Quinte West Drinking Water System (Trenton Service Area)

2023 Annual & Summary Drinking Water System Report



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orks and Environmental Services Water/Wastewater Division

2023 Annual Drinking Water System Report (Trenton Service Area)

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2023 Annual Drinking Water System Report (Trenton Service Area)

2023 Annual Drinking Water System Report

Drinking Water System Information

Drinking Water System Number:	220001619
Drinking Water System Name:	Trenton 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, 2023 through December 31, 2023

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

Yes.

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

Yes, please visit <u>www.quintewest.ca</u>

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:

Carrying Place/Consecon Water Distribution System, DWS number 260005099



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2023 Annual Drinking Water System Report (Trenton Service Area)

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 Trenton Water Treatment Plant draws water from the Trent River upstream of Dam No. 1 through two intake pipes; one 53 m long, 400 mm diameter raw water intake pipe, and a second, 18 m long, 600 mm diameter intake. This conventional, chemically assisted filtration plant has a rated capacity of 35,800 cu.m/day. Processes used at the filtration plant include flocculation, sedimentation, and Granular Activated Carbon Filtration. Chlorine gas is applied as a disinfectant before filtered water enters two interconnected baffled clearwells with a combined capacity of 5,454 cu.m. The potable (drinkable) water is then pumped into the distribution system through a set of four (4) highlift pumps. There are two elevated water storage tanks in service. The first is the 2nd Dug Hill Road Water Tower; capacity 2,273 cu.m, the second is the Oak Street Water Tower; capacity 2,273 cu.m. Five Booster Pumping Stations are located within the Trenton WDS; they are Catherine Street Booster Pumping Station, Mount Pelion Booster Pumping Station, Telephone Road Booster Pumping Station, Youngs Cove Fire Booster Pumping Station and Frankford Booster Pumping Station. These stations are used to boost system pressure, supply water into areas at the extremities of the system and at higher elevation than the Water Treatment Plant.



Public Works and Environmental Services
Water/Wastewater Division

2023 Annual Drinking Water System Report (Trenton Service Area)

The Trenton distribution system services approximately 27,800 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.

In 2015 the City installed a watermain along Old Hwy 2 that effectively connected the Trenton Water Distribution System (WDS) to the Bayside WDS. Additionally, 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. On June 20, 2023, the Trenton/Bayside Drinking Water Systems (DWS) and Frankford/Batawa DWS, previously governed by their own Drinking Water Works Permit (DWWP) and Municipal Drinking Water Licence (MDWL), were consolidated under one DWWP # 163-202, and one MDWL # 163-102, the Quinte West DWS. Each system is still assigned a separate DWS number by the Ministry of Environment, Conservation and Parks (MECP).

List all water treatment chemical used over this Reporting Period:

- ✓ Aluminum Sulfate (Trade Name: Alum)
- ✓ 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:



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2023 Annual Drinking Water System Report (Trenton Service Area)

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:

Temporary Watermain Repair & New Liner Installation	~ \$1.2 million
Water Meter Automation and Replacement	~ \$480,000 (combined with all Drinking Water Systems)
Heber Street Watermain Replacement	~ \$368,000
Filter Underdrain Replacement	~ \$70,000
Floc Tank Mixer Replacements	~ \$39,500
Install rebuilt motor Highlift Pump 4, replaced coupler	~ \$6,500

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-MMM-YY)	Parameter	Result	Unit of Measure	Corrective Action	Corrective Action Date (DD-MMM-YY)
17-JUL-23	Distribution Pressure, Boil Water Advisory	Break in main crossing the Trent River	NA	Break temporarily repaired	20-JUL-23



Public Works and Environmental Services Water/Wastewater Division

2023 Annual Drinking Water System Report (Trenton Service Area)

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 (HPC) Count Samples	Range of HPC results (min - max)
Raw	52	0 - 100	20 - 1340	NA	NA
Treated	52	0 - 0	0 - 0	52	0 - 5
Distribution	470	0 - 0	0 - 0	192	0 - 117

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	0.026 - 0.325
Primary Disinfection FAC ¹ , (mg/L)	8760	1.13 - 3.13
Secondary Disinfection FAC ² , (mg/L)	8760	0.77 - 4.41 ³

