



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 07, 2017

Town of Kingsville
2021 Division Road North
Kingsville, Ontario
N9Y 2Y9

Attention: Ms. Peggy Van Mierlo-West, Chief Administrative Officer

Dear Madam,

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

Attached are the following items for the Kingsville 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, 2017 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, 2017. Although the Report gives information for all parts of the UWSS, the information that refers to the Kingsville 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, P. Geo., Manager
Union Water Supply System Joint Board of Management

Kmj

CC: Andrew Plancke, Kevin Girard

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Ontario Clean Water Agency
Agence Ontarienne Des Eaux



Annual Performance Report
Kingsville Distribution System
Drinking Water System # 220003403
2016

Prepared for the Corporation of the Town of Kingsville

By the Ontario Clean Water Agency
Ken Penney
Process & Compliance Technician
kpenney@ocwa.com
519-326-4447



OPTIONAL ANNUAL REPORT TEMPLATE

Drinking-Water System Number:	220003403
Drinking-Water System Name:	Kingsville Distribution System (Union WSS)
Drinking-Water System Owner:	The Corporation of The Town of Kingsville
Drinking-Water System Category:	Large Municipal Residential
Period being reported:	01-January-2016 to 31-December 2016

Complete if your Category is Large Municipal Residential or Small Municipal Residential

Does your Drinking-Water System serve more than 10,000 people? Yes ☒ No ☐

Is your annual report available to the public at no charge on a web site on the Internet? Yes ☒ No ☐

Location where Summary Report required under O. Reg. 170/03 Schedule 22 will be available for inspection.

Town of Kingsville Municipal Office
2021 Division Rd. North,
Kingsville, Ontario

Complete for all other Categories.

Number of Designated Facilities served:

N/A

Did you provide a copy of your annual report to all Designated Facilities you serve?

Yes ☐ No ☐

Number of Interested Authorities you report to:

N/A

Did you provide a copy of your annual report to all Interested Authorities you report to for each Designated Facility?

Yes ☐ No ☐

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 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



Ontario Drinking-Water Systems Regulation O. Reg. 170/03

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: As, and when requested

Describe your Drinking-Water System

Distribution only.

Water Distribution Class II serving approximately 21,600 people through approximately 7950 service accounts fed from approximately 314 kms of system infrastructure water main.

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

Kingsville spent approximately \$4,850,000 in operational expenditures in 2016. An additional \$508,000 was expended specific to capital upgrades within the water distribution system.

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
June 20, 2016	Low Combined CL2 Residual @ Cottam Booster Station for approximately 25 minutes	<0.25	mg/L	Initial problem was caused by a blockage in the ammonia pump, blockage was removed and CL2 residuals returned to normal	June 21, 2016
July 19, 2016	Total Coliform	2	cfu/100mL	Resample upstream and downstream, and again in 24hrs	July 20, 2016
Aug. 30, 2016	Low Pressure in the Distribution System	<20	PSI	Main break was isolated. Resample upstream and downstream, and again in 24hrs	Aug. 30, 2016



Ontario Drinking-Water Systems Regulation O. Reg. 170/03

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 Or Fecal Results (min #)-(max #)	Range of Total Coliform Results (min #)-(max #)	Number of HPC Samples	Range of HPC Results (min #)-(max #)
Raw	See annual report for the Union Water Supply System # 210000853				
Treated	See annual report for the Union Water Supply System # 210000853				
Distribution	484	0-0	2	210	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 #)
Turbidity	Please see the Annual Report for the Union Water Supply System # 210000853	
Chlorine Combined	364	Max: 2.13 mg/l Min: 0.61 mg/l Avg: 1.59 mg/l Combined Residual (Chloramination)
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	December 19/16	<0.1	mg/L	No
Nitrate	December 19/16	0.3	mg/L	No
Nitrate + Nitrite (N)	December 19/16	0.3	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



Ontario Drinking-Water Systems Regulation O. Reg. 170/03

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)	4	0.02	1.32	10	0
Distribution – Alkalinity (mg/L)	9	75	89	n/a	n/a
Distribution – pH In-House	4	7.48	7.58	n/a	n/a
Distribution – pH Lab	1	8.07	8.07	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	20.45	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 2016

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 2016.

