



Union Water Supply System

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SENT BY: EMAIL

February 19, 2020

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

Attention: Mr. Chris Nepszy, Chief Administrative Officer

Dear Mr. Nepszy,

RE: Annual Report (2019) Requirement Section 11, Reg. 170/03 and Summary Report (2019) 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, 2020 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, 2020. 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, Manager

kmj

cc: Jeff Morrison, Andy Graf

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Ontario Clean Water Agency
Agence Ontarienne Des Eaux



Annual Performance Report

Essex Distribution System

Drinking Water System # 220003680

2019

Prepared for the Corporation of the Town of Essex

By the Ontario Clean Water Agency

Sam Wen

Process & Compliance Technician

swen@ocwa.com

519-326-4447



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-2019 to 31-December 2019

<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:</p> <div style="border: 1px solid black; padding: 2px; width: 100px; margin: 5px auto;">N/A</div> <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:</p> <div style="border: 1px solid black; padding: 2px; width: 100px; margin: 5px auto;">N/A</div> <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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List all Drinking-Water Systems (if any), which receive all of 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 of its 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

Miscellaneous repairs/maintenance on distribution system-\$35,000.00

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
Sept 17, 2019	Total Colifoms	>200	Cfu/100ml	Flushing, Resampling and boil water advisory	Sept 19, 2019



Microbiological testing done under Schedule 10, 11 or 12 of regulation 170/03, during this reporting period.

	Number of Samples	Range of E.Coli Or Fecal 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	313	0-0	0-0	147	<10-260

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 #)
Turbidity	Please see the Annual Report for the Union Water Supply System # 210000853	
Free Chlorine	469	Max: 1.59 mg/l Min: 0.17 mg/l Avg: 0.89 mg/l
Fluoride (If the DWS provides fluoridation)	N/A	

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

*NOTE: Record the unit of measure if it is **not** milligrams per litre.*

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	October 09, 2019	<0.1	mg/L	No
Nitrate	October 09, 2019	0.1	mg/L	No
Nitrate + Nitrite (N)	October 09, 2019	0.2	mg/L	No
Ammonia (N) -Total	October 09, 2019	0.18	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 Results (min#) – (max #)		MAC (ug/L)	Number of Exceedances
		Minimum	Maximum		
Distribution – Lead Results (ug/L)	n/a	n/a	n/a	n/a	n/a
Distribution – Alkalinity (mg/L)	6	39	80	n/a	n/a
Distribution – pH In-House	6	7.64	7.88	n/a	n/a

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	37.66	ug/L	No
HAA (NOTE: show latest annual average)	Annual Average	24.6	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 2019

For the Union Water Supply System
(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 must provide to its 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 all of the municipal water systems that obtain water from it are classified as large municipal residential drinking-water systems and are therefore subject to Schedule 22.

The Summary Report must list the following:

- The requirements of the Safe Drinking Water Act, 2002 that the system failed to meet during the period covered by the Summary Report
- The 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 2019.

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:

The following Adverse Water Quality Incident (AWQI) identified for the Union Water Supply System.

There were no non-compliances or AWQIs identified for the portion of the Union Water Distribution System that is supplied by Union Water Supply System:

- It should be noted that the AWQI listed under the Kingsville Distribution System should actually be under the UWSS identifier

Leamington Water Distribution System

Non-Compliance Item:

The following Adverse Water Quality Incident (AWQI) identified for the Leamington Distribution System that is supplied by the Union Water Supply System.

There were no non-compliances or AWQIs identified for the portion of the Municipality of Leamington Distribution System that is supplied by Union Water Supply System:

Kingsville Water Distribution System

Non-Compliance Item:

The following Adverse Water Quality Incident (AWQI) identified for the Kingsville Distribution System that is supplied by the Union Water Supply System

- AWQI #145322 - May 2, 2019 operator received a Hi CL2 alarm at Cottam Boosters Station, for approximately 10 minutes. The faulty piece of equipment was replaced and affected municipalities were advised which areas to flush. Chlorine residuals were monitored and no further action was required. It should be noted that this incident should be under the UWSS distribution number.

Essex Water Distribution System

Non-Compliance Item:

The following Adverse Water Quality Incident (AWQI) identified for the Essex Distribution System that is supplied by the Union Water Supply System

- AWQI #148095 - September 16, 2019 adverse residual sample station SS-E-04 total coliform was >200. A precautionary boil water advisory was issued to the affected area by the WECHU. Samples were taken at SS-E-11 (upstream) and SS-E-14 (downstream) the following day and then again 24 hours later. All results were returned within the standards.

Lakeshore Water Distribution System

Non-Compliance Item:

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

There were no non-compliances or AWQIs identified for the portion of the Town of Lakeshore Water Distribution System that is supplied by Union Water Supply System:

SUMMARY OF THE QUANTITIES AND FLOW RATES OF WATER SUPPLIED DURING THE PERIOD COVERED BY THE REPORT, INCLUDING MONTHLY AVERAGE AND MAXIMUM DAILY FLOWS, AND DAILY INSTANTANEOUS PEAK FLOW RATES

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.

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 2019 (see Table 1 below) are as follows:

- Maximum Amount Taken per Minute in 2019 (Litres/Min) 71,798
- Maximum Amount Taken Per Day in 2019 (Litres/Day) 100,365,990

The system did not exceed the PTTW limits in 2019.

