

**CITY OF ORILLIA  
WATER DISTRIBUTION AND FILTRATION PLANT**

**QUARTERLY REPORT  
JULY 1, 2001 TO SEPTEMBER 30, 2001**

Submitted to: Ed Piché, Director, Environmental Monitoring and Reporting  
Branch, Ministry of the Environment  
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M.O.E. Waterworks #22 000 1183

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Information on opportunities for public participation:

- Council meetings
- Local press
- Plant tours (326-4671)
- Daily phone conversations (326-4671)
- Water billing mail-outs
- Web site.

**Plant Information**

Present plant is a mixed media filtration plant using a combination of pre-chlorination, chemically assisted flocculation/coagulation, filtration and post-chlorination to treat surface water from Lake Couchiching. The water intake is about 4.5m (15 ft) below the surface and 370m (1200 ft) from the shore. In addition to filtration, the plant is supplemented by two wells adjacent to Couchiching Park. Well #2 has been taken off-line indefinitely. The well water is combined with treated surface water and receives post chlorination before leaving the plant.

The daily rated capacity for the plant is 27,300 m<sup>3</sup>/d (6.0 imgd) from surface water and 5,700 m<sup>3</sup>/d (1.25 imgd) from the wells.

This water plant was constructed originally in 1914 with a major additional expansion in 1976-78. The wells were constructed in 1939-40. There are many modifications and improvements which have been accomplished over the years and continue until this day.

From the Water Filtration Plant, the treated water is pumped into the distribution system. The City's distribution system is divided into two pressure zones at this time. Zone #1 has two reservoirs on Rosemary Road with combined capacity of 10,500 m<sup>3</sup>. This zone supplies water to most of the lower elevations in the City. Zone #2 has one reservoir on Harvie Settlement Road and has a capacity of 9,100 m<sup>3</sup> which supplies water to the higher elevations in the City.

### **Compliance Information:**

List of accredited laboratories used:

Areco Canada Inc., Nepean  
M.O.E. Main Laboratory – Resources Rd., Etobicoke, ON.  
D.W.S.P. Program  
M.D.S. Laboratories, London

M.O.E. has been notified of the accredited laboratories used by the City for water sample analysis.

Plant is staffed 24 hours/day, 365 days/year with licensed operators. Staffing consists of a Superintendent, 4 full time operators on 12 hour rotating shifts, 1 swing shift operator to cover for holidays, sick days, maintenance and 1 operator-in-training.

In plant monitoring consists of on-line total and free chlorine analyzers. These operate on a continual basis and are confirmed by operator performed analysis every 4 hours. Chlorine levels are adjusted accordingly dependent on flow and bacteriological loading. Also, all 4 filters have on-line turbidimeters plus two with additional particle counters. Turbidity levels are also confirmed by the operators using laboratory equipment. Raw lake turbidity is also monitored on-line and is monitored by the operators. In addition the raw-lake and clear-well turbidities are measured in the laboratory during each shift. The water temperature, pH and threshold odour testing are also done on a daily basis.

Bacteriological sampling is done on a weekly schedule at the plant and throughout the distribution system and sample points are also analyzed for free and total Chlorine. The bacteriological analysis is performed by M.D.S. Laboratories in London.

Physical/chemical parameters are currently analyzed quarterly by Areco Canada Inc. Additional sampling is undertaken by the Ministry of Environment as part of the Drinking Water Surveillance Program (DWSP).

Laboratory results are available for public review at the Water Filtration Plant during regular business hours. This report will be available free of charge at the City Centre (50 Andrew St. S.) and at the Water Filtration Plant (Jarvis St. and Bay St.) and on the City web site ([www.city.orillia.on.ca](http://www.city.orillia.on.ca)). As well, notices have been provided in the local daily paper.

### Water Sample Analysis Results

Weekly sample results from distribution system for microbiological parameters are presented below.

