



Ontario Clean Water Agency
Agence Ontarienne Des Eaux



Annual Performance Report

Union Water Supply System

Drinking Water System # 210000853

2021

**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-2021 to 31-December-2021

<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;"> 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 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 66,722.

The treatment process includes raw water pH control, chemically assisted up-flow clarification, 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:**
- DelPac 2020 – Coagulant
 - DelPac XG-15 - Coagulant
 - Magnafloc LT22S (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

	<u>Item Description</u>	Expenditures to 2021 Year End
	<u>Capital Works and Major Maintenance</u>	
	Dissolved Air Flotation (DAF) Phase I Construction	\$2,258,129
	Kingsville Water Tower Recoating and Improvements	\$1,711,965
	Filter #2 and #4 Rehabilitation and Upgrades	\$763,592
	Low Lift Main Electrical Upgrades	\$172,776
	Distribution System Water Monitoring System	\$172,769
	SCADA PLC and Communication Upgrades	\$128,406
	Former Ammonia Building Retrofits	\$94,436
	New Laboratory Construction	\$81,434
	Kingsville Water Tower New Utility Building Design/Construction	\$55,889
	Low Lift Wet Well Algae Monitoring System	\$50,524
	Low Lift Pump #6 Rehabilitation	\$40,183
	Essex Water Tower New Cathodic Protection System	\$33,434
	Clarifier #3 New Water Meter	\$11,937
	High Lift Pump #4 Improvements	\$8,554
	Total Capital Works/Major Maintenance:	\$5,584,028

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
Apr 26, 2021	TC	1	cfu/100ml	Resample	Apr 28, 2021

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 - 400	2-400	0	N/A
Treated	52	0 – 0	0 – 0	52	<10 - <10
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	0.00 - 1.64	NTU
Chlorine - Free	8760	0.94 - 1.70	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 of Measure
Nov 26, 2021	Suspended Solids	Jan 05/21	3	mg/L
	Suspended Solids	Feb 01/21	3	mg/L
	Suspended Solids	Mar 15/21	3	mg/L
	Suspended Solids	April 06/21	3	mg/L
	Suspended Solids	May 03/21	3	mg/L
	Suspended Solids	June 07/21	3	mg/L
	Suspended Solids	July 05/21	3	mg/L
	Suspended Solids	Aug 04/21	3	mg/L
	Suspended Solids	Sept 07/21	3	mg/L
	Suspended Solids	Oct 04/21	3	mg/L
	Suspended Solids	Nov 04/21	3	mg/L
	Suspended Solids	Dec 14/21	3	mg/L

Date of legal instrument issued	Parameter	Date Sampled	Result	Unit of Measure
Nov 26, 2021	Total Chlorine residuals	Jan 04 2021	0.13	mg/L
	Total Chlorine residuals	Feb 01 2021	0.04	mg/L
	Total Chlorine residuals	Mar 01 2021	0.03	mg/L
	Total Chlorine residuals	Apr 08 2021	0.02	mg/L
	Total Chlorine residuals	May 03 2021	0.09	mg/L
	Total Chlorine residuals	June 08 2021	0.10	mg/L
	Total Chlorine residuals	July 06 2021	0.05	mg/L
	Total Chlorine residuals	Aug 04 2021	0.11	mg/L
	Total Chlorine residuals	Sept 07 2021	0.07	mg/L
	Total Chlorine residuals	Oct 04 2021	0.08	mg/L
	Total Chlorine residuals	Nov 01 2021	0.06	mg/L
	Total Chlorine residuals	Dec 06 2021	0.13	mg/L

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

Parameter	Sample Date	Result Value	Unit of Measure	Exceedance
Antimony	2021/01/05	<MDL 0.9	ug/L	No
Arsenic	2021/01/05	<MDL 0.2	ug/L	No
Barium	2021/01/05	15.0	ug/L	No
Boron	2021/01/05	16.0	ug/L	No
Cadmium	2021/01/05	0.003	ug/L	No
Chromium	2021/01/05	0.75	ug/L	No
*Lead		N/A	N/A	N/A
Mercury	2021/01/05	<MDL 0.01	ug/L	No
Selenium	2021/01/05	0.09	ug/L	No
Uranium	2021/01/05	0.123	ug/L	No
Sodium	2021/01/05	7.35	mg/L	No
Fluoride	2021/01/05	0.06	mg/L	No

***only for drinking water systems testing under Schedule 15.2; this includes large municipal non-residential systems, small municipal non-residential systems, non-municipal seasonal residential systems, large non-municipal non-residential systems, and small non-municipal non-residential systems**

