



Ontario Clean Water Agency
Agence Ontarienne Des Eaux



Annual Performance Report

Union Area Water Supply System

Drinking Water System # 210000853

2019

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

Sam Wen

Process & Compliance Technician

swen@ocwa.com

519-326-4447



ANNUAL REPORT

Drinking-Water System Number:	210000853
Drinking-Water System Name:	Union Area Water Supply System
Drinking-Water System Owner:	Union Area Water Supply System Joint Board of Management (Municipality of Leamington, Town of Kingsville, Town of Essex, Town of Lakeshore)
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 [<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><u>Complete for all other Categories.</u></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>
---	---

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 [] 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 Chlorine gas and Sodium Hypochlorite.

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 2020 – Coagulant**
- **DelPac XG-15 - 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: Chlorine Gas and Sodium Hypochlorite**

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

	<u>Item Description</u>	Expenditures to 2019 Year End
	<u>Capital Works and Major Maintenance</u>	
	CO2 Raw Water pH Adjustment System Install	\$ 2,385,000
	Full SCADA System Upgrade Project	\$ 620,550
	Treatment Ponds / Residual Management System	\$ 123,450
	Reservoir effluent valve rehabilitation	\$ 79,750
	Cottam Reservoir cover rehabilitation	\$ 48,900
	High Lift Energy Monitoring System	\$ 43,750
	Flow Meter Upgrades - Filiter #5, 6, 7 & 8	\$ 31,200
	Essex Water Tower Mixer	\$ 18,500
	Sluice Gate Valves - Filters #2 & 4	\$ 12,450
	Turbidity Meters - Clarifiers #3 &4	\$ 12,200
	Clarifier #1 Raw Water Valve Actuator	\$ 11,900
	SCADA PLC Upgrade Components	\$ 11,850
	High Lift #8 Soft Start	\$ 8,900
	Filter #3 Level Controllers	\$ 7,750
	Spare Cylinder Actuator	\$ 7,300
	Main Wash #1 Electric Valve	\$ 6,350
	Flow Meters for Clarifiers #1 & 3	\$ 5,500
	Wastewater Pump #1 Soft Start	\$ 4,800
	Low Lift #4 Pump Soft Start	\$ 4,800
	High Lift #5 Pump Soft Start	\$ 4,800
	Air wash Blower #1 Soft Start	\$ 4,800
	Filter #2 Flow Control Valve Actuator	\$ 4,400
	High Lift #1 Pump Clutch	\$ 4,250
	Cottam Booster Sodium Hypo Level Transmitter	\$ 4,100
	Total Capital Works/Major Maintenance:	\$ 3,467,250

<u>New Capital Works 2020</u>	
Low Lift Pump #5 Major Maintenance	\$ 35,000
Low Lift Roof Replacement:	\$ 90,000
Blue Green Algae Probes (2):	\$ 30,000
Low Lift Main Electrical/Transformer Upgrades:	\$ 250,000
New Carbon Recirculation Pump:	\$ 10,000
Filter #4 Rehab:	\$ 400,000
New Highlift #7 Pump:	\$ 250,000
SCADA System Upgrades (cont'd from 2019):	\$ 270,000
Security System Install:	\$ 85,000
Kingsville Water Tower Rehabilitation:	\$ 1,300,000
Master Water Meter Upgrades:	\$ 50,000
Laboratory Upgrades:	\$ 100,000
Treatment Plant Admin Area Improvements:	\$ 45,000
Grounds Improvements:	\$ 100,000
Fencing - Water Treatment Plant and Leamington Tower:	\$ 45,000
DAF System Design/Construction:	\$ 1,400,000
Chlorine Gas System Project (cont'd from 2019):	\$ 150,000
CO2 pH System Project (cont'd from 2019):	\$ 150,000
Total New Capital Works:	\$ 4,760,000

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
May 02, 2019	Hi Cl2 residuals (Cl2 analyzer at Cottam Booster station reading 5.00ppm for about 10mins)	Monitored Cl2 residuals in Distribution	#145322	May 03, 2019

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 - 34	2-710	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	0.00- 0.553 NTU
Chlorine - Free	8760	0.43-2.37 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
18- July - 2019 Municipal Drinking Water Licence Number: 041-101	South Settling Pond	Jan 07/19	<3.0	mg/L
	South Settling Pond	Feb 04/19	<3.0	mg/L
	South Settling Pond	Mar 04/19	4.0	mg/L
	South Settling Pond	April 01/19	<3.0	mg/L
	South Settling Pond	May 06/19	65.0	mg/L
	South Settling Pond	June 03/19	3.0	mg/L
	South Settling Pond	July 02/19	4.0	mg/L
	North Settling Pond	July 02/19	<3.0	mg/L
	South Settling Pond	Aug 06/19	<3.0	mg/L
	North Settling Pond	Aug 06/19	<3.0	mg/L
	South Settling Pond	Sept 03/19	<3.0	mg/L
	North Settling Pond	Sept 03/19	<3.0	mg/L
	South Settling Pond	Oct 07/19	9.0	mg/L
	North Settling Pond	Oct 07/19	3.0	mg/L
	South Settling Pond	Nov 04/19	<3.0	mg/L
	North Settling Pond	Nov 04/19	<3.0	mg/L
	South Settling Pond	Dec 02/19	<3.0	mg/L
North Settling Pond	Dec 02/19	<3.0	mg/L	
Limit 25.0 mg/L		Annual Average:	6.9	mg/L

