

Part III Form 2
Section 11. ANNUAL REPORT.

Drinking-Water System Number:	220001183
Drinking-Water System Name:	City of Orillia Water Filtration Plant
Drinking-Water System Owner:	City of Orillia
Drinking-Water System Category:	Large Municipal Residential
Period being reported:	June 1, 2003 – December 31, 2003

<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 [<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>Location where Report required under O. Reg. 170/03 Schedule 22 will be available for inspection.</p> <div style="border: 1px solid black; padding: 5px;"> City of Orillia City Centre, 3rd Floor Reception 50 Andrew St. S. Orillia, ON L3V 7T5 </div>	<p><u>Complete for all other Categories.</u></p> <p>Number of Designated Facilities served: <input type="text" value="N/A"/></p> <p>Did you provide a copy of your annual report to all Designated Facilities you serve? Yes [<input type="checkbox"/>] No [<input type="checkbox"/>]</p> <p>Number of Interested Authorities you report to: <input type="text" value="N/A"/></p> <p>Did you provide a copy of your annual report to all Interested Authorities you report to for each Designated Facility? Yes [<input type="checkbox"/>] No [<input type="checkbox"/>]</p>
--	---

List Drinking-Water Systems, which receive all of their drinking water from your system:

N/A

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
- [] 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 Radio Public Service Announcement

Describe your Drinking-Water System

The Orillia Water Filtration Plant is designed to obtain raw water from a surface source (Lake Couchiching) and from two groundwater sources (wells). At this time, the plant is drawing from only the surface water source due to trichloroethylene (TCE) contamination problems associated with each of the two wells.

Lake Couchiching is a relatively shallow lake with a maximum depth of 12 metres and an average depth of 6 metres. The intake for the plant is located approximately 374 metres from shore and 3.3 metres below the surface.

Well #1 and Well #2 are located within 160 metres of the Lake Couchiching shore and are approximately 170 metres apart. Although the treated water showed levels not in exceedence of the Ontario Drinking Water Standards Maximum Acceptable Concentration (ODWS MAC) of 50 ug/l, levels of trichloroethylene (TCE) in the raw water of the wells ranged from 16.0 to 31.2 ug/l during 2000-2001. The withdrawal from service of these two wells was undertaken voluntarily by the City of Orillia until a treatment solution can be found.

The raw water intake pipe extends approximately 374 m into Lake Couchiching and begins at a concrete filled wooden cribbed structure. There is also an old 85 m long raw water intake pipe which can be used in an emergency. Raw chlorinated water (prechlorinated for zebra mussel control) flows by gravity to the wet well of the low lift pumping station in the plant which has a firm capacity of 27, 280 m³/day and an effective storage volume of 112.3 m³. There are three vertical dry pit low lift pumps rated at 105 L/s and one standby vertical dry pit low lift pump rated at 157.8 L/s powered by a standby diesel generator. The pump station is also equipped with two stationary screens and one traveling screen.

Flash mixing of coagulant (poly aluminum chloride) occurs prior to three parallel concrete flocculator tanks.

The filter system is comprised of four dualmedia (anthracite and sand) filters equipped with a manual backwash system, storage tanks and backwash troughs. Filters One and Two have a surface wash/underdrain system and Filters Three and Four have an air scour/underdrain system. Process water goes to a holding tank and then to sanitary sewer.

Filter effluent flows by gravity into a clearwell and the highlifts draw from the clearwell and feed the distribution system. Three horizontal centrifugal pumps discharge to Zone 1 of the distribution system and two horizontal centrifugal pumps discharge to Zone 2 of the distribution system.

Chemical disinfection consists of three gas chlorinators (two duty and one stand-by) with individual discharge lines connected to the system so that pre and post chlorination can be

practiced. Two 0.909 tonne cylinders are kept on line at all times with two vacuum regulators and an automatic cylinder switchover system. The cylinders are kept within the storage area that is equipped with a scale for the measurement of chlorine gas utilized in the disinfection process.

The treatment plant and pumping facilities are equipped with back-up power from a 820 kW Diesel Engine Prime Power Generator Set and its associated equipment.

When the two wells are online, water is pumped to a reservoir located across the street from the treatment plant. The water flows by syphon to the clearwells where it is treated with chlorination. Due to the presence of trichloroethylene in both wells, they have been taken off line and there is no immediate intention of using them for supply purposes until treatment options are explored.

