

Corporation of the City of Quinte West

Frankford/Batawa Drinking Water System

2022 Annual Drinking Water System Report



A Natural Attraction



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The Corporation of the City of Quinte West
 Public Works and Environmental Services
 Water/Wastewater Division
2022 Annual Drinking Water System Report
(Frankford/Batawa Drinking Water System)

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2022 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, 2022 through December 31, 2022

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 Services Administration Office

25 Couch Crescent

Trenton, ON, K8V 1G8

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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In May of 2022 the City commissioned the Frankford Booster Station and a watermain along Glen Miller Road connecting the Trenton WDS and Frankford WDS. The City has applied for a consolidated DWWP for all three (3) WDS, currently awaiting approval.

List all water treatment chemical used over this Reporting Period:

- ✓ Polyaluminum Chloride (Trade Name: 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:

Water Meter Automation and Replacement	~ \$700,000 (combined with all Drinking Water Systems)
Water Tower - Paint repairs and safety upgrades	~ \$130,000
Frankford Watermain & Booster Station	~ \$4,900,000



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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:

None.

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 - 24	0 - 1360	NA	NA
Treated	52	0 - 0	0 - 0	52	0 - 19
Distribution	180	0 - 0	0 - 0	80	0 - 63

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 - 1.37 ²
Primary Disinfection FAC ³ , (mg/L)	8760	1.27 - 2.74

¹ Value obtained when the analyzer failed. Three (3) events occurred throughout the reporting period. All events last less than 1 min, before alarm interlock shuts filter down.

² Isolated incident occurring for less than 30 seconds before filter effluent valve closed. Incident occurred on December 3, 2022.

³ Free Available Chlorine. Defined as the free amount of chlorine available in water.



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Secondary Disinfection FAC, (mg/L)	8760	0.11 ⁴ - 4.85 ⁵
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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:

Inorganic Compound Results				
Parameter	Sample Date (dd/mmm/yy)	Result Value	Unit of Measure	Exceedance?
Antimony	11-JAN-22	< 0.6	ug/L	No
Arsenic	11-JAN-22	< 0.2	ug/L	No
Barium	11-JAN-22	24.1	ug/L	No
Boron	11-JAN-22	15	ug/L	No
Cadmium	11-JAN-22	< 0.003	ug/L	No
Chromium	11-JAN-22	0.12	ug/L	No
Mercury	11-JAN-22	< 0.01	ug/L	No
Selenium	11-JAN-22	< 0.04	ug/L	No
Sodium	11-JAN-22	8.71	mg/L	No
Fluoride	11-JAN-22	< 0.06	mg/L	No
Uranium	11-JAN-22	0.006	ug/L	No

⁴ Isolated incident lasting less than 30 seconds, on July 15, 2022.

⁵ Isolated incident caused by power bump on September 18, 2022.



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Nitrate	11-JAN-22	0.234	mg/L	No
	05-APR-22	0.153		
	05-JUL-22	0.111		
	04-OCT-22	0.042		
Nitrite	11-JAN-22	< 0.003	mg/L	No
	05-APR-22	< 0.003		
	05-JUL-22	< 0.003		
	04-OCT-22	< 0.003		

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 ⁶	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 are not required until the 2023/24 winter sampling period.			
Summer Sampling Period ⁷	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 are not required until the 2024 summer sampling period.			

⁶ Winter Sampling Period runs from December 15 - April 15. The last sample collected in accordance with the Regulation was sampled on April 15, 2021.

⁷ The Summer Sampling Period runs from June 15 - October 15. The last sample collected in accordance with the Regulation was sampled on October 13, 2021.



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Summary of Organic parameters sampled during this Reporting Period:

Organic Compound Results				
Parameter	Sample Date	Result Value	Unit of Measure	Exceedance
Alachlor	11-JAN-22	< 0.02	ug/L	No
Atrazine + N-dealkylated metabolites	11-JAN-22	< 0.01	ug/L	No
Azinphos-methyl	11-JAN-22	< 0.05	ug/L	No
Benzene	11-JAN-22	< 0.32	ug/L	No
Benzo(a)pyrene	11-JAN-22	< 0.004	ug/L	No
Bromoxynil	11-JAN-22	< 0.33	ug/L	No
Carbaryl	11-JAN-22	< 0.05	ug/L	No
Carbofuran	11-JAN-22	< 0.01	ug/L	No
Carbon Tetrachloride	11-JAN-22	< 0.17	ug/L	No
Chlorpyrifos	11-JAN-22	< 0.02	ug/L	No
Diazinon	11-JAN-22	< 0.02	ug/L	No



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Dicamba	11-JAN-22	< 0.20	ug/L	No
1,2-Dichlorobenzene	11-JAN-22	< 0.41	ug/L	No
1,4-Dichlorobenzene	11-JAN-22	< 0.36	ug/L	No
1,2-Dichloroethane	11-JAN-22	< 0.35	ug/L	No
1,1-Dichloroethylene (vinylidene chloride)	11-JAN-22	< 0.33	ug/L	No
Dichloromethane	11-JAN-22	< 0.35	ug/L	No
2-4 Dichlorophenol	11-JAN-22	< 0.15	ug/L	No
2,4-Dichlorophenoxy acetic acid (2,4-D)	11-JAN-22	< 0.19	ug/L	No
Diclofop-methyl	11-JAN-22	< 0.40	ug/L	No
Dimethoate	11-JAN-22	< 0.06	ug/L	No
Diquat	11-JAN-22	< 1	ug/L	No
Diuron	11-JAN-22	< 0.03	ug/L	No
Glyphosate	11-JAN-22	< 1	ug/L	No
Malathion	11-JAN-22	< 0.02	ug/L	No
2 methyl-4- chlorophenoxyacetic	11-JAN-22	< 0.00012	mg/L	No



