Port Colborne Distribution System
Annual Drinking Water Quality Report

Prepared on February 18, 2010
in accordance with O.Reg. 170/03
January 1, 2009 to December 31, 2009

Prepared by:	Approved by:	Approved by:
Darlene Suddard Water/Wastewater Compliance Coordinator	Doug Cressey Utilities Supervisor	Ron Hanson Director of Engineering and Operations

Drinking Water System number: 260001643
Drinking Water System category: Large Municipal Residential
Owned and operated by: The Corporation of the City of Port Colborne

Port Colborne Distribution System Annual Drinking Water Quality Report

Introduction

The City of Port Colborne is required, under O.Reg.170/03 - *Drinking Water Systems*, to prepare an annual report detailing the operation of the Port Colborne Distribution System. The regulation specifies in Section 11 what the report must contain, and sets a February 28 deadline for having the report prepared and made available to the public.

Therefore, to ensure compliance with the regulation, this report is prepared in accordance with Section 11, and is available to the public on the City's website at www.portcolborne.ca, under the Water Quality link

Water Supply and Distribution

The Corporation of the City of Port Colborne (City) is the Owner and Operating Authority of the Port Colborne Distribution System (PCDS), which serves approximately 19,000 residents. The PCDS is a stand alone, Class 1, distribution system, with no downstream connections, and obtains water from the Regional Municipality of Niagara's (RMON) Port Colborne Water Treatment Plant (WTP). Treated water is purchased from RMON on a volume basis and distributed through the City owned distribution system via Region owned trunk mains. The WTP draws water from the Welland Canal, treats it at the WTP, and RMON is responsible for sampling, testing and monitoring water at and leaving the WTP.

The City of Port Colborne does not perform any secondary disinfection, as the WTP sufficiently chlorinates the water to meet the minimum requirement of >0.05 mg/L free chlorine residual. The only water treatment chemical used by the City is 12% sodium hypochlorite, and this is used solely when making repairs to or performing maintenance on the distribution system to perform the required disinfection to protect the drinking water. The distribution system has an average pressure of 58 psi, with pressure maintained by the King Street Water Tower and the Fielden Avenue Reservoir; both of which are owned, operated and maintained by RMON.

The Regional Municipality of Niagara prepares an annual report for the Port Colborne Water Treatment Plant, providing information on the treatment methodology, the type of chemicals used, water quality reports and any significant maintenance, repair or upgrades to the WTP. RMON is also required to make their reports available on the

internet. Contact information is provided under the section entitled “Where to Obtain Additional Information”.

Water Quality Monitoring

The City of Port Colborne is required to supply safe drinking water that meets the requirements of the Safe Drinking Water Act and associated regulations. To ensure the City meet these requirements, the City has assigned the following individuals as responsible persons for the distribution system:

Table 1: Port Colborne Distribution System Responsible Persons

Position	Name	Phone number
Director of Engineering and Operations	Ron Hanson	905-835-2901 ext. 222
Utilities Supervisor	Doug Cressey	905-835-5079
Water/Wastewater Compliance Coordinator	Darlene Suddard	905-835-2901 ext. 212

The City has identified the Engineering and Operations Department as the Operating Authority for the Port Colborne Distribution System (PCDS). The Public Works, Water Department operates under the Engineering and Operations Department, and is specifically responsible for the daily operation of the distribution system. As such, the Water Department is responsible for assigning Certified Water Operators to conduct both the routine, weekly water quality sampling and testing and to conduct non-routine sampling (i.e., during and after watermain breaks). These activities ensure the water quality meets the Ontario Drinking Water Quality Standards (O.Reg. 169/03) at all times and under all conditions. The Water Department also ensures that the Operational Checks, Sampling and Testing requirements specified in the Drinking Water Systems Regulation (O.Reg. 170/03) are conducted and recorded. If it is determined that the water quality or an operational parameter does not meet the regulated requirements or exceeds the regulated limits, Certified Operators immediately implement corrective action to ensure the continued supply of safe drinking water. The operational checks, sampling and testing requirements which the City must conduct are outlined in Table 3.

The Region operates the Port Colborne Water Treatment Plant, the Fielden Avenue Reservoir and the King Street Water Tower, and as such, is also required to conduct operational checks and sampling and testing activities. Details regarding the Region’s requirements are summarized in their Annual Report; information on how to obtain a copy of their report is provided under the section entitled “Where to Obtain Additional Information”.

