City of Port Colborne
Annual Water Quality Report
January 1, 2005 - December 31, 2005
O. Reg. 170/03, s.11 (12)

Introduction

The City of Port Colborne is pleased to present the following Water Quality report for the period from January 1, 2005 to December 31, 2005, in accordance with section 11 of the new *Drinking Water Systems Regulation (170/03*) which came into effect on June 1, 2003.

System Background

The City of Port Colborne water distribution system consists of approximately 105 km of water mains servicing a population of over 16,000 people. The system was built over a period of 85 - 90 years.

Water is supplied to the City from the Regional Municipality of Niagara's water treatment plant on King Street. The Region is also responsible for the large diameter trunk water mains and the water storage reservoirs. All chlorination/disinfection occurs at the plant and there is no other in line chlorination of the distribution system. Further information on the supply of water can be obtained on the Region of Niagara's website at www.regional.niagara.on.ca.

Water Quality Monitoring

The City of Port Colborne purchases the treated water from the Regional Municipality of Niagara and is responsible for delivering quality water in compliance with the *Safe Drinking Water Act* and associated regulations to all users within the Urban Service Area of the City of Port Colborne.

Water Quality Monitoring continued

The following persons are responsible for the management, operation and system maintenance of the water distribution system:

Title	Name	Telephone
Director of Operational, Planning & Development Services	Sal Iannello, P. Eng.	905-835-2900 Ext. 221
Water & Wastewater Supervisor	Doug Cressey	905-835-5079

As the operator of the water distribution system, the City of Port Colborne Public Works Department must conduct the water quality and sampling and testing as outlined in Table 1 on page 3.

Sample locations must vary and be representative of the system. Similarly, the Region of Niagara Public Works Department tests the water supplied to the City from the King Street Plant located at 323 King St. in Port Colborne.

In accordance with the new regulation *170/03* we are required to collect eight (8) samples weekly. The City has increased the number of required samples from eight (8) to twelve (12) which are taken weekly (Tuesday) and are analyzed by E-3 Laboratories for microbiological analysis. The City is responsible for using Laboratories that are accredited by the ministry. Accreditation ensures that the laboratory has acceptable laboratory protocols and test methods in place. Laboratories are audited by the Canadian Association for Environmental Analytical Laboratories (CAEAL) and accredited by the Standards Council of Canada (SCC).

In addition, at each sample location a pocket colorimeter is used, by City Staff, to determine the free chlorine residual in water. This instrument measures the free chlorine residual in milligrams per litre which is one of the indicators of water quality. The pocket colorimeter is calibrated on a regular basis for proper accuracy and precision.

City drinking water is also tested for Trihalomethanes (THM's) quarterly and for Lead annually.

When indicators of adverse samples are found, corrective action by the City of Port Colborne is imperative. It is the owner of the distribution system who is responsible for proper reporting and remedial action procedures. See *Schedule 16 and 17, O. Reg. 170/03.*

Water Quality Sampling and Testing
City of Port Colborne Distribution System

Table 1

Parameter	Sampling & Analysis	Distribution System Standards	Comments
Microbiological	Minimum 8 samples a week tested for fecal coliform and/or E. coli Based on a population of 16,000.	▸ E. coli: no colonies detection ▸ Total coliforms no colonies detection ▸ Background bacteria <200 colonies per ml sample ▸ Heterotrophic plate count (HPC) <500 colonies per ml sample	Port Colborne takes 12 samples a week. Microbiological analysis was conducted using the Presence/Absence and Membrane Filter Analysis techniques.
Chlorine Residual	Sampling and testing in conjunction with microbiological samples.	0.05 mg/L minimum concentration of free available chlorine.	System is monitored at known critical locations(e.g.system dead-ends) Flushing used to maintain level.
Trihalomethane (THMs)	Quarterly (no regulatory number of required samples)	0.10 mg/L maximum acceptable concentration	Based on a four quarter progressive annual average of test results at points reflective of the max. residence time in the distribution system.
Lead	Annually (no regulatory number of required samples)	0.01 mg/L maximum acceptable concentration	At points reflective of the maximum residence time in the distribution system.
Turbidity	Frequency is not specified	5.0 NTU maximum aesthetic objective (Nephelometric units)	Measured at consumer outlets. System is monitored at known critical locations. Flushing used to reduce turbidity.

