

QUARTERLY REPORT ON DRINKING WATER QUALITY

July-September 2002, Winchester Water Plant - Serving the Village of Winchester

Winchester Drinking Water Quality

Ontario Drinking Water Protection Regulations

The Ontario Clean Water Agency, as the contract operator of the Winchester Water Treatment Facility on behalf of the Township of North Dundas, is pleased to present the 2002 Third Quarter Report on drinking water quality. This report has been prepared in response to legislative changes brought about by “Operation Clean Water”, an initiative of Ontario’s Ministry of the Environment to ensure high quality drinking water for the residents of Ontario. The new regulations put into law what was formerly the Ontario Drinking Water Objectives (ODWO), and sets requirements for public waterworks with regard to sampling and testing, levels of treatment, licensing of staff, and notification of authorities and the public about water quality.

Further information on the Ontario Drinking Water Regulations can be found on the Ministry of the Environment web site at www.ene.gov.on.ca

Where to contact us for information



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Free copies of this report are available at the Township office in Winchester or their website @ www.northdundas.com



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Introduction

We are proud to report that for the period July to September 2002, your water conformed to the Ontario Drinking Water Standards as set out in Ontario Regulation 459/00. The Ontario Clean Water Agency (OCWA) is dedicated to maximizing public health and safety through efficient and reliable operation of your water facility and distribution system.

Plant Description and Treatment Processes

Facility Name:	Winchester Wells and Distribution System
Total Design Capacity	4,535 cubic meters/day
Raw Water Source	Groundwater
Disinfection Method	Sodium Hypochlorite
Municipal Location	Municipal office, 636 St. Lawrence Street, Winchester
Service Area	Village of Winchester
Service Population	2,275

Operational Description:

Raw Water Source: A 7 Well System (#1,#4,#5,) and in addition Well Field #7 consisting of 3 wells (2 operating at any given time). All wells feed a common distribution system with an elevated storage tank with a storage capacity of 2,273 cubic meters. Sodium hypochlorite is used for disinfection at each of the well pumping stations. Standby power is automatically available at Well #1 and Well #6 and mechanically available at Well #5. There is no standby power at Well #4 and Well field #7.

Distribution System: There are approximately 2,275 persons, Parmalat a major industry, a nursing home, hospital and numerous other ancillary commercial and institutional establishments supplied with water from the Winchester Water Treatment System.

Quality Control & Compliance With Provincial Regulations

This plant provides multiple barriers against bacteriological contamination. Bacteriological testing is carried out on raw water, treated water and distribution samples on a regular frequency. On-line analysers for chlorine residuals and turbidity ensure daily monitoring of water leaving the plant. Chlorine levels in the distribution system are also checked on a regular basis. More specialized testing occurs monthly and quarterly and includes Volatile Organics, Inorganics, Pesticides and PCB's.

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OCWA uses internal compliance auditing techniques by teams from within the organization. OCWA operates the Winchester Water Treatment Facility in accordance with provincial regulations. Here is how we do it:

- Use of Accredited Labs. Analytical tests to monitor your water quality are conducted by a laboratory audited by the Canadian Association for Environmental Analytical Laboratories (CAEAL) and accredited by the Standards Council of Canada (SCC). Accreditation ensures that the laboratory has acceptable laboratory protocols and test methods in place. It also requires the laboratory to provide evidence and assurances of the proficiency of the analysts performing the test methods.
- Operation by Licensed Operators. Your water treatment plant is operated and maintained by the Ontario Clean Water Agency's competent and licensed staff. The mandatory licensing program for operators of drinking water facilities is regulated under the *Ontario Water Resources Act (OWRA)* Regulation 435/93. Licensing means that an individual meets the education and experience requirements and has successfully passed the certificate exam.
- Sampling and Analytical requirements. OCWA follows a sampling and analysis schedule required by *OWRA* Regulation 459/00, the Ontario Drinking Water Standards. More information on sampling and analysis including results are available in this report and from your municipal office.
- Adherence to Ministry Guidelines and Procedures. To ensure the protection of the health and operational excellence, the OCWA adheres to the guidelines and procedures developed by the Ministry of the Environment and the Ministry of Health.

Did We Exceed the Standards?