Water Quality Test Results

As per the sampling and testing requirements detailed in Table 3, the City conducted the following sampling in the period of January 1, 2009 to December 31, 2009:

Microbiological Analysis

A total of 676 samples were collected and analyzed for the presence of *E.coli* and Total Coliforms. Laboratory results indicated that *E.coli* and Total Coliforms were non-detectable throughout the entire year *(Table 4)*.

To monitor the potential deterioration of the water quality, 158 samples were collected and analyzed for Heterotrophic Plate Count (HPC). While there is no regulated limit for HPC, the general acceptable standard is <500 colonies/mL. Laboratory results indicated that HPC was detected at very low levels, between 0-5 colonies/mL in 2009 *(Table 4).*

Operational Parameters

The City monitors the operational parameters, chlorine and turbidity, on a twice weekly basis, and on an as-required basis in response to watermain breaks, complaints etc. In 2009, this resulted in the collection and analysis of 832 samples. Turbidity levels ranged from 0.09 to 1.32 NTU, while free chlorine levels ranged from 0.10 to 1.60 mg/L, well above the minimum level of 0.05 mg/L required under O.Reg. 170/03 *(Table 4).*

Lead Testing Results

Under the lead testing requirements of Schedule 15.1 of O.Reg. 170/03, the City was required to collect samples from plumbing systems serving residential and non-residential properties and from the water distribution system. These samples were required to be collected in two periods (between December 15, 2008 and April 15, 2009 and between June 15, 2009 and October 15, 2009). In total, 135 samples were collected from plumbing in 2009, while 29 were collected from the distribution system. The concentration of lead in the plumbing samples ranged from 0.00002 to 0.00517 mg/L, while the distribution system samples ranged from 0.00004 to 0.00314 mg/L. All samples were well under the regulated limit of 0.010 mg/L *(Table 4).*

Organic Parameters

The only organic parameter the City is required to monitor in the distribution system is trihalomethanes, or THMs. Results from 2009 continue to indicate that THMs are not a concern in the distribution system, as the average concentration was 0.028 mg/L, much less than the 0.10 mg/L regulated limit *(Table 4).*

In 2009, the City is pleased to report that there were no reportable adverse water quality incidents. All samples collected and analyzed in 2009 were in compliance with the regulated requirements, as illustrated in Table 4.

Our Commitment to Providing Safe Drinking Water

To ensure that residents, businesses and visitors to our community continue to receive safe drinking water, the City has incorporated the following practices into the routine operations of the Distribution System:

- Exceed the minimum regulatory sampling requirements, by sampling additional sites for both operational and microbiological parameters
- Comprehensive flushing program targeting “dead ends” where water use is not very high to ensure chlorine levels are at least 0.10 mg/L
- Prompt response to watermain breaks and customer complaints

In addition, the City has the following plans for 2010:

- Continued evaluation of maintenance data (i.e. watermain breaks) and annual infrastructure review outcomes, together with the most current infrastructure needs study, to aid in prioritizing watermain replacements
- Enhancement of current flow monitoring activities to allow real-time monitoring of flows within the distribution system and aid City staff in locating leaks and episodes of “unauthorized” water use.

Equipment and watermain replacement costs for 2009 were low, as the majority of the 2009 budget was committed to the large diameter Catharine Street watermain replacement project, which is scheduled to begin in April 2010. The only major equipment expenditure for 2009 was the lease for the water department backhoe, totalling $26,400

What’s New?

Effective December 15, 2009, several changes to O.Reg. 170/03 came into effect. Most notably, the lead sampling requirements in the regulation were modified to add criteria allowing municipalities, based on historic lead sampling results, to become exempt from the plumbing system sampling requirements. The City of Port Colborne was formally advised on December 24, 2009, that based on the results from the 2008/2009 sampling periods, the City had been granted an exemption under the lead sampling requirements, and will only be required to collect and analyze four (4) samples from the distribution system twice per year.

In October 2009, the City became one of a handful of municipalities in the Province to receive the first Drinking Water Works Permit and Municipal Drinking Water Licence. In order to have the permit and licence, the City was required to submit an Operational Plan, in conformance with the Drinking Water Quality Management Standard, to the Canadian General Standards Board by May 1, 2009. The City received notification of its successful accreditation on September 23, 2009.

Where to Obtain Additional Information

Copies of this annual report are available, free of charge, at the Engineering and Operations Department, 2nd Floor, City Hall - 66 Charlotte Street. It can also be downloaded from the internet at www.portcolborne.ca, under the "Water Quality" link. Copies may also be obtained by contacting the City numbers listed below.

