



A Natural Attraction

Trenton Water Treatment Plant & Water Distribution System



2009 Annual and Summary Report



**PUBLIC WORKS &
ENVIRONMENTAL SERVICES**

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Trenton WTP and Water Distribution
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Drinking-Water System Number: **220001619**
Drinking-Water System Name: **Trenton Water Treatment Plant and Water Distribution 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, 2009-December 31, 2009**

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

Yes

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:

Drinking Water System Name	Drinking Water System Number
Carrying Place/Consecon WDS	260005099

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?

Yes



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

- Public access/notice via the web
- Public access/notice via Government Office
- Public access/notice via a newspaper
- 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 Trenton Water Treatment plant drafts water via a 53 m long, 400 mm diameter raw water intake pipe from the Trent River just above Dam No. 1. This conventional chemically assisted filtration plant has a rated capacity of 35, 800 m³/day. Processes used at the filtration plant include flocculation, sedimentation, Dual-Media filtration, and Granular-Activated Carbon adsorption filtration. Chlorine gas is applied as a disinfectant before filtered water enters two interconnected un-baffled clearwells with a combined capacity of 5, 454 m³. The potable water is then pumped into the distribution system. There are two elevated water storage tanks currently in service. The first is the 2nd Dug Hill Road Water Tower, capacity 2273m³ the second is the Oak Street Water Tower, capacity 2273 m³. The Trenton distribution system services approximately 17, 000 people in the Trenton community in addition to part of CFB Trenton. The Trenton Water Treatment plant also supplies all drinking water to the Carrying Place and Consecon Water Distribution system in Prince Edward County.

List all water treatment chemicals used over this reporting period:

- Aluminum Sulphate (alum)
- Chlorine Gas

Were any significant expenses incurred to?

- Install required equipment
- Repair required equipment
- Replace required equipment

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

- Flocculation chamber motor and gear case repair
- Chlorine gas leak detection installed
- Three industrial dehumidifiers installed in Filter room
- Sodium Hypochlorite spill containment for 2nd Dug Hill Road Water Tower
- Settling tanks were insulated to help reduce freezing conditions inside tanks
- New electric heaters installed in the low lift building and the oil furnace removed. This removed the fuel oil contamination risk
- Watermain replaced on Quinte Street
- Watermain replaced on College St
- Watermain replaced on Ramsey Street



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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)
02/04/09	Turbidity	Lost signal from turbidity analyzer for 44 min.	NTU	New software installed on SCADA to shut filters off if analyzers loses signal	02/06/09
02/06/09	Loss of pressure in Distribution system	'Loss of signal' alarm from Finished water chlorine analyzer shut plant off. No alarms paged out. Lost Dist. system pressure.	psi	Boil Water Advisory issued by MOH. System pressure restored, hydrants flushed, secondary residual increased. Bacti samples taken.	02/11/09
03/25/09	Lead	46.4	ug/L	Customer notified; no further action required	04/03/09
03/25/09	Lead	44.8	ug/L	Customer notified; no further action required	04/03/09
03/26/09	Lead	32.1	ug/L	Customer notified; no further action required	04/03/09
03/26/09	Lead	40.0	ug/L	Customer notified; no further action required	04/03/09
03/26/09	Lead	13.7	ug/L	Customer notified; no further action required	04/03/09
05/01/09	Total Coliform presence	1 cfu/100mL	cfu/100ml	Chlorine residual increased at plant. Resample at site of exceedance, upstream, and downstream	05/04/09
06/09/09	Distribution system backflow through CFB Trenton	Possibility of backflow contamination		Valving verified in CFB Trenton. Check valve suspected to have freed itself up after usage	06/09/09
11/26/09	Total Coliform in Treated Water	1 TC	cfu / 100 mL	Resample Raw Water, Treated water and distribution. All samples clear.	12/01/09



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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	53	0-142	24-12400	0	
Treated	55	0-0	0-1	53	0-1
Distribution	430	0-0	0-1	107	0-380

**The City did not sample the Distribution system in accordance with Schedule 10(2) ss.3 of O. Reg. 170/03. One HPC sample was missed in order to meet the 25% requirement of the total number of distribution samples. The City also completed two extra Treated Water samples throughout the inspection period, however, failed to request HPC analysis. This is not in accordance with O. Reg. 170/03 Schedule 10(3).*

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	0.00-0.972
Chlorine	8760	1.04-3.17
Distribution Chlorine	8760	0.38-2.46

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

Not applicable.