During the third quarter, in the month of September, a treated water sample from Well # 1 and a treated water sample from Well # 7, were found to exceed the Ontario Drinking Water Standards as set out in Ontario Regulation 459/00. On September 16, 2002 Well #1 treated water exceeded MAC for Total Coliform with a result of 1 per 100/ml. Well # 7 treated water exceeded MAC for Total Coliform and Heterotrophic Plate Count with a Total Coliform result of 5 per 100/ml and a Heterotrophic Plate Count result of 600/ml. As a result we actively undertook the following remedial actions:

Immediately notified the Ministry of Environment and the Ministry of Health as per the Ontario Drinking Water Standards. Ensured a minimum chlorine residual, in the distribution system, greater than 0.2 mg/L. Subsequent re-sampling indicated no adverse results.

Definitions & Terms

m³ - Cubic Meter, 1m³ = 1000 litres

TCU - True Colour Units

CaCO₃ - Calcium Carbonate

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mg - milligram

mg/L - milligrams per litre.

ug/L - micrograms per litre.

ng/L - nanograms per litre.

NTU - Nephelometric Turbidity Units.

MAC - Maximum Acceptable Concentration

IMAC - Interim Maximum Acceptable Concentration

Coliform Bacteria - a group of commonly occurring rod shaped bacteria. Their presence in a water sample is indicative of inadequate filtration and/or disinfection.

Fecal Coliform Bacteria - refers to a subgroup of coliform bacteria present in the digestive system of warm blooded animals and humans

Heterotrophic Plate Count - a method of measuring bacterial content in water samples. Also known as Standard Plate Count.

Organic Parameter - a group of chemical compounds containing carbon

Inorganic Parameter - a group of chemical compounds not containing carbon

Raw Water - Surface or ground water available as a source of drinking water that has not received any treatment.

Required Testing

The Ontario Drinking Water Regulations and Certificates of Approval (C of A) set sampling requirements for the plant. All other sampling conforms to the Drinking Water Protection Regulation schedule for sampling and analysis. As water travels over the surface of the land or through the ground, it dissolves naturally occurring minerals and, in some cases can pick up substances resulting from the presence of animals or from human activity. Your water is extensively tested for the presence of dozens of compounds. The results of all analytical tests are available at your municipal office. The following table lists all compounds analyzed.

Winchester Water Quality Test Results

Microbiological Parameters	MAC or IMAC	# of Samples	# of Detectable Results	Sampling Dates (m/d/y)	Range	Exceedence?	Typical Source of Contaminant
Total Coliform (counts/100ml)	0	109	2	07/01/02-09/30/02	1-5	yes	Indicate possible presence of Coliform
Escherichia Coliform (counts/100ml)	0	109	0	07/01/02-09/30/02	n/a	no	Definite indicator of fecal contamination
Heterotrophic Plate Count (counts/100ml)	500	74	19	07/01/02-09/30/02	2-600	yes	Indicator of deteriorating water quality if greater than 500
Parameters related to Microbiological Quality	MAC or IMAC	# of Samples	# of Detectable Results	Sampling Dates (m/d/y)	Range	Exceedence?	Typical Source of Contaminant
Turbidity (NTU)	1	continuous	continuous	07/01/02-09/30/02	0.06-0.41	no	Turbidity is a measure of particles in water
Free Chlorine – Plant Effluent (mg/l)	-	continuous	continuous	07/01/02-09/30/02	0.39-2.63	no	Chlorine added for Disinfection
Free Chlorine-	-	weekly	weekly	07/01/02-	0.45-2.20	no	Objective is 0.20 mg/l