The City of Orillia distribution services a population of approximately 30,000 that are comprised of residential, commercial and industrial consumers.

The distribution system has three storage facilities as described below which were designed to provide peak hour water demand equalization and fire and emergency storage:

Harvie Hill Tower is a reinforced concrete reservoir located on Harvie Settlement Road on the west side of Highway 11. This tower supplies water to Zone 2 of the distribution system and has a capacity of 9,090 m³.

The Rosemary Road Reservoirs consist of two reinforced concrete cylindrical reservoirs located on Rosemary Road, just west of Westmount Drive North. The reservoirs are joined and have capacities of 1,363 m³ and 9,090 m³.

List all water treatment chemicals used over this reporting period

Chlorine
Polyaluminum Chloride

Were any significant expenses incurred to?

- | | | |
|---|------|-----------------------|
| <input type="checkbox"/> Install required equipment | NONE | Regular Maintenance & |
| <input type="checkbox"/> Repair required equipment | NONE | Calibrations Only |
| <input type="checkbox"/> Replace required equipment | NONE | |

Describe

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
July 2/03	Low Chlorine	0.02	Free	Flush & Increase CL2	July 3/03
July 3/03	Low Chlorine	0.02	Free	Flush & Increase CL2	July 4/03
July 16/03	Total Coliform	40	CFU/100 ml	Flushed/Resampled	July 17/03
July 21/03	Low Chlorine	0.03	Free	Flush & Increase CL2	July 22/03
Sept. 24/03	Total Coliform	1	CFU/100 ml	Resample	Sept.25/03
Oct. 29/03	Total Coliform	1	CFU/100 ml	Resample	Oct.30/03

Microbiological testing done under section 8 (2) during this reporting period

	Number of Samples	Range of E.Coli or Fecal Results (#-#)	Range of Total Coliform Results (#-#)	Number of HPC Samples (Background) (Sampling done by City)	Range of HPC Results (#-#) (Background) (Sampling done by City)
Raw	52	1-7	1-64	7	0->200
Treated	52	0-0	0-0	52	0-0
Distribution	540	0-0	0-40	540	0-88

Operational testing done under Schedule 7, 8 or 9 during the period covered by this Annual Report.

	Number of Grab Samples	Range of Results (#-#)
Turbidity	8760	0.07-0.29 NTU's
Chlorine – Treated Chlorine - Distribution	8760 554	0.68-2.04 Free 0.03Free/0.10Total-2.90Free/5.90Total
Fluoride (If the DWS provides fluoridation)	N/A	N/A

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 or order.

Date of order or C of A	Parameter	Date Sampled	Result	Unit of Measure
	Organic Nitrogen – Raw Lake	June 11/03	0.31	mg/L
		Sept 15/03	0.36	mg/L
		Dec 8/03	0.40	mg/L
	Organic Nitrogen– Raw Well 1	Sept 15/03	Not detected	mg/L
		Dec 8/03	0.07	mg/L
	Organic Nitrogen– Raw Well 2	Sept 15/03	Not detected	mg/L
		Dec 8/03	Not detected	mg/L

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

	Dissolved Organic Carbon – Raw Lake	June 11/03 Sept 15/03 Dec 8/03	3.1 7.0 3.0	mg/L mg/L mg/L
	Dissolved Organic Carbon– Raw Well 1	Sept 15/03 Dec 8/03	5.0 Not detected	mg/L mg/L
	Dissolved Organic Carbon– Raw Well 2	Sept 15/03 Dec 8/03	6.0 Not detected	mg/L mg/L

Summary of Inorganic parameters tested during this reporting period or most recent

