

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

<b>Drinking-Water System Number:</b>	220000772
<b>Drinking-Water System Name:</b>	Oshawa 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

**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.  
5<sup>th</sup> 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:**

<b>Drinking Water System Name</b>	<b>Drinking Water System Number</b>

**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 **Oshawa Water Treatment Plant** is a surface water treatment facility that supplies quality potable water to approximately 149,761 consumers in the City of Oshawa and approximately 24,810 consumers in Courtice, an urban area of the Municipality of Clarington. Raw water is drawn from Lake Ontario through two intake pipes. One is 750 mm in diameter extending 831 m into the lake to an intake structure at a depth of 7.6 m. The second is a 900 mm diameter pipe extending 924 m into the lake to an intake structure at a depth of 10.7 m.

The **treatment plant** facility has a rated maximum flow of 134 ML/day (29 MIGD) in the summer and 94 ML/day (21 MIGD) in the winter. The treatment plant facility utilizes the following unit processes and systems: zebra mussel control, screening, pre-chlorination, low lift pumping, coagulation, flocculation, sedimentation, filtration, post-chlorination, water storage, and high lift pumping. The ten (10) filters are dual media sand/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 713 kilometres of watermains in four (4) pressure zones, and includes four (4) reservoirs and four (4) booster stations. The distribution system in Oshawa is interconnected with the distribution system of Whitby.

**List all water treatment chemicals used over this reporting period**

Chlorine (disinfectant)  
 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**

Cathodic Protection of Watermains - \$138,428  
 Installation of Particle Counter - \$12,124  
 Repair of High Lift Pump #3 - \$28,980  
 Rehabilitation of Watermains (Cement Lining) - \$971,924  
 Replacement of filter cleaning agitators - \$40,720

Testing and replacement of backup power batteries at Taunton/Harmony/Grandview Reservoirs and Pumping Stations - \$11,000  
 Watermain Replacement - \$1,886,000

**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
Mar 21	Low Pressure (Distribution)	--	--	Pressure restored, affected area flushed and bacteriological samples taken. Results of the analyses performed on the samples met the Ontario Drinking Water Quality Standards.	Mar 21
Apr 05	New watermain prematurely connected to system (Distribution)	--	--	Watermain immediately isolated from system upon discovery. Area flushed and bacteriological samples were taken. Results of the analyses performed on the samples met the Ontario Drinking Water Quality Standards.	Apr 05
May 30	Fluoride (Plant)	2.0	mg/L	Continuous monitoring equipment went to alarm during a power fluctuation. Grab sample indicated fluoride did not exceed the Ontario Drinking Water Quality Standards.	May 30
Jul 05	Total Coliforms (Distribution)	1	CFU/100 mL	Two consecutive sets of samples taken 24 hour apart were collected 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.	Jul 05,06
Aug 26	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 26

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Sep 11	Chlorine Residual (Distribution)	0.0	mg/L	Continuous monitoring equipment malfunctioned. Chlorine residual was measured and verified to be above 0.05 mg/L as required by the Ontario Drinking Water Systems Regulation. Continuous monitoring equipment was repaired and calibrated.	Sep 11
Oct 11	Total Coliforms (Distribution)	7	CFU/100 mL	Resamples were taken upstream 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 19	Chlorine Residual (Distribution)	>4.0	mg/L	Affected area flushed until chlorine residuals returned to normal. This incident was later determined not a reportable adverse water quality incident.	Oct 19
Oct 30	Fluoride (Plant)	2.0	mg/L	Continuous monitoring equipment went to alarm during a power fluctuation. Grab sample indicated fluoride did not exceed the Ontario Drinking Water Quality Standards.	Oct 30
Nov 20	Chlorine Residual (Distribution)	0.00	mg/L	Distribution flushed until the chlorine residual was restored to above 0.05 mg/L as per the Ontario Drinking Water Systems Regulation. Bacteriological samples were taken. Results of analyses performed on the samples met the Ontario Drinking Water Quality Standards.	Nov 20

**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>	205	<1-110	<1-1500	--	--	--	--	205	<1-4000
<b>Treated</b>	205	--	--	A	A	170	<1-340	35	<1-<1
<b>Distribution</b>	1182	--	--	A	P(1)*	615	<1-360	202	<1-62
	210	<1-<1	<1-7(2)*						

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	0.015-0.503 NTU
<b>Free Chlorine – Plant</b>	8760	0.70-3.25
<b>Free Chlorine – Distribution</b>	3019	0.00->4.0
<b>Fluoride (If the DWS provides fluoridation)</b>	8760	0.10-2.0

