



A Natural Attraction

Batawa Water Treatment Plant & Water Distribution System



2009 Annual and Summary Report



**PUBLIC WORKS &
ENVIRONMENTAL SERVICES**

**2009 Annual & Summary Report
Batawa WTP & Water Distribution
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SERVICES**

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Batawa WTP & Water Distribution system
Annual Report**

Drinking-Water System Number: **Batawa Water Treatment and Water Distribution system**
Drinking-Water System Name: **220001548**
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?

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.

- 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 Batawa Water Treatment plant receives raw water from an intake supply system extending into the Trent River which supplies water to the low lift pump station. A set of three pumps supply raw water to the Batawa Ski Hill, Invar Manufacturing Corp, and the Water Treatment plant via a transmission main consisting of a 700 m long, 250 mm diameter pipe. This conventional chemically assisted filtration plant has a rated capacity of 770 m³/day. The plant houses two Ecodyne package plants. Processes used at the filtration plant include solids recirculating reactivator type flocculator/clarifier units with tube settlers and automated sludge withdrawal system, and dual media high rate gravity filters. Sodium hypochlorite is added to each filter effluent line as a disinfectant before water enters a two-celled clearwell with a combined capacity of 350 m³. The potable water is then pumped into the distribution system via a highlift pumping system. The Batawa WTP and Water Distribution system does not have an elevated water storage tower therefore distribution pressure is maintained through the plant highlift pumping system. The Batawa WTP and Water Distribution system services approximately 350 people in the community of Batawa.

List all water treatment chemicals used over this reporting period:

- Aluminum Sulphate (alum)
- Sodium Hypochlorite (12%)

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:

- Spectrophotometer lab instrument replaced
- Clarifier sludge wasting valve was replaced
- Replaced air compressor
- Replaced two variable frequency drives for low lift pumps
- One low lift pump was rebuilt



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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)
04/20/09	Lead	16.4	ug/L	Customer notified; no further action required.	04/20/09
12/25/09	Chlorine analyzer failure	No online monitoring/trending in accordance with Reg. 170/03 for 77.5 hours	Online trending not capturing data every 5 min. in accordance with Reg. 170/03	Operator collected grab samples periodically throughout occurrence, and maintained disinfection pump operation. New chlorine analyzer probe installed.	12/29/09
12/25/09	Filter effluent turbidity monitoring	Requirement to monitor filter effluent turbidity continuously not achieved in accordance with Reg. 170/03 for 76 hours, 55 min.	Filter Effluent turbidity alarms bypassed	Filter Effluent turbidity still being trended, no reportable spikes according to trends during the occurrence	01/08/10



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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	52	0-274	2-13600	0	
Treated	52	0-0	0-0	52	0-1
Distribution	156	0-0	0-0	52	0-2

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	0.00-1.00
Chlorine **	8760	0.00-3.84
Chlorine – Distribution ***	348	0.31-2.20

** The max turbidity result of 1.00 NTU was recorded in SCADA, however, this was not a reportable occurrence as filter shut down on High Turbidity alarm as programmed.*

*** The low treated water chlorine residual reported was due to the December 25th chlorine analyzer failure. (See above AWQI report on December 25th). Should this anomaly not occurred, the actual Min Free Chlorine would have been 0.74 mg/L.*

****The City of Quinte West did not complete the necessary amount of secondary disinfection residual checks as per O. Reg. 170/03. A total of 20 residuals checks were not collected in accordance with Reg. 170/03 Schedule 6(10), and Schedule 7(2). The City was required to collect a total of 368 samples during this reporting period.*

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

The city did not complete the required suspended solids monitoring for the backwash water supernatant discharge as per C of A 2445-7QMR6Z requirement 4.4 and 5.5.



