



Ontario Clean Water Agency
Agence Ontarienne Des Eaux



Annual Performance Report

Union Water Supply System

Drinking Water System # 210000853

2024

Prepared for Union Water Supply System Inc.

By the Ontario Clean Water Agency

ANNUAL REPORT

Drinking Water System Number:	210000853
Drinking Water System Name:	Union Water Supply System
Drinking Water System Owner:	Union Water Supply System Inc.
Drinking Water System Category:	Large Municipal Residential
Period being reported:	01-January-2024 to 31-December-2024

<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;"> Union Water Supply System P.O. Box 340, 1615 Union Ave., Ruthven, Ont. N0P 2G0 </div>	<p><u>Complete for all other Categories</u></p> <p>Number of Designated Facilities served: <div style="border: 1px solid black; padding: 2px; display: inline-block;">N/A</div> </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: <div style="border: 1px solid black; padding: 2px; display: inline-block;">N/A</div></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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Note: For the following tables below, additional rows or columns may be added, or an appendix may be attached to the report

List all Drinking Water Systems (if any), which receive all their drinking water from your system:

Drinking Water System Name	Drinking Water System Number
Municipality of Leamington	220004992
Town of Kingsville	220003403
Town of Essex	220003680
Municipality of Lakeshore	260004995

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 _____

Describe your Drinking Water System

The Union Water Supply System (UWSS) includes one water treatment plant, the Ruthven Water Treatment Plant (RWTP) that is located in the hamlet of Ruthven in the Town of Kingsville, Ontario. The RWTP is a chemically assisted conventional filtration plant that draws water from Lake Erie.

The UWSS supplies potable water to the end users of the Town of Kingsville, Municipality of Leamington, a portion of the Town of Essex and a portion of the Municipality of Lakeshore with an estimated service population of 67,041.

The treatment process includes raw water pH control, chemically assisted up-flow clarification, chemically assisted Dissolved Air Flootation system, filtration with dual media filters, primary disinfection using Chlorine gas and secondary disinfection using Chlorine gas and Sodium Hypochlorite.

Seasonally, the RWTP uses sodium hypochlorite at its intakes to control Zebra Mussel formation.

There are also four water towers and a booster/storage station located on the Union Water Supply System.

List all water treatment chemicals used over this reporting period

Zebra Mussel Control:

- Sodium Hypochlorite – (Seasonal)

Clarification Chemicals:

- SternPAC 70 - Coagulant
- NorFloc 122 (polymer) – Coagulant Aid
- Powdered Activated Carbon – Taste and Odor Control
- CO2 – PH adjustment

Filtration:

- Cat-Floc 8103 Plus (polymer) – Filter Aid (Seasonal)

Disinfection:

- Primary: Chlorine Gas
- Secondary: Chlorine Gas and Sodium Hypochlorite

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

	Item Description	Expenditures to 2024 Year End
	Capital Works and Major Maintenance	
	Dissolved Air Flotation (DAF) #2 System Implementation	\$2,492,000
	Reservoir # 3 Design and Construction	\$1,035,000
	New Portable Backup Generator Purchase	\$450,000
	New Travelling Screen #4	\$267,000
	Boundary Flow Meter Chamber Upgrades	\$164,000
	Filter PLC Upgrades	\$163,000
	Kingsville Water Tower Utility Building Purchase	\$161,000
	Cottam Booster Reservoir Rehabilitation	\$106,000
	Low Lift Roof Replacement	\$91,000
	New Vehicle (Truck)	\$73,000
	Cottam Booster Pump/Valve/Flowmeter Upgrades	\$64,000
	Quench Buggy/Hydration Station System Purchase	\$63,000
	Pond Effluent Dechlorination System Implementation	\$61,000
	Spectrolyzer Water Quality Monitoring System Purchase	\$54,000
	New HVAC Unit for High Lift Area	\$52,000
	New Backup Generator Unit – Albuna Water Tower	\$47,000
	Low Lift Intake Crib Rehabilitation	\$45,000
	Rehabilitation of Low Lift Pumps	\$43,000
	New Flowmeters for Distribution System Interconnects	\$41,000
	Rehabilitation of High Lift Pumps	\$37,000
	Low Lift Generator Containment Area Rehabilitation	\$35,000
	Cottam Booster PLC Upgrades	\$27,000
	Filters 5-8 Actuator and Valve Upgrades	\$23,000
	New Telephone System	\$21,000
	Kingsville Water Tower Corrosion System Upgrades	\$17,000
	New Backup Generator for Leamington Water Tower	\$17,000
	Security System Upgrades	\$10,000
	DAF#1 Chemical Feed Pump Upgrade	\$9,600
	Low Lift Intake #2 Turbidity Analyzer Upgrade	\$9,500
	DAF #1 Gear Box Upgrade	\$7,400
	Electric Vehicle Charging System Install	\$6,300
	New Electric Heater for Low Lift	\$6,300
	New Insertion Flow Meter – Essex Water Tower	\$5,800
	Treatment Plant Effluent Chlorine Analyzer Upgrade	\$5,800
	New Insertion Flow Meter – Cottam Booster Inlet	\$5,800
	New Boardroom Furniture	\$5,000
	OCWA Capital Expenditures	\$118,654.48
	Total	\$5,832,854.48