<b>Microbiological Parameters</b>	<b>Number of Samples</b>	<b>Number of Detectable Results</b>	<b>Sampling Date</b>
E. Coli (counts/100 ml)	135	0	July 1/01-Sept 30/01
Total Coliform (counts/100 ml)	135	3	July 1/01-Sept 30/01
Background (counts/100 ml)	135	67	July 1/01-Sept 30/01

Of the 67 Background Counts with detectable results, there were 8 exceeding 200 considered an indication of “Adverse Water Quality” and were reported and resampled. The remaining counts were 200 or less. All resamples were below 200 Background Count except one which had a total coliform of 3 and background of 362. When resampled, it had 0 coliforms and less than 200 background. We also had two regular samples with total coliforms of 1 and 17 and backgrounds of 800 and 276. Upon resample, they had 0 coliforms and a background of 200 or less.

Turbidity (an indication of particles in water) and free chlorine residual (indicator of complete disinfection and ongoing protection) are summarized below.

<b>Parameters Related to Microbiological Quality</b>	<b>Number of Samples</b>	<b>Sampling Date</b>	<b>Range</b>
Turbidity (Clear Well) (NTU)	184	July 1/01-Sept 30/01	0.13-0.36
Free Chlorine – Plant (mg/l)	552	July 1/01-Sept 30/01	0.36-0.98
Free Chlorine – System (mg/l)	135	July 1/01-Sept 30/01	0.05-0.90

Note: Turbidity should not exceed 1 NTU. (Nephelometric Turbidity Unit)  
Free Chlorine residual should be above 0.05 mg/l. (milligram per litre)

The following table summarizes results for other parameters required to be monitored by Regulation 459/00. Only samples with detectable results are reported here. Some results from the April to June period are reported this quarter, as the results were not available for the second quarter’s report.

### WATER SAMPLING AND ANALYSIS REQUIREMENTS

Parameter	Units	Objective	AO IMAC MAC	No. of Samples	Number of Detectable Results	Sampling Date	Result Or Range
Fluoride	mg/L	1.5	MAC	1	1	June 18	0.08
Trihalomethanes							
Treated	mg/L	0.100	MAC	2	2	Jun 18/Jul 31	0.0297-0.0319
Distribution	mg/L	0.100	MAC	2	2	Jun 18/Jul 31	0.0410-0.0438
Arsenic	mg/L	0.025	IMAC	2	1	Jun 18/Jul 31	0.0009
Barium	mg/L	1.0	MAC	1	1	June 18	0.0284
Boron	mg/L	5.0	IMAC	1	1	June 18	0.017
Cadmium	mg/L	0.005	MAC	1	1	June 18	0.0002
Chromium	mg/L	0.05	MAC	1	1	June 18	0.0019
Copper	mg/L	1.0	AO	2	1	Jun 18/Jul 31	0.0002
Iron	mg/L	0.3	AO	2	1	Jun 18/Jul 31	.005
Lead							
Treated	mg/L	0.01	MAC	2	1	Jun 18/Jul 31	0.00005
Distribution	mg/L	0.01	MAC	2	1	Jun 18/Jul 31	0.00011
Manganese	mg/L	0.05	AO	2	1	Jun 18/Jul 31	0.00195
Selenium	mg/L	0.01	MAC	1	1	June 18	0.001
Uranium	mg/L	0.10	MAC	1	1	June 18	0.00033
Sodium	mg/L	200	AO	2	2	Jun 18/Jul 31	17.4-19.2
Nitrate/Nitrite	mg/L	10.0	MAC	1	1	June 18	0.061
Dioxin & Furan	pg/L	10.0	IMAC	1	1	July 31	2.9
Nitrosodimethylamine	ug/L	0.009	IMAC	3	2	Jul 31/Aug29 /Aug 29	0.002-0.036

AO Aesthetic Objective  
 MAC Maximum Acceptable Concentration  
 IMAC Interim Maximum Acceptable Concentration  
 mg/L milligrams per litre  
 pg/L picograms per litre  
 ug/L micrograms per litre

Detectable results were reported for Nitrosodimethylamine (NDMA). Two samples had detectable results and the final did not. The method detection limit for NDMA is 0.0099 ug/L. As required, the Ministry of Environment and the Medical Officer of Health were notified. Although sampling is only required on an annual basis, we will be resampling for this parameter in the fourth quarter.