



Union Water Supply System

P.O. Box 340, 1615 Union Avenue, Ruthven, Ontario, N0P 2G0

Tele: 519-326-1668 Fax: 519-326-3490

Email: rbouchard@unionwater.ca

www.unionwater.ca

SENT BY: EMAIL

February 14, 2022

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

Attention: Mr. Doug Sweet, Chief Administrative Officer

Mr. Sweet,

RE: Annual Report (2021) Requirement Section 11, Reg. 170/03 and Summary Report (2021) 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, 2022 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, 2022. 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: Andy Graf, Kevin Girard



Ontario Clean Water Agency
Agence Ontarienne Des Eaux



Annual Performance Report

Essex Distribution System

Drinking Water System # 220003680

2021

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-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 [] 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><u>Complete for all other Categories</u></p> <p>Number of Designated Facilities served: <div style="border: 1px solid black; padding: 2px 10px;">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 10px;">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

Approximately \$40,000.00 expenses incurred in 2021 to repair/replace hydrants and main line valves in various locations.

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	306	0-0	0-0	154	<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	468	0.35-1.78	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)	04-Jan-2021	<0.1	mg/L	No
Nitrate (N)		0.6	mg/L	No
Ammonia N-Total		0.01	mg/L	No
Nitrite (N)	07-Apr-2021	<0.1	mg/L	No
Nitrate (N)		0.5	mg/L	No
Ammonia N-Total		0.04	mg/L	No
Nitrite (N)	05-July-2021	< 0.1	mg/L	No
Nitrate (N)		0.3	mg/L	No
Ammonia N-Total		0.07	mg/L	No
Nitrite (N)	07-Oct-2021	<0.1	mg/L	No
Nitrate (N)		0.2	mg/L	No
Ammonia N-Total		0.16	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

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	12	0.06-0.31	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	36.00	ug/L	No
HAA (NOTE: show latest annual average)	Annual Average	14.18	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 2021

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 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 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 2021.

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 were no 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

KINGSVILLE WATER DISTRIBUTION SYSTEM

Non-Compliance Item:

There were no 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.

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 Adverse Water Quality Incident (AWQI) identified for the portion of the Lakeshore Distribution System that is supplied by the Union Water Supply System

- AWQI #153950 on April 26, 2021 - sample taken at distribution station SS-LS-09 with a Total Coliform count of 1. Staff re-flushed and resampled the affected area upstream and downstream on April 28, 2021 and again April 29, 2021. Those samples were returned clean.

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 2021 (see Table 1 below) are as follows:

- | | |
|--|------------|
| • Maximum Amount Taken per Minute in 2021 (Litres/Min) | 93,533 |
| • Maximum Amount Taken Per Day in 2021 (Litres/Day) | 93,829,000 |

The system did not exceed the PTTW limits in 2021.

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 m³/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 97,115m³ (21.37 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
2021 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	43,045	62,827	62,827,000	113,650	49,592
February	163,656	48,190	58,630	58,630,000	113,650	62,980
March	163,656	55,166	62,156	62,156,000	113,650	55,661
April	163,656	56,792	68,937	68,937,000	113,650	57,756
May	163,656	69,355	98,759	98,759,000	113,650	74,181
June	163,656	73,788	95,295	95,295,000	113,650	72,394
July	163,656	69,739	87,409	87,409,000	113,650	68,935
August	163,656	75,281	90,747	90,747,000	113,650	73,535
September	163,656	72,915	90,977	90,977,000	113,650	71,901
October	163,656	50,676	74,424	74,424,000	113,650	55,652
November	163,656	38,168	44,796	44,796,000	113,650	38,268
December	163,656	31,829	36,606	36,606,000	113,650	37,034

Table 1B
2021 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	9.47	13.82	25,000	10,909
February	36.00	10.60	12.90	25,000	13,854
March	36.00	12.13	13.67	25,000	12,244
April	36.00	12.49	15.16	25,000	12,705
May	36.00	15.26	21.72	25,000	16,318
June	36.00	16.23	20.96	25,000	15,925
July	36.00	15.34	19.23	25,000	15,164
August	36.00	16.56	19.96	25,000	16,175
September	36.00	16.04	20.01	25,000	15,816
October	36.00	11.15	16.37	25,000	12,242
November	36.00	8.40	9.85	25,000	8,418
December	36.00	7.00	8.05	25,000	8,146

