



**Ontario Clean Water Agency**  
**Agence Ontarienne Des Eaux**



**Annual Performance Report**

**Union Area Water Supply System**

**Drinking Water System # 210000853**

**2017**

Prepared for the Corporation of the Town of Kingsville, the Corporation of the Town of Essex,  
the Town of Lakeshore & the Municipality of Leamington

By the Ontario Clean Water Agency  
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**ANNUAL REPORT**

<b>Drinking-Water System Number:</b>	<b>210000853</b>
<b>Drinking-Water System Name:</b>	Union Area Water Supply System
<b>Drinking-Water System Owner:</b>	Union Area Water Supply System Joint Board of Management (Municipality of Leamington, Town of Kingsville, Town of Essex, Town of Lakeshore)
<b>Drinking-Water System Category:</b>	Large Municipal Residential
<b>Period being reported:</b>	01-January-2017 to 31-December-2017

<p><b><u>Complete if your Category is Large Municipal Residential or Small Municipal Residential</u></b></p> <p>Does your Drinking-Water System serve more than 10,000 people? Yes [ <input checked="" type="checkbox"/> ] No [ <input type="checkbox"/> ]</p> <p>Is your annual report available to the public at no charge on a web site on the Internet? Yes [ <input checked="" type="checkbox"/> ] No [ <input type="checkbox"/> ]</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><i>Union Water Treatment Plant P.O. Box 340, 1615 Union Ave., Ruthven, Ont. N0P 2G0</i></p> </div>	<p><b><u>Complete for all other Categories.</u></b></p> <p>Number of Designated Facilities served: <input type="text" value="N/A"/></p> <p>Did you provide a copy of your annual report to all Designated Facilities you serve? Yes [ <input type="checkbox"/> ] No [ <input type="checkbox"/> ]</p> <p>Number of Interested Authorities you report to: <input type="text" value="N/A"/></p> <p>Did you provide a copy of your annual report to all Interested Authorities you report to for each Designated Facility? Yes [ <input type="checkbox"/> ] No [ <input type="checkbox"/> ]</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 of their drinking water from your system:

Drinking Water System Name	Drinking Water System Number
Municipality of Leamington	220004992
Town of Kingsville	220003403
Town of Essex	220003680
Town of Lakeshore	260004995



**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 [ X ] No [ ]

**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: Municipal Offices**

**Describe your Drinking-Water System**

The Union Water Treatment Plant (UWTP) is a chemically assisted conventional filtration plant, which draws water from Lake Erie.

The UWTP supplies potable water to the Town of Kingsville, Municipality of Leamington, a portion of the Town of Essex and a portion of the Town of Lakeshore with an estimated service population of 65,000.

The treatment process includes chemically assisted up-flow clarification, filtration with dual media filters, primary disinfection using chlorine gas and secondary disinfection using chloramination.

Seasonally, the UWTP uses sodium hypochlorite at its intakes to control Zebra Mussel formation.

There are also four water towers and a booster/storage station located on the Union Water Supply System.

**List all water treatment chemicals used over this reporting period**

Zebra Mussel Control:

- Sodium Hypochlorite – (Seasonal)

Clarification Chemicals:

- DelPAC – Coagulant
- Hyper+Ion 1090 – Coagulant
- Magnafloc LT22S (polymer) - Coagulant Aid
- Powdered Activated Carbon – Taste and Odor Control

Filtration:

- Cat-Floc 8103 Plus (polymer) – Filter Aid (Seasonal)

Disinfection:

- Primary: Chlorine Gas
- Secondary: Aqua Ammonia & Chlorine (to form chloramines)

**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**

Item	Cost
Low Lift Pump #2 Major Maintenance	\$51,507
Low Lift Generator/Electrical Upgrades	\$9,404
Treatment Plant Electrical Upgrades	\$10,429
Clarifier #2 valve upgrade	\$2,580
Clarifier #3 Blow Off Valve and Turbine Gear Box	\$8,473
Clarifier #3 Turbine VFD	\$2,219
Treatment Plant Building Upgrades - New floor in old microstrainer room	\$20,332
Perimeter fencing upgrades - Treatment Plant and Cottam Booster	\$5,694
Filter Meter Replacements	\$18,100
Filter Media Replacement -Filters 5 and 7	\$122,034
Turbidity Meter Replacements	\$25,225
Filter Turbidity Meters - New	\$9,543
Chlorine Analyzer Replacements	\$18,269
Ammonia Storage Tank Level Transmitter	\$3,777
Chlorine Feed Room - New Heater	\$1,593
High Lift Pump #3 Rehabilitation	\$31,539
High Lift Compressor #1 Replacement	\$11,719
Window Replacements - Treatment Plant	\$24,046
Essex Water Tower Rehabilitation Project	\$19,131
Master Water Meter Replacements/Upgrades	\$56,595
SCADA System Upgrade	\$29,167
<b>Total Capital Works/Major Maintenance</b>	<b>\$481,375</b>

