

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

**QUARTERLY REPORT
OCTOBER 1, 2001 TO DECEMBER 31, 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 m³/d (6.0 imgd) from surface water and 5,700 m³/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 m³. 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 m³ 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). 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.

Microbiological Parameters	Number of Samples	Number of Detectable Results	Sampling Date
E. Coli (counts/100 ml)	123	0	Oct 1/01-Dec 31/01
Total Coliform (counts/100 ml)	123	1	Oct 1/01-Dec 31/01
Background (counts/100 ml)	123	7	Oct 1/01-Dec 31/01

Of the 7 Background Counts with detectable results, there was 1 exceeding 200 considered an indication of “Adverse Water Quality” and was reported and resampled. The remaining counts were 180 or less. All resamples were below 200 Background Count.

We also had 1 sample with total coliforms of 31. Upon resample, it had 0 coliforms and a background of 48.

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

Parameters Related to Microbiological Quality	Number of Samples	Sampling Date	Range
Turbidity (Clear Well) (NTU)	184	Oct 1/01-Dec 31/01	0.09-0.34
Free Chlorine – Plant (mg/l)	551	Oct 1/01-Dec 31/01	0.53-1.07
Free Chlorine – System (mg/l)	131	Oct 1/01-Dec 31/01	0.05-0.74

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

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 July to September period are reported this quarter, as the results were not available for the third 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	Sept 10	0.06
Trihalomethanes							
Treated	mg/L	0.100	MAC	2	2	Sept10/Nov14	0.0336-0.0335
Distribution	mg/L	0.100	MAC	2	2	Sept10/Nov14	0.0462-0.0470
Arsenic	mg/L	0.025	IMAC	2	2	Sept10/Nov14	0.002-0.009
Barium	mg/L	1.0	MAC	2	2	Sept10/Nov14	0.02-0.0258
Boron	mg/L	5.0	IMAC	2	1	Sept10/Nov14	0.019
Chromium	mg/L	0.05	MAC	2	1	Sept10/Nov14	0.0015
Copper	mg/L	1.0	AO	2	1	Sept10/Nov14	0.0005
Iron	mg/L	0.3	AO	2	1	Sept10/Nov14	.003
Lead							
Treated	mg/L	0.01	MAC	2	1	Sept10/Nov14	0.00002
Distribution	mg/L	0.01	MAC	2	1	Sept10/Nov14	0.00011
Manganese	mg/L	0.05	AO	2	1	Sept10/Nov14	0.00054
Selenium	mg/L	0.01	MAC	2	1	Sept10/Nov14	0.002
Uranium	mg/L	0.10	MAC	2	1	Sept10/Nov14	0.00033
Sodium	mg/L	200	AO	2	2	Sept10/Nov14	18.9-19.2
Nitrate/Nitrite	mg/L	10.0	MAC	1	1	Sept 10	0.047
Nitrosodimethylamine	ug/L	0.009	IMAC	3	3	Oct 2/Nov14/ Nov14	0.0041/0.0043/ 0.0055

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