

Corporation of the City of Quinte West

Frankford/Batawa Drinking Water System

2020 Annual Drinking Water System Report



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The Corporation of the City of Quinte West
 Public Works and Environmental Services
 Water/Wastewater Division
2020 Annual Drinking Water System Report
(Frankford/Batawa Drinking Water System)

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2020 Annual Drinking Water System Report

Drinking Water System Information

Drinking Water System Number:	210001889
Drinking Water System Name:	Frankford/Batawa DWS
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, 2020 through December 31, 2020

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

No

Is your Annual Report available to the public at no charge on a website

Yes, please visit www.quintewest.ca

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

Water/Wastewater Division Administration Office

25 Couch Crescent

Trenton, ON, K8V 1GB

List all Drinking Water Systems (if any), that receive all of their Drinking Water from your System:

None.



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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 City website
- Public access/notice via Government Office
- Public access/notice via newspaper
- Public access/notice via City social media platform(s)
- Public access/notice via a Public Library
- Public access/notice via other method:

Description of the Drinking Water System

The Frankford Water Treatment Plant pulls water from the Trent River through 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 3,353 cu.m/day. The facility houses four (4) 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, six (6) dual media high rate gravity filters, and two (2) Granular Activated Carbon (GAC) adsorption filters. Chlorine gas is applied as a disinfectant before filtered water enters two interconnected un-baffled clearwells with a combined capacity of 850 cu.m. The potable (drinkable) water is then pumped into the distribution system through a set of three high lift pumps that supply water to the distribution system, as well as the elevated water storage tower which has an operating capacity of 1,890 cu.m. A pressure reducing station located at 65 Parry Drive, provides system pressure protection within the service area of the Batawa community. The Frankford/Batawa Drinking Water System supplies water to approximately 3,800 people in the communities of Frankford and Batawa. The Frankford/Batawa Drinking Water System operates in accordance with the Conditions of Drinking Water Works Permit (DWWP) # 163-201, and Municipal Drinking Water Licence (MDWL) # 163-101.



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List all water treatment chemical used over this Reporting Period:

- ✓ Polyaluminum Chloride (Tradename: SternPac)
- ✓ Chlorine Gas

Were any significant expenses incurred to:

- Install Required Equipment?
- Repair required Equipment?
- ✓ Replace required Equipment?

Provide a brief description, and a breakdown of monetary expenses incurred to facilitate Equipment upgrades:

Preventative Maintenance (PM) activities for lubrication, inspections, testing and cleaning of equipment is scheduled and completed routinely, along with other lifecycle replacement needs. In addition to the PM activity, the following Capital expenditures were incurred this Reporting Period:

Replace aging PLC components in Filter PLC	\$12,000
Replace aging PLC components in Generator PLC	~\$3,000
Replace generator fuel tanks	~\$15,000



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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:

Incident Date (DD-MM-YY)	Parameter	Result	Unit of Measure	Corrective Action	Corrective Action Date (DD-MM-YY)
15-JUL-20	<i>Watermain Disinfection Procedure - Category 2 Watermain (WM) Break</i>	WM accidentally crushed during excavation activity. Evidence of contamination in WM. Boil Water Advisory imposed by Health Unit	Watermain Disinfection Procedure	1.8m section of WM replaced, three sets of bacteriological samples collected. Three sets of sample results clear. Water service returned to normal.	20-JUL-20



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Microbiological Testing completed in accordance with Schedule 10, 11, or 12 of Regulation 170/03 during this Reporting Period:

	Number of Samples	Range of E.Coli (min - max)	Range of Total Coliform (min - max)	Number of Heterotrophic Plate Count Samples	Range of HPC results (min - max)
Raw	52	0 - 60	7 - 2400	NA	NA
Treated	52	0 - 0	0 - 0	52	0 - 6
Distribution	166	0 - 0	0 - 0	69	0 -10

Operational Testing completed in accordance with Schedule 7, 8, or 9 of O.Reg.170/03 during this Reporting Period:

Parameter	Number of Grab Samples	Range of Results (min-max)
Turbidity, (NTU)	8760	0.000 - 1.196
Primary Disinfection FAC ¹ , (mg/L)	8760	1.65 - 2.55
Secondary Disinfection FAC, (mg/L)	8760	0.48 - 2.89

Summary of additional testing and sampling carried out in accordance with the requirement of an Approval, Order, or other Legal Instrument:

Not applicable.

¹ Free Available Chlorine. Defined as the free amount of chlorine available in water.



