



# Union Water Supply System

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**SENT BY: EMAIL**

February 16, 2023

Town of Essex  
33 Talbot Street South  
Essex, Ontario  
N8M 1A8

**Attention: Mr. Doug Sweet, Chief Administrative Officer**

Mr. Sweet,

RE: Annual Report (2022) Requirement Section 11, Reg. 170/03 and Summary Report (2022) Requirement Schedule 22, Reg. 170/03

Attached are the following items for the Essex Water Distribution System supplied by the UWSS:

1. Annual Report (Section 11, Reg. 170/03)
2. Summary Report (Schedule 22, Reg. 170/03).

## Annual Report

The Annual Report must be prepared before February 28, 2023 which requirement is now satisfied. It must also be provided to all members of Council, given at no charge to the public on request and posted on the municipal website.

## Summary Report

The Summary Report must be provided to all members of Council before March 31, 2023. Although the Report gives information for all parts of the UWSS, the information that refers to the Essex Water Distribution System satisfies the requirements of Schedule 22, Reg. 170/03.

Please call me if you have any questions or comments.

Yours truly,

Rodney Bouchard, General Manager

kmj

cc: Rob Mackie, Kevin Girard



**Ontario Clean Water Agency**  
**Agence Ontarienne Des Eaux**



**Annual Performance Report**

**Essex Distribution System**

**Drinking Water System # 220003680**

**2022**

Prepared for the Corporation of the Town of Essex

By the Ontario Clean Water Agency

**ANNUAL REPORT**

Drinking Water System Number:	220003680
Drinking Water System Name:	Essex Distribution System (Union WSS)
Drinking Water System Owner:	The Corporation of the Town of Essex
Drinking Water System Category:	Large Municipal Residential
Period being reported:	01-January-2022 to 31-December 2022

<p><b><u>Complete if your Category is Large Municipal Residential or Small Municipal Residential</u></b></p> <p>Does your Drinking Water System serve more than 10,000 people? Yes [ ] No [X]</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;"> <p>Town of Essex Municipal Office 33 Talbot St. South Essex, Ontario</p> </div>	<p><b><u>Complete for all other Categories</u></b></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
N/A	N/A

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 [ ] No [N/A]

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**

Stand Alone Distribution System. Serving the northern portion of the Town of Essex with a population of approx. 9,500.

**List all water treatment chemicals used over this reporting period**

N/A

**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**

Replace 300m of 150mm Ductile Iron with 150mm PVC on Victor St- \$330,000  
 Replace 430m of 150mm Ductile Iron with 200mm PVC on Brien Ave W- \$360,000

**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
None					

**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	Please see the Annual Report for the Union Water Supply System # 210000853				
Treated	Please see the Annual Report for the Union Water Supply System # 210000853				
Distribution	307	0-0	0-0	153	<10 - <20

**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	Please see the Annual Report for the Union Water Supply System # 210000853		
Chlorine	465	0.39 – 1.81	mg/L
Fluoride (If the DWS provides fluoridation)	N/A		

**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
None				

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

Parameter	Sample Date	Result Value	Unit of Measure	Exceedance
Nitrite (N)	10-Jan-2022	<0.1	mg/L	No
Nitrate (N)		0.6	mg/L	No
Ammonia N-Total		0.02	mg/L	No
Nitrite (N)	06-Apr-2022	<0.1	mg/L	No
Nitrate (N)		0.5	mg/L	No
Ammonia N-Total		0.52	mg/L	No
Nitrite (N)	06-July-2022	< 0.1	mg/L	No
Nitrate (N)		0.3	mg/L	No
Ammonia N-Total		<0.01	mg/L	No
Nitrite (N)	03-Oct-2022	<0.1	mg/L	No
Nitrate (N)		0.1	mg/L	No
Ammonia N-Total		0.05	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 #)	Unit of Measure	Number of Exceedances
Plumbing	N/A			
Distribution	11	0.08 – 0.35	ug/L	None

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

Parameter	Sample Date	Result Value	Unit of Measure	Exceedance
THM (NOTE: show latest annual average)	Annual Average	27.75	ug/L	No
HAA (NOTE: show latest annual average)	Annual Average	14.80	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			

# UNION WATER SUPPLY SYSTEM SUMMARY REPORT 2022

Made under Schedule 22 of Ontario Regulation 170/03, a regulation made under the Safe Drinking Water Act, 2002

## EXPLANATION

Schedule 22 of Ontario Regulation 170/03, a regulation made under the Safe Drinking Water Act, 2002 requires that a large municipal residential drinking-water system that is owned by a municipality, municipal board or municipal corporation must provide to its councillors or board members a Summary Report on various aspects of the system before March 31<sup>st</sup> of the following year. The Union Water Supply System is classed as a large municipal residential drinking-water system and is therefore subject to Schedule 22.