*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
January 05, 2005/ December 21, 2006	Raw Water			
	Gross Beta	Jan 01 – Dec 31	0.08-0.16	Bq/L
	Tritium	Jan 01 – Dec 31	2.9-19.11	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	<5-20	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			
	Aluminum	Jan 09 - Dec 18	28.3-122	mg/L
	Chlorine	Jan 09 - Dec 19	1.36-2.22	mg/L
	Suspended Solids	Jan 09 - Dec 18	124-461	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	0.0214-0.0223	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	<0.0003-0.0042	mg/L	No	4
Lead - Distribution	Jan 27 – Sep 12	<0.0007	mg/L	No	4
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	13.1-15.5	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	0.17-0.68	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	Jun 12, Nov 22	<0.4	ug/L	No	2
Aldicarb	Jun 12, Nov 22	<3.5	ug/L	No	2
Aldrin + Dieldrin	Jun 12, Nov 22	<0.006	ug/L	No	2
Atrazine + N-dealkylated metabolites	Jun 12, Nov 22	<0.1-0.2	ug/L	No	2
Azinphos-methyl	Jun 12, Nov 22	<0.2	ug/L	No	2
Bendiocarb	Jun 12, Nov 22	<3.0	ug/L	No	2
Benzene	Jun 12, Nov 22	<0.1	ug/L	No	2
Benzo(a)pyrene	Jun 12, Nov 22	<0.01-<0.001	ug/L	No	2
Bromoxynil	Jun 12, Nov 22	<0.4	ug/L	No	2
Carbaryl	Jun 12, Nov 22	<0.2	ug/L	No	2
Carbofuran	Jun 12, Nov 22	<4.0	ug/L	No	2
Carbon Tetrachloride	Jun 12, Nov 22	<0.2	ug/L	No	2
Chlordane (Total)	Jun 12, Nov 22	<0.006	ug/L	No	2
Chlorpyrifos	Jun 12, Nov 22	<0.2	ug/L	No	2
Cyanazine	Jun 12, Nov 22	<0.2	ug/L	No	2
Diazinon	Jun 12, Nov 22	<0.2	ug/L	No	2
Dicamba	Jun 12, Nov 22	<0.4	ug/L	No	2
1,2-Dichlorobenzene	Jun 12, Nov 22	<0.1	ug/L	No	2
1,4-Dichlorobenzene	Jun 12, Nov 22	<0.1	ug/L	No	2
Dichlorodiphenyltrichloroethane (DDT) + metabolites	Jun 12, Nov 22	<0.008	ug/L	No	2
1,2-Dichloroethane	Jun 12, Nov 22	<0.1	ug/L	No	2
1,1-Dichloroethylene (vinylidene chloride)	Jun 12, Nov 22	<0.3	ug/L	No	2

Dichloromethane	Jun 12, Nov 22	<0.5	ug/L	No	2
2,4-Dichlorophenol	Jun 12, Nov 22	<0.4	ug/L	No	2
2,4-Dichlorophenoxy acetic acid (2,4-D)	Jun 12, Nov 22	<0.6-<0.8	ug/L	No	2
Diclofop-methyl	Jun 12, Nov 22	<0.4	ug/L	No	2
Dimethoate	Jun 12, Nov 22	<0.3	ug/L	No	2
Dinoseb	Jun 12, Nov 22	<0.5	ug/L	No	2
Diquat	Jun 12, Nov 22	<0.1	ug/L	No	2
Diuron	Jun 12, Nov 22	<0.2	ug/L	No	2
Glyphosate	Jun 12, Nov 22	<2.0	ug/L	No	2
Heptachlor + Heptachlor Epoxide	Jun 12, Nov 22	<0.008	ug/L	No	2
Lindane (Total)	Jun 12, Nov 22	<0.005	ug/L	No	2
Malathion	Jun 12, Nov 22	<0.2	ug/L	No	2
Methoxychlor	Jun 12, Nov 22	<0.009	ug/L	No	2
Metolachlor	Jun 12, Nov 22	<0.2	ug/L	No	2
Metribuzin	Jun 12, Nov 22	<0.08	ug/L	No	2
Monochlorobenzene	Jun 12, Nov 22	<0.1	ug/L	No	2
Paraquat	Jun 12, Nov 22	<0.1	ug/L	No	2
Parathion	Jun 12, Nov 22	<0.2	ug/L	No	2
Pentachlorophenol	Jun 12, Nov 22	<0.4	ug/L	No	2
Phorate	Jun 12, Nov 22	<0.2	ug/L	No	2
Picloram	Jun 12, Nov 22	<0.7	ug/L	No	2
Polychlorinated Biphenyls(PCB)	Jun 12, Nov 22	<0.02	ug/L	No	2
Prometryne	Jun 12, Nov 22	<0.08	ug/L	No	2
Simazine	Jun 12, Nov 22	<0.08	ug/L	No	2
THM – Distribution (NOTE: show latest annual average)	Jan 05-Dec 07	42	ug/L	No	15
Temephos	Jun 12, Nov 22	<3	ug/L	No	2
Terbufos	Jun 12, Nov 22	<0.2	ug/L	No	2
Tetrachloroethylene	Jun 12, Nov 22	<0.3	ug/L	No	2
2,3,4,6-Tetrachlorophenol	Jun 12, Nov 22	<0.5	ug/L	No	2
Triallate	Jun 12, Nov 22	<2.0	ug/L	No	2
Trichloroethylene	Jun 12, Nov 22	<0.1-<0.8	ug/L	No	2
2,4,6-Trichlorophenol	Jun 12, Nov 22	<0.5	ug/L	No	2
2,4,5-Trichlorophenoxy acetic acid (2,4,5-T)	Jun 12, Nov 22	<0.5	ug/L	No	2
Trifluralin	Jun 12, Nov 22	<0.006	ug/L	No	2
Vinyl Chloride	Jun 12, 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)**

