



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

Annual Performance Report

Union Water Area Supply System

Drinking Water System # 220000853

2015



By the Ontario Clean Water Agency

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Process & Compliance Technician

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519-326-4447

Section 1
 Drinking-Water System Number: 220000853
 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: 01/2015-12/2015



Section 2	Population Served	60000	
	Does your Drinking-Water System serve more than 10,000 people?	YES	
	Is your annual report available to the public at no charge on a web site on the Internet?	YES	
	Location where Summary Report required under O. Reg. 170/03 Schedule 22 will be available for inspection.	UNION WATER SUPPLY SYSTEM, 1615 UNION AVE, BOX 340, RUTHVEN ON N0P 2G0	
	Number of Designated Facilities served:	N/A	
	Did you provide a copy of your annual report to all Designated Facilities you serve?	N/A	
	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?	N/A	
	List all Drinking-Water Systems (if any), and their DWS Number which receive all of their drinking water from your system:	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	
	Indicate how you notified system users that your annual report is available, and is free of charge.	PUBLIC ACCESS VIA THE WEB, PUBLIC REQUEST OR VIA MUNICIPAL OFFICES	
	Indicate if you notified system users that your annual report is available and is free of charge using an alternate method	AS REQUESTED	

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Section 3

Facility Description

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 60,000. 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 located on the Union Water Supply System.

Section 4

Water Treatment Chemicals:

Zebra Mussel Control:

Sodium Hypochlorite - (Seasonal)

Clarification Chemical:

- Aluminum Sulfate - Coagulant (clarifier blanket build up only)
- SternPAC - Coagulant
- Hyper+ION 1090 - Coagulant
- DelPAC 2020 - Coagulant
- Magnafloc LT22S - (polymer) - Coagulant Aid
- Powdered Activated Carbon - Taste and Odour Control

Filtration:

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

Disinfection Method:

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

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Section 5

Significant Expenses

Were any significant expenses incurred to?

Install required equipment
 Repair required equipment
 Replace required equipment

Significant Expenses

Please provide a brief description and a breakdown of monetary expenses

2015 Capital Expenditures	
CAPITAL/PROJECTS	Expenditures
Low Lift Pump #2 Rehabilitation	\$20,159
Low Lift Lighting Upgrades (LED)	\$16,493
High Lift Pump #1 Upgrade	\$48,312
High Lift Pump #8 Rehabilitation	\$19,149
Main Wash #1 Upgrade with VFD	\$19,023
Turbidity Meter Replacements	\$18,375
Filter Meter Replacements	\$11,965
Filters 1-4 Upgrades: Valves, piping, etc.	\$11,856
Filter #2 and #4 Media Replacement	\$157,420
Carbon System Upgrades	\$16,696
Clarifier #1 Walkway Replacement	\$5,861
Essex Tower Exterior Safety Upgrades	\$41,797
SCADA and Communications Improvements	\$39,846
Master Billing Meter Upgrades	\$46,198
Wastewater Pumps - Rehabilitation	\$7,500
South Lagoon Maintenance & Residuals Management	\$17,188
Treatment Plant Building Enhancements	\$58,155
Leamington Tower Rehabilitation	\$1,172,952
Total Expenditures	\$1,728,945

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Section 6

AWQI's

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
AWQI #127342, Nov 11, 2015	E.Coli	2	cfu/100mL	Resample upstream and downstream, and again in 24hrs	12-Nov-15
AWQI #127342, Nov 11, 2015	Total Coliforms	18	cfu/100mL	Resample upstream and downstream, and again in 24hrs	12-Nov-15

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Table 1

Microbiological testing done under the Schedule 10, 11 or 12 of Regulation 170/03, during this reporting period.

	No. of Samples Collected	Range of E.Coli Or Fecal Results		Range of Total Coliform Results		Number	Range of HPC Results	
	for period being reported	Minimum #	Maximum #	Minimum #	Maximum #	# of HPC Samples	Minimum #	Maximum #
Raw	52	<2	12	10	118			
Treated	54	0	2	0	18	54	<10	210

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Table 2

Operational testing done under Schedule 7, 8 or 9 of Regulation 170/03 during the period covered by this Annual Report.

	No. of Samples Collected for period being reported	Range of Results	
		Minimum	Maximum
Turbidity	8760	0	2
Chlorine Free	8760	0	0.26
Chlorine Combined	8760	1.34	2.67
Fluoride	N/A		

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Table 3

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
5-Nov-2007 C of A 4854-77PHL7	North Settling Pond	6-Jan-15	4	mg/L
	North Settling Pond	3-Feb-15	22	mg/L
	North Settling Pond	9-Mar-15	3	mg/L
	North Settling Pond	7-Apr-15	6	mg/L
	North Settling Pond	11-May-15	<3.0	mg/L
	North Settling Pond	2-Jun-15	<3.0	mg/L
	North Settling Pond	6-Jul-15	<3.0	mg/L
	North Settling Pond	4-Aug-15	<3.0	mg/L
	North Settling Pond	8-Sep-15	3	mg/L
	South Settling Pond	16-Oct-15	<3.0	mg/L
	North Settling Pond	16-Oct-15	<3.0	mg/L
	South Settling Pond	9-Nov-15	<3.0	mg/L
	North Settling Pond	9-Nov-15	4	mg/L
	South Settling Pond	7-Dec-15	<3.0	mg/L
	North Settling Pond	7-Dec-15	<3.0	mg/L
Limit 25.0 mg/L	Annual Average:		4.6 mg/L	

