

**CITY OF NIAGARA FALLS
WATER DISTRIBUTION SYSTEM
ANNUAL SUMMARY REPORT
JANUARY 1, 2005 - DECEMBER 31, 2005**
Prepared by: City of Niagara Falls Municipal Works

This report is prepared in compliance with section 11 and schedule 22 Ontario Regulation 170/03 made under the Safe Drinking Water Act 2002 (R.S.O. 2000).

Water Distribution System

The City of Niagara Falls purchases its water from the Regional Municipality of Niagara through the Niagara Falls Water Treatment plant. The municipal water source is a surface water supply from the Niagara River via the Welland River. The water is distributed to Niagara Falls residents through approximately 422 kilometres of City water mains and 39 km of Region water mains. The size of City of Niagara Falls water mains range in size from 25mm to 450 mm. The City of Niagara Falls water distribution system is a class 2 facility.

Please refer to the Regional Municipality of Niagara report. Website www.regional.niagara.on.ca

Operational Compliance

The City of Niagara Falls has reviewed its procedures and have taken measures to assure compliance with all new regulations. Protocol for reporting indicators of adverse water quality, and making data and reports publicly available have been established and are being followed.

It is noted that following a MOE inspection of our records, it was determined that the City of Niagara Falls had not filed the proper Annual reports for 2004. This report was submitted after the required date.

To meet the standards the City samples from a minimum of 85 sites each month. Sampling sites represent a cross section of the cities distribution system. Samples are collected by staff members who have attained MOE certification as Water Distribution System Operator and / or Water Analyst.

Tests to comply to the Regulation are for Microbiological (Bacteria) indication of adverse water quality.

<u>Drinking Water Microbiological Test</u>	<u>Standard</u>
Escherichia Coli (E. Coli)	0
Fecal Coliform	0
Total Coliforms	0
Background Colonies	200 or less

Additional Free Chlorine is required to be 0.05 mg./litre or higher. When indicators of adverse water quality occur corrective measures and notification to the Ontario Ministry of Environment and the Medical Officer of Health are immediately undertaken.

Resampling, including adjacent sites and / or fire hydrants is initiated, and where necessary flushing of water mains and increasing the chlorine dosages is carried out until water quality once again conforms to the Regulation.

DEFINITIONS, ABBREVIATIONS & TERMS

MAC - Maximum Acceptable Concentration

This is a health-related standard established for parameters which when present above a certain concentration, have known or suspected adverse health effects. The length of time the MAC can be exceeded without injury to health will depend on the nature and concentration of the parameter. (Ontario Drinking Water Standards. Ministry of the Environment. Revised January 2001. PIBS #4065e. Page 2.)

mg/L - milligrams per litre (parts per million)

cfu/100 mL - Colony Forming Units per 100 millilitres of sample

< - Less than

> - Greater than

Microbiological parameters (ie. bacteria) - the source of bacteria may come from wastewater treatment plants, livestock operations, septic systems and wildlife. Microbiological analysis is the most important aspect of drinking water quality due to its association with dangerous water-borne diseases. (Paraphrased from Ontario Drinking Water Standards. Ministry of the Environment.)

Total Coliform - the group of bacteria most commonly used as an indicator of water quality. The presence of these bacteria in a water sample indicates inadequate filtration and / or disinfection. (Ontario Drinking Water Standards. Ministry of the Environment.)

Escherichia coli (E. coli) - a sub-group of coliform bacteria. It is most frequently associated with recent fecal pollution. The presence of E. coli or fecal coliforms in drinking water is an indications of sewage contamination. (Ontario Drinking Water Standards. Ministry of the Environment)

Background Count - the bacteria content in water which can be used to measure water quality deterioration in distribution systems. (Ministry of Environment. Method MFMICRO - E3371.)

Trihalomethanes (THM's) - The maximum acceptable concentration (MAC) for Trihalomethanes (THMs) in drinking water is 0.10 mg/L based on a four quarter moving annual average of test results. Trihalomethanes are the most widely occurring synthetic organics found in chlorinated drinking water. The four most commonly detected Trihalomethanes in drinking water are chloroform, bromodichloromethane, chlorodibromomethane and bromoform. The principal source of Trihalomethanes in drinking water is the action of chlorine with naturally occurring organics (precursors) left in the water after filtration.

Lead - Metals, for the most part, are naturally present in source water, or are the result of industrial activity. Some, such as Lead, may enter the drinking water from plumbing in the distribution system.

Lead can occur in the source water as a result of erosion of natural deposits. The most common source of lead is corrosion of the household plumbing. First flush water at the consumer's tap may contain higher concentrations of lead than water that has been flushed for several minutes.