Parameter	Sample Date	Result Value	Unit of Measure	Exceedance
Antimony	Sept 15/03	0.001	mg/L	
	Dec 8/03	Not detected	mg/L	
Arsenic	Sept 15/03	Not detected	mg/L	
	Dec 8/03	0.001	mg/L	
Barium	Sept 15/03	0.026	mg/L	
	Dec 8/03	0.028	mg/L	
Boron	Sept 15/03	0.018	mg/L	
	Dec 8/03	0.016	mg/L	
Cadmium	Sept 15/03	Not detected	mg/L	
	Dec 8/03	Not detected	mg/L	
Chromium	Sept 15/03	Not detected	mg/L	
	Dec 8/03	Not detected	mg/L	
Lead -Treated	Sept 15/03	Not detected	mg/L	
	Dec 8/03	Not detected	mg/L	
Lead -Dist.	Sept 15/03	Not detected	mg/L	
	Dec 8/03	Not detected	mg/L	
Mercury	Sept 15/03	Not detected	mg/L	
	Dec 8/03	Not detected	mg/L	
Selenium	Sept 15/03	Not detected	mg/L	
	Dec 8/03	Not detected	mg/L	
Uranium	Sept 15/03	0.002	mg/L	
	Dec 8/03	0.0003	mg/L	
Fluoride	Sept 15/03	0.20	mg/L	
Nitrite	June 11/03	Not detected	mg/L	
	Sept 15/03	Not detected	mg/L	
	Dec 8/03	Not detected	mg/L	
Nitrate	June 11/03	Not detected	mg/L	
	Sept 15/03	Not detected	mg/L	
	Dec 8/03	0.2	mg/L	

Summary of Organic parameters sampled during this reporting period or most recent

Parameter	Sample Date	Result Value	Unit of Measure	Exceedance
Alachlor	June 11/03	Not detected	ug/L	
	Dec 8/03	Not detected	ug/L	
Aldicarb	June 11/03	Not detected	ug/L	
	Dec 8/03	Not detected	ug/L	
Aldrin + Dieldrin	June 11/03	Not detected	ug/L	
	Sept 15/03	Not detected	ug/L	
	Dec 8/03	Not detected	ug/L	
Atrazine + N-dealkylated metabolites	Dec 8/03	Not detected	ug/L	
Azinphos-methyl	June 11/03	Not detected	ug/L	
	Dec 8/03	Not detected	ug/L	
Bendiocarb	June 11/03	Not detected	ug/L	
	Dec 8/03	Not detected	ug/L	
Benzene	June 11/03	Not detected	ug/L	
	Sept 15/03	Not detected	ug/L	
	Dec 8/03	Not detected	ug/L	
Benzo(a)pyrene	Dec 8/03	Not detected	ug/L	
Bromoxynil	June 11/03	Not detected	ug/L	
	Dec 8/03	Not detected	ug/L	
Carbaryl	June 11/03	Not detected	ug/L	
	Dec 8/03	Not detected	ug/L	
Carbofuran	June 11/03	Not detected	ug/L	
	Dec 8/03	Not detected	ug/L	
Carbon Tetrachloride	June 11/03	Not detected	ug/L	
	Sept 15/03	Not detected	ug/L	
	Dec 8/03	Not detected	ug/L	
Chlordane (Total)	June 11/03	Not detected	ug/L	
	Sept 15/03	Not detected	ug/L	
	Dec 8/03	Not detected	ug/L	
Chlorpyrifos	June 11/03	Not detected	ug/L	
	Dec 8/03	Not detected	ug/L	
Cyanazine	June 11/03	Not detected	ug/L	
	Dec 8/03	Not detected	ug/L	
Diazinon	June 11/03	Not detected	ug/L	
	Dec 8/03	Not detected	ug/L	
Dicamba	June 11/03	Not detected	ug/L	
	Dec 8/03	Not detected	ug/L	
1,2-Dichlorobenzene	June 11/03	Not detected	ug/L	
	Sept. 15/03	Not detected	ug/L	
	Dec 8/03	Not detected	ug/L	
1,4-Dichlorobenzene	June 11/03	Not detected	ug/L	
	Sept. 15/03	Not detected	ug/L	
	Dec 8/03	Not detected	ug/L	

