Frankford Drinking Water System

2010 Annual and Summary Report

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PUBLIC WORKS & ENVIRONMENTAL SERVICES

2010 Annual & Summary Report
Frankford Drinking Water System
Annual Report

Drinking-Water System Number:	**210001889**
Drinking-Water System Name:	**Frankford Drinking Water System**
Drinking-Water System Owner:	**The Corporation of the City of Quinte West**
Drinking-Water System Category:	**Large Municipal Residential System**
Period being reported:	**January 1, 2010-December 31, 2010**

Does your Drinking-Water System serve more than 10,000 people?

No

Is your annual report available to the public at no charge on a web site on the Internet?

Yes - please visit www.quintewest.ca

Location where Summary Report required under O. Reg. 170/03 Schedule 22 will be available for inspection.

City Hall
7 Creswell Drive
Trenton, ON, K8V 5R6

List all Drinking-Water Systems (if any), which receive all of their drinking water from your system:

None

Did you provide a copy of your annual report to all Drinking-Water System owners that are connected to you and to whom you provide all of its drinking water?

Not Applicable.

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Indicate how you notified system users that your annual report is available, and is free of charge.

[X] Public access/notice via the web
[ ] Public access/notice via Government Office
[X] Public access/notice via a newspaper
[X] Public access/notice via Public Request
[ ] Public access/notice via a Public Library
[ ] Public access/notice via other method:

Describe your Drinking-Water System

The Frankford Water Treatment plant drafts water via a 240.5 m long, 450 mm diameter raw water intake pipe, extending 50 m into the Trent River approximately 240 m east of the Water Treatment plant. This conventional chemically assisted filtration plant has a rated capacity of 3, 045.8 m^3/day. The Plant houses two Ecodyne package plants. Processes used at the filtration plant include solids recirculating re-activator type flocculator/clarifier units with tube settlers and automated sludge withdrawal system, dual media high rate gravity filters, and Granular Activated Carbon (GAC) adsorption filters. Chlorine gas is applied as a disinfectant before filtered water enters two interconnected un-baffled clear wells with a combined capacity of 850 m^3. The potable water is then pumped into the distribution system via a set of three high lift pumps ran independently to supply water to the distribution system as well as the elevated water storage tower which has an operating capacity of 1890 m^3. The Frankford drinking water system supplies water to approximately 3000 people in the community of Frankford. As of December 22, 2010, the Frankford Water Treatment Plant also supplies water to approximately 300 people in the community of Batawa.

List all water treatment chemicals used over this reporting period:

- Chlorine Gas
- SuperFloc A130 (Polymer)
- SternPac

Were any significant expenses incurred to?

[X] Install required equipment
[X] Repair required equipment
[X] Replace required equipment

Please provide a brief description and a breakdown of monetary expenses incurred:

- Drinking Water Quality Management System implementation; *this led to the City being one of the first in the area to receive Full Scope DWQMS Accreditation and receive the new Drinking Water Licensing and Drinking Water Works Permits.*
- Raw water intake cleaned and inspected
- New post filter 'early warning' chlorine analyzer and sample pump installed
- New SternPac bulk storage tanks and spill containment installed
- Relocated SternPac chemical pumping system
- Replaced filter pneumatic valves
- Installed bulk chemical storage tank Milltronic level sensors
- New Supervisory Control and Data Acquisition (SCADA) system programming and installation
- Generator serviced
- MCC Cabinets serviced and cleaned
- **New watermain link to Batawa which will supply all water to the community of Batawa.**

Provide details on the notices submitted in accordance with subsection 18(1) of the Safe Drinking-Water Act or section 16-4 of Schedule 16 of O.Reg.170/03 and reported to Spills Action Centre

