

**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:	January 1, 2005 – December 31, 2005

<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 [X] No []</p> <p>Is your annual report available to the public at no charge on a web site on the Internet? Yes [X] 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;"> 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: <div style="border: 1px solid black; padding: 2px; display: inline-block;">N/A</div> </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: <div style="border: 1px solid black; padding: 2px; display: inline-block;">N/A</div> </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>
--	---

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
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 [X*]

*Not Applicable

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 low level trichloroethylene (TCE) contamination 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 66.7 ug/l during 2000-2001. The withdrawal from service of these two wells January 2001 was undertaken voluntarily by the City of Orillia until a treatment solution can be found. Ongoing sampling of the wells has continued with 2005 TCE results ranging from 15.3 ug/l to 29.7 ug/l. The wells will remain out of service until this issue is addressed.

The raw water intake pipe extends 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 new West Orillia Well was completed and commissioned late in 2005. It is a groundwater supply with chlorination treatment rated at a maximum daily flow of 6,550 m³ per day. Startup of the Well is expected early in 2006.

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

Water Treatment – Chlorine, Polyaluminum Chloride
 Water Distribution – Flochem 12 (Sodium Hypochlorite), Dechloro Pucks (Sodium Thiosulphate)

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

Dec. 10, 2005 – Incoming 750 mcm cables failed in bus compartment of main switchgear. Monetary expense \$2800 for emergency temporary repair. Permanent repair to be made early 2006. Initial estimate \$25,000.

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
Nov. 16/05	Background exceedence	>200	CFU	Flush & resample Letter of Resolution	Nov. 17/05 Nov. 18/05

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 Or Fecal Results (min #)-(max #)	Range of Total Coliform Results (min #)-(max #)	Number of HPC Samples Background colony counts (CFU) performed	Range of HPC Results (min #)-(max #) Background colony counts (CFU) performed
Raw	53	0 – 8	0 – 780	10	0 - 7200
Treated	53	0	0 - 10	52	0
Distribution	529	0	0	529	0 - >200

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 #)	<i>NOTE: For continuous monitors use 8760 as the number of samples.</i>
Turbidity	8760	0.02-0.38 NTU's	
Chlorine – Free-Treated	8760	1.00-1.98 mg/l	
Chlorine – Free-Distribution	842	0.07-2.45 mg/l	
Fluoride (If the DWS provides fluoridation)	N/A	N/A	

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

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

Parameter	Sample Date	Result Value	Unit of Measure	Exceedance
Antimony	Feb. 16/05	<MDL	mg/l	
Arsenic	Feb. 16/05	<MDL	mg/l	
Barium	Feb. 16/05	0.063	mg/l	1.0 mg/l MAC*
Boron	Feb. 16/05	0.021	mg/l	5.0 mg/l MAC*
Cadmium	Feb. 16/05	<MDL	mg/l	
Chromium	Feb. 16/05	<MDL	mg/l	
Lead – treated	Feb. 16/05	<MDL	mg/l	0.01 mg/l MAC*
Lead - distribution	Feb. 16/05	0.0004	mg/l	
Mercury	Feb. 16/05	<MDL	mg/l	
Selenium	Feb. 16/05	<MDL	mg/l	
Sodium	Feb. 16/05	25.2	mg/l	200, 20 mg/l AO* ¹ .
Uranium	Feb. 16/05	0.0004	mg/l	0.02 mg/l MAC*
Fluoride	Feb. 16/05	<MDL	mg/l	
Nitrite	Feb. 16/05	<MDL	mg/l	
	May 12/05	<MDL	mg/l	
	Aug. 15/05	<MDL	mg/l	
	Nov. 8/05	<MDL	mg/l	
Nitrate	Feb. 16/05	0.3	mg/l	10.0 mg/l MAC*
	May 12/05	0.1	mg/l	
	Aug. 15/05	<MDL	mg/l	
	Nov. 8/05	0.1	mg/l	