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

8

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

² Secondary monitoring location Youngs Cove Booster Station

³ Isolated incident, occurred while priming new Cl2 inspection line on January 19, 2023



Public Works and Environmental Services Water/Wastewater Division

2023 Annual Drinking Water System Report (Trenton Service Area)

In accordance with Schedule C Condition 5.0 of MDWL #163-102, monthly samples must be collected and tested for Total Suspended Solids, and Total Residual Chlorine⁴, from the following waste streams that may impact the natural environment:

• Waste Residual Management Sedimentation Tank - Clear Water Discharge

Condition 1.5 of the MDWL outlines the maximum annual average concentration for each of these parameters. Outlined below are the sample results obtained throughout the year.

Monitoring Month	Total Flow (cu.m)	Total Suspended Solids (mg/L)	Total Residual Chlorine (mg/L)
January	7249	6	0.01
February	8125	9	0.01
March	9101	6	0.02
April	9094	9	0.04
May	8872	2	0.01
June	11810	3	0.01
July	10950	4	0.02
August	11104	3	0.03
September	10029	3	0.02
October	10071	3	0.00
November	9448	2	0.02
December	9957	4	0.02
Annual Average	9,957	4.5	0.012

⁴ Total Residual Chlorine. Defined as the total amount of chlorine available in water.



Public Works and Environmental Services Water/Wastewater Division

2023 Annual Drinking Water System Report (Trenton Service Area)

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	04-JAN-23	< 0.6	ug/L	No	
Arsenic	04-JAN-23	< 0.2	ug/L	No	
Barium	04-JAN-23	29.5	ug/L	No	
Boron	04-JAN-23	35	ug/L	No	
Cadmium	04-JAN-23	< 0.003	ug/L	No	
Chromium	04-JAN-23	<0.08	ug/L	No	
Mercury	04-JAN-23	< 0.01	ug/L	No	
Selenium	04-JAN-23	0.12	ug/L	No	
Sodium	04-JAN-23	9.58	mg/L	No	
Fluoride	04-JAN-23	< 0.06	mg/L	No	
Uranium	04-JAN-23	0.049	ug/L	No	
Nitrate	04-JAN-23 04-APR-23 05-JUL-23 04-OCT-23	0.645 0.601 0.104 0.046	mg/L	No	
Nitrite	04-JAN-23 04-APR-23 05-JUL-23 04-OCT-23	< 0.003 < 0.003 < 0.003 < 0.003	mg/L	No	



Public Works and Environmental Services Water/Wastewater Division

2023 Annual Drinking Water System Report (Trenton Service Area)

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 ⁵	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 2025 winter sampling period.				
Summer 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 2025 summer sampling period.				

Summary of Organic parameters sampled during this Reporting Period:

Organic Compound Results					
Parameter	Sample Date	Result Value	Unit of Measure	Exceedance	
Alachlor	04-JAN-23	< 0.02	ug/L	No	
Atrazine + N-dealkylated metabolites	04-JAN-23	< 0.01	ug/L	No	

⁵ Winter Sampling Period runs from December 15 - April 15. The last sample collected in accordance with the Regulation was sampled on February 11, 2022.

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⁶ The Summer Sampling Period runs from June 15 - October 15. The last sample collected in accordance with the Regulation was sampled on October 11, 2022.



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2023 Annual Drinking Water System Report (Trenton Service Area)

Azinphos-methyl	04-JAN-23	< 0.05	ug/L	No
Benzene	04-JAN-23	< 0.32	ug/L	No
Benzo(a)pyrene	04-JAN-23	< 0.004	ug/L	No
Bromoxynil	04-JAN-23	< 0.33	ug/L	No
Carbaryl	04-JAN-23	< 0.05	ug/L	No
Carbofuran	04-JAN-23	< 0.01	ug/L	No
Carbon Tetrachloride	04-JAN-23	< 0.17	ug/L	No
Chlorpyrifos	04-JAN-23	< 0.02	ug/L	No
Diazinon	04-JAN-23	< 0.02	ug/L	No
Dicamba	04-JAN-23	< 0.20	ug/L	No
1,2-Dichlorobenzene	04-JAN-23	< 0.41	ug/L	No
1,4-Dichlorobenzene	04-JAN-23	< 0.36	ug/L	No
1,2-Dichloroethane	04-JAN-23	< 0.35	ug/L	No
1,1-Dichloroethylene (vinylidene chloride)	04-JAN-23	< 0.33	ug/L	No
Dichloromethane	04-JAN-23	< 0.35	ug/L	No