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
July 25, 2024	Low Pressure	Pressure <20 psi	psi	BacT Samples	July 29, 2024

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 Results (min #)-(max #)	Range of Total Coliform Results (min #)-(max #)	Number of HPC Samples	Range of HPC Results (min #)-(max #)
Raw	53	<10 – 100	<10 – >4000	0	N/A
Treated	53	0 – 0	0 – 0	53	<10 - 30
Distribution	Please See Individual Annual Reports for Distribution System Information: Leamington (220004992), Kingsville (220003403), Essex (220003680), and Lakeshore (260004995).				

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 #)	Unit of Measure
Turbidity	8760	0.01 – 1.96	NTU
Chlorine - Free	8760	0.82 – 3.66	mg/L

NOTE: For continuous monitors use 8760 as the number of samples

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	Result	Unit
July 9, 2024	Suspended Solids	Jan 2, 2024	3	mg/L
	Suspended Solids	Feb 5, 2024	4	mg/L
	Suspended Solids	Mar 4, 2024	<3	mg/L
	Suspended Solids	Apr 2, 2024	<3	mg/L
	Suspended Solids	May 6, 2024	5	mg/L
	Suspended Solids	June 3, 2024	<3	mg/L
	Suspended Solids	July 2, 2024	<3	mg/L
	Suspended Solids	Aug 6, 2024	5	mg/L
	Suspended Solids	Sept 3, 2024	<3	mg/L
	Suspended Solids	Oct 2, 2024	<3	mg/L
	Suspended Solids	Nov 4, 2024	<3	mg/L
	Suspended Solids	Dec 4, 2024	<3	mg/L
	Annual Average		3.42	mg/L

Date of legal instrument issued	Parameter	Date Sampled	Result	Unit
July 9, 2024	Total Chlorine residuals	Jan 30, 2024	0.21	mg/L
	Total Chlorine residuals	Feb 12, 2024	0.12	mg/L
	Total Chlorine residuals	Mar 4, 2024	0.10	mg/L
	Total Chlorine residuals	Apr 9, 2024	0.12	mg/L
	Total Chlorine residuals	May 29, 2024	0.14	mg/L
	Total Chlorine residuals	June 24, 2024	0.13	mg/L
	Total Chlorine residuals	July 29, 2024	0.12	mg/L
	Total Chlorine residuals	Aug 26, 2024	0.10	mg/L
	Total Chlorine residuals	Sept 26, 2024	0.10	mg/L
	Total Chlorine residuals	Oct 29, 2024	0.11	mg/L
	Total Chlorine residuals	Nov 27, 2024	0.22	mg/L
	Total Chlorine residuals	Dec 30, 2024	0.15	mg/L
	Annual Average		0.14	mg/L

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

TREATED WATER	Sample Date (yyyy/mm/dd)	Sample Result	MAC	No. of Exceedances	
				MAC	1/2 MAC
Antimony: Sb (ug/L)	2024/01/10	<0.1	6.0	No	No
Arsenic: As (ug/L)	2024/01/10	0.2	10.0	No	No
Barium: Ba (ug/L)	2024/01/10	17.0	1000.0	No	No
Boron: B (ug/L)	2024/01/10	9.0	5000.0	No	No
Cadmium: Cd (ug/L)	2024/01/10	<0.015	5.0	No	No
Chromium: Cr (ug/L)	2024/01/10	<1.0	50.0	No	No
Mercury: Hg (ug/L)	2024/01/10	<0.02	1.0	No	No
Selenium: Se (ug/L)	2024/01/10	<1.0	50.0	No	No
Uranium: U (ug/L)	2024/01/10	<0.05	20.0	No	No
Additional Inorganics					
Fluoride (mg/L)	2024/01/10	<0.1	1.5	No	No

Drinking Water Systems Regulation O. Reg. 170/03

Nitrite (mg/L)	2024/01/08	< 0.05	1.0	No	No
Nitrite (mg/L)	2024/04/03	< 0.05	1.0	No	No
Nitrite (mg/L)	2024/07/03	< 0.05	1.0	No	No
Nitrite (mg/L)	2024/10/02	< 0.05	1.0	No	No
Nitrate (mg/L)	2024/01/08	0.49	10.0	No	No
Nitrate (mg/L)	2024/04/03	0.68	10.0	No	No
Nitrate (mg/L)	2024/07/03	0.37	10.0	No	No
Nitrate (mg/L)	2024/10/02	0.13	10.0	No	No
Sodium: Na (mg/L)	2024/01/10	6.8	20*	No	No

