



Ontario Clean Water Agency
Agence Ontarienne Des Eaux

February 3, 2010

RECEIVED

FEB 26, 2010

Burton

Larry Allison, CAO
Town of Saugeen Shores
600 Tomlinson Dr.
Box 820
Port Elgin, Ontario
N0H 2C0

Re: Requirement under O. Reg. 170/03 Annual Report

Attached is the 2009 Annual Report for the Southampton WTP. This report is completed in accordance with Section 11 of O. Reg. 170/03, which requires an Annual Report to be prepared not later than February 28th of each year for the preceding calendar year.

This Annual Report is to be provided to the members of the municipal council. Please ensure this distribution.

Section 12 of O. Reg. 170/03, requires both the Summary Report and the Annual Report be made available for inspection by any member of the public during normal business hours, without charge. The reports should be made available for inspection at the office of the municipality, or at a location that is reasonably convenient to the users of the water system.

Please acknowledge receipt of this document

Sincerely,

David

David Trombley
Ontario Clean Water Agency
West Highlands Hub

Ontario Regulation 170 SECTION 11 ANNUAL REPORT

Drinking-Water System Number: 210000078

Drinking-Water System Name: The Southampton Water Treatment Plant & Distribution System

Drinking-Water System Owner: Town of Saugeen Shores

Drinking-Water System Category: Large Municipal Residential

Period being reported: January 1, 2009 to December 31, 2009

<u>Complete if your Category is Large Municipal Residential or Small Municipal Residential</u>	<u>Complete for all other Categories.</u>
<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; margin-top: 10px;"> <p>Town of Saugeen Shores 600 Tomlinson Drive Port Elgin, Ontario N0H 2C0 519-832-2008</p> </div>	<p>Number of Designated Facilities served: <input style="width: 50px;" type="text"/></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 style="width: 50px;" type="text"/></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>

List Drinking-Water Systems, which receive all of their drinking water from your system:

- Saugeen First Nations

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

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[] Public access/notice via other method

Describe your Drinking-Water System

Class 2 Distribution, Class 3 Treatment

Note: The Southampton WTP Facility provides the treated water to Southampton and Port Elgin through the Saugeen Shores Distribution System. There are two pressure Zones. Zone 1 provides water to Southampton part of the Saugeen Shores Distribution System and Zone 2 provides water to Port Elgin part of Saugeen Shores Distribution System.

The Southampton Water Treatment Plant (WTP) draws its raw water from Lake Huron through a 1600 m long, 750 mm diameter intake pipe with a chlorine solution feed line for zebra mussel control and a raw water sample line. There is also a backup 600 mm diameter concrete pipe. It has a wooden intake crib and flat sealed top and a 38 mm diameter solution feed for zebra mussel control inside the concrete pipe. There is an underground inlet chamber equipped with a manually cleaned raw water screen.

The low lift pumping is located on the shores of Lake Huron consisting of a raw water well with a 20 m long by 14 m wide heated superstructure housing the pumping, treatment and control facilities. This includes:

- three VFD-controlled vertical turbine pumps (two duty, one standby) each rated at 104 L/s at a total dynamic head (TDH) of 37 m
- two self-cleaning strainers (one duty and one standby) with a 1.5 m³ strainer backwash wastewater storage tank
- metering pumps (one duty and one standby) each rated at 20 L/hr and a chlorine solution feed line to the diffuser located in the mouth of the intake pipe for pre chlorination and/or zebra mussel control
- a 230 kW diesel engine standby power generator set and associated equipment

The Southampton WTP is approximately 31 m long by 19 m wide enclosed building located at 140 Island St. housing all the facilities described below as well as a laboratory/control room, an electrical/mechanical room, a storage room and a washroom.

The membrane filtration system is comprised of the following components:

- four individual submerged membrane trains (each with a capacity of 5950 m³/
- five permeate pumps (four duty and one shelf standby) each rated at 73 L/s at 11.5 m TDH
- two back pulse pumps (one duty and one standby) each rated at 73 L/s at 13.5 m TDH
- two Clean-in-place (CIP) membrane wash pumps (one duty and one standby) each rated at 56 L/s at 13.5 m TDH
- two Vacuum Pumps (one duty and one standby) each rated at 22 L/s at 3.0 m TDH
- two oil free compressors rated at 37.4 m³/hr
- two air blowers (one duty and one standby) each rated at 4.4 m³/min at 31.5 kPa
- sodium hypochlorite feed system consisting of two metering pumps for recovery cleaning (one duty and one standby) with capacity of 28.1 L/min, two metering pumps for biogrowth protection (one duty and one standby) with capacity of 2.78 L/min and one 1000 L storage tank
- citric acid feed system consisting of two metering pumps (one duty and one standby) with capacity of 0.37 L/s and one 200 L storage tank

