



Union Water Supply System

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SENT BY: EMAIL

February 07, 2018

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, 2018 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, 2018. 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
2017

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-2017 to 31-December 2017 |

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

Does your Drinking-Water System serve more than 10,000 people? Yes [X] No []

Is your annual report available to the public at no charge on a web site on the Internet? Yes [X] 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

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 22,000 people through approximately 7500 service connections fed from approximately 315 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

In 2017 Kingsville incurred approximately \$5,000,000.00 in operational expenses and a further \$1,000,000.00 in Capital works projects required to maintain the water 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 |
|----------------|----------------|--------|-----------------|---|------------------------|
| Sept. 12, 2017 | Total Coliform | 27 | cfu/100mL | All three adverse results were caused from a faulty sample station (SS-K-37). The sample station was replaced with a new one. | Sept. 19, 2017 |
| Sept. 14, 2017 | Total Coliform | 18 | cfu/100mL | | |
| Sept. 16, 2017 | Total Coliform | 1 | cfu/100mL | | |

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 | 481 | 0-0 | 0-27 | 212 | <10-210 |

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: 2.52 mg/l Min: 0.46 mg/l Avg: 1.67 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 27/17 | <0.1 | mg/L | No |
| Nitrate | December 27/17 | 0.4 | mg/L | No |
| Nitrate + Nitrite (N) | December 27/17 | 0.4 | mg/L | No |
| Ammonia (N) -Total | December 27/17 | 0.27 | 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) | 8 | 0.10 | 0.96 | 10 | 0 |
| Distribution – Alkalinity (mg/L) | 8 | 78 | 82 | n/a | n/a |
| Distribution – pH In-House | 8 | 7.70 | 8.19 | 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 | 18.0 | ug/L | No |
| HAA (NOTE: show latest annual average) | Annual Average | 5.4 | 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 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 - Bacti 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, Bacti 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 (m3/Day) | Average Daily Flow (m3/Day) | Maximum Daily Flow (m3/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

| | <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 | 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 |