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	Incident description	Corrective Action	AWQI #	Corrective Action Date
October 7, 2017	Loss of coagulant	Re-initialized coagulant	137144	October 10, 2017

Note: Corrective action Date is Date of resolution.

Microbiological testing is done under Schedule 10 of Regulation 170/03, during this reporting period.

	Number of Samples	Range of Ecoli Or Fecal Results (min #)-(max #) (ct/100 mL)	Range of Total Coliform Results (min #)-(max #) (ct/100 mL)	Number of HPC Samples	Range of HPC Results (min #)-(max #) (ct/mL)
Raw	52	2 - 56	14 - 400	0	N/A
Treated	52	0 - 0	0 - 0	52	<10 - 30
Distribution	Please See Individual Annual Reports for Distribution System Information: Leamington (220004992), Kingsville (220003403), Essex (220003680), and Lakeshore (260004995).				

Operational testing is done under Schedule 7 of Regulation 170/03 during the period Covered by this annual report.

	Number of Grab Samples	Range of Results (min #)-(max #)
Turbidity	8760	0.02 – 1.96 NTU
Chlorine - Free	8760	1.51 – 2.28 mg/L
Fluoride (If the DWS provides fluoridation)	N/A	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: (Suspended Solids)	Date Sampled	Result	Unit of Measure
09- June- 2017 Municipal Drinking Water Licence Number: 041-101	North Settling Pond	Jan 03/17	<3.0	mg/L
	North Settling Pond	Jan 30/17	<3.0	mg/L
	North Settling Pond	Feb 06/17	3.0	mg/L
	North Settling Pond	Mar 06/17	<3.0	mg/L
	South Settling Pond	Mar 06/17	<3.0	mg/L
	North Settling Pond	April 03/17	<3.0	mg/L
	North Settling Pond	May 01/17	<3.0	mg/L
	North Settling Pond	June 05/17	<3.0	mg/L
	North Settling Pond	July 04/17	<3.0	mg/L
	North Settling Pond	Aug 08/17	<3.0	mg/L
	North Settling Pond	Sept 05/17	<3.0	mg/L
	South Settling Pond	Oct 02/17	6.0	mg/L
	North Settling Pond	Oct 02/17	<3.0	mg/L
	South Settling Pond	Nov 06/17	<3.0	mg/L
	North Settling Pond	Nov 06/17	<3.0	mg/L
South Settling Pond	Dec 04/17	<3.0	mg/L	
Limit 25.0 mg/L		Annual Average:	3.2	mg/L

**Summary of Inorganic parameters tested during this reporting period or the most recent sample results**

Parameter	Sample Date	Result Value	Unit of Measure	Exceedance
<b>Antimony</b>	January 10, 2017	0.12	ug/L	No
<b>Arsenic</b>	January 10, 2017	0.4	ug/L	No
<b>Barium</b>	January 10, 2017	16.0	ug/L	No
<b>Boron</b>	January 10, 2017	18.0	ug/L	No
<b>Cadmium</b>	January 10, 2017	0.019	ug/L	No
<b>Chromium</b>	January 10, 2017	0.82	ug/L	No
<b>*Lead</b>	n/a			
<b>Mercury</b>	January 10, 2017	0.01	ug/L	No
<b>Sodium</b>	January 10, 2017	7.60	mg/L	No
<b>Selenium</b>	January 10, 2017	0.12	ug/L	No
<b>Uranium</b>	January 10, 2017	0.141	ug/L	No
<b>Fluoride</b>	January 10, 2017	0.13	mg/L	No
<b>Nitrite (N)</b>	December 27, 2017	< 0.1	mg/L	No
<b>Nitrate (N)</b>	December 27, 2017	0.5	mg/L	No
<b>Nitrite + Nitrate (N)</b>	December 27, 2017	0.5	mg/L	No
<b>Ammonia (N) - Total</b>	December 27, 2017	0.25	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 #)	Number of Exceedances
<b>Plumbing</b>	<b>Please See Individual Annual Reports for Distribution System Information:</b> Leamington (220004992), Kingsville (220003403), Essex (220003680), and Lakeshore (260004995).		
<b>Distribution</b>	<b>Please See Individual Annual Reports for Distribution System Information:</b> Leamington (220004992), Kingsville (220003403), Essex (220003680), and Lakeshore (260004995).		

