



ANNUAL REPORT

Drinking-Water System Number:	260091117
Drinking-Water System Name:	West Elgin Drinking Water System—Report for West Elgin Water Treatment Plant Only
Drinking-Water System Owner:	Corporation of the Municipality of West Elgin
Drinking-Water System Category:	Large Municipal Residential
Period being reported:	January 1 st to December 31 st , 2012

<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 [] No [X]</p> <p>Is your annual report available to the public at no charge on a web site on the Internet? Yes [X] No []</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>West Elgin Municipal Office 22413 Hoskins Line Rodney, ON N0L 2C0</p> </div>	<p><u>Complete for all other Categories.</u></p> <p>Number of Designated Facilities served:</p> <div style="border: 1px solid black; width: 100px; height: 20px; margin: 5px 0;"></div> <p>Did you provide a copy of your annual report to all Designated Facilities you serve? Yes [] No []</p> <p>Number of Interested Authorities you report to:</p> <div style="border: 1px solid black; width: 100px; height: 20px; margin: 5px 0;"></div> <p>Did you provide a copy of your annual report to all Interested Authorities you report to for each Designated Facility? Yes [] No []</p>
--	---

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
Southwest Middlesex Distribution System	260005502

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 _____

Describe your Drinking-Water System

The West Elgin Water Treatment Plant is a membrane filtration surface water treatment facility with a total design capacity of 12,160m³/day, located at 9210 Graham Road in the Municipality of West Elgin. The low lift pumping station is located south of the Water Treatment Plant at 8662 Graham Road, on the shores of Lake Erie.

The water treatment facility consists of an intake system, a low lift pumping station, a treatment system and distribution pumping system that supplies water to the following secondary distribution systems: West Elgin, Dutton-Dunwich, Southwest Middlesex, Newbury, and Bothwell.

Intake

The intake consists of one 700mm diameter polyethylene pipe extending approximately 610m into Lake Erie at a depth of 5.7m. A zebra mussel chemical control system is used seasonally. The raw water is screened by two coarse screens.

Low Lift Pumping Station

Raw water is pumped from the low lift wet wells by four low lift pumps to the Water Treatment Plant.

Treatment Plant

Filtration

At the water treatment plant the water is pre-filtered by four automatic strainers to protect the filter membranes from coarser particles and algae in the raw water.

After the water has been strained it enters the membrane filtration system which removes fine particles, sediment, algae, protozoa and bacteria. Filtered water can be directed through the UV advanced oxidation process (AOP) unit to the treated water storage tanks.

Disinfection

Disinfection is achieved by the use of sodium hypochlorite for primary disinfection. Note that UV is intended for use with hydrogen peroxide (AOP) for taste and odour control. The treated water is stored in treated water storage tanks where it is pumped into the distribution network by the High Lift pumps. Post chlorination of the treated water is done at two points. The first dosing point is upstream of the Treated Water Storage Tanks and the second dosing point is downstream of the four High Lift Pumps before the distribution header.



Process Drain Water

Waste water from the floor drains and online analyzers are directed to the process water handling facilities that include a settling basin and constructed wetlands. Flush water that cleans the pre-strainers and the membranes is also sent to the process water handling facilities.

Monitor and Control

The water treatment process and distribution components are controlled by a dedicated Supervisory Control and Data Acquisition (SCADA) computer system and monitored by certified operations.

Standby Power

Two diesel generators are available to permit the treatment plant to remain in operation should a power failure occur.

Distribution

The West Elgin WTP serves several communities. The primary transmission line from the WTP ends at the West Lorne Standpipe. Included in the distribution system is the Iona Re-Chlorination Station. The West Lorne Standpipe and Iona Re-chlorination Station are controlled and monitored from the WTP via SCADA.

List all water treatment chemicals used over this reporting period

Chlorine Gas
Sodium Hypochlorite 12%
Hydrogen Peroxide 50%
Citric Acid 50%*
Caustic Soda 50%*
Sodium Bisulphite 38%*

*used in the cleaning process of the membranes



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

<ul style="list-style-type: none"> -Intake repairs (\$115,800) -UPS Battery Backup (\$3000) -Raw Watermain Repair (\$7500) -Storage tank drain valve and heat trace replacement (\$1600) -Chlorine Storage tank repairs (\$800) -Turbidity meter repairs (\$1500) -Storage Tank Inspections (\$1400) -Air Compressor Maintenance (\$2000) -SCADA repairs (\$1100)
--

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
2012-07-25	Total Coliform E. coli	2 2	cfu/100mL cfu/100mL	Flushed Line and re-sampled	2012-07-30
2012-09-04	Filter Turbidity	>1	NTU	Raw water quality poor caused yellow treated water used in the process; sampled daily	2012-09-05
2012-09-10	Filter Turbidity	>1	NTU	Raw water quality poor caused yellow treated water used in the process; sampled daily	2012-09-13
2012-10-02	Filter Performance Rack 1 Rack 2 Rack 3 Rack 4	97.0 96.7 96.2 95.9	% of measurements less than 0.1NTU	Unable to meet filter performance due to issues with the raw water quality causing yellow treated water	2012-10-02

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	55	0-340	0-5600	n/a	n/a
Treated	60	0-0	0-0	60	<10-60
Distribution	208	0-2	0-2	52	<10-310

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 #)	Unit of Measure
Turbidity (Rack 1)	8760	0.00 - >1.00	ntu
Turbidity (Rack 2)	8760	0.00 - >1.00	ntu
Turbidity (Rack 3)	8760	0.00 - >1.00	ntu
Turbidity (Rack 4)	8760	0.00 - >1.00	ntu
Free Chlorine (Primary Disinfection)	8760	0.53 – 4.56	mg/L
Free Chlorine (Secondary Disinfection)	8760	0.56 – 5.00	mg/L
Free Chlorine (Distribution—Grab)	367	0.20 – 2.30	mg/L