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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	0.00009	mg/L	No
Arsenic	02/11/09	0.0004	mg/L	No
Barium	02/11/09	0.0301	mg/L	No
Boron	02/11/09	0.0074	mg/L	No
Cadmium	02/11/09	0.000003	mg/L	No
Chromium	02/11/09	0.0007	mg/L	No
Mercury	02/11/09	0.00002	mg/L	No
Selenium	02/11/09	0.001	mg/L	No
Sodium	02/11/09 06/24/09 08/11/09	11.6 11.1 11.9	mg/L	No
Uranium	02/11/09	0.000006	mg/L	No
Fluoride	02/11/09 06/24/09 08/11/09	0.06 0.06 0.06	mg/L	No
Nitrate **	02/11/09 06/24/09 08/11/09 11/10/09	0.358 0.162 0.123 0.137	mg/L	No
Nitrite **	02/11/09 06/24/09 08/11/09 11/10/09	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	1	1.13-16.4	1
Plumbing – Residential	10	0.24-3.77	0
Distribution	2	0.35-0.69	0



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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	0.00011	mg/L	No
Aldicarb	02/11/09	0.0003	mg/L	No
Aldrin + Dieldrin	02/11/09	0.000067	mg/L	No
Atrazine + N-dealkylated metabolites	02/11/09	0.00012	mg/L	No
Azinphos-methyl	02/11/09	0.00021	mg/L	No
Bendiocarb	02/11/09	0.00013	mg/L	No
Benzene	02/11/09	0.00037	mg/L	No
Benzo(a)pyrene	02/11/09	0.000004	mg/L	No
Bromoxynil	02/11/09	0.00033	mg/L	No
Carbaryl	02/11/09	0.00016	mg/L	No
Carbofuran	02/11/09	0.00037	mg/L	No
Carbon Tetrachloride	02/11/09	0.00041	mg/L	No
Chlordane (Total)	02/11/09	0.11	ug/L	No
Chlorpyrifos	02/11/09	0.00018	mg/L	No
Cyanazine	02/11/09	0.00018	mg/L	No
Diazinon	02/11/09	0.000081	mg/L	No
Dicamba	02/11/09	0.00020	mg/L	No
1,2-Dichlorobenzene	02/11/09	0.00050	mg/L	No
1,4-Dichlorobenzene	02/11/09	0.00021	mg/L	No
Dichlorodiphenyltrichloroethane (DDT) + metabolites	02/11/09	0.00014	mg/L	No
1,2-Dichloroethane	02/11/09	0.00043	mg/L	No
1,1-Dichloroethylene (vinylidene chloride)	02/11/09	0.00041	mg/L	No
Dichloromethane	02/11/09	0.00034	mg/L	No
2-4 Dichlorophenol	02/11/09	0.00015	mg/L	No
2,4-Dichlorophenoxy acetic acid (2,4-D)	02/11/09	0.00019	mg/L	No
Diclofop-methyl	02/11/09	0.00040	mg/L	No
Dimethoate	02/11/09	0.00012	mg/L	No
Dinoseb	02/11/09	0.00036	mg/L	No
Diquat	02/11/09	0.001	mg/L	No
Diuron	02/11/09	0.000087	mg/L	No
Glyphosate	02/11/09	0.006	mg/L	No
Heptachlor + Heptachlor Epoxide	02/11/09	0.00011	mg/L	No
Lindane (Total)	02/11/09	0.000056	mg/L	No
Malathion	02/11/09	0.000091	mg/L	No
Methoxychlor	02/11/09	0.00014	mg/L	No
Metolachlor	02/11/09	0.000092	mg/L	No
Metribuzin	02/11/09	0.00012	mg/L	No
Monochlorobenzene	02/11/09	0.00058	mg/L	No
Paraquat	02/11/09	0.001	mg/L	No
Parathion	02/11/09	0.00018	mg/L	No
Pentachlorophenol	02/11/09	0.00015	mg/L	No

Phorate	02/11/09	0.00011	mg/L	No
Picloram	02/11/09	0.00025	mg/L	No
Polychlorinated Biphenyls(PCB)	02/11/09	0.00004	mg/L	No
Prometryne	02/11/09	0.00023	mg/L	No
Simazine	02/11/09	0.00015	mg/L	No
THM ** (NOTE: show latest annual average)	11/10/09	60.25	ug/L	No
Temephos	02/11/09	0.00031	mg/L	No
Terbufos	02/11/09	0.00012	mg/L	No
Tetrachloroethylene	02/11/09	0.00045	mg/L	No
2,3,4,6-Tetrachlorophenol	02/11/09	0.00014	mg/L	No
Triallate	02/11/09	0.0001	mg/L	No
Trichloroethylene	02/11/09	0.00038	mg/L	No
2,4,6-Trichlorophenol	02/11/09	0.00025	mg/L	No
2,4,5-Trichlorophenoxy acetic acid (2,4,5-T)	02/11/09	0.00022	mg/L	No
Trifluralin	02/11/09	0.00012	mg/L	No
Vinyl Chloride	02/11/09	0.00017	mg/L	No

