

OPTIONAL ANNUAL REPORT TEMPLATE

Drinking Water System Number:	220003421
Drinking Water System Name:	City of Windsor Drinking Water System
Drinking Water System Owner:	The Windsor Utilities Commission
Drinking Water System Category:	Large Municipal Residential
Period being reported:	Calendar Year 2023

<p><u>Complete if your Category is Large Municipal Residential or Small Municipal Residential</u></p> <p>Does your Drinking Water System serve more than 10,000 people? Yes [X] No []</p> <p>Is your annual report available to the public at no charge on a web site on the Internet? Yes [X] No []</p> <p>Location where Summary Report required under O. Reg. 170/03 Schedule 22 will be available for inspection.</p> <div style="border: 1px solid black; padding: 5px; width: fit-content;"> <p>The Windsor Utilities Commission 4545 Rhodes Dr. Windsor ON N8W 5T1</p> </div>	<p><u>Complete for all other Categories</u></p> <p>Number of Designated Facilities served: <input type="text"/></p> <p>Did you provide a copy of your annual report to all Designated Facilities you serve? Yes [] No []</p> <p>Number of Interested Authorities you report to: <input type="text"/></p> <p>Did you provide a copy of your annual report to all Interested Authorities you report to for each Designated Facility? Yes [] No []</p>
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List all Drinking Water Systems (if any), which receive all their drinking water from your system:

Drinking Water System Name	Drinking Water System Number
Town of Lasalle, ON	220004402
Town of Tecumseh, ON	260004969

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 drinking water? Yes [X] No []

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 _____

Description of the Drinking Water System

The City of Windsor Drinking Water System is owned by The Windsor Utilities Commission (WUC). It is maintained and operated by ENWIN Utilities Ltd. (ENWIN) as Operating Authority.

The City of Windsor Drinking Water System consists of the A.H. Weeks Water Treatment Plant (WTP), which is a Class IV water treatment subsystem and a Class III distribution system under Ontario Regulation 128/04 of the Safe Drinking Water Act, 2002. In addition, WUC has the Old Water Treatment Plant (OTP), also a Class IV water treatment subsystem currently in Stand By mode, A.J. Brian Pumping Station, George Avenue Pumping Station, J.F. Cooke Reservoir, Pumping and Re-chlorination Station and one (1) water tower.

To treat the raw water, which is sourced from the Detroit River, the WTP employs screening, pre-chlorination (on an as needed basis), pH adjustment (utilizing CO₂), disinfection (utilizing ozone), coagulation, flocculation, sedimentation, dual-media filtration with post chlorination, fluoridation (utilizing fluorosilicic acid) and corrosion control adjustment (utilizing phosphoric acid). The WTP pumps sedimentation sludge and backwash water to the sanitary sewer.

Treated water from the WTP is routed to an on-site reservoir and another reservoir located near the WTP. The treated water is then pumped into the distribution system from two (2) pumping stations, which are located near the WTP. Water from the pumping stations satisfies demand for the greater Windsor area including the Towns of Tecumseh and LaSalle. A reservoir, pumping and re-chlorination station located further from the WTP provides system pressure and flow to the southwest portion of the system, while a centrally located water tower provides pressure and flow control to the downtown core.

The drinking water system is monitored continuously at various locations, both at the WTP and pumping stations as well as throughout the distribution system via a Supervisory Control and Data Acquisition (SCADA) system.

List all water treatment chemicals used over this reporting period

Chlorine gas, Sodium Hypochlorite, Carbon Dioxide (CO₂), Ozone (generated on-site using liquid oxygen), Calcium Thiosulfate (ozone quench agent), Polyaluminum Chloride (PaCl), Filter Aid Cationic Polymer, Phosphoric Acid (corrosion control agent) and Fluorosilicic Acid.

