

# **SOUTHOLD Water Distribution System**

Provincial Regulation 170/03  
Summary Report

For the period January 1 – December 31, 2013

## **1. Summary Report Requirements**

The 2013 Summary report for the Southwold Water Distribution System is submitted to satisfy the requirement to prepare and distribute a summary report of water quality as stipulated in Schedule 22 of O. Reg. 170/03.

As per O. Reg. 170/03, the summary report must:

- a. List the requirements of the Act, the regulations, the system's approval, drinking water works permit, municipal drinking water license and any orders applicable to the system that were not met at any time during the period covered by the report; and
- b. For each requirement referred to in clause (a) that was not met, specify the duration of the failure and the measures that were taken to correct the failure.

The report must also include the following information for the purpose of enabling the owner of the system to assess the capability of the system to meet existing and planned uses of the system:

- A summary of the quantiles and flow rates of the water supplied during the period covered by the report, including monthly average and maximum daily flows.
- A comparison of the summary to the rated capacity and flow rates approved in the system's approval, drinking water works permit or municipal drinking water license or if the system is receiving all of its water from another system under an agreement, to the flow rates specified in the written agreement.

The information provided is for the purpose of enabling the owner of the system to assess the capacity of the system. This report covers the period from January 1, 2013 to December 31, 2013.

## **2. System Approval**

Southwold is supplied water from the St Thomas Area Secondary Water Supply System which is, in turn, supplied water from the Elgin Area Water Treatment Plant located on Dexter Line, east of Port Stanley, Ontario. The Southwold Water Distribution System has various approvals from the Ministry of the Environment for the infrastructure as it is constructed.

The supply of water to the system is governed by Certificate of Approval number 8628-7RHHTA issued May 20, 2009 for the Elgin Middlesex Pumping Station located on South Edgeware Road in the Municipality of Central Elgin. The supply of water within Southwold was governed by Certificate of Approval number 0197-548N9L issued December 21, 2001 for the Shedden Booster Station located on Talbot Line east of Shedden. It is now governed by Drinking Water License #055-101, issued August 23, 2011.

In addition, the Southwold Water Distribution System supplies water to the Dutton-Dunwich Water Distribution System through an interconnect chamber located on Talbot

Line at Iona Road and to the St Thomas Water Distribution System through an Interconnect chamber located on Fingal Line at the municipal boundary.

### 3. Water Quantity

There are three separate water meters at the St Thomas Area Secondary Water Distribution System interconnect that monitor the water flow coming into the Southwold Water Distribution System. Of the two meters located at Talbot Line and Ford Road, the smaller meter monitors the feed to the village of Talbotville and the second, larger meter, monitors the feed to the rest of the Southwold system. A third meter was installed in 2012 at the corner of Wonderland Road and Clinton Line with the construction of a water main along Clinton Line, looping the water system in the northwest corner of Southwold. There are a number of Southwold customers who connect directly to the Secondary System.

The Elgin Middlesex Pumping Station has a volume limit of 54,605 m<sup>3</sup>/day. The Shedden Booster Station has a capacity limit of 2,952 m<sup>3</sup>/day.

Table 1 provides an overview of the flows entering the Southwold Water Distribution System.

**Table 1**

	Talbotville chamber (m <sup>3</sup> )	Southwold Interconnect chamber (m <sup>3</sup> )	Clinton Line Interconnect Chamber (m <sup>3</sup> )	Other (m <sup>3</sup> )	Iona chamber out-flow (m <sup>3</sup> )	St Thomas chamber out-flow (m <sup>3</sup> )	Total Volume Southwold (m <sup>3</sup> )
January	3975	33956	6680	2713	13341	1148	32835
February	3635	29416	5351	2422	12241	1109	27474
March	3755	30421	5515	2397	13497	1156	27435
April	4460	37312	6619	2958	13200	1423	36726
May	4775	40918	7386	3655	13357	1108	42269
June	3980	34063	6113	4799	6540	220	42195
July	4115	34892	6161	3910	11146	300	37632
August	4340	37265	6703	3583	9138	374	42379
September	5635	48365	8522	3361	15885	244	49754
October	4315	37114	6515	3093	11124	235	39678
November	4230	40807	6415	2489	18643	237	35061
December	5015	38433	7971	2774	8848	224	45121
<b>TOTAL FLOW</b>	<b>52230</b>	<b>442962</b>	<b>79951</b>	<b>38154</b>	<b>146960</b>	<b>7778</b>	<b>458559</b>

Table 2 summarizes the average daily, daily maximum and total monthly flows for the Shedden Booster Station.