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- sodium bisulfate feed system consisting of two metering pumps (one duty and one standby) with capacity of 2.06 L/min and one 60 L storage tank
- sodium hydroxide feed system consisting of two metering pumps (one duty and one standby) with capacity of 2.83 L/min and one 60 L storage tank

The Membrane Wastewater Treatment System is comprised of:

- one flocculator/clarifier including coagulation and sedimentation chambers equipped with draining system discharging sludge by gravity to sanitary sewer
- two equalization tanks with total volume of 160 m³, for membrane back pulse water equalization
- two tank drain/recirculation pumps (one duty and one standby) each rated at 24 L/s at 7.9 m TDH
- two pumps (one duty and one standby) rated at 22 L/s at 12 m TDH to pump equalized wastewater to clarifier
- alum feed system consisting of one storage tank and two mechanical metering pumps (one duty and one standby) each rated at 3.0 L/hr
- one 25 m³ neutralization tank
- two 8.8 m long x 7 m wide decant chambers discharging clarifier effluent by gravity to the adjacent surface drainage ditch
- sodium bisulfate feed system consisting of two metering pumps (one duty and one standby) with capacity of 0.32 L/hr and storage tank

There are two clear wells in parallel at the Water Treatment Plant with a total storage volume of 3720 m³. It is complete with intra basin baffling for storage and chlorine contact

There are also two sets of high lift pumps that consist of the following:

- three vertical turbine pumps (two duty, one standby), two pumps rated at 60 L/s at a TDH of 50 m and one pump rated at 50 L/s at a TDH of 49.7 m
- three vertical turbine pumps (two duty, one standby), each rated at 54 L/s at a TDH of 80 m

A sodium hypochlorite disinfection system is used at the Southampton WTP. The system consists of two storage tanks and two metering pumps (one duty and one standby) for post chlorination, each rated at 20 L/hr

Finally, there is a 750 kW diesel engine standby power generator set and associated equipment located in a separate room of the Plant Enclosure Building.

List all water treatment chemicals used over this reporting period

- Sodium Hypochlorite 12%
- Polyaluminumchloride
- Citric Acid

Were any significant expenses incurred to?

- Install required equipment
- Repair required equipment
- Replace required equipment

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Describe

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
08/17/09 AWQI #90603	Total Coliforms	2	CFU/100 ml	Resample	08/19/09
09/28/09 AWQI #91562	Total Coliforms	1	CFU/100 ml	Resample	09/30/09

Microbiological testing done under section 8-2 during this reporting period

	Number of Samples	Range of E.Coli Or Fecal Results (##)	Range of Total Coliform Results (##)	Number of HPC Samples Or Background Colony Counts	Range of HPC Results (##) Or Background Colony Counts
Raw	52	0-42	0-920		
Treated	52	0-0	0-0	52	0-<10
Distribution	319	0-0	0-2	106	0-20

Operational testing done under Schedule 7, 8 or 9 during the period covered by this Annual Report.

	Number of Grab Samples	Range of Results (##)
Turbidity	8760	#1 0.017 - 1.0 avg. 0.032 #2 0.000 - 1.0 avg. 0.104 #3 0.025 - 1.0 avg. 0.032 #4 0.023 - 1.0 avg. 0.057
Chlorine	8760	1.21 - 2.60
Chlorine Residual Distribution System	730	0.92 - 2.01

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

NOTE: Record the unit of measure if it is not milligrams per litre.

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Parameter	Sample Date	Result Value	Unit of Measure	Exceedance
Antimony	01/20/09	0.14	ug/L	No
Arsenic	01/20/09	0.6	ug/L	No
Barium	01/20/09	13.5	ug/L	No
Boron	01/20/09	13.2	ug/L	No
Cadmium	01/20/09	<0.003	ug/L	No
Chromium	01/20/09	<0.5	ug/L	No
Lead	01/20/09	0.27	ug/L	No
Mercury	01/20/09	<0.02	ug/L	No
Selenium	01/20/09	<1	ug/L	No
Sodium	01/07/08	5.72	mg/L	No
Uranium	01/20/09	0.262	ug/L	No
Fluoride	01/07/08	0.09	mg/L	No
Nitrite	01/20/09	<0.005	mg/L	No
	04/06/09	<0.005	mg/L	No
	07/06/09	<0.005	mg/L	No
	10/05/09	<0.005	mg/L	No
Nitrate	01/20/09	0.456	mg/L	No
	04/06/09	0.869	mg/L	No
	07/06/09	0.310	mg/L	No
	10/05/09	0.300	mg/L	No

Summary of additional testing and sampling carried out in accordance with the requirement of an approval or order.