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Summary of Inorganic parameters tested during this Reporting Period or the most recent Sample Results:

Inorganic Compound Results				
Parameter	Sample Date (dd/mmm/yy)	Result Value	Unit of Measure	Exceedance?
Antimony	07-JAN-20	0.09	ug/L	No
Arsenic	07-JAN-20	0.2	ug/L	No
Barium	07-JAN-20	30.0	ug/L	No
Boron	07-JAN-20	8	ug/L	No
Cadmium	07-JAN-20	0.003	ug/L	No
Chromium	07-JAN-20	0.10	ug/L	No
Mercury	07-JAN-20	0.01	ug/L	No
Selenium	07-JAN-20	0.04	ug/L	No
Sodium	07-JAN-20	9.28	mg/L	No
Fluoride	07-JAN-20	0.06	mg/L	No
Uranium	07-JAN-20	0.005	ug/L	No
Nitrate	07-JAN-20 07-APR-20 07-JUL-20 06-OCT-20	0.261 0.301 0.121 0.049	mg/L	No
Nitrite	07-JAN-20 07-APR-20 07-JUL-20 06-OCT-20	0.003 0.003 0.003 0.003	mg/L	No



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Summary of Lead Testing under Schedule 15.1 during this Reporting Period:

Lead Sampling Results				
Sampling Period	Location Type	Number of Samples	Range of Lead Results (ug/L), 'min-max'	Number of Exceedances
Winter Sampling Period ²	Drinking Water System exempt from sampling in accordance with Section 15.1-5(9) under Schedule 15 of O.Reg.170/03. Sampling and testing for Lead not required until April, 2021 for sampling period.			
Summer Sampling Period ³	Drinking Water System exempt from sampling in accordance with Section 15.1-5(9) under Schedule 15 of O.Reg.170/03. Sampling and testing for Lead not required until Summer 2021 sampling period.			

Summary of Organic parameters sampled during this Reporting Period:

Organic Compound Results				
Parameter	Sample Date	Result Value	Unit of Measure	Exceedance
Alachlor	07-JAN-20	0.02	ug/L	No
Atrazine + N-dealkylated metabolites	07-JAN-20	0.01	ug/L	No
Azinphos-methyl	07-JAN-20	0.05	ug/L	No

² Winter Sampling Period runs from December 15 - April 15. The last sample collected in accordance with the Regulation was sampled on February 27, 2018.

³ The Summer Sampling Period runs from June 15 through October 15. The last sample collected in accordance with the Regulation was sampled on October 17, 2018.



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Benzene	07-JAN-20	0.32	ug/L	No
Benzo(a)pyrene	07-JAN-20	0.004	ug/L	No
Bromoxynil	07-JAN-20	0.33	ug/L	No
Carbaryl	07-JAN-20	0.05	ug/L	No
Carbofuran	07-JAN-20	0.01	ug/L	No
Carbon Tetrachloride	07-JAN-20	0.17	ug/L	No
Chlorpyrifos	07-JAN-20	0.02	ug/L	No
Diazinon	07-JAN-20	0.02	ug/L	No
Dicamba	07-JAN-20	0.20	ug/L	No
1,2-Dichlorobenzene	07-JAN-20	0.41	ug/L	No
1,4-Dichlorobenzene	07-JAN-20	0.36	ug/L	No
1,2-Dichloroethane	07-JAN-20	0.35	ug/L	No
1,1-Dichloroethylene (vinylidene chloride)	07-JAN-20	0.33	ug/L	No
Dichloromethane	07-JAN-20	0.35	ug/L	No
2-4 Dichlorophenol	07-JAN-20	0.15	ug/L	No



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2,4-Dichlorophenoxy acetic acid (2,4-D)	07-JAN-20	0.19	ug/L	No
Diclofop-methyl	07-JAN-20	0.40	ug/L	No
Dimethoate	07-JAN-20	0.06	ug/L	No
Diquat	07-JAN-20	1	ug/L	No
Diuron	07-JAN-20	0.03	ug/L	No
Glyphosate	07-JAN-20	1	ug/L	No
Malathion	07-JAN-20	0.02	ug/L	No
2 methyl-4-chlorophenoxyacetic acid (MCPA)	07-JAN-20	0.00012	mg/L	No
Metolachlor	07-JAN-20	0.01	ug/L	No
Metribuzin	07-JAN-20	0.02	ug/L	No
Monochlorobenzene	07-JAN-20	0.3	ug/L	No
Paraquat	07-JAN-20	1	ug/L	No
Pentachlorophenol	07-JAN-20	0.15	ug/L	No
Phorate	07-JAN-20	0.01	ug/L	No