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 #129180 - April 15, 2016 failure to maintain coagulant continuously. It was discovered that coagulant was not flowing continuously to Clarifier #1 for approximately twelve (12) hours. The Clarifier was taken out of service and will not return to service until flow monitoring devices are in place.

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 #129976 - June 28, 2016 - Bacti adverse at sample station SS-L-9 with 1 Total Coliform. Town of Leamington staff flushed affected area, then 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.
- AWQI#130589 - August 3, 2016 - Bacti adverse at sample station SS-L-15 with 8 Total Coliform. Town of Leamington staff flushed affected area, then 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 #129835 - June 20, 2016, Chlorine residual reading at CRA01 and Cottam Booster Station displayed less than 0.25ppm for 20-25 minutes. Initial cause was a piece of debris caught in the check valve of the ammonia pump restricting flow. The debris was removed and normal flow returned. Weekly bacti samples were taken and all CL2 residuals were normal.
- AWQI #130343 - July 19, 2016, Bacti adverse at sample station SS-K-14 with 2 Total Coliform. Town of Kingsville staff flushed affected area, then samples were taken upstream and downstream. A second set of samples were taken 24 hours later upstream and downstream. All results were within normal parameters.
- AWQI #130987 - August 30, 2016, Watermain break on County Road 34. Pressure was below 20 psi from 10 pm to 12 am (2 hrs). Main break was isolated and fed from another source eliminating the low pressure. Bacti samples and chlorine residuals were taken the next morning.

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 #129303 - April 27, 2016, Watermain break at 341 Talbot Street Road West, with possible cross contamination with sanitary line. Watermain break was repaired and isolated section of

watermain was flushed. Bacti samples were taken at the main break site, as well as upstream and downstream from the break site.

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 0685-6AKRP3 for January to March 2016 and 0816-9T9SVT for April to December 2016. 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 2016 (see Table 1 below) are as follows:

- Maximum Amount Taken per Minute in 2016 (Litres/Min) 68,945
- Maximum Amount Taken Per Day in 2016 (Litres/Day) 83,507,000

The system did not exceed the PTTW limits in 2016.

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
2016 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	26,039	30,846	30,846,000	113,650	24,359
February	163,656	30,228	35,697	35,697,000	113,650	33,301
March	163,656	34,383	49,266	49,266,310	113,650	41,161
April	163,656	45,572	61,913	61,912,850	113,650	45,419
May	163,656	49,694	67,874	67,874,050	113,650	55,194
June	163,656	67,120	79,104	79,104,000	113,650	65,841
July	163,656	62,802	74,428	74,427,990	113,650	63,690
August	163,656	67,514	83,507	83,507,000	113,650	68,945
September	163,656	56,139	66,132	66,132,000	113,650	60,648
October	163,656	40,785	54,705	54,704,560	113,650	47,146
November	163,656	37,712	44,381	44,381,490	113,650	33,310
December	163,656	28,939	38,327	38,327,000	113,650	31,940

Table 1B
2016 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	5.73	6.79	25,000	5,358
February	36.00	6.66	7.85	25,000	7,325
March	36.00	7.56	10.84	25,000	9,054
April	36.00	10.02	13.62	25,000	9,991
May	36.00	10.93	14.93	25,000	12,141
June	36.00	14.76	17.40	25,000	14,483
July	36.00	13.81	16.37	25,000	14,010
August	36.00	14.85	18.37	25,000	15,166
September	36.00	12.35	14.55	25,000	13,341
October	36.00	8.97	12.03	25,000	10,371
November	36.00	8.30	9.76	25,000	7,327
December	36.00	6.37	8.43	25,000	7,026