Date of legal instrument issued	Parameter: (Total Chlorine Residual)	Annual Avg.	Unit of Measure
18- July - 2019 Municipal Drinking Water Licence Number: 041-101	South Settling Pond	0.07	mg/L
	North Settling Pond	0.07	mg/L
Limit 0.02 mg/L	Annual Average:	0.07	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
Antimony	January 08, 2019	0.08	ug/L	No
Arsenic	January 08, 2019	0.2	ug/L	No
Barium	January 08, 2019	15.3	ug/L	No
Boron	January 08, 2019	15.0	ug/L	No
Cadmium	January 08, 2019	0.003	ug/L	No
Chromium	January 08, 2019	0.16	ug/L	No
*Lead	n/a			
Mercury	January 08, 2019	0.01	ug/L	No
Sodium	January 08, 2019	6.72	mg/L	No
Selenium	January 08, 2019	0.09	ug/L	No
Uranium	January 08, 2019	0.133	ug/L	No
Fluoride	January 08, 2019	0.09	mg/L	No
Nitrite (N)	October 07, 2019	< 0.1	mg/L	No
Nitrate (N)	October 07, 2019	< 0.1	mg/L	No
Nitrite + Nitrate (N)	July 02, 2019	0.7	mg/L	No
Ammonia (N) - Total	July 02, 2019	0.04	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
Plumbing	Please See Individual Annual Reports for Distribution System Information: Leamington (220004992), Kingsville (220003403), Essex (220003680), and Lakeshore (260004995).		
Distribution	Please See Individual Annual Reports for Distribution System Information: 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 08, 2019	0.02	ug/L	No
Atrazine + N-dealkylated metabolites	January 08, 2019	0.01	ug/L	No
Atrazine	January 08, 2019	0.01	ug/L	No
Azinphos-methyl	January 08, 2019	0.05	ug/L	No
Benzene	January 08, 2019	0.32	ug/L	No
Benzo(a)pyrene	January 08, 2019	0.004	ug/L	No
Bromoxynil	January 08, 2019	0.33	ug/L	No
Carbaryl	January 08, 2019	0.05	ug/L	No
Carbofuran	January 08, 2019	0.01	ug/L	No
Carbon Tetrachloride	January 08, 2019	0.16	ug/L	No
Chlorpyrifos	January 08, 2019	0.02	ug/L	No
Desethyl atrazine	January 08, 2019	0.01	ug/L	No
Diazinon	January 08, 2019	0.02	ug/L	No
Dicamba	January 08, 2019	0.20	ug/L	No
1,2-Dichlorobenzene	January 08, 2019	0.41	ug/L	No
1,4-Dichlorobenzene	January 08, 2019	0.36	ug/L	No
1,2-Dichloroethane	January 08, 2019	0.35	ug/L	No
1,1-Dichloroethene (vinylidene chloride)	January 08, 2019	0.33	ug/L	No
Dichloromethane	January 08, 2019	0.35	ug/L	No
2-4 Dichlorophenol	January 08, 2019	0.15	ug/L	No
2,4-Dichlorophenoxy acetic acid (2,4-D)	January 08, 2019	0.19	ug/L	No
Diclofop-methyl	January 08, 2019	0.40	ug/L	No
Dimethoate	January 08, 2019	0.03	ug/L	No
Diquat	January 08, 2019	1.0	ug/L	No
Diuron	January 08, 2019	0.03	ug/L	No
Glyphosate	January 08, 2019	1.0	ug/L	No
HAA (NOTE: show latest annual average)	Please See Individual Annual Reports for Distribution System Information: Leamington (220004992), Kingsville (220003403), Essex (220003680), and Lakeshore (260004995).			

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 08, 2019	0.02	ug/L	No
MCPA	January 08, 2019	0.12	ug/L	No
Metolachlor	January 08, 2019	0.01	ug/L	No
Metribuzin	January 08, 2019	0.02	ug/L	No
Monochlorobenzene	January 08, 2019	0.3	ug/L	No
Paraquat	January 08, 2019	1.0	ug/L	No
Pentachlorophenol	January 08, 2019	0.15	ug/L	No
Phorate	January 08, 2019	0.01	ug/L	No
Picloram	January 08, 2019	1.0	ug/L	No
Polychlorinated Biphenyls(PCB)	January 08, 2019	0.04	ug/L	No
Prometryne	January 08, 2019	0.03	ug/L	No
Simazine	January 08, 2019	0.01	ug/L	No
THM (NOTE: show latest annual average)	Please See Individual Annual Reports for Distribution System Information: Leamington (220004992), Kingsville (220003403), Essex (220003680), and Lakeshore (260004995).			
Terbufos	January 08, 2019	0.01	ug/L	No
Tetrachloroethylene	January 08, 2019	0.35	ug/L	No
2,3,4,6-Tetrachlorophenol	January 08, 2019	0.20	ug/L	No
Triallate	January 08, 2019	0.01	ug/L	No
Trichloroethylene	January 08, 2019	0.44	ug/L	No
2,4,6-Trichlorophenol	January 08, 2019	0.25	ug/L	No
Trifluralin	January 08, 2019	0.02	ug/L	No
Vinyl Chloride	January 08, 2019	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
None			