Incident Date (mm/dd/yy)	**Parameter**	**Result**	**Unit of Measure**	**Corrective Action**	**Corrective Action Date** (mm/dd/yy)
02/01/10	Filter Effluent Turbidity greater than 0.3 NTU less than 95 % of measurements in a month	Filter 1B = 93.7%	Percentage of time filtering at or below 0.3 NTU	For the month of January one of the dual media filters was being replaced/rebuilt and this caused an extra loading on the connected filter. This caused higher than normal average turbidities, however, there were no reportable turbidity spikes throughout the month.	02/01/10
03/16/10	Filter Effluent Turbidity greater than 0.3 NTU less than 95 % of measurements in a month	Filter 1A = 85.9 % Filter 2A = 86.7 %	Percentage of time filters are filtering at or below 0.3 NTU	On February 9th a valve was replaced that was the cause of the problem. Readings returned to normal after this date.	03/17/10

Microbiological testing done under the Schedule 10, 11 or 12 of Regulation 170/03, during this reporting period.

	Number of Samples	**Range of E.Coli Or Fecal Results** (min #)-(max #)	**Range of Total Coliform Results** (min #)-(max #)	**Number of HPC Samples**	**Range of HPC Results** (min #)-(max #)
Raw	52	0-40	0-920	--	--
Treated	52	0-0	0-0	52	0-2
Distribution	132	0-0	0-0	51	0-20

Operational testing done under Schedule 7, 8 or 9 of Regulation 170/03 during the period covered by this Annual Report.

	Number of Grab Samples	**Range of Results (min #)-(max #)**
Turbidity *	8760	0.00-2.00
Chlorine	8760	0.70-3.76
Chlorine ** - Distribution	8760	0.10-5.00

****** Max turbidity readings occurred mainly during the first 2 months of the year. Once process inadequacies were repaired and SternPac was allowed to settle in to system, the Max turbidities reached started to decrease.*
*** Max chlorine in the elevated tank (distribution) is due to occasional lack of mixing when chemical pump starts at tower. These spikes never last for a great duration of time.*

Summary of additional testing and sampling carried out in accordance with the requirement of an approval, order or other legal instrument.

Not applicable**.**

Summary of Inorganic parameters tested during this reporting period or the most recent sample results:

Parameter	Sample Date	Result Value	Unit of Measure	Exceedance
Antimony	02/09/10	0.02	ug/L	No
Arsenic	02/09/10	0.3	ug/L	No
Barium	02/09/10	29.3	ug/L	No
Boron	02/09/10	7.8	ug/L	No
Cadmium	02/09/10	0.003	ug/L	No
Chromium	02/09/10	0.5	ug/L	No
Mercury	02/09/10	0.02	ug/L	No
Selenium	02/09/10	1	ug/L	No
Sodium – Next sample due August 2014 as per O. Reg. 170/03 s.13-8	08/14/09	7.01	mg/L	No
Uranium	02/09/10	0.010	ug/L	No
Fluoride – Next sample due August 2014 as per O. Reg. 170/03 s. 13-9	08/14/09	0.06	mg/L	No
Nitrate	02/09/10 05/11/10 08/10/10 11/09/10	0.214 0.098 0.075 0.044	mg/L	No
Nitrite	02/09/10 05/11/10 08/10/10 11/09/10	0.005 0.005 0.005 0.005	mg/L	No

Summary of lead testing under Schedule 15.1 during this reporting period:

Location Type	Number of Samples	Range of Lead Results (min#) – (max #)	Number of Exceedances
Plumbing – Non residential	Next round of sampling due **March 2012** as per O. Reg. 170/03 s.15-5 *Reduced Sampling*.		
Plumbing – Residential			
Distribution			

Summary of Organic parameters sampled during this reporting period or the most recent sample results:

Parameter	Sample Date	Result Value	Unit of Measure	Exceedance
Alachlor	02/09/10	0.02	ug/L	No
Aldicarb	02/09/10	0.01	ug/L	No
Aldrin + Dieldrin	02/09/10	0.01	ug/L	No
Atrazine + N-dealkylated metabolites	02/09/10	0.01	ug/L	No
Azinphos-methyl	02/09/10	0.02	ug/L	No
Bendiocarb	02/09/10	0.01	ug/L	No
Benzene	02/09/10	0.32	ug/L	No
Benzo(a)pyrene	02/09/10	0.004	ug/L	No
Bromoxynil	02/09/10	0.33	ug/L	No
Carbaryl	02/09/10	0.01	ug/L	No
Carbofuran	02/09/10	0.01	ug/L	No
Carbon Tetrachloride	02/09/10	0.16	ug/L	No
Chlordane (Total)	02/09/10	0.01	ug/L	No
Chlorpyrifos	02/09/10	0.02	ug/L	No
Cyanazine	02/09/10	0.03	ug/L	No
Diazinon	02/09/10	0.02	ug/L	No
Dicamba	02/09/10	0.20	ug/L	No
1,2-Dichlorobenzene	02/09/10	0.41	ug/L	No
1,4-Dichlorobenzene	02/09/10	0.36	ug/L	No
Dichlorodiphenyltrichloroethane (DDT) + metabolites	02/09/10	0.01	ug/L	No
1,2-Dichloroethane	02/09/10	0.35	ug/L	No
1,1-Dichloroethylene (vinylidene chloride)	02/09/10	0.33	ug/L	No
Dichloromethane	02/09/10	0.35	ug/L	No
2-4 Dichlorophenol	02/09/10	0.15	ug/L	No
2,4-Dichlorophenoxy acetic acid (2,4-D)	02/09/10	0.19	ug/L	No
Diclofop-methyl	02/09/10	0.40	ug/L	No
Dimethoate	02/09/10	0.03	ug/L	No
Dinoseb	02/09/10	0.36	ug/L	No
Diquat	02/09/10	1	ug/L	No
Diuron	02/09/10	0.03	ug/L	No
Glyphosate	02/09/10	6	ug/L	No
Heptachlor + Heptachlor Epoxide	02/09/10	0.01	ug/L	No
Lindane (Total)	02/09/10	0.01	ug/L	No
Malathion	02/09/10	0.02	ug/L	No
Methoxychlor	02/09/10	0.01	ug/L	No
Metolachlor	02/09/10	0.01	ug/L	No
Metribuzin	02/09/10	0.02	ug/L	No

Monochlorobenzene	02/09/10	0.30	ug/L	No
Paraquat	02/09/10	1	ug/L	No
Parathion	02/09/10	0.02	ug/L	No
Pentachlorophenol	02/09/10	0.15	ug/L	No
Phorate	02/09/10	0.01	ug/L	No
Picloram	02/09/10	0.25	ug/L	No
Polychlorinated Biphenyls(PCB)	02/09/10	0.04	ug/L	No
Prometryne	02/09/10	0.03	ug/L	No
Simazine	02/09/10	0.01	ug/L	No
THM (NOTE**:** show latest annual average**)**	11/09/10	48	ug/L	No
Temephos	02/09/10	0.01	ug/L	No
Terbufos	02/09/10	0.01	ug/L	No
Tetrachloroethylene	02/09/10	0.35	ug/L	No
2,3,4,6-Tetrachlorophenol	02/09/10	0.14	ug/L	No
Triallate	02/09/10	0.01	ug/L	No
Trichloroethylene	02/09/10	0.43	ug/L	No
2,4,6-Trichlorophenol	02/09/10	0.25	ug/L	No
2,4,5-Trichlorophenoxy acetic acid (2,4,5-T)	02/09/10	0.22	ug/L	No
Trifluralin	02/09/10	0.02	ug/L	No
Vinyl Chloride	02/09/10	0.17	ug/L	No

List any Inorganic or Organic parameter(s) that exceeded half the standard prescribed in Schedule 2 of Ontario Drinking Water Quality Standards.

None

Summary Report – O. Reg. 170/03 Schedule 22 Requirement

Under Schedule 22 of O. Reg. 170/03, the Ministry of Environment requires that a copy of the Safe Drinking Water Act, regulations, the system's approvals, and any order that the system failed to meet at any time during the reporting period be provided to the members of the municipal council.