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Distribution (mg/l min 0.05 & max. 4.0)				09/30/02			in the Distribution System (min. 0.05 mg/l required)
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Inorganic Parameters (mg/l)	MAC or IMAC	# of Samples	# of Detectable Results	Sampling Dates (m/d/y)	Range	Exceedence?	Typical Source of Contaminant
Lead - Distribution	0.01	1	1	01/29/02	<0.001	no	Leached from lead solder or brass plumbing fixtures
Nitrate	10	4	4	08/08/02	<0.1-1.48	no	Natural component of water
Nitrite	1	4	4	08/08/02	<0.1	no	
Inorganic Parameters (mg/l)	MAC or IMAC	# of Samples	# of Detectable Results	Sampling Dates (m/d/y)	Range	Exceedence?	Typical Source of Contaminant
Arsenic	IMAC=0.025	4	4	09/18/00-10/25/01	<0.001	no	Wells 1,6, 7 sampled 09/18/00 Well 5 sampled 10/25/01 *
Barium	1	4	4	09/18/00-10/25/01	0.03-0.19	no	Wells 1,6, 7 sampled 09/18/00 Well 5 sampled 10/25/01 *
Boron	IMAC=5.0	4	4	09/18/00-10/25/01	0.04-0.99	no	Wells 1,6, 7 sampled 09/18/00 Well 5 sampled 10/25/01 *
Cadmium	0.005	4	4	09/18/00-10/25/01	<0.0001	no	Wells 1,6, 7 sampled 09/18/00 Well 5 sampled 10/25/01 *
Chromium (Total)	0.05	4	4	09/18/00-10/25/01	<0.001- <0.01	no	Wells 1,6, 7 sampled 09/18/00 Well 5 sampled 10/25/01 *
Copper	1	4	4	09/18/00-10/25/01	0.008- 0.099	no	Wells 1,6, 7 sampled 09/18/00 Well 5 sampled 10/25/01 *
Iron	0.3	4	4	09/18/00-10/25/01	0.01-0.13	no	Wells 1,6, 7 sampled 09/18/00 Well 5 sampled 10/25/01 *
Lead	0.01	4	4	09/18/00-10/25/01	<0.001	no	Wells 1,6, 7 sampled 09/18/00 Well 5 sampled 10/25/01 *
Manganese	0.05	4	4	09/18/00-10/25/01	0.01-0.03	no	Wells 1,6, 7 sampled 09/18/00 Well 5 sampled 10/25/01 *
Mercury	0.001	4	4	09/18/00-10/25/01	<0.0001	no	Wells 1,6, 7 sampled 09/18/00 Well 5 sampled 10/25/01 *
Selenium	0.01	4	4	09/18/00-10/25/01	<0.001	no	Wells 1,6, 7 sampled 09/18/00 Well 5 sampled 10/25/01 *
Uranium	0.1	4	4	09/18/00-10/25/01	<0.001	no	Wells 1,6, 7 sampled 09/18/00 Well 5 sampled 10/25/01 *
Sodium	200	7	7	01/29/02 02/13/02	9-122	no	
Fluoride	2.4	4	4	01/29/02	0.15-0.32	no	

* As per Ontario Drinking Water Standards Table C (Inorganics) is to be sampled every 3 years. Well 5 was offline for maintenance work when initial sampling was performed September 18, 2000. It was returned to service on October 11, 2001 and sampling was performed on October 25, 2001.

Volatile Organics (ug/l)	MAC or IMAC	# of Samples	# of Detectable Results	Sampling Dates (m/d/y)	Range	Exceedence?	Typical Source of Contaminant
Trihalomethanes - Plant	100	4	4	08/08/02	2.3-8.6	no	
Trihalomethanes - Dist.	100	1	1	08/08/02	12.7	no	
Benzene	5	4	4	08/08/02	<0.5	no	
Carbon Tetrachloride	5	4	4	08/08/02	<0.9	no	
Dichloromethane	50	4	4	08/08/02	<4	no	
1,2 - Dichlorobenzene	200	4	4	08/08/02	<0.4	no	
1,4 - Dichlorobenzene	5	4	4	08/08/02	<0.4	no	
1,2 - Dichloroethane	IMAC=5	4	4	08/08/02	<0.7	no	
1,1 - Dichloroethylene	14	4	4	08/08/02	<0.5	no	