**Table 2**

	Average Daily Flow (m <sup>3</sup> /day)	Maximum Daily Flow (m <sup>3</sup> /day)	Total Monthly Flow (m <sup>3</sup> /day)
<b>January</b>	569	1912	17626
<b>February</b>	520	553	14569
<b>March</b>	537	563	16655
<b>April</b>	529	563	15880
<b>May</b>	567	701	17567
<b>June</b>	519	642	15580
<b>July</b>	380	576	11770
<b>August</b>	491	1040	15234
<b>September</b>	667	1414	20018
<b>October</b>	484	573	14990
<b>November</b>	735	1348	22042
<b>December</b>	526	1089	16316
<b>TOTAL FLOW</b>	543	1912	198247

#### **4. Non-Compliance Issues**

Please see attached.

**NON-COMPLIANCE WITH REGULATORY REQUIREMENTS AND ACTIONS REQUIRED**

This section provides a summary of all non-compliance with regulatory requirements identified during the inspection period, as well as actions required to address these issues. Further details pertaining to these items can be found in the body of the inspection report.

**1. The secondary disinfectant residual was not measured as required for the distribution system.**

The Owner can monitor secondary disinfection in the distribution system by using a continuous chlorine analyzer or by taking manual grab samples.

Records reviewed for the inspection period indicate that secondary disinfection is continuously measured in the distribution system by chlorine analyzers before and after the point of rechlorination and records provided show the minimum, maximum, and average values for each day (24 hours), but hourly values are required to be generated in order to be in compliance.

The operators take 5 chlorine residual grab samples during bacteriological sampling each week and one additional sample is taken on weekdays in the distribution system, but the regulation requires at least 4 grab samples on one day and at least 3 grab samples 48 hours later on another day in order to be in compliance.

**Action(s) Required:**

The Owner shall ensure that secondary disinfection in the distribution system is monitored as required by O. Reg. 170/03, Schedule 6, section 6-5 (2), or Schedule 7, section 7-2 (4). The Owner has indicated that since August 22, 2013, the required number of grab samples for chlorine residual are taken as required in the distribution system. Log records confirm that the Owner is now in compliance. No further actions are required.

**2. Continuous monitoring equipment that was being utilized to fulfill O. Reg. 170/03 requirements was not performing tests for the parameters with at least the minimum frequency specified in the Table in Schedule 6 of O. Reg. 170/03 and/or was not recording data with the prescribed format.**

The Owner provided records related to secondary disinfection in the distribution system. These records consisted of continuous chlorine residual data and alarms from the analyzers in the distribution system. The SCADA data for the chlorine residual consisted of minimum, maximum and average values for each day (24 hours), but hourly values are required for the distribution system. The alarm summary included the date, time, location and whether it was a high or low chlorine alarm, but there was no numerical value associated with each alarm entry. These SCADA records are required to be generated and stored as required by O. Reg. 170/03, Schedule 6, section 6.5 (1) and (1.1). The SCADA data provided was in a "pdf" format.

**Action(s) Required:**

The Owner shall ensure that SCADA records are generated and stored for review as required by O. Reg. 170/03, Schedule 6, section 6-5 (1) and (1.1). These SCADA records will include hourly data for distribution chlorine residual and an alarm summary. It is the responsibility of the OIC to ensure that SCADA records are complete and they have been reviewed for compliance purposes.

(1) If a drinking water system uses continuous monitoring equipment for sampling and testing that is required under this Regulation, or under an approval, drinking water works permit, municipal drinking water licence or order, for a parameter set out in the Table to this section, the owner of the system and the operating authority for the system shall ensure that the following standards are met:

1. The continuous monitoring equipment must, except when no water is being directed to users of water sampled by the equipment,
  - i. test for the parameter with at least the minimum frequency specified in the Table for the parameter, and
  - ii. record the date, time, sampling location and result of every test for the parameter with at least the minimum frequency referred to in subparagraph i.
2. If the continuous monitoring equipment tests for a parameter more often than is required by subparagraph 1 i, the equipment may, instead of complying with subparagraph 1 ii,

i. record the minimum, maximum and mean results of tests for the parameter for every period that is equal to the length of time referred to in subparagraph 1 i, along with the sampling location, the date of the tests conducted during the period and the time at the end of the period, and

ii. record the result of every test that causes an alarm to sound under paragraph 1 of subsection (1.1), along with the sampling location and the date and time of the test.

Compliance with this requirement shall be verified during the next physical inspection.