Ontario Clean Water Agency
Agence Ontarienne Des Eaux

UNION WATER SUPPLY SYSTEM

Annual Performance Report

Union Water Supply System

Drinking Water System # 210000853

2023

Prepared for the Corporation of the Town of Kingsville, the Corporation of the Town of Essex, the Municipality of Lakeshore & the Municipality of Leamington

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 Joint Board of Management (Municipality of Leamington, Town of Kingsville, Town of Essex, Municipality of Lakeshore)
Drinking Water System Category:	Large Municipal Residential
Period being reported:	01-January-2023 to 31-December-2023

Complete if your Category is Large Municipal Residential or Small Municipal Residential

Does your Drinking Water System serve more than 10,000 people? Yes [X] No [ ]

Is your annual report available to the public at no charge on a web site on the Internet? Yes [X] No [ ]

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

Union Water Supply System
P.O. Box 340,
1615 Union Ave.,
Ruthven, Ont. N0P 2G0

Complete for all other Categories

Number of Designated Facilities served:

N/A

Did you provide a copy of your annual report to all Designated Facilities you serve? Yes [ ] No [ ]

Number of Interested Authorities you report to: N/A

Did you provide a copy of your annual report to all Interested Authorities you report to for each Designated Facility? Yes [ ] No [ ]

***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.

[X] Public access/notice via the web
[ ] Public access/notice via Government Office
[ ] Public access/notice via a newspaper
[X] Public access/notice via Public Request
[ ] Public access/notice via a Public Library
[X] 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 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 66,841.

The treatment process includes raw water pH control, chemically assisted up-flow clarification, chemically assisted Dissolved Air Floatation 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?
[X] Install required equipment

[X] Repair required equipment
[X] Replace required equipment

Please provide a brief description and a breakdown of monetary expenses incurred

	Item Description	Expenditures to 2023 Year End
	Capital Works and Major Maintenance	
1	Low Lift Pump Rehab	$ 14,644
2	Carbon System Pump Upgrades	$ 29,718
3	Highlift Pump #7 - Engineering and Design	$ 44,322
4	Surge Valves for High Lift Pumps #8 and #9	$ 45,079
5	Air Compressor Upgrades	$ 31,615
6	Filter 2&4 Control Console Upgrades	$ 117,024
7	Electrical Upgrades - capacitors, etc.	$ 24,676
8	Communication System upgrades	$ 23,044
9	New Telephone System	$ 24,100
10	New VFDs and upgrades for Cottam Booster Pumps	$ 124,573
11	Albuna Water Tower Upgrades	$ 61,665
12	Meter Chamber Rehabilitation	$ 48,728
13	Water Quality Analyzers -	$ 52,773
14	Wastewater Pump - New backup pump	$ 71,870
15	Upgrade of UWSS 300mm Watermain-Victoria Avenue, Essex Centre	$ 324,079
16	Low Lift Travelling Screen #4 - New; Design and Engineering	$ 97,843
17	Clarifier #3 Improvements	$ 21,740
18	Kingsville Tower New Corrosion Control System	$ 7,932
19	DAF #1 Improvements	$ 47,200
20	Reservoir #3 Design and Engineering	$ 318,183
21	Maintenance Building Improvements - Bathroom and Sewage System	$ 42,505
22	Smart Hydrant Monitoring Network Improvements	$ 61,050
23	Quench Buggy Purchase	$ 62,715
24	New Vehicle	$ 62,277
25	OCWA Capital Expenditures	$ 112,207
	Total	$ 1,871,562

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
Aug 24, 2023	Low Pressure	Pressure <20 psi	psi	BacT Samples	Aug 24, 2023

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	52	<2-40	<2-690	0	N/A
Treated	52	0 – 0	0 – 0	52	<10 - 40
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 – 1.18	NTU
Chlorine - Free	8760	0.82 - 2.84	mg/L