** Quarterly samples were not collected in accordance with Reg. 170/03, Schedule 6, section 6-1.1 ss.(4), "frequency of sampling" requirements. Samples were re-collected after the 120 day sampling limit.

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	60.25	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 # 2445-7QMR6Z
- ✚ Permit to Take Water (PTTW) # 7508-69GLDK

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

- ✚ Quarterly samples were not collected in accordance with O. Reg. 170/03 Schedule 6, section 6-1.1(4). Samples were collected as per regulation originally, however they were not submitted to the lab. Re-samples were collected after the 120 day sampling period limit.
- ✚ ***Corrective Measure: A sample schedule has been formulated for 2010. Additionally, a Compliance Coordinator has been hired to review sample results and sample submissions to ensure that the operations staff meet regulatory requirements.***
- ✚ The City of Quinte West did not complete the necessary amount of secondary disinfection residual checks as per O. Reg. 170/03. A total of 20 residuals checks were not collected in accordance with Reg. 170/03 Schedule 6(10), and Schedule 7(2). The City was required to collect a total of 368 samples during this reporting period.
- ✚ ***Corrective Measure: A sampling schedule and datasheets were provided to record secondary disinfection residual checks. This will better manage the collection and recording requirements of this O. Reg. 170 sampling requirement.***
- ✚ The city did not complete the required suspended solids monitoring for the backwash water supernatant discharge as per C of A 2445-7QMR6Z requirement 4.4 and 5.5.
- ✚ ***Corrective Measure: A sampling schedule and procedure has been developed and implemented for 2010. A Compliance Coordinator has been hired to review sample results and sample submissions to ensure that the operations staff meet regulatory requirements. The treatment plant is also scheduled to be decommissioned in the fall of 2010.***



Summary of Quantities and Flow Rates

Raw Water - Rated Capacity of 770.4 m³ /d; or 8.92 L/s. PTTW limit 94.72 L/s				
Month	Monthly Average Flow (m³)	Max Daily Flow (m³)	Max Daily Peak Flow rate (L/s)	Total Monthly Flow (m³)
January	227	271	3.4	7,028
February	235	301	3.7	6,580
March	242	288	3.7	7,487
April	264	303	10.1	7,923
May	230	391	11.0	7,116
June	182	268	11.0	5,447
July	214	294	11.0	6,620
August	274	407	6.8	8,485
September	215	279	11.0	6,451
October	222	319	11.0	6,878
November	180	244	4.6	5,412
December	197	430	6.0	6,107
Total Raw Water Flow 2009 (m³) -				81,534
Treated Water				
Month	Monthly Average Flow (m³)	Max Daily Flow (m³)	Max Daily Peak Flow rate (L/s)	Total Monthly Flow (m³)
January	160	194	5.5	4,972
February	171	194	4.5	4,792
March	180	205	6.6	5,582
April	199	258	19.5	5,965
May	168	284	6.7	5,207
June	112	163	10.1	3,358
July	135	201	22.9	4,174
August	165	281	8.3	5,127
September	113	139	4.8	3,383
October	109	186	4.2	3,388
November	82	89	12.7	2,448
December	92	305	5.5	2,857
Total Treated Water Flow (m³) 2009 -				51,254
Comparison of Quantities and Flow Rates for Treated Water				
Actual Annual Average Daily Flow (m ³)=		140	18.2 % of Rated Capacity	
Actual Max Daily flow (m ³) =		305	39.6 % of Rated Capacity	

* All Raw water Instantaneous peak flow rate exceedances occurred during plant maintenance. Times ranging between 1 minute and 7 minutes in duration.