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acid (MCPA)				
Metolachlor	11-JAN-22	< 0.01	ug/L	No
Metribuzin	11-JAN-22	< 0.02	ug/L	No
Monochlorobenzene	11-JAN-22	< 0.3	ug/L	No
Paraquat	11-JAN-22	< 1	ug/L	No
Pentachlorophenol	11-JAN-22	< 0.15	ug/L	No
Phorate	11-JAN-22	< 0.01	ug/L	No
Picloram	11-JAN-22	< 1	ug/L	No
Polychlorinated Biphenyls (PCB)	11-JAN-22	< 0.04	ug/L	No
Prometryne	11-JAN-22	< 0.03	ug/L	No
Simazine	11-JAN-22	< 0.01	ug/L	No
Trihalomethanes (THMs) (Running annual average)	04-OCT-22	52.00	ug/L	No
Haloacetic acids (HAAs) (Running annual average)	04-OCT-22	49.13	ug/L	No
Terbufos	11-JAN-22	< 0.01	ug/L	No



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Tetrachloroethylene	11-JAN-22	< 0.35	ug/L	No
2,3,4,6-Tetrachlorophenol	11-JAN-22	< 0.20	ug/L	No
Triallate	11-JAN-22	< 0.01	ug/L	No
Trichloroethylene	11-JAN-22	< 0.44	ug/L	No
2,4,6-Trichlorophenol	11-JAN-22	< 0.25	ug/L	No
Trifluralin	11-JAN-22	< 0.02	ug/L	No
Vinyl Chloride	11-JAN-22	< 0.17	ug/L	No

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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2022 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 collette.kingdon@quintewest.ca to obtain a current consolidated copy and interpretation of the legislation.

Compliance with Prescribed Instruments, Acts and Regulations

Safe Drinking Water Act

NSF International conducted a Re-certification Audit from December 13-15, 2022. The intent of the audit is to confirm continued conformance to the Drinking Water Quality Management Standard. The City received its Entire Full Scope Accreditation, with no Non-Conformances identified in the Audit Report. Four (4) Opportunities for Improvement (OFI) were identified.

The City achieved a 90.27% Inspection Rating on its 2022 MECP Compliance Inspection conducted on April 13, 2022. Three (3) instances of non-compliance were cited, all as a result of the same incident. All actions required were addressed.

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 2022, twenty-nine (29) 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 five (5) Risk Management Plans (RMPs) required for affected properties in the



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Intake Protection Zone surrounding the Frankford Intake. In 2022, two (2) RMPs were completed and one (1) remains outstanding.

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 2,512 cu.m/day on July 27, 2022. The maximum recorded flow rate was 47.4 L/s on August 10, 2022.

For a detailed summary of water quantities and flow rates, see [2022 Water Quantities and Flow Rates - Raw Water Assessment](#).

Drinking Water Works Permit/Municipal Drinking Water Licence

The Frankford/Batawa DWS is governed by Issue Number 4 of MDWL # 163-101 and Issue Number 6 of DWWP # 163-201. The Municipal Drinking Water Licence will expire September 28, 2025.

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 2,449 cu.m/day on July 16, 2022. The Annual Average Daily Flow pumped to the Distribution System was 1,482 cu.m/day. For a detailed summary of treated water quantities and flow rates, see [2022 Water Quantities and Flow Rates - Treated Water Assessment](#).



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2022 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	2016.9	2097.7	62523.5
February	1849.8	2032.6	51795.6
March	1815.7	2133.3	56287.8
April	1745.5	2056.4	52365.2
May	1937.9	2214.5	60075.3
June	1722.2	1907.2	51664.8
July	1855.3	2512.2	57515.3
August	1915.1	2027.4	59368.8
September	1950.4	2045.8	58511.1
October	1957.8	2034.0	60692.0
November	1927.2	2059.1	57815.2
December	1780.9	1862.9	55206.6
Total Raw Water Flow =			683,821



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2022 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	1524.3	1607.1	47252.3
February	1370.0	1481.7	38360.8
March	1346.8	1662.8	41750.6
April	1340.4	1597.2	40211.9
May	1550.6	1801.2	48069.5
June	1349.9	1553.4	40497.2
July	1805.8	2449.0	55980.1
August	1529.8	1618.7	47422.8
September	1560.1	1662.0	46802.3
October	1555.3	1651.2	48214.4
November	1499.3	1672.4	44980.4
December	1354.4	1451.1	41987.9
Total Treated Water Flow =			541,530

- Annual Average Daily (Treated Water) Flow = 1,482 cu.m/day. This accounts for 44% of the facility Rated Capacity.
- Maximum Daily (Treated Water) Flow = 2,449 cu.m/day. This accounts for 73% 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 1,571 cu.m/day, accounting for 47% of the facility rated capacity.