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For the period January 1, 2005 through December 31, 2005**

Microbiological Parameters	MAC or IMAC	Number of Samples	Number of Detectable Results	Sampling Dates	Range	Number of Exceedances	Comments
Total Coliforms (counts/100ml)	*	1246	9	Jan. 1/05 Dec. 31/05	Not Applicable	9	Indicates possible presence of fecal matter
Background Colonic (counts/100ml)	>200	1246	6	Jan. 1/05 Dec. 31/05	1-200	6	Possible indicator of deteriorating water quality
E-Coli (counts/100ml)	*	2492	0	Jan. 1/05 Dec. 31/05	Not Applicable	0	Definite indicator of fecal contamination

*Indicator of adverse water quality if detected in treated water.

Note: The information used to complete the above table was reported by E3 Laboratories.

CHLORINE RESIDUALS SUMMARY 2005

Parameters Related to Microbiological Quality	M AC or IM AC	Number of Samples	Number of Detectable Results	Sampling Dates (weekly / daily)	Range mg/L	Number of Exceedances	Comments
Free Chlorine - System (mg/l)		2026	2026	Jan.1/05 Dec.31/05	0.05 - 0.70	0	Recommended level of at least 0.2 mg/L not an adverse result unless less than 0.05 mg/L

Field observations recorded by licensed operators

TRIHALOMETHANE / LEAD RESULTS SUMMARY 2005

Chemical Parameters	MAC	Number of Samples	Number of Detectable Results	Sampling Dates	Range ug/L	Number of Exceedances	Typical Source of Contaminant
Trihalomethane (ug/L)	100	4	0	2005-03-16 2005-06-29 2005-09-19 2005-12-13	12.7 - 25.2	0	Bi-product of Chlorination
lead (ug/L)	10	2	0	2005-03-16 2005-09-19	0.5 - 2.2	0	Naturally occurring

ADVERSE WATER SUMMARY AND CORRECTIVE ACTION, 2005

Location Address	Sample Date Collected	Membrane Filtration Count / 100ml			P-a/100 ml Presumptive confirmed	Chlorine Residual mg/L	Corrective Action Taken
		Total Coliforms	Total Coliform Background	E. coli Fecal C			
6550 Niagara River Parkway Table Rock House	05/04/11		Background >200			0.60	Watermain was flushed and resample mg was carried out at original location as well as up and down stream until water parameters were met.
8214 Lundy's Lane Avondale	05/04/11	5				0.58	Watermain was flushed and resample mg was carried out at original location as well as up and down stream until water parameters were met.
6873 McLeod Road Winks	05/04/11	1				0.52	Watermain was flushed and resample mg was carried out at original location as well as up and down stream until water parameters were met.
6535 Thorold Stone Road John:s Restaurant	05/04/26	12				0.81	Watermain was flushed and resample mg was carried out at original location as well as up and down stream until water parameters were met.
6550 Niagara River Parkway Table Rock House	05/05/09		Background >200			0.60	Watermain was flushed and resample mg was carried out at original location as well as up and down stream until water parameters were met.
6535 Thorold Stone Road John's Restaurant	05/05/25	4				0.73	Watermain was flushed and resample mg was carried out at original location as well as up and down stream until water parameters were met.
7429 Lundy's Lane Ramada Coral Inn	05/07/18		Background >200			0.60	Watermain was flushed and resample mg was carried out at original location as well as up and down stream until water parameters were met.

Location Address	Sample Date Collected	Membrane Filtration Count / 100ml			P-a/100 ml Presumptive confirmed	Chlorine Residual mg/L	Corrective Action Taken
		Total Coliforms	Total Coliform Background	E. coli Fecal C			
3487 Portage Road Scrapping Bee	05/07/25	4				0.57	Watermain was flushed and resample mg was carried out at original location as well as up and down stream until water parameters were met.
3487 Portage Road (Duplicate) Scrapping Bee	05/07/25	3				0.57	Watermain was flushed and resample mg was carried out at original location as well as up and down stream until water parameters were met.
6265 Thorold StoneRoad	05/08/22	1				0.55	Watermain was flushed and resample mg was carried out at original location as well as up and down stream until water parameters were met.
5580 Kalar Road Hodgson Steel	05/09/26	1				0.32	Watermain was flushed and resample mg was carried out at original location as well as up and down stream until water parameters were met.
4807 Victoria Avenue Olco Gas	05/10/31	5	>200			0.07	Watermain was flushed and resample mg was carried out at original location as well as up and down stream until water parameters were met.
6150 Valleyway Valleyway Health	05/11/28		>200			1.00	Watermain was flushed and resample mg was carried out at original location as well as up and down stream until water parameters were met.
6150 Valleyway Valleyway Health Duplicate Sample	05/11/28		>200			1.00	Watermain was flushed and resample mg was carried out at original location as well as up and down stream until water parameters were met.