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:

Capital Projects in the Distribution System,

WUC, with a capital expenditure of approximately \$17,500M, has:

- Installed 10.53 KM of Watermain (<400 mm)
- Installed 1.34KM of Feedermain (>400 mm)
- Installed 967 New Water Services in the public Right the Way (ROW)
- Installed 250 New Valves in the public ROW
- Installed 85 New Fire Hydrants in the public ROW
- Removed 76 Old Fire Hydrants in the public ROW
- Removed 592 Old Lead Water Services in the public ROW

Capital Projects in the Treatment System encompasses:**Filter Bed Rehabilitation – Phase 4**

ENWIN completed rehabilitation of our eight (8) dual media filters at the WTP in 2023 which included removal of the existing plastic underdrain system, waterproof coating of the filter beds and walls, installation of new stainless-steel underdrains and installation of new anthracite and sand filter media. The new underdrain system and media will increase the overall filter performance. Approximate capital expenditure for phase 4 of the rehabilitations is \$4.2M which included four (4) filter rehabilitations from 2022 to 2023.

Fluoride Implementation

As part of the overall fluoride implementation project, ENWIN completed construction of the permanent fluoride dosing system, as well as upgrades to the phosphoric dosing system at the WTP. The new system includes dual chemical storage tanks, chemical dosing pump skid complete with three (3) dosing pumps and chemical containment structure, and it was completed April 2023. Approximate cost for the overall project including studies, engineering and construction was \$1.5M.

SCADA Network Upgrade

ENWIN engaged the service of Rockwell for the design and implementation of an upgraded SCADA Network at the WTP. The project will update and improve the current SCADA network infrastructure, adding increased security measures in line with current industry best practice. Installation and commissioning of the new SCADA network was completed in late 2022. Testing and commissioning of the new network continued into early 2023. Approximate capital expenditure is \$1.1M.

Ozone Power Supply Unit (PSU) Upgrades

ENWIN procured the services of Suez Water Technologies to begin the refurbishment of two of the Ozone Generator Power Supply Units (PSU). The current PSU components for Ozone Gen. #1 and #2 are at end of life and in need of replacement. ENWIN tendered the work for the PSU upgrades in summer 2022 and following receipt of the replacement equipment in October 2022 began work on the PSU upgrades. Due to some equipment issues, work on the project was completed June of 2023. Approximate capital expenditure for the project was \$800k.

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	Parameter	Result	Unit of Measure	Corrective Action	Corrective Action Date
2023/03/11	1 NTU Turbidity for 18 minutes	1	NTU	Additional monitoring and sampling. Refer to CPAR EWU-2023-04 details.	2023/03/20
2023/09/10	Total Coliform (TC) – Treated Water	TC = 1	CFU/100 mL	Due to our sampling schedule samples are collected every 12 hours, consecutively. Note: This is a point source (Most likely Laboratory error)	2023/09/15
2023/11/17	Total Coliform (TC) – S.S. D10	TC = 1	CFU/100 mL	Flush and Re-sample at location, upstream and downstream for 2 consecutive days. Results of the re-sampling are free of bacterial content.	2023/11/21

Please refer to the colour chart below when reviewing the data summarized herein:

Green	Indicates results are in compliance
Yellow	Indicates results are in compliance however above the half Maximum Acceptable Concentration (MAC) or IMAC level.
Red	Indicates results are not in compliance or not within the operational guideline

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 (min#)-(max#)	Range of Total Coliform (min#)-(max#)	Number of HPC Samples	Range of HPC (min#)-(max#)
Raw	253	0 - 2600	0 - 8500	253	<10 - 1650 ⁽¹⁾
Treated	1583	0 - 0	0 - 1	968	<10 - 440 ⁽²⁾
Distribution	1883	0 - 0	0 - 1	1023	<10 - 300 ⁽²⁾

(1) No standard available – Results indicate the overall Raw Water Quality

(2) < 500 – Internal Target as Best Management Practice

Operational testing done under Schedule 7, 8 or 9 of Regulation 170/03 during the period covered by this Annual Report.