**Summary of Organic parameters sampled during this reporting period or the most recent sample results**

Parameter	Sample Date	Result Value	Unit of Measure	Exceedance
Alachlor	January 10, 2017	0.02	ug/L	No
Atrazine + N-dealkylated metabolites	January 10, 2017	0.01	ug/L	No
Atrazine	January 10, 2017	0.01	ug/L	No
Azinphos-methyl	January 10, 2017	0.05	ug/L	No
Benzene	January 10, 2017	0.32	ug/L	No
Benzo(a)pyrene	January 10, 2017	0.004	ug/L	No
Bromoxynil	January 10, 2017	0.33	ug/L	No
Carbaryl	January 10, 2017	0.05	ug/L	No
Carbofuran	January 10, 2017	0.01	ug/L	No
Carbon Tetrachloride	January 10, 2017	0.16	ug/L	No
Chlorpyrifos	January 10, 2017	0.02	ug/L	No
Desethyl atrazine	January 10, 2017	0.01	ug/L	No
Diazinon	January 10, 2017	0.02	ug/L	No
Dicamba	January 10, 2017	0.20	ug/L	No
1,2-Dichlorobenzene	January 10, 2017	0.41	ug/L	No
1,4-Dichlorobenzene	January 10, 2017	0.36	ug/L	No
1,2-Dichloroethane	January 10, 2017	0.35	ug/L	No
1,1-Dichloroethene (vinylidene chloride)	January 10, 2017	0.33	ug/L	No
Dichloromethane	January 10, 2017	0.35	ug/L	No
2-4 Dichlorophenol	January 10, 2017	0.15	ug/L	No
2,4-Dichlorophenoxy acetic acid (2,4-D)	January 10, 2017	0.19	ug/L	No
Diclofop-methyl	January 10, 2017	0.40	ug/L	No
Dimethoate	January 10, 2017	0.03	ug/L	No
Diquat	January 10, 2017	1.0	ug/L	No
Diuron	January 10, 2017	0.03	ug/L	No
Glyphosate	January 10, 2017	1.0	ug/L	No
<b>HAA</b> (NOTE: show latest annual average)	Please See Individual Annual Reports for Distribution System Information: <b>Leamington (220004992), Kingsville (220003403), Essex (220003680), and Lakeshore (260004995).</b>			

**Summary of Organic parameters sampled during this reporting period or the most recent sample results continued**

Parameter	Sample Date	Result Value	Unit of Measure	Exceedance
Malathion	January 10, 2017	0.02	ug/L	No
MCPA	January 10, 2017	0.12	ug/L	No
Metolachlor	January 10, 2017	0.01	ug/L	No
Metribuzin	January 10, 2017	0.02	ug/L	No
Monochlorobenzene	January 10, 2017	0.3	ug/L	No
Paraquat	January 10, 2017	1.0	ug/L	No
Pentachlorophenol	January 10, 2017	0.15	ug/L	No
Phorate	January 10, 2017	0.01	ug/L	No
Picloram	January 10, 2017	1.0	ug/L	No
Polychlorinated Biphenyls(PCB)	January 10, 2017	0.04	ug/L	No
Prometryne	January 10, 2017	0.03	ug/L	No
Simazine	January 10, 2017	0.01	ug/L	No
<b>THM</b> (NOTE: show latest annual average)	Please See Individual Annual Reports for Distribution System Information: <b>Leamington (220004992), Kingsville (220003403), Essex (220003680), and Lakeshore (260004995).</b>			
Terbufos	January 10, 2017	0.01	ug/L	No
Tetrachloroethylene	January 10, 2017	0.35	ug/L	No
2,3,4,6-Tetrachlorophenol	January 10, 2017	0.20	ug/L	No
Triallate	January 10, 2017	0.01	ug/L	No
Trichloroethylene	January 10, 2017	0.44	ug/L	No
2,4,6-Trichlorophenol	January 10, 2017	0.25	ug/L	No
Trifluralin	January 10, 2017	0.02	ug/L	No
Vinyl Chloride	January 10, 2017	0.17	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
<b>None</b>			