**Summary of additional parameters sampled during this reporting period.**

Parameter	Sample Date	Result Value	Unit of Measure	Exceedance	Number of Samples
Alkalinity (as CaCO <sub>3</sub> )	Feb 13-Nov 01	79.6-88.4	mg/L	No	4
Aluminum	Jan 03-Dec 27	0.0264-0.245	mg/L	Yes(6)*	54
Aminomethylphosphonic acid/AMPA	Nov 24	<2.0	ug/L	No	1
Ammonia	Feb 13-Nov 01	<0.02	mg/L	No	4
Bromide	Jan 03-Dec 05	<0.06-0.3	mg/L	No	16
Bromochloroacetic acid	Oct 03-Dec 05	<4-4	ug/L	No	3
Bromodichloromethane	Jan 03-Dec 05	4.1-7.5	ug/L	No	13
Bromoform	Jan 03-Dec 05	<0.2-0.3	ug/L	No	13
Calcium	Jan 03-Dec 05	32.7-36.5	mg/L	No	4
Chloride	Jan 03-Dec 05	23.4-35.0	mg/L	No	16
Chlorodibromomethane	Jan 03-Dec 05	1.7-3.4	ug/L	No	13
Chloroform	Jan 03-Dec 05	5.3-13	ug/L	No	13
Cobalt	Feb 13-Nov 01	<0.0002	mg/L	No	4
Colour	Feb 13-Nov 01	<1-1	TCU	No	4
Conductivity (calculated)	Feb 13-Nov 01	330-366	umho/cm	No	4
Conductivity	Feb 13-Nov 01	307-333	umho/cm	No	4
Copper	Feb 13-Nov 01	<0.0002-0.0007	mg/L	No	4
Cyanide (total)	May 05, Nov 01	<0.002-0.002	mg/L	No	2
Dibromoacetic acid	Oct 03-Dec 05	<4	ug/L	No	3
Dichloroacetic acid	Oct 03-Dec 05	4-10	ug/L	No	3
Ethylbenzene	Jun 12	<0.1	ug/L	No	1
Hardness (as CaCO <sub>3</sub> )	Feb 13-Nov 01	117-127	mg/L	No	4
Iron	Feb 13-Nov 01	0.0046-0.0075	mg/L	No	4
Langlier Index	Feb 13-Nov 01	0.1-0.4	--	No	4
Lead - Plant	Feb 13-Nov 01	<0.0007	mg/L	No	4
m+p-xylene	Jun 12	<0.2	ug/L	No	1
Magnesium	Feb 13-Nov 01	8.56-8.75	mg/L	No	4
Manganese	Feb 13-Nov 01	<0.0001	mg/L	No	4
Molybdenum	Feb 13-Nov 01	<0.0002	mg/L	No	4
Monobromoacetic acid	Oct 03-Dec 05	<4	ug/L	No	3
Monochloroacetic acid	Oct 03-Dec 05	<35	ug/L	No	3
Nickel	Feb 13-Nov 01	0.0001-0.0006	mg/L	No	4
Phosphate	Jan 03-Dec 05	<0.04-<0.1	mg/L	No	16
Oxychlorane	Jun 12	<0.005	ug/L	No	1
o-xylene	Jun 12	<0.1	mg/L	No	1
pH	Feb 13-Nov 01	7.46-7.63	--	No	4
Potassium	Feb 13-Nov 01	1.34-1.52	mg/L	No	4
Sulphate	Jan 03-Dec 05	28.9-34.4	mg/L	No	16
Toluene	Jun 12	<0.2	ug/L	No	1
Total anions	Feb 13-Nov 01	2.98-3.31	mEq/L	No	4
Total cations	Feb 13-Nov 01	2.94-3.23	mEq/L	No	4
Total dissolved solids	Feb 13-Nov 01	161-178	mg/L	No	4

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

<b>Total xylenes</b>	Jun 12	<0.2	ug/L	No	1
<b>Trihalomethanes - Plant</b>	Jan 03-Dec 05	12-23	ug/L	No	13
<b>Tribromoacetic acid</b>	Oct 03-Dec 05	<4-9	ug/L	No	3
<b>Zinc</b>	Feb 13-Nov 01	<0.0002-0.0014	mg/L	No	4

\*Number in parenthesis represent the number of exceedance(s)