Table 2A
2021 Treated Water Flow Into Distribution System in Metric Units

	Maximum Allowed Flow Rate (m3/Day)	Average Daily Flow (m3/Day)	Maximum Daily Flow (m3/Day)	Peak Instantaneous Flow (Litres/ Second)
January	124,588	35,412	43,089	867
February	124,588	42,940	52,064	1,082
March	124,588	52,147	60,411	1,290
April	124,588	55,124	64,701	1,421
May	124,588	66,355	93,829	1,559
June	124,588	70,565	93,018	1,412
July	124,588	67,393	84,977	1,483
August	124,588	72,317	85,904	1,520
September	124,588	69,774	88,348	1,553
October	124,588	48,573	73,541	1,301
November	124,588	37,603	45,064	1,022
December	124,588	33,997	41,751	725

Table 2B
2021 Treated Water Flow Into Distribution System in Imperial Units

	Maximum Allowed Flow Rate (MGD)	Average Daily Flow (MGD)	Maximum Daily Flow (MGD)	Peak Instantaneous Flow (Gallons/ Second)
January	27.4	7.79	9.48	191
February	27.4	9.45	11.45	238
March	27.4	11.47	13.29	284
April	27.4	12.13	14.23	313
May	27.4	14.60	20.64	343
June	27.4	15.52	20.46	311
July	27.4	14.83	18.69	326
August	27.4	15.91	18.90	334
September	27.4	15.35	19.44	342
October	27.4	10.69	16.18	286
November	27.4	8.27	9.91	225
December	27.4	7.48	9.19	159

Table 3A
2021 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)	Monthly Total (m3)	Average Day (m3/day)	Monthly Total (m3)	Average Day (m3/day)	Monthly Total (m3)	Average Day (m3/day)
January	597,955	19,289	413,553	13,340	63,448	2,047	56,196	1,813
February	651,665	22,471	446,492	15,396	57,917	1,997	48,796	1,683
March	852,325	27,494	587,107	18,939	62,619	2,020	52,039	1,679
April	938,051	31,268	588,802	19,627	67,880	2,263	55,937	1,865
May	1,186,723	38,281	717,110	23,133	84,048	2,711	66,555	2,147
June	1,217,763	40,592	757,780	25,259	97,745	3,258	64,601	2,153
July	1,182,358	38,141	678,975	21,902	76,254	2,460	58,306	1,881
August	1,281,944	41,353	858,684	27,699	85,247	2,750	60,437	1,950
September	1,184,630	39,488	721,091	24,036	73,322	2,444	63,105	2,104
October	898,754	28,992	486,209	15,684	78,827	2,543	52,904	1,707
November	680,031	22,668	401,902	13,397	67,752	2,258	56,196	1,873
December	570,190	18,393	378,959	12,224	65,574	2,115	32,273	1,041
Total	11,242,389	30,703	7,036,664	19,220	880,633	2,406	667,345	1,824

Table 3A
2021 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	131,531,712	4.24	90,968,943	2.93	13,956,609	0.45	12,361,392	0.40
February	143,346,260	4.94	98,214,510	3.39	12,739,959	0.44	10,733,619	0.37
March	187,485,290	6.05	129,145,485	4.17	13,774,254	0.44	11,446,980	0.37
April	206,342,373	6.88	129,518,333	4.32	14,931,513	0.50	12,304,420	0.41
May	261,042,566	8.42	157,742,148	5.09	18,487,975	0.60	14,640,053	0.47
June	267,870,412	8.93	166,688,297	5.56	21,500,894	0.72	14,210,233	0.47
July	260,082,400	8.39	149,353,620	4.82	16,773,535	0.54	12,825,527	0.41
August	281,988,258	9.10	188,884,074	6.09	18,751,719	0.60	13,294,281	0.43
September	260,582,171	8.69	158,617,845	5.29	16,128,585	0.54	13,881,159	0.46
October	197,698,242	6.38	106,951,028	3.45	17,339,516	0.56	11,637,253	0.38
November	149,585,908	4.99	88,406,081	2.95	14,903,357	0.50	12,361,392	0.41
December	125,424,266	4.05	83,359,326	2.69	14,424,263	0.47	7,099,068	0.23
Total	2,472,979,857	6.75	1,547,849,691	4.23	193,712,179	0.53	146,795,378	0.40