Additionally, all laboratory test results are available either at the Engineering and Operations Department or at the Public Works office at 11 King Street. Copies may also be obtained by contacting the City numbers listed below.

The Regional Municipality of Niagara provides an annual report for the Port Colborne Water Treatment Plant, and it can be downloaded from the Region's website: http://www.niagararegion.ca/living/water/ptcolborne.aspx. Copies may also be obtained by contacting any of the numbers listed below:

Table 2: Contact Information for the City and Region

Organization	Department	Phone Number
City of Port Colborne	Engineering and Operations Department	905-835-2901
	Public Works	905-835-5079
Regional Municipality of Niagara	Water and Wastewater Division	905-685-1571

Table 3: Distribution System Water Quality Sampling and Testing Requirements

Parameter	Sampling and Analysis	Distribution System Standards	Comments
Microbiological	Minimum of 48 samples per month collected and tested for total coliforms and/or *E.coli*	• *E.coli* – NONE detected • Total Coliforms – NONE detected • Heterotrophic plate count - <500 colonies per mL sample	• 12 samples collected each week • Samples sent to an accredited laboratory for analysis • Adverse results are immediately reported by the lab to the City
Chlorine Residual	Minimum of 64 samples per month collected and tested for free chlorine. Collected twice weekly from representative areas of the distribution system	• Minimum residual chlorine 0.05 mg/L • City targets 0.20 mg/L • City's acceptable low limit is 0.10 mg/L	• City flushes known dead ends on a regular basis to ensure at least 0.10 mg/L is maintained at all areas of the distribution system
Turbidity	Frequency of sampling not specified, however, City collects minimum of 64 samples per month and tests for turbidity. Collected twice weekly from representative areas of the distribution system	• 5.0 NTU maximum aesthetic objective	• Turbidity generally not an issue in the distribution system, however City flushes on a regular basis to ensure turbidity levels remain low.
Trihalomethanes (THMs)	Sampled quarterly. Quantity of samples not specified in regulations. City collects 2 samples per quarter and submits for analysis	• 0.10 mg/L maximum acceptable concentration	• Based on a four-quarter progressive annual average of test results at points that are likely to have an elevated potential for the formation of THMs

Table 3: Distribution System Water Quality Sampling and Testing Requirements *(continued)*

Parameter	Sampling and Analysis	Distribution System Standards	Comments
Lead	From Dec 15/08 to Apr 15/09 and from Jun 15/09 to Oct 15/09, the City was required to collect water samples from plumbing systems from residential and non-residential properties and from the distribution system. Recent regulatory amendments and the City's historical results from 2008/09 have resulted in the City qualifying for exemption from having to collect samples from plumbing. Now required to collect 4 samples twice annually from 4 locations in the distribution system and analyze the samples for pH and alkalinity for two years, and then in the third year, perform the pH and alkalinity analysis plus lead analysis.	• Maximum acceptable concentration for lead is 0.010 mg/L • No standard for alkalinity or pH, these parameters are monitored so that, should they change, the potential for lead levels to increase is analyzed.	• Distribution system samples are generally collected from fire hydrants and/or water sampling stations • Plumbing samples are collected from businesses and residences • If a lead exceedance occurs in future, City would be required to resume standard sampling.

Table 4: Distribution System Water Quality Sampling and Testing Results – January 1 to December 31, 2009

Parameter		Requirement	Number of samples	Results			Comments
				Range	Unit	Exceedances	
Microbiological Analysis							
E. coli		ND	676	ND		0	Presence of *E.coli* indicates presence of fecal matter
Total Coliforms		ND	676	ND		0	Presence of Total Coliforms indicates possible presence of pathogenic bacteria
Heterotrophic Plate Count		<500	158	0-5	colonies/ mL	0	Presence of HPC indicates water quality deterioration
Operational Parameters							
Turbidity		5.0	832	0.09 – 1.32	NTU	N/A	Not a regulated parameter; 5.0 NTU is aesthetic guideline
Chlorine		Minimum 0.05	832	0.10 – 1.60	mg/L	0	Level of disinfectant present
Lead Testing Results							
Lead	Plumbing	0.010	135	0.00002 – 0.00517	mg/L	0	Corrosion of lead or lead soldered plumbing/distribution systems may cause lead to be released into drinking water
	Distribution		29	0.00004 – 0.00314	mg/L	0	
Organic Parameters							
Trihalomethanes		0.10	8	(Annual Average) 0.028	mg/L	0	By-product of chlorination; forms when chlorine reacts with suspended organics.

ND = non-detectable
NTU = nephelometric turbidity unit