

UNION WATER SUPPLY SYSTEM SUMMARY REPORT 2017

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 2017.

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.

- AWQI #137144 - October 7, 2017 failure to maintain coagulant continuously. It was discovered that coagulant was not flowing continuously to Clarifier #1 for approximately one hour (1) and six (6) minutes, due to pump failure. Maintenance personnel was called in to replace faulted out coagulant pump.

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.

- AWQI #133147 - May 24, 2017 - Bacteriologic adverse at sample station SS-L-17 with 7 Total Coliform. Town of Leamington staff flushed affected area, then a set of samples were taken upstream and downstream. A second set of samples were taken 24 hours later upstream and downstream. All results returned were within normal parameters.

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 #136615, 136667, 136715 - September 11, 2017, Bacteriologic adverse at sample station SS-K-37 with 27 Total Coliform. Town of Kingsville staff flushed affected area, then samples were taken upstream and downstream, this set resulted in similar results. After consulting with MOH, MOECC, and the Town of Kingsville it was determined that SS-K-37 would be decommissioned. Flushing of the area then took place with resampling occurring upstream and downstream and all sets were returned clean. The sample station was replaced.

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

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

Lakeshore Water Distribution 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 2017 (see Table 1 below) are as follows:

- Maximum Amount Taken per Minute in 2017 (Litres/Min) 58,301
- Maximum Amount Taken Per Day in 2017 (Litres/Day) 83,305,000

The system did not exceed the PTTW limits in 2017.

Drinking Water License

The UWSS operates under Municipal Drinking Water Licence 041-01; issue Number 4 which has been issued for the period July 21, 2014 to July 20, 2019. 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 71,369 m³ (15.699 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
2017 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	26,142	29,149	29,149,230	113,650	22,190
February	163,656	29,283	35,152	35,152,110	113,650	26,923
March	163,656	39,006	55,091	55,091,000	113,650	38,692
April	163,656	43,874	57,132	57,132,000	113,650	41,054
May	163,656	53,188	70,399	70,399,000	113,650	55,126
June	163,656	63,804	77,473	77,473,000	113,650	51,974
July	163,656	64,390	79,899	79,899,000	113,650	58,302
August	163,656	65,565	83,305	83,305,000	113,650	52,792
September	163,656	57,747	65,218	65,218,000	113,650	45,630
October	163,656	39,964	54,609	54,609,000	113,650	39,938
November	163,656	33,826	49,324	49,324,000	113,650	33,690
December	163,656	26,631	32,016	32,016,000	113,650	23,297

Table 1B
2017 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	5.75	6.41	25,000	4,881
February	36.00	6.44	7.73	25,000	5,922
March	36.00	8.58	12.12	25,000	8,511
April	36.00	9.65	12.57	25,000	9,031
May	36.00	11.70	15.49	25,000	12,126
June	36.00	14.03	17.04	25,000	11,433
July	36.00	14.16	17.58	25,000	12,825
August	36.00	14.42	18.32	25,000	11,613
September	36.00	12.70	14.35	25,000	10,037
October	36.00	8.79	12.01	25,000	8,785
November	36.00	7.44	10.85	25,000	7,411
December	36.00	5.86	7.04	25,000	5,125

Table 2A**2017 Treated Water Flow Into Distribution System in Metric Units**

	Maximum Allowed Flow Rate (m ³ /Day)	Average Daily Flow (m ³ /Day)	Maximum Daily Flow (m ³ /Day)	Peak Instantaneous Flow (Litres/Second)
January	124,588	26,216	30,358	549
February	124,588	28,861	36,013	693
March	124,588	33,409	42,082	809
April	124,588	41,486	54,647	936
May	124,588	47,261	59,866	954
June	124,588	59,397	73,513	1,207
July	124,588	56,419	71,831	1,086
August	124,588	60,555	75,568	1,171
September	124,588	54,303	60,665	1,013
October	124,588	37,694	52,269	853
November	124,588	28,329	34,044	571
December	124,588	25,525	28,877	538

Table 2B**2017 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	5.77	6.68	121
February	27.4	6.35	7.92	152
March	27.4	7.35	9.26	178
April	27.4	9.13	12.02	206
May	27.4	10.40	13.17	210
June	27.4	13.07	16.17	265
July	27.4	12.41	15.80	239
August	27.4	13.32	16.62	258
September	27.4	11.95	13.35	223
October	27.4	8.29	11.50	188
November	27.4	6.23	7.49	126
December	27.4	5.62	6.35	118

Table 3A
2017 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	425,775	13,735	376,442	12,143	71,879	2,319	54,548	1,760
February	374,735	12,922	317,719	10,956	50,985	1,758	27,251	940
March	447,717	14,442	462,007	14,903	56,366	1,818	30,665	989
April	590,523	19,684	718,261	23,942	69,864	2,329	39,879	1,329
May	584,997	18,871	659,310	21,268	62,804	2,026	36,036	1,162
June	839,259	27,975	711,916	23,731	78,680	2,623	53,257	1,775
July	849,905	27,416	681,655	21,989	78,627	2,536	47,378	1,528
August	1,054,891	34,029	913,392	29,464	95,961	3,096	55,034	1,775
September	758,065	25,269	666,601	22,220	63,404	2,113	37,723	1,257
October	624,761	20,154	497,964	16,063	58,256	1,879	49,614	1,600
November	439,918	14,664	311,137	10,371	64,169	2,139	32,158	1,072
December	426,147	13,747	289,099	9,326	65,493	2,113	54,548	1,760
Total	7,416,693	20,242	6,605,503	18,031	816,488	2,229	518,091	1,412

Table 3A
2017 Treated Flow to Local Municipalities in Imperial Units

	<i><u>Leamington</u></i>		<i><u>Kingsville</u></i>		<i><u>Essex</u></i>		<i><u>Lakeshore</u></i>	
	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	93,657,407	3.02	82,805,664	2.67	15,811,170	0.51	11,998,883	0.39
February	82,430,176	2.84	69,888,410	2.41	11,215,132	0.39	5,994,382	0.21
March	98,483,972	3.18	101,627,332	3.28	12,398,787	0.40	6,745,357	0.22
April	129,896,900	4.33	157,995,332	5.27	15,367,932	0.51	8,772,154	0.29
May	128,681,350	4.15	145,027,925	4.68	13,814,949	0.45	7,926,812	0.26
June	184,611,171	6.15	156,599,627	5.22	17,307,180	0.58	11,714,902	0.39
July	186,952,964	6.03	149,943,138	4.84	17,295,522	0.56	10,421,703	0.34
August	232,043,580	7.49	200,918,152	6.48	21,108,469	0.68	12,105,788	0.39
September	166,750,988	5.56	146,631,721	4.89	13,946,930	0.46	8,297,900	0.28
October	137,428,208	4.43	109,536,767	3.53	12,814,529	0.41	10,913,554	0.35
November	96,768,432	3.23	68,440,572	2.28	14,115,207	0.47	7,073,771	0.24
December	93,739,235	3.02	63,592,890	2.05	14,406,446	0.46	11,998,883	0.39
Total	1,631,444,384	4.45	1,453,007,530	3.97	179,602,252	0.49	113,964,088	0.31