Dichlorodiphenyltrichloroethane (DDT) + metabolites	June 11/03 Sept 15/03 Dec 8/03	Not detected Not detected Not detected	ug/L ug/L ug/L	
1,2-Dichloroethane	June 11/03 Sept. 15/03 Dec 8/03	Not detected Not detected Not detected	ug/L ug/L ug/L	
1,1-Dichloroethylene (vinylidene chloride)	June 11/03 Sept. 15/03 Dec 8/03	Not detected Not detected Not detected	ug/L ug/L ug/L	
Dichloromethane	June 11/03 Dec 8/03	Not detected Not detected	ug/L ug/L	
2-4 Dichlorophenol	June 11/03 Dec 8/03	Not detected Not detected	ug/L ug/L	
2,4-Dichlorophenoxy acetic acid (2,4-D)	June 11/03 Sept 15/03 Dec 8/03	Not detected Not detected Not detected	ug/L ug/L ug/L	
Diclofop-methyl	June 11/03 Dec 8/03	Not detected Not detected	ug/L ug/L	
Dimethoate	June 11/03 Dec 8/03	Not detected Not detected	ug/L ug/L	
Dinoseb	June 11/03 Dec 8/03	Not detected Not detected	ug/L ug/L	
Diquat	June 11/03 Sept 15/03 Dec 8/03	Not detected Not detected Not detected	ug/L ug/L ug/L	
Diuron	June 11/03 Dec 8/03	Not detected Not detected	ug/L ug/L	
Glyphosate	June 11/03 Sept 15/03 Dec 8/03	Not detected Not detected Not detected	ug/L ug/L ug/L	
Heptachlor + Heptachlor Epoxide	June 11/03 Sept 15/03 Dec 8/03	Not detected Not detected Not detected	ug/L ug/L ug/L	
Linadane (Total)	June 11/03 Sept 15/03 Dec 8/03	Not detected Not detected Not detected	ug/L ug/L ug/L	
Malathion	June 11/03 Dec 8/03	Not detected Not detected	ug/L ug/L	
Methoxychlor	June 11/03 Sept 15/03 Dec 8/03	Not detected Not detected Not detected	ug/L ug/L ug/L	
Metolachlor	June 11/03 Dec 8/03	Not detected Not detected	ug/L ug/L	
Metribuzin	June 11/03 Dec 8/03	Not detected Not detected	ug/L ug/L	

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

Monochlorobenzene	June 11/03 Sept 15/03 Dec 8/03	Not detected Not detected Not detected	ug/L ug/L ug/L	
Paraquat	June 11/03 Sept 15/03 Dec 8/03	Not detected Not detected Not detected	ug/L ug/L ug/L	
Parathion	June 11/03 Dec 8/03	Not detected Not detected	ug/L ug/L	
Pentachlorophenol	June 11/03 Dec 8/03	Not detected Not detected	ug/L ug/L	
Phorate	June 11/03 Dec 8/03	Not detected Not detected	ug/L ug/L	
Picloram	June 11/03 Dec 8/03	Not detected Not detected	ug/L ug/L	
Polychlorinated Biphenyls(PCB)	June 11/03 Sept 15/03 Dec 8/03	Not detected Not detected Not detected	ug/L ug/L ug/L	
Prometryne	June 11/03 Dec 8/03	Not detected Not detected	ug/L ug/L	
Simazine	June 11/03 Dec 8/03	Not detected Not detected	ug/L ug/L	
THM - Treated - Dist. (NOTE: show latest quarterly average)	Mar13/June11/Sept15/Dec8 Mar13/June11/Sept15/Dec8	44.65 50.63	ug/L ug/L	
Temephos	June 11/03 Dec 8/03	Not detected Not detected	ug/L ug/L	
Terbufos	June 11/03 Dec 8/03	Not detected Not detected	ug/L ug/L	
Tetrachloroethylene	June 11/03 Sept 15/03 Dec 8/03	Not detected Not detected Not detected	ug/L ug/L ug/L	
2,3,4,6-Tetrachlorophenol	June 11/03 Sept 15/03 Dec 8/03	Not detected Not detected Not detected	ug/L ug/L ug/L	
Triallate	June 11/03 Sept 15/03 Dec 8/03	Not detected Not detected Not detected	ug/L ug/L ug/L	
Trichloroethylene	June 11/03 Sept. 15/03 Dec 8/03	Not detected Not detected Not detected	ug/L ug/L ug/L	
2,4,6-Trichlorophenol	June 11/03 Sept 15/03 Dec 8/03	Not detected Not detected Not detected	ug/L ug/L ug/L	

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

2,4,5-Trichlorophenoxy acetic acid (2,4,5-T)	June 11/03	Not detected	ug/L	
	Sept 15/03	Not detected	ug/L	
	Dec 8/03	Not detected	ug/L	
Trifluralin	June 11/03	Not detected	ug/L	
	Sept 15/03	Not detected	ug/L	
	Dec 8/03	Not detected	ug/L	
Vinyl Chloride	June 11/03	Not detected	ug/L	
	Sept 15/03	Not detected	ug/L	
	Dec 8/03	Not detected	ug/L	

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

(Only if category is large municipal residential, small municipal residential, large municipal non residential, small municipal non residential, large non municipal non residential)