Date of order or C of A	Parameter	Date Sampled	Result	C of A Limit	Unit of Measure
C of A 2084-6UNL4F	Suspended Solids (composite)	Monthly	Annual Average <2.0	15	mg/L

Note: The May 2009 monthly backwash sample for Suspended Solids was not collected within the allowed time period as per O. Reg. 170/03. As per the direction of the Ministry of the Environment an additional sample was collected in the month of June 2009.

Summary of Organic parameters sampled during this reporting period or most recent

Parameter	Sample Date	Result Value	Unit of Measure	Exceedance
Alachlor	01/20/09	<0.11	ug/L	No
Aldicarb	01/20/09	<0.30	ug/L	No
Aldrin + Dieldrin	01/20/09	<0.067	ug/L	No
Atrazine + N-dealkylated metabolites	01/20/09	<0.11	ug/L	No
Azinphos-methyl	01/20/09	<0.21	ug/L	No
Bendiocarb	01/20/09	<0.13	ug/L	No
Benzene	01/20/09	<0.37	ug/L	No
Benzo(a)pyrene	01/20/09	<0.004	ug/L	No

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Bromoxynil	01/20/09	<0.033	ug/L	No
Carbaryl	01/20/09	<0.16	ug/L	No
Carbofuran	01/20/09	<0.37	ug/L	No
Carbon Tetrachloride	01/20/09	<0.41	ug/L	No
Chlordane (Total)	01/20/09	<0.11	ug/L	No
Chlorpyrifos	01/20/09	<0.18	ug/L	No
Cyanazine	01/20/09	<0.18	ug/L	No
Diazinon	01/20/09	<0.081	ug/L	No
Dicamba	01/20/09	<0.20	ug/L	No
1,2-Dichlorobenzene	01/20/09	<0.50	ug/L	No
1,4-Dichlorobenzene	01/20/09	<0.21	ug/L	No
Dichlorodiphenyltrichloroethane (DDT) + metabolites	01/20/09	<0.14	ug/L	No
1,2-Dichloroethane	01/20/09	<0.43	ug/L	No
1,1-Dichloroethylene (vinylidene chloride)	01/20/09	<0.41	ug/L	No
Dichloromethane	01/20/09	<0.34	ug/L	No
2-4 Dichlorophenol	01/20/09	<0.25	ug/L	No
2,4-Dichlorophenoxy acetic acid (2,4-D)	01/20/09	<0.19	ug/L	No
Diclofop-methyl	01/20/09	<0.40	ug/L	No
Dimethoate	01/20/09	<0.12	ug/L	No
Dinoseb	01/20/09	<0.36	ug/L	No
Diquat	01/20/09	<1	ug/L	No
Diuron	01/20/09	<0.087	ug/L	No
Glyphosate	01/20/09	<6	ug/L	No
Heptachlor + Heptachlor Epoxide	01/20/09	<0.11	ug/L	No
Linadane (Total)	01/20/09	<0.056	ug/L	No
Malathion	01/20/09	<0.091	ug/L	No
Methoxychlor	01/20/09	<0.14	ug/L	No
Metolachlor	01/20/09	<0.092	ug/L	No
Metribuzin	01/20/09	<0.12	ug/L	No
Monochlorobenzene	01/20/09	<0.58	ug/L	No
Paraquat	01/20/09	<1	ug/L	No
Parathion	01/20/09	<0.18	ug/L	No
Pentachlorophenol	01/20/09	<0.15	ug/L	No
Phorate	01/20/09	<0.11	ug/L	No
Picloram	01/20/09	<0.25	ug/L	No
Polychlorinated Biphenyls(PCB)	01/20/09	<0.04	ug/L	No
Prometryne	01/20/09	<0.23	ug/L	No
Simazine	01/20/09	<0.15	ug/L	No
***TTHM Annual Average	2009	38	ug/L	No
Temephos	01/20/09	<0.31	ug/L	No
Terbufos	01/20/09	<0.12	ug/L	No
Tetrachloroethylene	01/20/09	<0.45	ug/L	No
2,3,4,6-Tetrachlorophenol	01/20/09	<0.14	ug/L	No
Triallate	01/20/09	<0.10	ug/L	No
Trichloroethylene	01/20/09	<0.38	ug/L	No
2,4,6-Trichlorophenol	01/20/09	<0.25	ug/L	No
2,4,5-Trichlorophenoxy acetic acid (2,4,5-T)	01/20/09	<0.22	ug/L	No

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Trifluralin	01/20/09	<0.12	ug/L	No
Vinyl Chloride	01/20/09	<0.17	ug/L	No

*** Annual average

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

(Only if DWS category is large municipal residential, small municipal residential, large municipal non residential, small municipal non residential, large non municipal non residential)

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			
Distribution			

Regulatory Relief of requirements under Schedule 15.1 has been granted under Regulatory Relief C of A # PB210000078R-01F.