The Summary Report must list the following:

- Any requirements of the Safe Drinking Water Act, 2002 that the system failed to meet during the period covered by the Summary Report
- Any requirements of the regulations made under the Safe Drinking Water Act, 2002 that the system failed to meet during the period covered by the Summary Report
- Any condition of the drinking-water system's drinking water works permit or municipal drinking water license that the system failed to meet during the period covered by the Summary Report
- Any order that the system failed to meet during the period covered by the Summary Report, the duration of any such failure and any measures that were taken to correct such failure
- A summary of the quantities and flow rates of water supplied by the drinking-water system by monthly average and maximum daily flow rates and instantaneous peak flow rates
- A comparison of actual flow rates with rated capacity and flow rates in the systems approval

A drinking-water system that supplies water to another drinking water system must provide a copy of the Summary Report to that system's owner by March 31<sup>st</sup> of the year following the year covered in the Summary Report.

The sections below details the occasions on which the Union Water Supply System (UWSS) and the connected municipal water systems failed to meet the requirements of the Safe Drinking Water Act 2002, associated regulations, system approvals and provincial officer orders in 2022.

## **UNION WATER SUPPLY SYSTEM (UWSS)**

The following provides details of occurrences where the Union Water Supply System was not in compliance with the requirements of the Safe Drinking Water Act 2002, associated regulations, system approvals and provincial officer orders.

### ***Non-Compliance Item:***

There were no non-compliances or Adverse Water Quality Incidents (AWQIs) identified for the portion of the Union Water common Distribution System that is supplied by Union Water Supply System.

## LEAMINGTON WATER DISTRIBUTION SYSTEM

### *Non-Compliance Item:*

There was one (1) instance of non-compliances or Adverse Water Quality Incidents (AWQIs) identified for the portion of the Leamington Distribution System that is supplied by the Union Water Supply System

- Chlorine residual sampling collected on December 30<sup>th</sup>, 2022 were collected less than 48 hours after weekly chlorine residual sampling earlier in the week, due to miscalculation of the holiday sample schedule. MECP were notified of non-compliance & no corrective activities were required.

## KINGSVILLE WATER DISTRIBUTION SYSTEM

### *Non-Compliance Item:*

There was one (1) instance of non-compliances or Adverse Water Quality Incidents (AWQIs) identified for the portion of the Kingsville Distribution System that is supplied by the Union Water Supply System.

- Chlorine residual sampling collected on December 30<sup>th</sup>, 2022 were collected less than 48 hours after weekly chlorine residual sampling earlier in the week, due to miscalculation of the holiday sample schedule. MECP were notified of non-compliance & no corrective activities were required.

## ESSEX WATER DISTRIBUTION SYSTEM

### *Non-Compliance Item:*

There were no non-compliances or Adverse Water Quality Incidents (AWQIs) identified for the portion of the Essex Distribution System that is supplied by the Union Water Supply System.

## LAKESHORE WATER DISTRIBUTION SYSTEM

### *Non-Compliance Item:*

There was one (1) instance of non-compliance or Adverse Water Quality Incidents (AWQI) identified for the portion of the Lakeshore Distribution System that is supplied by the Union Water Supply System

- Chlorine residual sampling collected on December 30<sup>th</sup>, 2022 were collected less than 48 hours after weekly chlorine residual sampling earlier in the week, due to miscalculation of the holiday sample schedule. MECP were notified of non-compliance & no corrective activities were required.