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

Date of legal instrument issued	Parameter	Date Sampled	Result	Unit
Nov 26, 2021	Total Chlorine residuals	Jan 09/2023	0.13	mg/L
	Total Chlorine residuals	Feb 21/2023	0.12	mg/L
	Total Chlorine residuals	Mar 13/2023	0.13	mg/L
	Total Chlorine residuals	Apr 24/2023	0.12	mg/L
	Total Chlorine residuals	May 08/2023	0.11	mg/L
	Total Chlorine residuals	June 12/2023	0.11	mg/L
	Total Chlorine residuals	July 26/2023	0.08	mg/L
	Total Chlorine residuals	Aug 28/2023	0.14	mg/L
	Total Chlorine residuals	Sept 11/2023	0.11	mg/L
	Total Chlorine residuals	Oct 10/2023	0.13	mg/L
	Total Chlorine residuals	Nov 20/2023	0.13	mg/L
	Total Chlorine residuals	Dec 18/2023	0.13	mg/L
	Annual Average		0.12	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)	2023/01/10	<MDL 0.6	6.0	No	No
Arsenic: As (ug/L)	2023/01/10	0.2	10.0	No	No
Barium: Ba (ug/L)	2023/01/10	18.2	1000.0	No	No
Boron: B (ug/L)	2023/01/10	16.0	5000.0	No	No
Cadmium: Cd (ug/L)	2023/01/10	0.008	5.0	No	No
Chromium: Cr (ug/L)	2023/01/10	0.26	50.0	No	No
Mercury: Hg (ug/L)	2023/01/10	<MDL 0.01	1.0	No	No
Selenium: Se (ug/L)	2023/01/10	0.14	50.0	No	No
Uranium: U (ug/L)	2023/01/10	0.016	20.0	No	No
Additional Inorganics					
Fluoride (mg/L)	2023/01/10	<MDL 0.06	1.5	No	No
Nitrite (mg/L)	2023/01/03	0.10	1.0	No	No
Nitrite (mg/L)	2023/04/03	0.05	1.0	No	No
Nitrite (mg/L)	2023/07/04	0.05	1.0	No	No
Nitrite (mg/L)	2023/10/03	0.05	1.0	No	No
Nitrate (mg/L)	2023/01/03	0.50	10.0	No	No
Nitrate (mg/L)	2023/04/03	0.80	10.0	No	No
Nitrate (mg/L)	2023/07/04	0.43	10.0	No	No
Nitrate (mg/L)	2023/10/03	0.05	10.0	No	No
Sodium: Na (mg/L)	2023/01/10	6.87	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)	2023/01/10	<MDL 0.02	5.0	No	No
Atrazine + N-dealkylated metabolites (ug/L)	2023/01/10	<MDL 0.01	5.0	No	No
Azinphos-methyl (ug/L)	2023/01/10	<MDL 0.05	20.0	No	No
Benzene (ug/L)	2023/01/10	<MDL 0.32	1.0	No	No
Benzo(a)pyrene (ug/L)	2023/01/10	<MDL 0.004	0.01	No	No
Bromoxynil (ug/L)	2023/01/10	<MDL 0.33	5.0	No	No
Carbaryl (ug/L)	2023/01/10	<MDL 0.05	90.0	No	No
Carbofuran (ug/L)	2023/01/10	<MDL 0.01	90.0	No	No
Carbon Tetrachloride (ug/L)	2023/01/10	<MDL 0.17	2.0	No	No
Chlorpyrifos (ug/L)	2023/01/10	<MDL 0.02	90.0	No	No
Diazinon (ug/L)	2023/01/10	<MDL 0.02	20.0	No	No
Dicamba (ug/L)	2023/01/10	<MDL 0.2	120.0	No	No
1,2-Dichlorobenzene (ug/L)	2023/01/10	<MDL 0.41	200.0	No	No
1,4-Dichlorobenzene (ug/L)	2023/01/10	<MDL 0.36	5.0	No	No
1,2-Dichloroethane (ug/L)	2023/01/10	<MDL 0.35	5.0	No	No
1,1-Dichloroethylene (ug/L)	2023/01/10	<MDL 0.33	14.0	No	No
Dichloromethane (Methylene Chloride) (ug/L)	2023/01/10	<MDL 0.35	50.0	No	No
2,4-Dichlorophenol (ug/L)	2023/01/10	<MDL 0.15	900.0	No	No
2,4-Dichlorophenoxy acetic acid (2,4-D) (ug/L)	2023/01/10	<MDL 0.19	100.0	No	No
Diclofop-methyl (ug/L)	2023/01/10	<MDL 0.4	9.0	No	No
Dimethoate (ug/L)	2023/01/10	<MDL 0.06	20.0	No	No

Diquat (ug/L)	2023/01/10	<MDL 1.0	70.0	No	No
Diuron (ug/L)	2023/01/10	<MDL 0.03	150.0	No	No
Glyphosate (ug/L)	2023/01/10	<MDL 1.0	280.0	No	No
Malathion (ug/L)	2023/01/10	<MDL 0.02	190.0	No	No
Metolachlor (ug/L)	2023/01/10	<MDL 0.01	50.0	No	No
Metribuzin (ug/L)	2023/01/10	<MDL 0.02	80.0	No	No
Monochlorobenzene (Chlorobenzene) (ug/L)	2023/01/10	<MDL 0.3	80.0	No	No
Paraquat (ug/L)	2023/01/10	<MDL 1.0	10.0	No	No
PCB (ug/L)	2023/01/10	<MDL 0.04	3.0	No	No
Pentachlorophenol (ug/L)	2023/01/10	<MDL 0.15	60.0	No	No
Phorate (ug/L)	2023/01/10	<MDL 0.01	2.0	No	No
Picloram (ug/L)	2023/01/10	<MDL 1.0	190.0	No	No
Prometryne (ug/L)	2023/01/10	<MDL 0.03	1.0	No	No
Simazine (ug/L)	2023/01/10	<MDL 0.01	10.0	No	No
Terbufos (ug/L)	2023/01/10	<MDL 0.01	1.0	No	No
Tetrachloroethylene (ug/L)	2023/01/10	<MDL 0.35	10.0	No	No
2,3,4,6-Tetrachlorophenol (ug/L)	2023/01/10	<MDL 0.2	100.0	No	No
Triallate (ug/L)	2023/01/10	<MDL 0.01	230.0	No	No
Trichloroethylene (ug/L)	2023/01/10	<MDL 0.44	5.0	No	No
2,4,6-Trichlorophenol (ug/L)	2023/01/10	<MDL 0.25	5.0	No	No
Trifluralin (ug/L)	2023/01/10	<MDL 0.02	45.0	No	No
Vinyl Chloride (ug/L)	2023/01/10	<MDL 0.17	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