

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

Drinking-Water System Number:	220004787
Drinking-Water System Name:	Newcastle 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 [] No [<input checked="" 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 []</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 Syst

The **Newcastle Water Treatment Plant** is a surface water treatment facility that supplies quality potable water to approximately 8,118 consumers in the Communities of Newcastle and Newtonville in the Municipality of Clarington. Raw water is drawn from Lake Ontario through a 610 mm diameter intake pipe extending 1,064 m into the lake. The intake structure is located at a depth of 10 m.

The **treatment plant** facility has a rated capacity of 8.18 ML/day (1.8 MIGD) and utilizes the following unit processes and systems: zebra mussel control, screening, pre-chlorination, low lift pumping, coagulation, flocculation, direct filtration, post chlorination, and high lift pumping. The two (2) filters are dual media sand/anthracite type with air scour backwash. The process is monitored by a SCADA (Supervisory Control and Data Acquisition) system. The **distribution system** delivers the treated water through approximately 57 kilometres of watermains in two (2) pressure zones, and includes a reservoir, an elevated storage tank, and two booster stations. Additional chlorination is applied at the booster station 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

Replacement of chemical feed pumps - \$15,000
 Installation of chlorine analyzer - \$11,436
 New turbidity analyzer - \$10,250
 Watermain Replacement - \$241,000
 Newtonville Standpipe Inspection - \$5,390

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
Oct 18	Alum (Intermittent Coagulation Feed)	--	--	Water in the clearwell was directed to waste, coagulation feed system was inspected and cleaned. Alarm set points were adjusted to ensure continuous alum feed. 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.	Oct 18, 24
Dec 20	Lead (Plant)	0.0143	mg/L	A resample was taken at the plant. Lead analysis performed on the resample had a result above 0.01 mg/L which triggered the incident of Dec 22.	Dec 20
Dec 22	Lead (Plant)	1.13	mg/L	Resamples were taken at the plant and at a location in the distribution system. Results of lead analysis performed on the resamples were below detection limit and the Ontario Drinking Water Quality Standards.	Dec 22

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	52	<1-8	<1-240	--	--	--	--	52	<1-1 900
Treated	105	--	--	A	A	82	<1-7	24	<1-<1
	1	<1	<1						
Distribution	307	--	--	A	A	100	<1-2	61	<1-<1
	17	<1-<1	<1-<1						

MF: Membrane Filter; P/A Presence/Absence; BKG: Background Bacteria; HPC: Heterotrophic Bacteria; M: Estimated Count

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

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	0.01-0.30 NTU
Free Chlorine - Plant	8760	0.80-2.00
Free Chlorine - Distribution	1193	0.29-2.2
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
April 18, 2005	Raw Water			
	Gross Beta	Jan 01 – Dec 31	0.07-0.13	Bq/L
	Tritium	Jan 01 – Dec 31	2.8-12.2	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	

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	Feb 13 – Nov 02	<0.0004	mg/L	No	4
Arsenic	Feb 13 – Nov 02	<0.0004-0.0006	mg/L	No	4
Barium	Feb 13 – Nov 02	0.0214-0.0254	mg/L	No	3
Boron	Feb 13 – Nov 02	0.014-0.021	mg/L	No	3
Cadmium	Feb 13 – Nov 02	<0.0001	mg/L	No	4
Chromium	Feb 13 – Nov 02	<0.0001-0.0019	mg/L	No	4
Lead - Distribution	Apr 24 – Dec 22	<0.0007	mg/L	No	3
Mercury	Feb 13 – Nov 02	<0.01	ug/L	No	3
Selenium	Feb 13 – Nov 02	<0.002	mg/L	No	4
Sodium	Jan 02 – Dec 04	12.5-14.7	mg/L	No	16
Uranium	Feb 13 – Nov 02	<0.002	mg/L	No	3
Fluoride	Jan 02 – Dec 04	<0.04-0.15	mg/L	No	16

