20px; margin: 5px 0;"></div> <p><b>Did you provide a copy of your annual report to all Designated Facilities you serve?</b> Yes [ <input type="checkbox"/> ] No [ <input type="checkbox"/> ]</p> <p><b>Number of Interested Authorities you report to:</b> <span style="border: 1px solid black; display: inline-block; width: 100px; height: 20px; vertical-align: middle;"></span></p> <p><b>Did you provide a copy of your annual report to all Interested Authorities you report to for each Designated Facility?</b> Yes [ <input type="checkbox"/> ] No [ <input type="checkbox"/> ]</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 **Bowmanville Water Treatment Plant** is a surface water treatment facility that supplies quality potable water to approximately 32,813 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 36.4 ML/day (8 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 159 kilometres of watermains in two (2) pressure zones and includes two (2) reservoirs, an elevated storage tank, and two (2) booster stations. 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

Cathodic Protection of Watermains - \$33,758  
 Repair of intake sampling line - \$8,732  
 High lift pump suction well underdrain repair - \$6,350  
 Anthracite replacement for Filter #3 - \$23,989  
 Installation of new chlorine analyzer - \$11,436  
 New turbidity analyzer - \$10,250  
 Watermain Replacement - \$652,000

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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
Jun 28	Total Coliforms (Distribution System)	Presence	--	Resamples were taken upstream, downstream and at a location that gave rise to the adverse. Results of the analyses performed on the resamples met the Ontario Drinking Water Quality Standards.	Jun 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 #)
<b>Raw</b>	52	<1-<1	<1-21	--	--	--	--	52	<1-2 800
<b>Treated</b>	104	--	--	A	A	103	<1-10	1	<1
<b>Distribution</b>	617	--	--	A	P(1)*	298	<1-90	21	<1-<1
	24	<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 #)
<b>Turbidity – filter effluent</b>	8760	0.01-0.29
<b>Free Chlorine – Plant</b>	8760	0.87-2.69
<b>Free Chlorine – Distribution</b>	1750	0.41-3.5
<b>Fluoride (If the DWS provides fluoridation)</b>	--	

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

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

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### 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
December 23, 2003/ September 13, 2006	Raw Water			
	Gross Beta	Jan 01 – Dec 31	0.09-0.12	Bq/L
	Tritium	Jan 01 – Dec 31	1.6-12.4	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	<5-16	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

To date, the treated water radionuclides results for December have not been received. The results will be updated 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	Feb 13 – Nov 06	<0.0004-0.0004	mg/L	No	4
Arsenic	Feb 13 – Nov 06	<0.0004	mg/L	No	4
Barium	Feb 13 – Nov 06	0.0201-0.0247	mg/L	No	3
Boron	Feb 13 – Nov 06	<0.001-0.023	mg/L	No	3
Cadmium	Feb 13 – Nov 06	<0.0001	mg/L	No	4
Chromium	Feb 13 – Nov 06	<0.0003-0.0013	mg/L	No	4
Lead -Distribution	Apr 24, Nov 06	<0.0007	mg/L	No	2
Mercury	Feb 13 – Nov 06	<0.01	ug/L	No	3
Selenium	Feb 13 – Nov 06	<0.002	mg/L	No	4
Sodium	Feb 06 – Dec 04	12.8-14.7	mg/L	No	16
Uranium	Feb 13 – Nov 06	<0.002	mg/L	No	3
Fluoride	Feb 06 – Dec 04	<0.04-0.15	mg/L	No	16
Nitrite	Feb 06 – Dec 04	<0.02-<0.05	mg/L	No	16
Nitrate	Feb 06 – Dec 04	0.09-0.77	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	Mar 20, Nov 06	<0.4	ug/L	No	2
Aldicarb	Mar 20, Nov 06	<3.5	ug/L	No	2
Aldrin + Dieldrin	Mar 20, Nov 06	<0.006	ug/L	No	2