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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	02/11/09	0.04	ug/L	No
Arsenic	02/11/09	0.0005	mg/L	No
Barium	02/11/09	29.4	ug/L	No
Boron	02/11/09	8.8	ug/L	No
Cadmium	02/11/09	0.003	ug/L	No
Chromium	02/11/09	0.6	ug/L	No
Mercury	02/11/09	0.02	ug/L	No
Selenium	02/11/09	1	ug/L	No
Sodium	02/11/09	9.27	mg/L	No
	05/13/09	7.39		
	08/11/09	7.35		
Uranium	02/11/09	0.049	ug/L	No
Fluoride	02/11/09	0.55	mg/L	No
	05/13/09	0.06		
	08/11/09	0.06		
Nitrite	02/11/09	0.005	mg/L	No
	05/13/09	0.005		
	08/11/09	0.005		
	11/10/09	0.005		
Nitrate	02/11/09	0.310	mg/L	No
	05/13/09	0.096		
	08/11/09	0.041		
	11/10/09	0.077		

Summary of lead testing under Schedule 15.1 during this reporting period

Location Type	Number of Samples	Range of Lead Results (ug/L) (min#) – (max #)	Number of Exceedances
Plumbing – Non residential	18	0.09 – 3.86	0
Plumbing – Residential	114	0.04 – 46.4	5
Distribution	24	0.09 – 2.25	0

** The City did not meet sampling requirements in respect of Residential Sampling during this 2009 reporting period. The City collected 6 extra Non-residential samples, and therefore was short by 6 residential samples.*



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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	02/11/09	0.11	ug/L	No
Aldicarb	02/11/09	0.30	ug/L	No
Aldrin + Dieldrin	02/11/09	0.067	ug/L	No
Atrazine + N-dealkylated metabolites	02/11/09	0.12	ug/L	No
Azinphos-methyl	02/11/09	0.21	ug/L	No
Bendiocarb	02/11/09	0.13	ug/L	No
Benzene	02/11/09	0.37	ug/L	No
Benzo(a)pyrene	02/11/09	0.004	ug/L	No
Bromoxynil	02/11/09	0.33	ug/L	No
Carbaryl	02/11/09	0.16	ug/L	No
Carbofuran	02/11/09	0.37	ug/L	No
Carbon Tetrachloride	02/11/09	0.41	ug/L	No
Chlordane (Total)	02/11/09	0.11	ug/L	No
Chlorpyrifos	02/11/09	0.18	ug/L	No
Cyanazine	02/11/09	0.18	ug/L	No
Diazinon	02/11/09	0.081	ug/L	
Dicamba	02/11/09	0.20	ug/L	No
1,2-Dichlorobenzene	02/11/09	0.50	ug/L	No
1,4-Dichlorobenzene	02/11/09	0.21	ug/L	No
Dichlorodiphenyltrichloroethane (DDT) + metabolites	02/11/09	0.14	ug/L	No
1,2-Dichloroethane	02/11/09	0.43	ug/L	No
1,1-Dichloroethylene (vinylidene chloride)	02/11/09	0.41	ug/L	No
Dichloromethane	02/11/09	0.34	ug/L	No
2-4 Dichlorophenol	02/11/09	0.15	ug/L	No
2,4-Dichlorophenoxy acetic acid (2,4-D)	02/11/09	0.19	ug/L	No
Diclofop-methyl	02/11/09	0.40	ug/L	No
Dimethoate	02/11/09	0.12	ug/L	No
Dinoseb	02/11/09	0.36	ug/L	No
Diquat	02/11/09	1	ug/L	No
Diuron	02/11/09	0.087	ug/L	No
Glyphosate	02/11/09	6	ug/L	No
Heptachlor + Heptachlor Epoxide	02/11/09	0.11	ug/L	No
Lindane (Total)	02/11/09	0.056	ug/L	No
Malathion	02/11/09	0.091	ug/L	No
Methoxychlor	02/11/09	0.14	ug/L	No
Metolachlor	02/11/09	0.092	ug/L	No
Metribuzin	02/11/09	0.58	ug/L	No
Monochlorobenzene	02/11/09	0.12	ug/L	No
Paraquat	02/11/09	1	ug/L	No
Parathion	02/11/09	0.18	ug/L	No
Pentachlorophenol	02/11/09	0.15	ug/L	No