***There is no "MAC" for Sodium. The aesthetic objective for sodium in drinking water is 200 mg/L. The local Medical Officer of Health should be notified when the sodium concentration exceeds 20 mg/L so that this information may be communicated to local physicians for their use with patients on sodium restricted diets.**

Summary of lead testing under Schedule 15.1 during this reporting period

(applicable to the following drinking water systems; large municipal residential systems, small municipal residential systems, and non-municipal year-round residential systems)

Location Type	Number of Samples	Range of Lead Results (min#) – (max #)	Number of Exceedances
Plumbing	Please See Individual Annual Reports for Distribution System Information: Leamington (220004992), Kingsville (220003403), Essex (220003680), and Lakeshore (260004995).		
Distribution	Please See Individual Annual Reports for Distribution System Information: Leamington (220004992), Kingsville (220003403), Essex (220003680), and Lakeshore (260004995).		

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

TREATED WATER	Sample Date (yyyy/mm/dd)	Sample Result	MAC	Number of Exceedances	
				MAC	1/2 MAC
Alachlor (ug/L)	2024/01/10	< 0.3	5.0	No	No
Atrazine + N-dealkylated metabolites (ug/L)	2024/01/10	< 0.5	5.0	No	No
Azinphos-methyl (ug/L)	2024/01/10	< 1.0	20.0	No	No
Benzene (ug/L)	2024/01/10	< 0.5	1.0	No	No
Benzo(a)pyrene (ug/L)	2024/01/10	< 0.006	0.01	No	No
Bromoxynil (ug/L)	2024/01/10	< 0.5	5.0	No	No
Carbaryl (ug/L)	2024/01/10	< 3.0	90.0	No	No
Carbofuran (ug/L)	2024/01/10	< 1.0	90.0	No	No
Carbon Tetrachloride (ug/L)	2024/01/10	< 0.2	2.0	No	No
Chlorpyrifos (ug/L)	2024/01/10	< 0.5	90.0	No	No
Diazinon (ug/L)	2024/01/10	< 1.0	20.0	No	No
Dicamba (ug/L)	2024/01/10	< 1.0	120.0	No	No

1,2-Dichlorobenzene (ug/L)	2024/01/10	< 0.5	200.0	No	No
1,4-Dichlorobenzene (ug/L)	2024/01/10	< 0.5	5.0	No	No
1,2-Dichloroethane (ug/L)	2024/01/10	< 0.5	5.0	No	No
1,1-Dichloroethylene (ug/L)	2024/01/10	< 0.5	14.0	No	No
Dichloromethane (Methylene Chloride) (ug/L)	2024/01/10	< 5.0	50.0	No	No
2,4-Dichlorophenol (ug/L)	2024/01/10	< 0.2	900.0	No	No
2,4-Dichlorophenoxy acetic acid (2,4-D) (ug/L)	2024/01/10	< 1.0	100.0	No	No
Diclofop-methyl (ug/L)	2024/01/10	< 0.9	9.0	No	No
Dimethoate (ug/L)	2024/01/10	< 1.0	20.0	No	No
Diquat (ug/L)	2024/01/10	< 5.0	70.0	No	No
Diuron (ug/L)	2024/01/10	< 5.0	150.0	No	No
Glyphosate (ug/L)	2024/01/10	< 25.0	280.0	No	No
Malathion (ug/L)	2024/01/10	< 5.0	190.0	No	No
Metolachlor (ug/L)	2024/01/10	< 3.0	50.0	No	No
Metribuzin (ug/L)	2024/01/10	< 3.0	80.0	No	No
Monochlorobenzene (Chlorobenzene) (ug/L)	2024/01/10	<0.05	80.0	No	No
Paraquat (ug/L)	2024/01/10	< 1.0	10.0	No	No
PCB (ug/L)	2024/01/10	< 0.05	3.0	No	No
Pentachlorophenol (ug/L)	2024/01/10	< 0.2	60.0	No	No
Phorate (ug/L)	2024/01/10	< 0.3	2.0	No	No
Picloram (ug/L)	2024/01/10	< 5.0	190.0	No	No
Prometryne (ug/L)	2024/01/10	< 0.1	1.0	No	No
Simazine (ug/L)	2024/01/10	< 0.5	10.0	No	No
Terbufos (ug/L)	2024/01/10	< 0.5	1.0	No	No
Tetrachloroethylene (ug/L)	2024/01/10	< 0.5	10.0	No	No
2,3,4,6-Tetrachlorophenol (ug/L)	2024/01/10	< 0.2	100.0	No	No
Triallate (ug/L)	2024/01/10	< 10.0	230.0	No	No
Trichloroethylene (ug/L)	2024/01/10	< 0.5	5.0	No	No
2,4,6-Trichlorophenol (ug/L)	2024/01/10	< 0.2	5.0	No	No
Trifluralin (ug/L)	2024/01/10	< 0.5	45.0	No	No
Vinyl Chloride (ug/L)	2024/01/10	< 0.2	1.0	No	No

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 Sample
N/A	N/A	N/A	N/A