	Number of Samples	Range of Results (min#)-(max#)	Unit of Measure
Turbidity	365	0.02 - 0.1	NTU
Chlorine	365	1.19 - 1.66	mg/L

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

Date of legal instrument issued	Parameter	Date Sampled	Running Annual Average Result	Unit of Measure	In compliance
MDWL 025-101	Bromate - Treated	1-Jan-23 to 31-Dec-23	0.004	mg/L	Yes
MDWL 025-101	Bromate - Distribution	1-Jan-23 to 31-Dec-23	0.004	mg/L	Yes

Date of legal instrument issued	Location Type	Number of Samples	Range of Lead Results (min#)-(max#)	Unit of Measure	Number of Exceedances
MDWL 025-101	Lead - Plumbing	83	<0.05 - 12.9	ug/L	1
MDWL 025-101	Lead - Distribution	66	<0.05 - 9.77	ug/L	0

Summary of Inorganic parameters tested during this reporting period or the most recent sample results.

Parameter	MAC OR IMAC	Sample Date	Result Value	Unit of Measure	In Compliance
Antimony	0.006	October 4, 2023	0.0001	mg/L	Yes
Arsenic	0.01	October 4, 2023	0.0003	mg/L	Yes
Barium	1	October 4, 2023	0.0163	mg/L	Yes
Boron	5	October 4, 2023	0.016	mg/L	Yes
Cadmium	0.005	October 4, 2023	0.000005 <MDL	mg/L	Yes
Chromium	0.05	October 4, 2023	0.00050 <MDL	mg/L	Yes
Lead ⁽³⁾	0.01	October 4, 2023	0.0005 <MDL	mg/L	Yes
Mercury	0.001	October 4, 2023	0.00000010 <MDL	mg/L	Yes
Selenium	0.05	October 4, 2023	0.0001	mg/L	Yes
Sodium	20	October 4, 2023	6.71	mg/L	Yes
Uranium	0.02	October 4, 2023	0.00004	mg/L	Yes
Fluoride	1.5	October 4, 2023	0.57	mg/L	Yes
Nitrite ⁽³⁾	1	October 4, 2023	0.010 <MDL	mg/L	Yes
Nitrate ⁽³⁾	10	October 4, 2023	0.24	mg/L	Yes

(3) Lead, Nitrite, Nitrate results are from Maximum resolution in the Distribution system

Summary of Organic parameters sampled during this reporting period or the most recent sample results.