The following is a list of the Acts and Regulations which have been provided to municipal council electronically:

- The Safe Drinking Water Act, 2002
- O. Reg. 128/04 – Certification of Drinking Water Operators
- O. Reg. 169/03 – Ontario Drinking Water Quality Standards
- O. Reg. 170/03 – Drinking Water Systems (Please see '*Application of Schedules'* table below for applicable schedules pertinent to Large Municipal Residential Systems)
- O. Reg. 188/07 – Licensing of Municipal Drinking Water Systems
- O. Reg. 242/05 – Compliance and Enforcement
- O. Reg. 248/03 – Drinking Water Testing Services
- Procedure for Disinfection of Drinking Water in Ontario

- The systems Certificate of Approval # 5928-7NQL4D
- Municipal Drinking Water Licence # 163-101: *Issue Date December 6, 2010*
- Drinking Water Works Permit # 163-201: *Issue Date December 6, 2010*
- Permit to Take Water (PTTW) # 90-P-4067

TABLE
Application of schedules
O. Reg. 170/03

Item	Drinking Water Systems	Applicable Schedules				
		Treatment	Operational Checks, Sampling and Testing	Adverse Test Results and Other Problems	Reports	Chemical Testing Parameters
1.	Large municipal residential systems	1, 4	6, 7, 10, 13, 15.1	16, 17	22	23, 24

O. Reg. 170/03, s. 4; O. Reg. 247/06, s. 2; O. Reg. 399/07, s. 1.

** Please note that the Act and Regulations provided have potentially been amended since these documents were saved electronically. For the most current and up to date consolidated laws, please visit www.e-laws.gov.on.ca.*

For details on the notices submitted in accordance with subsection 18(1) of the Safe Drinking-Water Act or section 16-4 of Schedule 16 of O.Reg.170/03 and reported to Spills Action Centre during this reporting period, please refer to the table on page 3 of this Report. In addition there was a report made on March 04, 2010 for an incident which occurred on August 4, 2009 involving the Frankford Water Tower free chlorine residual. This report was referenced in the 2009 Annual Summary report.

Summary of Quantities and Flow Rates

Raw Water - PTTW limit of 3, 045.8 m^3 /d			
Month	**Monthly Average Flow (m^3)**	**Max Daily Flow (m^3)**	**Total Monthly Flow (m^3)**
January	1,393	1,598	43,198
February	1,285	1,432	35,980
March	1,190	1,323	36,896
April	1,312	1,467	39,372
May	1,683	2,615	52,184
June	1,452	2,130	43,565
July	1,669	2,069	51,727
August	1,495	1,751	46,334
September	1,356	1,725	40,676
October	1,466	1,770	45,454
November	1,446	1,728	43,375
December	1,571	2,022	48,707
Total Raw Water Flow 2010 (m^3) -			**527,468**

Treated Water - Rated Capacity of 3, 353 m^3 /d			
Month	**Monthly Average Flow (m^3)**	**Max Daily Flow (m^3)**	**Total Monthly Flow (m^3)**
January	1,228	1,113	34,502
February	1,067	1,215	29,868
March	1,005	1,192	31,143
April	1,112	1,286	33,364
May	1,466	2,340	45,456
June	1,232	1,784	36,947
July	1,463	1,800	45,343
August	1,326	1,581	41,116
September	1,218	1,771	36,534
October	1,276	1,469	39,555
November	1,253	1,500	37,592
December	1,225	1,517	37,978
Total Treated Water Flow 2010 (m^3) -			**449,398**

Comparison of Quantities and Flow Rates for Treated Water		
Actual Annual Average Daily Flow (m^3)=	1,231	36.7 % of Rated Capacity
Actual Max Daily flow (m^3) =	2,340	69.8 % of Rated Capacity

Frankford Historical Treated Water Flows

Year	Average Daily Flow (m^3/d)	Max Daily Flow (m^3/d)	Month of Max Daily Flow
2005	1,301	2,230	December
2006	1,441	2,090	July
2007	1,350	2,440	June
2008	1,223	1,800	May
2009	1,157	2,074	November
2010	1,231	2,340	May