Public Works and Environmental Services Water/Wastewater Division

2023 Annual Drinking Water System Report (Trenton Service Area)

2-4 Dichlorophenol	04-JAN-23	< 0.15	ug/L	No
2,4-Dichlorophenoxy acetic acid (2,4-D)	04-JAN-23	< 0.19	ug/L	No
Diclofop-methyl	04-JAN-23	< 0.40	ug/L	No
Dimethoate	04-JAN-23	< 0.06	ug/L	No
Diquat	04-JAN-23	< 1	ug/L	No
Diuron	04-JAN-23	< 0.03	ug/L	No
Glyphosate	04-JAN-23	< 1	ug/L	No
Malathion	04-JAN-23	< 0.02	ug/L	No
2 methyl-4- chlorophenoxyacetic acid (MCPA)	04-JAN-23	< 0.00012	mg/L	No
Metolachlor	04-JAN-23	< 0.01	ug/L	No
Metribuzin	04-JAN-23	< 0.02	ug/L	No
Monochlorobenzene	04-JAN-23	< 0.3	ug/L	No
Paraquat	04-JAN-23	< 1	ug/L	No
Pentachlorophenol	04-JAN-23	< 0.15	ug/L	No
Phorate	04-JAN-23	< 0.01	ug/L	No



ublic Works and Environmental Services Water/Wastewater Division

2023 Annual Drinking Water System Report (Trenton Service Area)

Picloram	04-JAN-23	< 1	ug/L	No
Polychlorinated Biphenyls (PCB)	04-JAN-23	< 0.04	ug/L	No
Prometryne	04-JAN-23	< 0.03	ug/L	No
Simazine	04-JAN-23	< 0.01	ug/L	No
Trihalomethanes (THMs) (Running annual average)	04-OCT-23	62.00	ug/L	No
Haloacetic acids (HAAs) (Running annual average)	04-OCT-23	50.80	ug/L	No
Terbufos	04-JAN-23	< 0.01	ug/L	No
Tetrachloroethylene	04-JAN-23	< 0.35	ug/L	No
2,3,4,6-Tetrachloroph enol	04-JAN-23	< 0.20	ug/L	No
Triallate	04-JAN-23	< 0.01	ug/L	No
Trichloroethylene	04-JAN-23	< 0.44	ug/L	No
2,4,6-Trichlorophenol	04-JAN-23	< 0.25	ug/L	No
Trifluralin	04-JAN-23	< 0.02	ug/L	No
Vinyl Chloride	04-JAN-23	< 0.17	ug/L	No



Public Works and Environmental Services
Water/Wastewater Division

2023 Annual Drinking Water System Report (Trenton Service Area)

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

None.



Public Works and Environmental Services
Water/Wastewater Division
2023 Summary Report to Council

2023 Summary Report to Council (Trenton Service Area)

2023 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 water (water intended for human consumption), 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 Trenton 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 163-102;
- → Drinking Water Works Permit 163-202;
- → Permit to Take Water 1007-9HJP6L, expires April 30, 2024.



Public Works and Environmental Services
Water/Wastewater Division
2023 Summary Report to Council

2023 Summary Report to Council (Trenton Service Area)

Councillors wishing to obtain a copy of any Act or Regulation are welcome 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

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 throughout the Reporting Period.

NSF International conducted a Surveillance Audit from October 12-13, 2023. The intent of the audit is to confirm continued conformance to the Drinking Water Quality Management Standard. The City received its Re-Accreditation, with no Non-Conformances identified in the Audit Report. Four (4) Opportunities for Improvement (OFI) were identified.

At the time this report was prepared the City was amidst its 2023/24 MECP Compliance Inspection. Of note, during the 2022 MECP Compliance Inspection the City received a 100% Inspection Rating.