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Table 4

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

Parameter	Sample Date	Result Value	Units	Exceedance
Antimony	12-Jan-15	0.1	ug/L	No
Arsenic	12-Jan-15	1.2	ug/L	No
Barium	12-Jan-15	15	ug/L	No
Boron	12-Jan-15	17	ug/L	No
Cadmium	12-Jan-15	<0.02	ug/L	No
Chromium	12-Jan-15	<2.0	ug/L	No
*Lead	n/a			
Mercury	12-Jan-15	<0.02	ug/L	No
Sodium	12-Jan-15	7.1	mg/L	No
Selenium	12-Jan-15	2	ug/L	No
Uranium	12-Jan-15	<0.05	ug/L	No
Fluoride	15-Dec-14	0.1	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

TREATED DISTRIBUTION WATER	Sample Date (mm/dd/yyyy)	Sample Result	MAC	Exceedance	
		mg/L		MAC	1/2 MAC
Nitrite (N)	12/22/2015	< 0.1	10 mg/L	0	0
Nitrate (N)	12/22/2015	0.4	1 mg/L	0	0
Nitrate + Nitrite (N)	12/22/2015	0.4	10 mg/L	0	0
Ammonia (N) - Total	12/24/2015	0.38			

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Period being reported: *01/2015-12/2015*



Table 5: 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	Number of Exceedances
		(min#) – (max #)	
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).		

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Period being reported: 01/2015-12/2015

Table 6

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	12-Jan-15	<0.3	ug/L	No
Aldicarb	12-Jan-15	<3.0	ug/L	No
Aldrin + Dieldrin	12-Jan-15	<0.02	ug/L	No
Atrazine + N-dealkylated metabolites	12-Jan-15	<0.5	ug/L	No
Azinphos-methyl	12-Jan-15	<1.0	ug/L	No
Bendiocarb	12-Jan-15	<3.0	ug/L	No
Benzene	12-Jan-15	<0.5	ug/L	No
Benzo(a)pyrene	12-Jan-15	<0.005	ug/L	No
Bromoxynil	12-Jan-15	<0.3	ug/L	No
Carbaryl	12-Jan-15	<3.0	ug/L	No
Carbofuran	12-Jan-15	<1.0	ug/L	No
Carbon Tetrachloride	12-Jan-15	<0.2	ug/L	No
Chlordane (Total)	12-Jan-15	<0.04	ug/L	No
Chlorpyrifos	12-Jan-15	<0.5	ug/L	No
Cyanazine	12-Jan-15	<0.5	ug/L	No
Diazinon	12-Jan-15	<1.0	ug/L	No
Dicamba	12-Jan-15	<5.0	ug/L	No
1,2-Dichlorobenzene	12-Jan-15	<0.1	ug/L	No
1,4-Dichlorobenzene	12-Jan-15	<0.2	ug/L	No
Dichlorodiphenyltrichloroethane (DDT) + metabolites	12-Jan-15	<0.01	ug/L	No
1,2-Dichloroethane	12-Jan-15	<0.1	ug/L	No
1,1-Dichloroethene	12-Jan-15	<0.1	ug/L	No
(vinylidene chloride)	12-Jan-15	<0.1	ug/L	No
Dichloromethane	12-Jan-15	<0.3	ug/L	No
2,4 Dichlorophenol	12-Jan-15	<0.1	ug/L	No
2,4-Dichlorophenoxy acetic acid (2,4-D)	12-Jan-15	<5.0	ug/L	No
Diclofop-methyl	12-Jan-15	<0.5	ug/L	No
Dimethoate	12-Jan-15	<1.0	ug/L	No
Dinoseb	12-Jan-15	<0.5	ug/L	No
Diquat	12-Jan-15	<5.0	ug/L	No
Diuron	12-Jan-15	<5.0	ug/L	No
Glyphosate	12-Jan-15	<25.0	ug/L	No
Heptachlor + Heptachlor Epoxide	12-Jan-15	<0.1	ug/L	No
Lindane (Total)	12-Jan-15	<0.1	ug/L	No
Malathion	12-Jan-15	<5.0	ug/L	No
Methoxychlor	12-Jan-15	<0.1	ug/L	No
Metolachlor	12-Jan-15	<3.0	ug/L	No
Metribuzin	12-Jan-15	<3.0	ug/L	No
Monochlorobenzene	12-Jan-15	<0.2	ug/L	No
Paraquat	12-Jan-15	<1.0	ug/L	No
Parathion	12-Jan-15	<3.0	ug/L	No
Pentachlorophenol	12-Jan-15	<0.1	ug/L	No
Phorate	12-Jan-15	<0.3	ug/L	No
Picloram	12-Jan-15	<5.0	ug/L	No
Polychlorinated Biphenyls(PCB)	12-Jan-15	<0.05	ug/L	No
Prometryne	12-Jan-15	<0.1	ug/L	No
Simazine	12-Jan-15	<0.5	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).			
Temephos	12-Jan-15	<10.0	ug/L	No
Terbufos	12-Jan-15	<0.3	ug/L	No
Tetrachloroethylene	12-Jan-15	<0.2	ug/L	No
2,3,4,6-Tetrachlorophenol	12-Jan-15	<0.1	ug/L	No
Triallate	12-Jan-15	<10.0	ug/L	No
Trichloroethylene	12-Jan-15	<0.1	ug/L	No
2,4,6-Trichlorophenol	12-Jan-15	<0.1	ug/L	No
2,4,5-Trichlorophenoxy acetic acid (2,4,5-T)	12-Jan-15	<10.0	ug/L	No
Trifluralin	12-Jan-15	<0.5	ug/L	No
Vinyl Chloride	12-Jan-15	<0.2	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			