Table 2A
2016 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	24,671	28,085	581
February	124,588	27,607	33,326	813
March	124,588	32,711	40,818	1,066
April	124,588	39,028	49,586	989
May	124,588	48,240	65,768	1,255
June	124,588	64,732	76,159	1,385
July	124,588	60,836	72,435	1,358
August	124,588	58,899	70,977	1,366
September	124,588	54,282	63,994	1,355
October	124,588	37,725	51,618	1,108
November	124,588	27,800	31,008	932
December	124,588	28,495	35,326	813

Table 2B
2016 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	5.43	6.18	128
February	27.4	6.07	7.33	179
March	27.4	7.20	8.98	234
April	27.4	8.59	10.91	218
May	27.4	10.61	14.47	276
June	27.4	14.24	16.75	305
July	27.4	13.38	15.94	299
August	27.4	12.96	15.61	300
September	27.4	11.94	14.08	298
October	27.4	8.30	11.36	244
November	27.4	6.12	6.82	205
December	27.4	6.27	7.77	179

Table 3A
2016 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	340,479	10,983		292,724	9,443		63,333	2,043		36,288	1,171	
February	373,157	12,867		318,973	10,999		60,020	2,070		30,055	1,036	
March	548,460	17,692		464,104	14,971		66,339	2,140		35,893	1,158	
April	552,349	18,412		482,629	16,088		68,726	2,291		33,042	1,101	
May	606,887	19,577		559,571	18,051		63,197	2,039		36,029	1,162	
June	1,191,509	39,717		1,046,212	34,874		111,384	3,713		70,597	2,353	
July	785,668	25,344		630,300	20,332		67,571	2,180		44,177	1,425	
August	951,438	30,692		784,928	25,320		82,875	2,673		61,845	1,995	
September	811,273	27,042		728,370	24,279		68,836	2,295		35,840	1,195	
October	549,397	17,722		433,194	13,974		65,733	2,120		43,626	1,407	
November	445,948	14,865		351,615	11,721		66,928	2,231		35,218	1,174	
December	361,670	11,667		377,407	12,174		66,134	2,133		36,288	1,171	
Total	7,518,235	20,548		6,470,027	17,685		851,076	2,327		498,898	1,362	

Table 3A
2016 Treated Flow to Local Municipalities in Imperial Units

	<i>Leamington</i>		<i>Kingsville</i>		<i>Essex</i>		<i>Lakeshore</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	74,894,910	2.42	64,390,278	2.08	13,931,312	0.45	7,982,244	0.26
February	82,083,065	2.83	70,164,251	2.42	13,202,554	0.46	6,611,176	0.23
March	120,644,334	3.89	102,088,608	3.29	14,592,540	0.47	7,895,356	0.25
April	121,499,794	4.05	106,163,538	3.54	15,117,607	0.50	7,268,224	0.24
May	133,496,477	4.31	123,088,412	3.97	13,901,397	0.45	7,925,272	0.26
June	262,095,339	8.74	230,134,467	7.67	24,501,055	0.82	15,529,169	0.52
July	172,822,799	5.57	138,646,617	4.47	14,863,542	0.48	9,717,581	0.31
August	209,287,102	6.75	172,660,022	5.57	18,229,951	0.59	13,603,998	0.44
September	178,455,112	5.95	160,219,001	5.34	15,141,803	0.50	7,883,698	0.26
October	120,850,445	3.90	95,289,359	3.07	14,459,239	0.47	9,596,378	0.31
November	98,094,846	3.27	77,344,487	2.58	14,722,102	0.49	7,746,877	0.26
December	79,556,278	2.57	83,017,934	2.68	14,547,446	0.47	7,982,244	0.26
Total	1,653,780,501	4.52	1,423,206,976	3.89	187,210,548	0.51	109,742,218	0.30