## Summary of the Quantities

The following sections provide information in regards to the Union Water Supply System's Permit to Take Water, issued under Ontario Regulation 387/04 and Drinking Water License issued under the Safe Drinking Water Act, 2002. Information includes the following:

- Flow Rates of Water
- Monthly Average
- Maximum Daily Flows
- Daily Instantaneous Peak Flow Rates

## PERMIT TO TAKE WATER

The Union Water Supply System operated under Permit to Take Water (PTTW) Number 0816-9T9SVT, which expires at the end of 2025. The PTTW has the following flow conditions:

- Maximum Allowable Amount Taken per Minute (Litres/Min) 113,650
- Maximum Allowable Amount Taken Per Day (Litres/Day) 163,656,000

The maximum amounts of raw water taken during 2022 (see Table 1 below) are as follows:

- Maximum Amount Taken per Minute in 2022 (Litres/Min) 89,268
- Maximum Amount Taken Per Day in 2022 (Litres/Day) 103,288,000

The system did not exceed the PTTW limits in 2022.

## DRINKING WATER LICENSE

The UWSS operates under Municipal Drinking Water Licence 041-101; issue Number 7 which has been issued for the period July 18, 2021 to July 17, 2024. The Certificate of Approval and licence had the following condition:

- The drinking water system shall not be operated to exceed 124,588 m<sup>3</sup>/d (27.4 MIGD) on any calendar day, conveyed from the treatment system to the distribution system.
- The maximum daily volume of water pumped into the distribution system was 99,170m<sup>3</sup> (21.81 MIGD).

Tables 1A through 3B below provide the monthly average, maximum and peak flows for raw and treated water for the Union Water Supply System.

**Table 1A**  
**2022 Raw Water Taking from Lake Erie in Metric Units**

	Maximum Allowed Flow Rate (m3/Day)	Average Flow (m3/Day)	Maximum Flow (m3/Day)	Maximum Flow (Litres/Day)	Maximum Allowed Flow Rate (Litres/Minute)	Peak Flow (Litres/Minute)
January	163,656	34,658	43,388	43,388,000	113,650	37,798
February	163,656	49,472	61,396	61,396,000	113,650	46,650
March	163,656	50,511	60,935	60,935,000	113,650	53,987
April	163,656	56,479	74,094	74,094,000	113,650	59,943
May	163,656	69,848	94,997	94,997,000	113,650	69,900
June	163,656	86,901	103,288	103,288,000	113,650	75,118
July	163,656	84,496	98,554	98,554,000	113,650	74,775
August	163,656	80,493	98,347	98,347,000	113,650	78,988
September	163,656	80,268	101,488	101,488,000	113,650	89,268
October	163,656	57,398	74,718	74,718,000	113,650	64,684
November	163,656	43,994	50,634	50,634,000	113,650	49,688
December	163,656	40,372	46,778	46,778,000	113,650	38,585

**Table 1B**  
**2022 Raw Water Taking from Lake Erie in Imperial Units**

	Maximum Allowed Flow Rate (MGD)	Average Flow (MGD)	Maximum Flow (MGD)	Maximum Allowed Flow Rate (Gallons/Minute)	Peak Flow (Gallons/Minute)
January	36.00	7.62	9.54	25,000	8,314
February	36.00	10.88	13.51	25,000	10,262
March	36.00	11.11	13.40	25,000	11,875
April	36.00	12.42	16.30	25,000	13,186
May	36.00	15.36	20.90	25,000	15,376
June	36.00	19.12	22.72	25,000	16,524
July	36.00	18.59	21.68	25,000	16,448
August	36.00	17.71	21.63	25,000	17,375
September	36.00	17.66	22.32	25,000	19,636
October	36.00	12.63	16.44	25,000	14,228
November	36.00	9.68	11.14	25,000	10,930
December	36.00	8.88	10.29	25,000	8,488

**Table 2A**

**2022 Treated Water Flow Into Distribution System in Metric Units**

	<b>Maximum Allowed Flow Rate (m<sup>3</sup>/Day)</b>	<b>Average Daily Flow (m<sup>3</sup>/Day)</b>	<b>Maximum Daily Flow (m<sup>3</sup>/Day)</b>	<b>Peak Instantaneous Flow (Litres/ Second)</b>
January	124,588	36,145	44,688	967
February	124,588	41,687	46,418	952
March	124,588	47,266	56,904	1,111
April	124,588	53,599	71,478	1,381
May	124,588	66,542	92,135	1,498
June	124,588	82,088	99,170	1,632
July	124,588	80,042	93,220	1,738
August	124,588	74,141	85,527	1,627
September	124,588	70,201	84,126	1,645
October	124,588	53,367	70,815	1,370
November	124,588	41,243	49,572	1,105
December	124,588	37,264	44,019	904