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Picloram	07-JAN-20	1	ug/L	No
Polychlorinated Biphenyls(PCB)	07-JAN-20	0.04	ug/L	No
Prometryne	07-JAN-20	0.03	ug/L	No
Simazine	07-JAN-20	0.01	ug/L	No
THM (NOTE: show latest annual average)	06-OCT-20	49.5	ug/L	No
HAA (RAA)	06-OCT-20	47.6	ug/L	No
Terbufos	07-JAN-20	0.01	ug/L	No
Tetrachloroethylene	07-JAN-20	0.35	ug/L	No
2,3,4,6-Tetrachlorophenol	07-JAN-20	0.20	ug/L	No
Triallate	07-JAN-20	0.01	ug/L	No
Trichloroethylene	07-JAN-20	0.44	ug/L	No
2,4,6-Trichlorophenol	07-JAN-20	0.25	ug/L	No
Trifluralin	07-JAN-20	0.02	ug/L	No
Vinyl Chloride	07-JAN-20	0.17	ug/L	No



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

None.



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2020 Summary Report to Council

In accordance with Schedule 22 requirements outlined in Ontario Regulation 170/03, a Summary Report shall be prepared no later than March 31 for the preceding year, and supplied to members of municipal council.

The Report shall list the requirements of the Act, Regulations, Drinking Water Works Permit, Municipal Drinking Water Licence, and any Orders applicable to the system that were not met at any time during the period covered by the Report.

The Report must also include a summary of the quantities and flow rates of potable (drinkable) water supplied during the Reporting Period, including monthly average and maximum daily flows. A comparison of these flows to the rated capacity and flow rates approved in the system Drinking Water Works Permit, and Municipal Drinking Water Licence, must also be provided.

Prescribed Instruments applicable to the Frankford/Batawa DWS

The Trenton DWS is governed by, and must operate their DWS primarily in accordance with, the following Acts and Regulations at minimum:

- Safe Drinking Water Act, 2002;
- O. Reg. 128/04 – Certification of Drinking Water System Operators and WQA
- O. Reg. 170/03 – Drinking Water Systems
- O. Reg. 169/03 – Ontario Drinking Water Quality Standards
- Environmental Protection Act, where applicable;
- Clean Water Act, where applicable;
- Municipal Drinking Water Licence 163-201;
- Drinking Water Works Permit 163-101;
- Permit to Take Water 3447-9RFR5D, expires December 4, 2024



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Councillors wishing to obtain a copy of any Act or Regulation are free to contact the Compliance Coordinator at amyr@quintewest.ca to obtain a current consolidated copy and interpretation of the legislation.

Compliance with Prescribed Instruments, Acts and Regulations

Safe Drinking Water Act

- In addition to the single Adverse Water Quality event detailed in section [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](#) , the following noteworthy activities occurred through the Reporting Period.
- NSF International conducted an offsite Surveillance Audit on October 27, 2020. The intent of the audit is to confirm continued conformance to the Drinking Water Quality Management Standard. There were no Non-Conformances identified in the Audit Report; three (3) Opportunities for Improvement to the documented Operational Plan were suggested.
 - ◆ After a successful re-accreditation audit in 2019, the City was required to apply for a Municipal Drinking Water Licence renewal in 2020.
- The City achieved a 99.39% Inspection Rating on its 2020 MECP Compliance Inspection, with one regulatory non-compliance cited as a result of a failure to supply updated CAO information within 10 days of Mr. David Clazie's role assumption. The Profile Information form was submitted to MECP prior to the distribution of the Inspection Report.



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Clean Water Act

The Source Protection Plan was approved by the Minister of Environment, Conservation and Parks, and came into effect on January 1, 2015. The City has put the necessary internal processes in place with the Planning, Building, and Public Works Departments to screen applications and ensure compliance with the Source Protection Plan. In 2020, eight (8) screening applications were submitted to the Risk Management Official for review and approval for the area surrounding the Frankford Intake Protection Zone. In general the screening, application, and approval processes implemented by staff seem to be working reasonably well. Throughout the screening and verification process it has been determined that there are four (4) Risk Management Plans (RMP's) required for affected properties in the Intake Protection Zone surrounding the Frankford Intake. Draft RMP's have been distributed to affected property owners for review and consultation.