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Ethylbenzene	24	4	4	08/08/02	<0.5	no	
Monochlorobenzene	80	4	4	08/08/02	<0.2	no	
Tetrachloroethylene	30	4	4	08/08/02	<0.3	no	
Toluene	24	4	4	08/08/02	<0.5	no	
Trichloroethylene	50	4	4	08/08/02	<0.3	no	
Vinyl chloride	2	4	4	08/08/02	<0.5	no	
Xylene	300	4	4	08/08/02	<2.0	no	
Bromodichloromethane	n/a	4	4	08/08/02	0.4-2.1	no	
Bromoform	n/a	4	4	08/08/02	<0.4-3.9	no	
Chloroform	n/a	4	4	08/08/02	<0.5-4.5	no	
Dibromochloromethane	n/a	4	4	08/08/02	0.7-5.5	no	
Pesticides & PCB (ug/L)	MAC or IMAC	# of Samples	# of Detectable Results	Sampling Dates (m/d/y)	Range	Exceedence?	Typical Source of Contaminant
Alachlor	IMAC=5	4	4	08/08/02	<0.5	no	
Aldicarb	9	4	4	08/08/02	<5.0	no	
Aldrin+Dieldrin	0.7	4	4	08/08/02	<0.012	no	
Atrazine	IMAC=5	4	4	08/08/02	<0.5	no	
Azinphos-methyl	20	4	4	08/08/02	<2.0	no	
Pesticides & PCB (ug/L)	MAC or IMAC	# of Samples	# of Detectable Results	Sampling Dates (m/d/y)	Range	Exceedence?	Typical Source of Contaminant
Bendiocarb	40	4	4	08/08/02	<2.0	no	
Bromoxynil	IMAC=5	4	4	08/08/02	<0.5	no	
Carbaryl	90	4	4	08/08/02	<5.0	no	
Carbofuran	90	4	4	08/08/02	<5.0	no	
Chlordane	7	4	4	08/08/02	<0.012	no	
Chorpyrifus	90	4	4	08/08/02	<1.0	no	
Cyanazine	IMAC=10	4	4	08/08/02	<1.0	no	
Diaznon	20	4	4	08/08/02	<1.0	no	
Dicamba	120	4	4	08/08/02	<1.0	no	
2,4 Dichlorophenol	900	4	4	08/08/02	<0.5	no	
DDT + Metabolites	30	4	4	08/08/02	<0.024	no	
2,4 - Dichlorophenexy acid (2,4 -D)	IMAC=10 0	4	4	08/08/02	<1.0	no	
Diclofop-methyl	9	4	4	08/08/02	<0.9	no	
Dimethoate	IMAC=20	4	4	08/08/02	<2.5	no	
Dinoseb	10	4	4	08/08/02	<1.0	no	
Diquat	70	4	4	08/08/02	<7.0	no	
Diuron	150	4	4	08/08/02	<10.0	no	
Glyphosate	IMAC=28 0	4	4	08/08/02	<10.0	no	
Heprachlor + Heptachlor epoxide	3	4	4	08/08/02	<0.012	no	
Lindane	4	4	4	08/08/02	<0.006	no	
Malathion	190	4	4	08/08/02	<5.0	no	
Methoxychlor	900	4	4	08/08/02	<0.24	no	
Metolachlor	IMAC=50	4	4	08/08/02	<0.5	no	
Metribuzin	80	4	4	08/08/02	<5.0	no	
Paraquat	IMAC-10	4	4	08/08/02	<1.0	no	
Parathion	50	4	4	08/08/02	<1.0	no	
Pentachlorophenol	60	4	4	08/08/02	<0.5	no	
Phorate	IMAC=2	4	4	08/08/02	<0.5	no	
Picloram	IMAC=19 0	4	4	08/08/02	<5.0	no	
Polychlorinated Biphenyls	IMAC=3	4	4	08/08/02	<0.05	no	
Prometryne	IMAC=1	4	4	08/08/02	<0.25	no	
Simazine	IMAC=10	4	4	08/08/02	<1.0	no	

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Temephos	IMAC=28 0	4	4	08/08/02	<10	no	
Terbufos	IMAC=1	4	4	08/08/02	<0.7	no	
2,3,4,6 Tetrachlorophenol	100	4	4	08/08/02	<0.5	no	
Triallate	230	4	4	08/08/02	<1.0	no	
2,4,6-Trichlorophenol	5	4	4	08/08/02	<0.5	no	
2,4,5 - trichlorophenoxy acetic acid	IMAC=28 0	4	4	08/08/02	<1.0	no	
Trifluralin	45	4	4	08/08/02	<1.0	no	

Questions & Answers

Q. What is an Accredited Laboratory?

A. Accredited labs must have undergone an on-site assessment and performance review of their methods by the Canadian Association of Environmental and Analytical Laboratories. The Standards Council of Canada grants accreditation to the lab based on the recommendation of the CAEAL. The accreditation requirements are repeated every two years.

Q. What had to be done to meet the new regulations?

A. The Winchester Water Treatment Plants were following the Ontario Drinking Water Objectives (ODWO) before they became law, so little change was required to meet the new regulations. Our chlorine residual in the water leaving the plant was raised to slightly to achieve the (0.20 mg/L free chlorine) required level in the distribution system, and some changes were required in the way results are reported. This report to the public is also the result of the new regulations.

Q. What parameters did you test for?

A. Microbiological parameters, volatile organic, inorganic and pesticides & PCBs have been tested. The results are included in this report.

Q. Sometimes my water looks rusty or coloured. Why is that, and what should I do about it?

A. This is quite often caused when the tanks in older water heaters start to decay. If the colour is seen only in your hot water, this may be the problem. If the colour is also noticed in your cold water it could be coming from the water main. Various maintenance procedures in the distribution system - such as fire hydrant and valve maintenance, or main break repairs - require flushing of the water mains. Flushing can cause small particles of sediment to break off adding colour to the water. Please note that there is no health risk associated with this problem. This is usually only temporary, and opening your taps for a while to flush out your service line (the pipe from the water main to your house) should take care of the problem. Let the water run until the colour disappears.

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