Phorate	02/11/09	0.11	ug/L	No
Picloram	02/11/09	0.25	ug/L	No
Polychlorinated Biphenyls(PCB)	02/11/09	0.04	ug/L	No
Prometryne	02/11/09	0.23	ug/L	No
Simazine	02/11/09	0.15	ug/L	No
THM (NOTE: show latest annual average)	11/10/09	63.6	ug/L	No
Temephos	02/11/09	0.31	ug/L	No
Terbufos	02/11/09	0.12	ug/L	No
Tetrachloroethylene	02/11/09	0.45	ug/L	No
2,3,4,6-Tetrachlorophenol	02/11/09	0.14	ug/L	No
Triallate	02/11/09	0.10	ug/L	No
Trichloroethylene	02/11/09	0.10	ug/L	No
2,4,6-Trichlorophenol	02/11/09	0.25	ug/L	No
2,4,5-Trichlorophenoxy acetic acid (2,4,5-T)	02/11/09	0.22	ug/L	No
Trifluralin	02/11/09	0.12	ug/L	No
Vinyl Chloride	02/11/09	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.

Parameter	Result Value	Unit of Measure	Date of last Sample
THM	63.6	ug/L	11/10/09



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 # 1347-6SAL53
- ✚ Permit to Take Water (PTTW) # 4033-6AHJBC

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.*



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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 the Annual Report. Additional non-compliance issues were raised while generating this annual report. They are as follows:

- ✚ The City did not sample the distribution system in accordance with Schedule 10(2) s.s. (3) of O. Reg. 170/03. 25% of the total number of distribution samples must be analyzed for HPC. The City also completed two extra Treated Water samples throughout the inspection period, however, failed to request HPC analysis. This is not in accordance with O. Reg. 170/03 Schedule 10(3).
- ✚ ***Corrective Measure: A sample schedule has been formulated to reduce the risk of errors in sampling throughout 2010. A Compliance Coordinator has been hired to review sample results and sample submissions to ensure that the operations staff meets regulatory requirements.***
- ✚ The City did not meet Lead sampling requirements as per O. Reg. 170/03 Schedule 15 section 15.1-4 subsection 1(a) in respect of Residential Sampling during this 2009 reporting period. The City was required to collect 120 residential samples and 12 Non-residential samples. There were 114 Private residential samples collected, and 18 Non-residential samples collected.
- ✚ The City did not meet Lead sampling requirements as per O. Reg. 170/03 Schedule 15, section 15.1-6 subsection 3(a). The owner or operating authority for the system shall ensure that each sample taken from the system's distribution system under this schedule shall be taken on the same day that samples are taken from points in plumbing. Hydrant samples were not always collected on the same day as plumbing samples were collected.
- ✚ ***Corrective Measure: A Common Operating Directive has been issued to clearly identify sampling requirements under Schedule 15 of O. Reg. 170/03. Training has been provided to staff in conjunction with this Common Operating Directive. Additionally, the City has been split up into 6 quadrants to allow for more representative sampling of the distribution system in the future.***



Summary of Quantities and Flow Rates

Raw Water - Plant Capacity of 35, 800 m³ /d; PTTW limit of 530.4 L/s				
Month	Monthly Average Flow (m³)	Max Daily Flow (m³)	Max Daily Peak Flow rate (L/s)	Total Monthly Flow (m³)
January	11,171	15,114	345.5	346,304
February	12,563	16,553	350.4	351,750
March	10,932	12,813	362.8	338,889
April	10,464	11,650	269.2	313,927
May	10,425	13,389	244.4	323,166
June	12,686	14,822	257.7	380,586
July	12,837	15,153	245.9	397,940
August	13,336	15,933	249.1	413,409
September	12,619	14,279	244.6	378,583
October	11,115	13,555	247.0	344,578
November	11,180	12,062	253.3	335,404
December	11,156	12,747	253.6	345,836
Total Raw Water Flow 2009 -				4,270,371
Treated Water				
Month	Monthly Average Flow (m³)	Max Daily Flow (m³)	Max Daily Peak Flow rate (L/s)	Total Monthly Flow (m³)
January	9,717	10,697	223.6	301,217
February	11,358	15,648	276.0	318,029
March	9,622	19,415	223.6	298,294
April	8,795	9,635	141.1	263,857
May	9,461	12,050	225.4	293,294
June	11,775	14,749	251.6	353,256
July	12,053	14,718	238.9	373,649
August	12,462	15,379	272.7	386,317
September	11,690	13,185	256.3	350,694
October	10,027	12,331	233.5	310,851
November	9,436	10,709	222.6	283,071
December	8,644	9,804	214.8	267,974
Total Treated Water Flow 2009 -				3,800,504
Comparison of Quantities and Flow Rates for Treated Water				
Actual Annual Average Daily Flow (m ³)=		10,412	29.1 % of Rated Capacity	
Actual Max Daily flow (m ³) =		19,415	54.2 % of Rated Capacity	