Parameter	Sample Date	Result Value	Unit of Measure	Exceedance
Nitrite (N)	04-Jan-2021	<0.10	mg/L	No
Nitrate (N)		0.60	mg/L	No
Ammonia N-Total		0.01	mg/L	No
Nitrite (N)	07-Apr-2021	<0.10	mg/L	No
Nitrate (N)		0.50	mg/L	No
Ammonia N-Total		0.04	mg/L	No
Nitrite (N)	05-July-2021	< 0.10	mg/L	No
Nitrate (N)		0.30	mg/L	No
Ammonia N-Total		0.07	mg/L	No
Nitrite (N)	07-Oct-2021	<0.10	mg/L	No
Nitrate (N)		0.20	mg/L	No
Ammonia N-Total		0.16	mg/L	No

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

Parameter	Sample Date (yyyy/mm/dd)	Sample Result	Unit of Measure	Exceedance
Alachlor	2021/01/05	<MDL 0.02	ug/L	No
Atrazine + N-dealkylated metabolites	2021/01/05	<MDL 0.01	ug/L	No
Azinphos-methyl	2021/01/05	<MDL 0.05	ug/L	No
Benzene	2021/01/05	<MDL 0.32	ug/L	No
Benzo(a)pyrene	2021/01/05	<MDL 0.004	ug/L	No
Bromoxynil	2021/01/05	<MDL 0.33	ug/L	No
Carbaryl	2021/01/05	<MDL 0.05	ug/L	No
Carbofuran	2021/01/05	<MDL 0.01	ug/L	No
Carbon Tetrachloride	2021/01/05	<MDL 0.17	ug/L	No
Chlorpyrifos	2021/01/05	<MDL 0.02	ug/L	No
Diazinon	2021/01/05	<MDL 0.02	ug/L	No
Dicamba	2021/01/05	<MDL 0.2	ug/L	No
1,2-Dichlorobenzene	2021/01/05	<MDL 0.41	ug/L	No
1,4-Dichlorobenzene	2021/01/05	<MDL 0.36	ug/L	No
1,2-Dichloroethane	2021/01/05	<MDL 0.35	ug/L	No
1,1-Dichloroethylene	2021/01/05	<MDL 0.33	ug/L	No
Dichloromethane (Methylene Chloride)	2021/01/05	<MDL 0.35	ug/L	No
2,4-Dichlorophenol	2021/01/05	<MDL 0.15	ug/L	No
2,4-Dichlorophenoxy acetic acid (2,4-D)	2021/01/05	<MDL 0.19	ug/L	No
Diclofop-methyl	2021/01/05	<MDL 0.4	ug/L	No
Dimethoate	2021/01/05	<MDL 0.06	ug/L	No
Diquat	2021/01/05	<MDL 1.0	ug/L	No

Diuron	2021/01/05	<MDL 0.03	ug/L	No
Glyphosate	2021/01/05	<MDL 1.0	ug/L	No
HAAAs (<i>Note: show latest running annual average</i>)		5.30	ug/L	No
Malathion	2021/01/05	<MDL 0.02	ug/L	No
Metolachlor	2021/01/05	<MDL 0.01	ug/L	No
Metribuzin	2021/01/05	<MDL 0.02	ug/L	No
Monochlorobenzene (Chlorobenzene)	2021/01/05	<MDL 0.3	ug/L	No
Paraquat	2021/01/05	<MDL 1.0	ug/L	No
PCB (ug/L) - TW	2021/01/05	<MDL 0.04	ug/L	No
Pentachlorophenol	2021/01/05	<MDL 0.15	ug/L	No
Phorate	2021/01/05	<MDL 0.01	ug/L	No
Picloram	2021/01/05	<MDL 1.0	ug/L	No
Prometryne	2021/01/05	<MDL 0.03	ug/L	No
Simazine	2021/01/05	<MDL 0.01	ug/L	No
Terbufos	2021/01/05	<MDL 0.01	ug/L	No
Tetrachloroethylene	2021/01/05	<MDL 0.35	ug/L	No
2,3,4,6-Tetrachlorophenol	2021/01/05	<MDL 0.2	ug/L	No
THMs (<i>Note: show latest running annual average</i>)		17.62	ug/L	No
Triallate	2021/01/05	<MDL 0.01	ug/L	No
Trichloroethylene	2021/01/05	<MDL 0.44	ug/L	No
2,4,6-Trichlorophenol	2021/01/05	<MDL 0.25	ug/L	No
Trifluralin	2021/01/05	<MDL 0.02	ug/L	No
Vinyl Chloride	2021/01/05	<MDL 0.17	ug/L	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
None			