Permit to Take Water

The City operates its Frankford Water Treatment Plant in accordance with Permit to Take Water (PTTW) number 3447-9RFR5D which expires on December 4, 2024. This Permit allows the City to take 3,045.8 cu.m/day from the Trent River watershed at a maximum flow rate of 62.5 L/s. The maximum recorded daily taking was 2,717 cu.m/day on July 16, 2020. The maximum recorded flow rate was 33.9 L/s on March 20, 2020.

For a detailed summary of water quantities and flow rates, see [2020 Water Quantities and Flow Rates - Raw Water Assessment](#).



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Drinking Water Works Permit/Municipal Drinking Water Licence

The City applied for renewal of its Municipal Drinking Water Licence, and Drinking Water Works Permit in 2020. The Frankford/Batawa DWS is now governed by Issue No. 4 of MDWL 163-101 and Issue No. 6 of DWWP 163-201. The Municipal Drinking Water Licence will expire September 28, 2025.

The new Licence requires development of a Harmful Algal Bloom monitoring, reporting and sampling plan by March 28, 2021. The Watermain Disinfection Procedure was revised in August, 2020. This version 2.0 requires adoption by March 28, 2021 as well.

In accordance with Condition 1.1 of the MDWL, the Frankford Water Treatment Plant has a rated capacity to treat and distribute 3,353 cu.m/day. Over the Reporting Period the maximum daily volume of treated water distributed to the distribution system was 2,304 cu.m/day on July 15, 2020. The Annual Average Daily Flow pumped to the Distribution System was 1,585 cu.m/day. For a detailed summary of treated water quantities and flow rates, see [2020 Water Quantities and Flow Rates - Treated Water Assessment](#) on page 19.

The Environmental Assessment initiated in 2019 is complete at the time of writing this report. The City is working with Greer Galloway Group to develop a Tender for construction of a watermain and booster station that would effectively connect the Trenton system to the Frankford system. The tender and construction is expected to commence in Spring, 2021. This connection would supply enough water to meet 25-year growth projections for the Frankford/Batawa service area.



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2020 Water Quantity and Flow Rates (Raw Water Assessment)

Raw Water Flow: PTTW Limit = 3,045.8 cu.m/d			
Month	Average Daily Flow (cu.m/d)	Maximum Daily Flow (cu.m/d)	Total Monthly Flow (cu.m/month)
January	2214.3	2453.6	68641.7
February	1718.5	1881.7	49837.0
March	1700.4	1770.0	52711.1
April	1810.2	2400.5	54305.2
May	2187.2	2453.3	67802.8
June	2157.5	2529.5	64725.3
July	2531.2	2716.8	78465.9
August	2272.3	2540.4	70442.0
September	2003.7	2191.6	60112.2
October	1853.4	2009.6	57456.7
November	1773.7	1967.1	53211.9
December	1877.1	2313.9	58190.0
Total Raw Water Flow =			735,901.8



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2020 Water Quantity and Flow Rates (Treated Water Assessment)

Treated Water Flow: Facility Rated Capacity = 3,353 cu.m/day			
Month	Average Daily Flow (cu.m/d)	Maximum Daily Flow (cu.m/d)	Total Monthly Flow (cu.m/month)
January	1619.5	1867.7	50205.6
February	1232.1	1366.9	35731.0
March	1257.9	1362.5	38995.1
April	1368.9	2007.0	41065.5
May	1755.9	2057.7	54433.9
June	1763.7	2129.7	52910.2
July	2143.9	2303.6	66460.3
August	1884.9	2132.5	58433.1
September	1619.5	1772.7	48584.6
October	1461.5	1637.8	45305.3
November	1377.5	1612.5	41324.0
December	1449.7	1907.9	44940.1
Total Treated Water Flow =			578,388.6

- Annual Average Daily (Treated Water) Flow = 1,585 cu.m/day. This accounts for 47% of the facility Rated Capacity.
- Maximum Daily (Treated Water) Flow = 2,304 cu.m/day. This accounts for 69% of the facility Rated Capacity during recorded peak daily flow conditions.



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Historical Flow Comparison

The 5-year ADF of Treated Water is calculated to be 1,554 cu.m/day, accounting for 46% of the facility rated capacity. In order to meet future demand requirements, the City engaged Greer Galloway Group to initiate an Environmental Assessment. The EA has been completed, and the preferred option for increasing capacity is to connect the Trenton system to the Frankford system via Booster Pumping Station, and construct watermain along County Road 4 to connect to existing watermain infrastructure on the East side of Trent River.