Summary of Water Quality Test Results

The following is a summary of City of Port Colborne water quality testing for the period from January 31, 2005 to December 31, 2005:

Microbiological Testing (weekly)

Date (2005)	Number of Samples	Number of Adverse Results
January	64	0
February	72	0
March	69	0
April	59	0
May	63	0
June	70	1
July	79	5
August	73	1
September	60	0
October	61	0
November	75	2
December	64	1
Total Samples	**809 Samples Taken**	**10 Adverse Results**
Comments: In all instances of adverse samples follow-up flushing was conducted to elevate the area free available chlorine residual and repeat sampling and testing have proven the water to be microbiologically safe. **Note: An adverse water quality incident does not mean that drinking water supply is unsafe. An adverse incident simply indicates on that one occasion, a water quality parameter was exceeded, and further testing will be completed to verify the adverse condition.**		

Summary of Water Quality Test Results continued

Trihalomethane Testing (quarterly)

Date (2005)	Number of Samples	Number of Adverse Results
January	2	0
April	2	0
July	1	0
October	1	0
Total Samples	**6 Samples Taken**	**0 Adverse Results**

Lead Testing (annually)

Date (2005)	Number of Samples	Number of Adverse Results
January	2	0
Total Samples	**2 Samples Taken**	**0 Adverse Results**

Procedure for Adverse Conditions

The City of Port Colborne acts immediately if a sample analysis indicates adverse water quality. The watermains /hydrants at the location of the adverse sample is flushed by licensed operators to ensure that proper free chlorine residuals are maintained. In addition, the Niagara Regional Health Unit and the Ministry of the Environment are immediately notified by telephone. “Notice of Drinking Water Analysis and Remedial Actions for Waterworks” forms are completed and faxed to the Ministry of the Environment Spills Action Centre and the Niagara Regional Health Unit. Resamples are taken by licensed staff in accordance with current regulations. Procedures are in place with on-call foremen and certified staff for adverse samples that are reported after regular working hours.

Procedure for Adverse Conditions continued

The City of Port Colborne had ten (10) adverse sample results in 2005, as shown in the summary above. In all cases a certified water quality analyst had reported the adverse condition, flushed hydrants and watermains in order to maintain a free chlorine residual of no less that 0.2mg/L. Resamples were then taken. A second set of samples were taken again, 24 to 48 hours after the first set of resamples, as required by regulation. All resamples were reported negative. Once results were received, they were then reported to the Regional Ministry of Health, Ministry of the Environment, and to the Spills Action Center.

Leak Detection

In the latter part of 2005 (July to October) the City of Port Colborne conducted a leak detection survey on approximately 40% of its serviced area. This was done for the following reasons:

- To protect the integrity of the water quality throughout the distribution system from the effects of potential contamination.
- To reduce leakage and to help in maintaining adequate pressures and volumes for domestic use and fire fighting.
- To reduce the level of unaccounted for water.

2005 Capital Improvements

CONTRACT #2004-1C - BARRICK ROAD WATERMAIN REPLACEMENT

The City replaced 400 m of 150 mm CI watermain with 300 mm PVC watermain pipe, including hydrants, services and appurtenances. The watermain was built to improve flows and water quality to the Robin Hood Multifoods Plant east of Barrick Road. Total cost of the project was $142,000.

CONTRACT #2005-5C - KING STREET WATERMAIN EXTENSION

The City extended the existing 200 mm watermain on King Street for a distance of 271 m to provide a potable water supply to ADM Milling. The total cost of the project was $113,000.

CONTRACT RN05-11 - FARES STREET WATERMAIN REPLACEMENT

The City, in conjunction with a Regional sanitary forcemain installation, replaced 153 m of defective 150 mm CI watermain pipe and appurtenances. The total cost of the watermain and

associated roadworks was $113,300.

To Obtain Copies of Annual Reports

Copies of all reports are available at City Hall, at the front desk, second floor, 66 Charlotte Street, Port Colborne, Monday to Friday between the hours of 8:30 a.m. and 4:30 p.m. Copies of all reports can be obtained free of charge, at anyone's request.

In addition, all laboratory test results are available for viewing at the Public Works office. For an appointment to review these documents contact Doug Cressey at 905-835-5079.

A copy of this report may be found on the web at www.city.portcolborne.on.ca.

Should anyone have any comments or questions regarding the City of Port Colborne's Water Distribution System, please contact **Sal Iannello, Director of Operational, Planning & Development Services 905-835-2900 Ext. 221.**