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Nitrite	Jan 02 – Dec 04	<0.02-<0.05	mg/L	No	16
Nitrate	Jan 02 – Dec 04	0.17-0.66	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	Aug 24, Nov 23	<0.4	ug/L	No	2
Aldicarb	Aug 24, Nov 23	<3.5	ug/L	No	2
Aldrin + Dieldrin	Aug 24, Nov 23	<0.006	ug/L	No	2
Atrazine + N-dealkylated metabolites	Aug 24, Nov 23	<0.1	ug/L	No	2
Azinphos-methyl	Aug 24, Nov 23	<0.2	ug/L	No	2
Bendiocarb	Aug 24, Nov 23	<3.0	ug/L	No	2
Benzene	Aug 24, Nov 23	<0.1	ug/L	No	2
Benzo(a)pyrene	Aug 24, Nov 23	<0.001-<0.01	ug/L	No	2
Bromoxynil	Aug 24, Nov 23	<0.4	ug/L	No	2
Carbaryl	Aug 24, Nov 23	<0.2	ug/L	No	2
Carbofuran	Aug 24, Nov 23	<4.0	ug/L	No	2
Carbon Tetrachloride	Aug 24, Nov 23	<0.2	ug/L	No	2
Chlordane (Total)	Aug 24, Nov 23	<0.006	ug/L	No	2
Chlorpyrifos	Aug 24, Nov 23	<0.2	ug/L	No	2
Cyanazine	Aug 24, Nov 23	<0.2	ug/L	No	2
Diazinon	Aug 24, Nov 23	<0.2	ug/L	No	2
Dicamba	Aug 24, Nov 23	<0.4	ug/L	No	2
1,2-Dichlorobenzene	Aug 24, Nov 23	<0.1	ug/L	No	2
1,4-Dichlorobenzene	Aug 24, Nov 23	<0.1	ug/L	No	2
Dichlorodiphenyltrichloroethane (DDT) + metabolites	Aug 24, Nov 23	<0.008	ug/L	No	2
1,2-Dichloroethane	Aug 24, Nov 23	<0.1	ug/L	No	2
1,1-Dichloroethylene (vinylidene chloride)	Aug 24, Nov 23	<0.3	ug/L	No	2
Dichloromethane	Aug 24, Nov 23	<0.5	ug/L	No	2
2,4-Dichlorophenol	Aug 24, Nov 23	<0.4	ug/L	No	2
2,4-Dichlorophenoxy acetic acid (2,4-D)	Aug 24, Nov 23	<0.6-<0.8	ug/L	No	2
Diclofop-methyl	Aug 24, Nov 23	<0.4	ug/L	No	2
Dimethoate	Aug 24, Nov 23	<0.3	ug/L	No	2
Dinoseb	Aug 24, Nov 23	<0.5	ug/L	No	2
Diquat	Aug 24, Nov 23	<0.1	ug/L	No	2
Diuron	Aug 24, Nov 23	<0.2	ug/L	No	2
Glyphosate	Aug 24, Nov 23	<2.0	ug/L	No	2
Heptachlor + Heptachlor Epoxide	Aug 24, Nov 23	<0.008	ug/L	No	2
Lindane (Total)	Aug 24, Nov 23	<0.005	ug/L	No	2
Malathion	Aug 24, Nov 23	<0.2	ug/L	No	2
Methoxychlor	Aug 24, Nov 23	<0.009	ug/L	No	2
Metolachlor	Aug 24, Nov 23	<0.2	ug/L	No	2
Metribuzin	Aug 24, Nov 23	<0.08	ug/L	No	2
Monochlorobenzene	Aug 24, Nov 23	<0.1	ug/L	No	2

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Paraquat	Aug 24, Nov 23	<0.1	ug/L	No	2
Parathion	Aug 24, Nov 23	<0.2	ug/L	No	2
Pentachlorophenol	Aug 24, Nov 23	<0.4	ug/L	No	2
Phorate	Aug 24, Nov 23	<0.2	ug/L	No	2
Picloram	Aug 24, Nov 23	<0.7	ug/L	No	2
Polychlorinated Biphenyls(PCB)	Aug 24, Nov 23	<0.02	ug/L	No	2
Prometryne	Aug 24, Nov 23	<0.08	ug/L	No	2
Simazine	Aug 24, Nov 23	<0.08	ug/L	No	2
THM - Distribution (NOTE: show latest annual average)	Jan 02 – Dec 04	51	ug/L	No	12
Temphos	Aug 24, Nov 23	<3	ug/L	No	2
Terbufos	Aug 24, Nov 23	<0.2	ug/L	No	2
Tetrachloroethylene	Aug 24, Nov 23	<0.3	ug/L	No	2
2,3,4,6-Tetrachlorophenol	Aug 24, Nov 23	<0.5	ug/L	No	2
Triallate	Aug 24, Nov 23	<2.0	ug/L	No	2
Trichloroethylene	Aug 24, Nov 23	<0.1	ug/L	No	2
2,4,6-Trichlorophenol	Aug 24, Nov 23	<0.5	ug/L	No	2
2,4,5-Trichlorophenoxy acetic acid (2,4,5-T)	Aug 24, Nov 23	<0.5	ug/L	No	2
Trifluralin	Aug 24, Nov 23	<0.006	ug/L	No	2
Vinyl Chloride	Aug 24, Nov 23	<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)