Parameter	MAC OR IMAC	Sample Date	Result Value	Unit of Measure	In Compliance
Alachlor	0.005	October 4, 2023	0.00050 <MDL	mg/L	Yes
Atrazine + N-dealkylated metabolites	0.005	October 4, 2023	0.001 <MDL	mg/L	Yes
Azinphos-methyl	0.02	October 4, 2023	0.0020 <MDL	mg/L	Yes
Benzene	0.001	October 4, 2023	0.0001 <MDL	mg/L	Yes
Benzo(a)pyrene	0.00001	October 4, 2023	0.0000050 <MDL	mg/L	Yes
Bromoxynil	0.005	October 4, 2023	0.00050 <MDL	mg/L	Yes
Carbaryl	0.09	October 4, 2023	0.005 <MDL	mg/L	Yes
Carbofuran	0.09	October 4, 2023	0.005 <MDL	mg/L	Yes
Carbon Tetrachloride	0.002	October 4, 2023	0.00010 <MDL	mg/L	Yes
Chlorpyrifos	0.09	October 4, 2023	0.001 <MDL	mg/L	Yes
Diazinon	0.02	October 4, 2023	0.001 <MDL	mg/L	Yes
Dicamba	0.12	October 4, 2023	0.001 <MDL	mg/L	Yes
1,2-Dichlorobenzene	0.2	October 4, 2023	0.00020 <MDL	mg/L	Yes
1,4Dichlorobenzene	0.005	October 4, 2023	0.00020 <MDL	mg/L	Yes
1,2-Dichloroethane	0.005	October 4, 2023	0.00020 <MDL	mg/L	Yes
1,1-Dichloroethylene (vinylidene chloride)	0.014	October 4, 2023	0.00010 <MDL	mg/L	Yes
Dichloromethane	0.05	October 4, 2023	0.00050 <MDL	mg/L	Yes
2,4-Dichlorophenol	0.9	October 4, 2023	0.00025 <MDL	mg/L	Yes
2,4-Dichlorophenoxy acetic acid (2,4-D)	0.1	October 4, 2023	0.001 <MDL	mg/L	Yes
Diclofop-methyl	0.009	October 4, 2023	0.00090 <MDL	mg/L	Yes
Dimethoate	0.02	October 4, 2023	0.0025 <MDL	mg/L	Yes
Diquat	0.07	October 4, 2023	0.007 <MDL	mg/L	Yes
Diuron	0.15	October 4, 2023	0.010 <MDL	mg/L	Yes
Glyphosate	0.28	October 4, 2023	0.010 <MDL	mg/L	Yes
Haloacetic Acids (HAA5)⁽⁴⁾					
(Note: show latest running annual average)					
Q1 2023 = <0.0050 mg/L	0.080	Running Annual Average =	0.0050 <MDL	mg/L	Yes
Q2 2023 = <0.0050 mg/L					
Q3 2023 = <0.0050 mg/L					
Q4 2023 = <0.0050 mg/L					
Malathion	0.19	October 4, 2023	0.010 <MDL	mg/L	Yes
MCPA	0.1	October 4, 2023	0.00050 <MDL	mg/L	Yes
Metolachlor	0.05	October 4, 2023	0.0050 <MDL	mg/L	Yes
Metribuzin	0.08	October 4, 2023	0.00010 <MDL	mg/L	Yes
Monochlorobenzene	0.08	October 4, 2023	0.001 <MDL	mg/L	Yes

Parameter	MAC OR IMAC	Sample Date	Result Value	Unit of Measure	In Compliance
Paraquat	0.01	October 4, 2023	0.00050 <MDL	mg/L	Yes
Pentachlorophenol	0.06	October 4, 2023	0.00050 <MDL	mg/L	Yes
Phorate	0.002	October 4, 2023	0.0050 <MDL	mg/L	Yes
Picloram	0.19	October 4, 2023	0.00005 <MDL	mg/L	Yes
Polychlorinated Biphenyls (PCB)	0.003	October 4, 2023	0.00025 <MDL	mg/L	Yes
Prometryne	0.001	October 4, 2023	0.0010 <MDL	mg/L	Yes
Simazine	0.01	October 4, 2023	0.0010 <MDL	mg/L	Yes
THM⁽⁴⁾					
(Note: show latest running annual average)					
Q1 2023 = 0.00349 mg/L	0.100	Running Annual Average =	0.0095	mg/L	Yes
Q2 2023 = 0.00615 mg/L					
Q3 2023 = 0.0144 mg/L					
Q4 2023 = 0.014 mg/L					
Terbofos	0.001	October 4, 2023	0.00050 <MDL	mg/L	Yes
Tetrachlorethylene	0.01	October 4, 2023	0.00010 <MDL	mg/L	Yes
2,3,4,6-Tetrachlorophenol	0.1	October 4, 2023	0.00050 <MDL	mg/L	Yes
Triallate	0.23	October 4, 2023	0.0010 <MDL	mg/L	Yes
Trichloroethylene	0.005	October 4, 2023	0.00010 <MDL	mg/L	Yes
2,4,6-Trichlorophenol	0.005	October 4, 2023	0.00050 <MDL	mg/L	Yes
Trifluralin	0.045	October 4, 2023	0.0010 <MDL	mg/L	Yes
Vinyl Chloride	0.001	October 4, 2023	0.00020 <MDL	mg/L	Yes

(4) – THM's and HAA5 results are from Max resolution in the Distribution system
 Note – MDL – Method Detection Limit

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

No Inorganic or Organic parameter(s) exceeded half the standard prescribed in Schedule 2 of Ontario Drinking Water Quality Standards.