***NOTE:** For continuous monitors use 8760 as the number of samples.*

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
2010-06-04	Suspended Solids	2012-01-09	3	mg/L
		2012-04-16	3	
		2012-07-09	2	
		2012-10-22	4	
		Avg.: 3		



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	2012-01-09	0.18	µg/L	No
Arsenic	2012-01-09	1.2	µg/L	No
Barium	2012-01-09	19	µg/L	No
Boron	2012-01-09	19	µg/L	No
Cadmium	2012-01-09	0.007	µg/L	No
Chromium	2012-01-09	0.8	µg/L	No
Mercury	2012-01-09	<0.02	µg/L	No
Selenium	2012-01-09	<1	µg/L	No
Sodium	2009-05-19	12.1	mg/L	No
Uranium	2012-01-09	0.369	µg/L	No
Fluoride	2009-05-19	0.12	mg/L	No
Nitrite	2012-01-09	<0.005	mg/L	No
	2012-04-16	<0.005		
	2012-07-09	<0.005		
	2012-10-22	<0.005		
Nitrate	2012-01-09	0.296	mg/L	No
	2012-04-16	0.175		
	2012-07-09	0.128		
	2012-10-22	0.06		

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 #)	Unit of Measure	Number of Exceedances
Plumbing	n/a	n/a	n/a	n/a
Distribution	n/a	n/a	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
Alachlor	2012-01-09	<0.02	µg/L	No
Aldicarb	2012-01-09	<0.01	µg/L	No
Aldrin + Dieldrin	2012-01-09	<0.01	µg/L	No
Atrazine + N-dealkylated metabolites	2012-01-09	0.08	µg/L	No
Azinphos-methyl	2012-01-09	<0.02	µg/L	No
Bendiocarb	2012-01-09	<0.01	µg/L	No
Benzene	2012-01-09	<0.32	µg/L	No
Benzo(a)pyrene	2012-01-09	<0.004	µg/L	No
Bromoxynil	2012-01-09	<0.33	µg/L	No
Carbaryl	2012-01-09	<0.01	µg/L	No
Carbofuran	2012-01-09	<0.01	µg/L	No
Carbon Tetrachloride	2012-01-09	<0.16	µg/L	No
Chlordane (Total)	2012-01-09	<0.01	µg/L	No
Chlorpyrifos	2012-01-09	<0.02	µg/L	No
Cyanazine	2012-01-09	<0.03	µg/L	No
Diazinon	2012-01-09	<0.02	µg/L	No
Dicamba	2012-01-09	<0.2	µg/L	No
1,2-Dichlorobenzene	2012-01-09	<0.41	µg/L	No
1,4-Dichlorobenzene	2012-01-09	<0.36	µg/L	No
Dichlorodiphenyltrichloroethane (DDT) + metabolites	2012-01-09	<0.01	µg/L	No
1,2-Dichloroethane	2012-01-09	<0.35	µg/L	No
1,1-Dichloroethylene (vinylidene chloride)	2012-01-09	<0.33	µg/L	No
Dichloromethane	2012-01-09	<0.35	µg/L	No
2-4 Dichlorophenol	2012-01-09	<0.15	µg/L	No
2,4-Dichlorophenoxy acetic acid (2,4-D)	2012-01-09	<0.19	µg/L	No
Diclofop-methyl	2012-01-09	<0.4	µg/L	No
Dimethoate	2012-01-09	<0.03	µg/L	No
Dinoseb	2012-01-09	<0.36	µg/L	No
Diquat	2012-01-09	<1.0	µg/L	No
Diuron	2012-01-09	<0.03	µg/L	No
Glyphosate	2012-01-09	<6.0	µg/L	No
Heptachlor + Heptachlor Epoxide	2012-01-09	<0.01	µg/L	No
Lindane (Total)	2012-01-09	<0.01	µg/L	No
Malathion	2012-01-09	<0.02	µg/L	No
Methoxychlor	2012-01-09	<0.01	µg/L	No
Metolachlor	2012-01-09	0.01	µg/L	No
Metribuzin	2012-01-09	<0.02	µg/L	No



Monochlorobenzene	2012-01-09	<0.3	µg/L	No
Paraquat	2012-01-09	<1.0	µg/L	No
Parathion	2012-01-09	<0.02	µg/L	No
Pentachlorophenol	2012-01-09	<0.15	µg/L	No
Phorate	2012-01-09	<0.01	µg/L	No
Picloram	2012-01-09	<0.25	µg/L	No
Polychlorinated Biphenyls(PCB)	2012-01-09	<0.04	µg/L	No
Prometryne	2012-01-09	<0.03	µg/L	No
Simazine	2012-01-09	<0.01	µg/L	No
THM (NOTE: show latest annual average)	Annual Average	62.5	µg/L	No
Temephos	2012-01-09	<0.01	µg/L	No
Terbufos	2012-01-09	<0.01	µg/L	No
Tetrachloroethylene	2012-01-09	<0.35	µg/L	No
2,3,4,6-Tetrachlorophenol	2012-01-09	<0.14	µg/L	No
Triallate	2012-01-09	<0.01	µg/L	No
Trichloroethylene	2012-01-09	<0.44	µg/L	No
2,4,6-Trichlorophenol	2012-01-09	<0.25	µg/L	No
2,4,5-Trichlorophenoxy acetic acid (2,4,5-T)	2012-01-09	<0.22	µg/L	No
Trifluralin	2012-01-09	<0.02	µg/L	No
Vinyl Chloride	2012-01-09	<0.17	µg/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
Trihalomethanes	62.5	µg/L	Running Annual Average