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, 2019 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 82,478 m³ (18.15 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
2019 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	31,995	61,220	61,220,080	113,650	28,259
February	163,656	40,869	53,326	53,326,470	113,650	40,892
March	163,656	42,761	74,916	74,915,990	113,650	42,064
April	163,656	48,642	70,046	70,046,240	113,650	57,110
May	163,656	49,376	61,068	61,067,650	113,650	55,634
June	163,656	59,517	79,101	79,100,560	113,650	71,798
July	163,656	73,513	86,007	86,007,260	113,650	68,474
August	163,656	69,689	81,394	81,393,520	113,650	66,688
September	163,656	61,052	70,682	70,681,860	113,650	60,772
October	163,656	54,948	100,366	100,365,990	113,650	60,879
November	163,656	37,286	75,876	75,876,100	113,650	38,617
December	163,656	32,147	58,343	58,342,540	113,650	38,482

Table 1B
2019 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	7.04	13.47	25,000	6,216
February	36.00	8.99	11.73	25,000	8,995
March	36.00	9.41	16.48	25,000	9,253
April	36.00	10.70	15.41	25,000	12,563
May	36.00	10.86	13.43	25,000	12,238
June	36.00	13.09	17.40	25,000	15,793
July	36.00	16.17	18.92	25,000	15,062
August	36.00	15.33	17.90	25,000	14,669
September	36.00	13.43	15.55	25,000	13,368
October	36.00	12.09	22.08	25,000	13,391
November	36.00	8.20	16.69	25,000	8,495
December	36.00	7.07	12.83	25,000	8,465

Table 2A

2019 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	29,373	55,708	685
February	124,588	33,443	40,327	682
March	124,588	38,497	47,991	1,026
April	124,588	41,689	51,857	1,080
May	124,588	46,346	57,218	1,200
June	124,588	57,981	76,896	1,395
July	124,588	72,828	84,521	1,478
August	124,588	65,593	77,862	1,401
September	124,588	57,065	65,849	1,404
October	124,588	45,270	78,972	1,220
November	124,588	33,068	68,468	849
December	124,588	28,897	50,254	716

Table 2B

2019 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	6.46	12.26	151
February	27.4	7.36	8.87	150
March	27.4	8.47	10.56	226
April	27.4	9.17	11.41	238
May	27.4	10.20	12.59	264
June	27.4	12.76	16.92	307
July	27.4	16.02	18.59	325
August	27.4	14.43	17.13	308
September	27.4	12.55	14.49	309
October	27.4	9.96	17.37	268
November	27.4	7.28	15.06	187
December	27.4	6.36	11.06	157

Table 3A
2019 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	605,729	19,540	213,730	6,895	66,456	2,144	50,078	1,615
February	597,483	20,603	355,833	12,270	63,790	2,200	38,936	1,343
March	632,015	20,388	413,321	13,333	54,617	1,762	39,432	1,272
April	692,739	23,091	394,344	13,145	53,795	1,793	34,751	1,158
May	792,068	25,551	540,013	17,420	66,406	2,142	40,599	1,310
June	1,043,955	34,799	729,151	24,305	76,681	2,556	50,955	1,699
July	1,085,625	35,020	809,634	26,117	83,632	2,698	50,021	1,614
August	1,111,504	35,855	830,486	26,790	85,850	2,769	52,553	1,695
September	947,286	31,576	724,485	24,150	73,358	2,445	54,830	1,828
October	708,878	22,867	496,059	16,002	63,155	2,037	48,283	1,558
November	555,767	18,526	364,153	12,138	61,456	2,049	50,078	1,669
December	463,664	14,957	335,766	10,831	65,567	2,115	53,520	1,726
Total	9,236,713	25,231	6,206,975	16,950	814,763	2,226	564,036	1,541

Table 3A
2019 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	133,241,753	4.30	47,014,027	1.52	14,618,276	0.47	11,015,620	0.36
February	131,427,886	4.53	78,272,318	2.70	14,031,838	0.48	8,564,723	0.30
March	139,023,864	4.48	90,917,910	2.93	12,014,060	0.39	8,673,827	0.28
April	152,381,277	5.08	86,743,553	2.89	11,833,246	0.39	7,644,151	0.25
May	174,230,603	5.62	118,786,254	3.83	14,607,278	0.47	8,930,532	0.29
June	229,637,997	7.65	160,390,797	5.35	16,867,462	0.56	11,208,533	0.37
July	238,804,115	7.70	178,094,582	5.74	18,396,468	0.59	11,003,082	0.35
August	244,496,699	7.89	182,681,381	5.89	18,884,360	0.61	11,560,044	0.37
September	208,373,789	6.95	159,364,421	5.31	16,136,504	0.54	12,060,914	0.40
October	155,931,361	5.03	109,117,725	3.52	13,892,158	0.45	10,620,775	0.34
November	122,251,649	4.08	80,102,462	2.67	13,518,430	0.45	11,015,620	0.37
December	101,991,822	3.29	73,858,195	2.38	14,422,724	0.47	11,772,754	0.38
Total	2,031,792,815	5.55	1,365,343,625	3.73	179,222,805	0.49	124,070,575	0.34