**Table 2B**

**2022 Treated Water Flow Into Distribution System in Imperial Units**

	<b>Maximum Allowed Flow Rate (MGD)</b>	<b>Average Daily Flow (MGD)</b>	<b>Maximum Daily Flow (MGD)</b>	<b>Peak Instantaneous Flow (Gallons/ Second)</b>
January	27.4	7.95	9.83	213
February	27.4	9.17	10.21	209
March	27.4	10.40	12.52	244
April	27.4	11.79	15.73	304
May	27.4	14.64	20.27	330
June	27.4	18.06	21.82	359
July	27.4	17.61	20.51	382
August	27.4	16.31	18.82	358
September	27.4	15.44	18.51	362
October	27.4	11.74	15.58	301
November	27.4	9.07	10.91	243
December	27.4	8.20	9.68	199

**Table 3A**  
**2022 Treated Flow to Local Municipalities in Metric Units**

	<u>Leamington</u>		<u>Kingsville</u>		<u>Essex</u>		<u>Lakeshore</u>	
	Monthly Total (m3)	Average Day (m3/day)						
January	600,903	19,384	402,767	12,992	64,599	2,084	51,337	1,656
February	652,384	22,496	414,037	14,277	62,960	2,171	46,049	1,588
March	828,623	26,730	531,390	17,142	67,196	2,168	49,190	1,587
April	876,099	29,203	536,663	17,889	64,544	2,151	52,312	1,744
May	1,213,778	39,154	760,758	24,541	83,012	2,678	59,108	1,907
June	1,401,029	46,701	908,702	30,290	93,402	3,113	67,324	2,244
July	1,321,395	42,626	857,560	27,663	92,477	2,983	67,143	2,166
August	1,374,900	44,352	929,799	29,994	98,340	3,172	70,584	2,277
September	1,151,025	38,368	832,563	27,752	94,511	3,150	62,333	2,078
October	944,134	30,456	590,904	19,061	80,924	2,610	60,290	1,945
November	714,566	23,819	420,828	14,028	66,732	2,224	51,337	1,711
December	633,983	20,451	345,241	11,137	68,900	2,223	78,643	2,537
<b>Total</b>	<b>11,712,819</b>	<b>31,978</b>	<b>7,531,212</b>	<b>20,564</b>	<b>937,597</b>	<b>2,561</b>	<b>715,650</b>	<b>1,953</b>

**Table 3A**  
**2022 Treated Flow to Local Municipalities in Imperial Units**

	<u>Leamington</u>		<u>Kingsville</u>		<u>Essex</u>		<u>Lakeshore</u>	
	Monthly Total (Imperial Gallons)	Average Day (MGD)	Monthly Total (Imperial Gallons)	Average Day (MGD)	Monthly Total (Imperial Gallons)	Average Day (MGD)	Monthly Total (Imperial Gallons)	Average Day (MGD)
January	132,180,181	4.26	88,596,354	2.86	14,209,793	0.46	11,292,561	0.36
February	143,504,418	4.95	91,075,408	3.14	13,849,264	0.48	10,129,364	0.35
March	182,271,578	5.88	116,889,459	3.77	14,781,054	0.48	10,820,287	0.35
April	192,714,838	6.42	118,049,357	3.93	14,197,695	0.47	11,507,031	0.38
May	266,993,834	8.61	167,343,365	5.40	18,260,087	0.59	13,001,942	0.42
June	308,183,296	10.27	199,886,496	6.66	20,545,568	0.68	14,809,210	0.49
July	290,666,265	9.38	188,636,829	6.09	20,342,096	0.66	14,769,395	0.48
August	302,435,719	9.76	204,527,187	6.60	21,631,776	0.70	15,526,309	0.50
September	253,190,104	8.44	183,138,257	6.10	20,789,514	0.69	13,711,343	0.46
October	207,680,446	6.70	129,980,709	4.19	17,800,791	0.57	13,261,946	0.43
November	157,182,546	5.24	92,569,219	3.09	14,678,988	0.49	11,292,561	0.38
December	139,456,764	4.50	75,942,403	2.45	15,155,881	0.49	17,299,042	0.56
<b>Total</b>	<b>2,576,459,991</b>	<b>7.03</b>	<b>1,656,635,042</b>	<b>4.52</b>	<b>206,242,507</b>	<b>0.56</b>	<b>157,420,993</b>	<b>0.43</b>