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<b>Atrazine + N-dealkylated metabolites</b>	Mar 20, Nov 06	<0.1-0.2	ug/L	No	2
<b>Azinphos-methyl</b>	Mar 20, Nov 06	<0.2	ug/L	No	2
<b>Bendiocarb</b>	Mar 20, Nov 06	<3.0	ug/L	No	2
<b>Benzene</b>	Mar 20, Nov 06	<0.1	ug/L	No	2
<b>Benzo(a)pyrene</b>	Mar 20, Nov 06	<0.001-<0.01	ug/L	No	2
<b>Bromoxynil</b>	Mar 20, Nov 06	<0.4	ug/L	No	2
<b>Carbaryl</b>	Mar 20, Nov 06	<0.2	ug/L	No	2
<b>Carbofuran</b>	Mar 20, Nov 06	<4.0	ug/L	No	2
<b>Carbon Tetrachloride</b>	Mar 20, Nov 06	<0.2	ug/L	No	2
<b>Chlordane (Total)</b>	Mar 20, Nov 06	<0.006	ug/L	No	2
<b>Chlorpyrifos</b>	Mar 20, Nov 06	<0.2	ug/L	No	2
<b>Cyanazine</b>	Mar 20, Nov 06	<0.2	ug/L	No	2
<b>Diazinon</b>	Mar 20, Nov 06	<0.2	ug/L	No	2
<b>Dicamba</b>	Mar 20, Nov 06	<0.4	ug/L	No	2
<b>1,2-Dichlorobenzene</b>	Mar 20, Nov 06	<0.1	ug/L	No	2
<b>1,4-Dichlorobenzene</b>	Mar 20, Nov 06	<0.1	ug/L	No	2
<b>Dichlorodiphenyltrichloroethane (DDT) + metabolites</b>	Mar 20, Nov 06	<0.008	ug/L	No	2
<b>1,2-Dichloroethane</b>	Mar 20, Nov 06	<0.1	ug/L	No	2
<b>1,1-Dichloroethylene (vinylidene chloride)</b>	Mar 20, Nov 06	<0.3	ug/L	No	2
<b>Dichloromethane</b>	Mar 20, Nov 06	<0.5	ug/L	No	2
<b>2,4-Dichlorophenol</b>	Mar 20, Nov 06	<0.4	ug/L	No	2
<b>2,4-Dichlorophenoxy acetic acid (2,4-D)</b>	Mar 20, Nov 06	<0.6	ug/L	No	2
<b>Diclofop-methyl</b>	Mar 20, Nov 06	<0.4	ug/L	No	2
<b>Dimethoate</b>	Mar 20, Nov 06	<0.3	ug/L	No	2
<b>Dinoseb</b>	Mar 20, Nov 06	<0.5	ug/L	No	2
<b>Diquat</b>	Mar 20, Nov 06	<0.1	ug/L	No	2
<b>Diuron</b>	Mar 20, Nov 06	<0.2	ug/L	No	2
<b>Glyphosate</b>	Mar 20, Nov 06	<2.0	ug/L	No	2
<b>Heptachlor + Heptachlor Epoxide</b>	Mar 20, Nov 06	<0.008	ug/L	No	2
<b>Lindane (Total)</b>	Mar 20, Nov 06	<0.005	ug/L	No	2
<b>Malathion</b>	Mar 20, Nov 06	<0.2	ug/L	No	2
<b>Methoxychlor</b>	Mar 20, Nov 06	<0.009	ug/L	No	2
<b>Metolachlor</b>	Mar 20, Nov 06	<0.2	ug/L	No	2
<b>Metribuzin</b>	Mar 20, Nov 06	<0.08	ug/L	No	2
<b>Monochlorobenzene</b>	Mar 20, Nov 06	<0.1	ug/L	No	2
<b>Paraquat</b>	Mar 20, Nov 06	<0.1	ug/L	No	2
<b>Parathion</b>	Mar 20, Nov 06	<0.2	ug/L	No	2
<b>Pentachlorophenol</b>	Mar 20, Nov 06	<0.4	ug/L	No	2
<b>Phorate</b>	Mar 20, Nov 06	<0.2	ug/L	No	2
<b>Picloram</b>	Mar 20, Nov 06	<0.7	ug/L	No	2
<b>Polychlorinated Biphenyls(PCB)</b>	Mar 20, Nov 06	<0.02	ug/L	No	2
<b>Prometryne</b>	Mar 20, Nov 06	<0.08	ug/L	No	2
<b>Simazine</b>	Mar 20, Nov 06	<0.08	ug/L	No	2

<b>THM - Distribution</b> (NOTE: show latest annual average)	Jan 02 – Dec 04	31	ug/L	No	12
<b>Temephos</b>	Mar 20, Nov 06	<3	ug/L	No	2
<b>Terbufos</b>	Mar 20, Nov 06	<0.2	ug/L	No	2
<b>Tetrachloroethylene</b>	Mar 20, Nov 06	<0.3	ug/L	No	2
<b>2,3,4,6-Tetrachlorophenol</b>	Mar 20, Nov 06	<0.5	ug/L	No	2
<b>Triallate</b>	Mar 20, Nov 06	<2.0	ug/L	No	2
<b>Trichloroethylene</b>	Mar 20, Nov 06	<0.1-<0.8	ug/L	No	2
<b>2,4,6-Trichlorophenol</b>	Mar 20, Nov 06	<0.5	ug/L	No	2
<b>2,4,5-Trichlorophenoxy acetic acid (2,4,5-T)</b>	Mar 20, Nov 06	<0.5	ug/L	No	2
<b>Trifluralin</b>	Mar 20, Nov 06	<0.006	ug/L	No	2
<b>Vinyl Chloride</b>	Mar 20, Nov 06	<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)**