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 2023 there were seven (7) applications submitted to the Risk Management Official for review and approval



Public Works and Environmental Services
Water/Wastewater Division
2023 Summary Report to Council

2023 Summary Report to Council (Trenton Service Area)

specific to the Trenton system. 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 currently there are three (3) Risk Management Plans (RMPs) required for affected properties in the Intake Protection Zone surrounding the Trenton Intake. In 2023, two (2) RMPs were completed, finalizing the RMP requirements.

Permit to Take Water

The City operates its Trenton Water Treatment Plant in accordance with Permit to Take Water (PTTW) number 1007-9JHP6L which expires on April 30, 2024. This Permit allows the City to take 35,800 cu.m/day from the Trent River watershed at a maximum flow rate of 530.4 L/s. The maximum recorded daily taking was 24,834 cu.m/day on July 17, 2023. The maximum recorded flow rate was 545.30 L/s on May 31, 2023.

For a detailed summary of water quantities and flow rates, see <u>2023 Water Quantity and</u> Flow Rates (Raw Water Assessment).

Drinking Water Works Permit/Municipal Drinking Water Licence

The Trenton/Bayside DWS is governed by Issue Number: 6 of Municipal Drinking Water Licence number 163-102, and Issue Number: 9 of Drinking Water Works Permit number 163-202. The Municipal Drinking Water Licence will expire September 28, 2025.

In accordance with Condition 1.1 of the MDWL, the Trenton Water Treatment Plant has a rated capacity to treat and distribute 35,800 cu.m/day. Over the Reporting Period the maximum daily volume of treated water distributed to the distribution system was 23,079 cu.m/day on July 17, 2023. The Annual Average Daily Flow pumped to the Distribution

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The Corporation of the City of Quinte West

Public Works and Environmental Services Water/Wastewater Division **2023 Summary Report to Council**

(Trenton Service Area)

System was 9,543 cu.m/day. For a detailed summary of treated water quantities and flow rates, see 2023 Water Quantity and Flow Rates (Treated Water Assessment).

2023 Water Quantity and Flow Rates (Raw Water Assessment):

Raw Water Flow: PTTW Limit = 35,800 cu.m/d					
Month	Average Daily Flow (cu.m/d)	Maximum Daily Flow (cu.m/d)	Total Monthly Flow (cu.m/month)		
January	10251	13554	317768		
February	10339	11750	289501		
March	9888	10535	306515		
April	9713	10842	291403		
May	10459	13924	324236		
June	11194	13496	335823		
July	13212	24834	409559		
August	10643	11639	329944		
September	10543	12088	316275		
October	10141	13243	314356		
November	9797	11090	293903		
December	9641	10781	298863		
Total Raw Water Flow =			3,828,147		



Public Works and Environmental Services Water/Wastewater Division

2023 Summary Report to Council (Trenton Service Area)

2023 Water Quantity and Flow Rates (Treated Water Assessment):

Treated Water Flow: Facility Rated Capacity = 35,800 cu.m/day					
Month	Average Daily Flow (cu.m/d)	Maximum Daily Flow (cu.m/d)	Total Monthly Flow (cu.m/month)		
January	9276	12496	287549		
February	9188	10347	257276		
March	8779	9341	272147		
April	8796	9624	263873		
May	9637	12896	298732		
June	10205	12639	306150		
July	12206	23079	378381		
August	9752	11302	302327		
September	9660	11028	289792		
October	9314	12147	288725		
November	8860	9917	265788		
December	8845	9813	274210		
Total Treated Water Flow =			3,484,950		

- → Annual Average Daily (Treated Water) Flow = 9,543 cu.m/day. This accounts for 27% of the facility Rated Capacity.
- → Maximum Daily (Treated Water) Flow = 23,079 cu.m/day. This accounts for 69% of the facility Rated Capacity during record peak daily flow conditions. This peak occurred during the main break of the Trent River crossing.



Public Works and Environmental Services
Water/Wastewater Division
2023 Summary Report to Council
(Trenton Service Area)

Historical Flow Comparison

The 5-year ADF of Treated Water is calculated to be 9,690 cu.m/day, accounting for just 27% of the facility rated capacity. During the 2023 calendar year the Trenton DWS supplied 131,396 cu.m of treated water to the Frankford/ Batawa DWS. While the Bayside DWS supplied 424,089 cu.m of treated water to the Trenton DWS.