***Ministry Guideline**

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

Parameter	Sample Date	Result Value	Unit of Measure	Exceedance
Alachlor	Feb. 16/05	<MDL	ug/l	
Aldicarb	Feb. 16/05	<MDL	ug/l	
Aldrin + Dieldrin	Feb. 16/05	<MDL	ug/l	
Atrazine + N-dealkylated metabolites	Feb. 16/05	<MDL	ug/l	
Azinphos-methyl	Feb. 16/05	<MDL	ug/l	
Bendiocarb	Feb. 16/05	<MDL	ug/l	
Benzene	Feb. 16/05 Mar. 7/05	<MDL <MDL	ug/l ug/l	
Benzo(a)pyrene	Feb. 16/05	<MDL	ug/l	
Bromoxynil	Feb. 16/05	<MDL	ug/l	
Carbaryl	Feb. 16/05	<MDL	ug/l	
Carbofuran	Feb. 16/05	<MDL	ug/l	
Carbon Tetrachloride	Feb. 16/05 Mar. 7/05	<MDL <MDL	ug/l ug/l	
Chlordane (Total)	Feb. 16/05	<MDL	ug/l	
Chlorpyrifos	Feb. 16/05	<MDL	ug/l	
Cyanazine	Feb. 16/05	<MDL	ug/l	
Diazinon	Feb. 16/05	<MDL	ug/l	
Dicamba	Feb. 16/05	<MDL	ug/l	
1,2-Dichlorobenzene	Feb. 16/05 Mar. 7/05	<MDL <MDL	ug/l ug/l	
1,4-Dichlorobenzene	Feb. 16/05 Mar. 7/05	<MDL <MDL	ug/l ug/l	
Dichlorodiphenyltrichloroethane (DDT) + metabolites	Feb. 16/05	<MDL	ug/l	
1,2-Dichloroethane	Feb. 16/05 Mar. 7/05	<MDL <MDL	ug/l ug/l	
1,1-Dichloroethylene (vinylidene chloride)	Feb. 16/05 Mar. 7/05	<MDL <MDL	ug/l ug/l	
Dichloromethane	Feb. 16/05 Mar. 7/05	<MDL <MDL	ug/l ug/l	
2-4 Dichlorophenol	Feb. 16/05	<MDL	ug/l	
2,4-Dichlorophenoxy acetic acid (2,4-D)	Feb. 16/05	<MDL	ug/l	
Diclofop-methyl	Feb. 16/05	<MDL	ug/l	
Dimethoate	Feb. 16/05	<MDL	ug/l	
Dinoseb	Feb. 16/05	<MDL	ug/l	
Diquat	Feb. 16/05	<MDL	ug/l	
Diuron	Feb. 16/05	<MDL	ug/l	
Glyphosate	Feb. 16/05	<MDL	ug/l	
Heptachlor + Heptachlor Epoxide	Feb. 16/05	<MDL	ug/l	

Lindane (Total)	Feb. 16/05	<MDL	ug/l	
Malathion	Feb. 16/05	<MDL	ug/l	
Methoxychlor	Feb. 16/05	<MDL	ug/l	
Metolachlor	Feb. 16/05	<MDL	ug/l	
Metribuzin	Feb. 16/05	<MDL	ug/l	
Monochlorobenzene	Feb. 16/05 Mar. 7/05	<MDL <MDL	ug/l ug/l	
Paraquat	Feb. 16/05	<MDL	ug/l	
Parathion	Feb. 16/05	<MDL	ug/l	
Pentachlorophenol	Feb. 16/05	<MDL	ug/l	
Phorate	Feb. 16/05	<MDL	ug/l	
Picloram	Feb. 16/05	<MDL	ug/l	
Polychlorinated Biphenyls(PCB)	Feb. 16/05	<MDL	ug/l	
Prometryne	Feb. 16/05	<MDL	ug/l	
Simazine	Feb. 16/05	<MDL	ug/l	
THM – Treated	Feb 5/06/Mar 7/06	34.6	ug/l	100 ug/l MAC*
THM - Distribution (NOTE: show latest annual average)	May 12/06/Aug 15/06 Nov. 8/06	58.53	ug/l	
Temephos	Feb. 16/05	<MDL	ug/l	
Terbufos	Feb. 16/05	<MDL	ug/l	
Tetrachloroethylene	Feb. 16/05 - Nov. 8/05	<MDL - 2.5	ug/l	30 ug/l MAC*
2,3,4,6-Tetrachlorophenol	Feb. 16/05	<MDL	ug/l	
Triallate	Feb. 16/05	<MDL	ug/l	
Trichloroethylene	Feb. 16/05- Nov.8/05	<MDL - 3.1	ug/l	50 ug/l MAC*
2,4,6-Trichlorophenol	Feb. 16/05	<MDL	ug/l	
2,4,5-Trichlorophenoxy acetic acid (2,4,5-T)	Feb. 16/05	<MDL	ug/l	
Trifluralin	Feb. 16/05	<MDL	ug/l	
Vinyl Chloride	Feb. 16/05	<MDL	ug/l	

*** Ministry Guideline**

1. Report issued to MOE & MOH Jan. 2001 & Jan. 2006. (Page 5 of 8 re: Sodium)

Maximum Acceptable Concentration (MAC): is defined as acceptable concentration before considered exceedance.

Method Detection Limit (MDL): is defined as the minimum concentration of a substance that can be measured and reported with 99 percent confidence that the analyte concentration is greater than zero.

Aesthetic Objective (AO): is defined as pertaining to a quality of water that is determined by the senses, e.g., colour, taste, or odour.

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
Sodium	25.2	mg/l	Feb. 16/05*

(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)

*Notification letter sent to MOE and Medical Officer of Health January 10, 2006 as required. Exceedance notification report not more than every sixty (60) months was reported, as required.