



# SOMERSET/KNOB HILL WATER DISTRIBUTION SYSTEM

## 2018 Summary Report



Environmental Services

Presented to Council March 25, 2019

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## APPENDICES

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Appendix A: Ontario Regulation 170/03 Annual Report

# 1 INTRODUCTION

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The Somerset/Knob Hill Water Distribution System (distribution system) serves the Somerset / Knob Hill subdivision located on part of Lots 8 and 9, Concession 14. The development consists of 20 residential lots. In 2018, 18 lots were connected, and the water distribution system served an estimated population of 46 residents (based on the Township of Ramara's average population of 2.6 people per dwelling).

This report provides a description of the distribution system and summarizes the 2018 water quality monitoring program.

This report also summarizes the distribution system compliance status with the Safe Drinking Water Act (SDWA), the Ministry of the Environment, Conservation and Parks (MECP) Drinking Water Works Permit (DWWP) and the MECP Municipal Drinking Water License (MDWL). This annual report summary was prepared for presentation to Township of Ramara Council as required by Ontario Regulation 170/03 - Drinking Water Systems (O. Reg. 170/03), Schedule 22.

## 2 APPROVALS

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The distribution system is approved under DWWP No. 147-207, Issue No. 2 and MDWL No. 147-107, Issue No. 2 both issued on July 20, 2016.

## 3 DESCRIPTION OF THE WATER DISTRIBUTION SYSTEM

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### 3.1 WATER SOURCE

The distribution system receives treated water from the Township of Severn's Washago Water Treatment Plant (DWS No. 220005161). The Washago Water Treatment Plant is a Large Municipal Residential drinking water system that pumps water from Lake Couchiching, and provides treatment by disinfection with sodium hypochlorite, coagulation and flocculation with alum and a cationic polymer, and multi-media filtration.

### 3.2 WATER DISTRIBUTION SYSTEM

The distribution system is comprised of approximately 700 m of 50 mm diameter polyethylene watermain and includes the pipe that conveys treated water across the Severn River (the Municipal Somerset/Knob Hill Water Distribution System boundary) to the subdivision. There are three sample stations installed in the distribution system and one blow-off.

The quantity of treated water provided to the distribution system is recorded in Washago by the Township of Severn and the Township of Ramara operators. A 50 mm diameter flow meter

and a bypass flow meter housed in a metering chamber are used to measure the treated water flows.

## 4 WATER QUALITY MONITORING

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### 4.1 BACTERIOLOGICAL SAMPLING AND RESULTS

Two water samples are taken on a weekly basis for bacteriological testing, as per Ontario Regulation 170/03. A total of 110 samples were taken by the Township of Ramara from various locations in the distribution system in 2018. Water samples were tested for Total Coliforms, Escherichia coli (E. coli), Heterotrophic Plate Count (HPC), and background colonies. All bacteriological testing was performed by the accredited laboratory SGS Lakefield Research Limited (SGS).

The results of the bacteriological analyses were reviewed by the overall responsible operator and kept on file at the Township of Ramara office. If a distribution sample contains Total Coliforms or E. coli, Spills Action Centre (SAC), the Simcoe Muskoka District Health Unit (SMDH) and the Washago Water Treatment Plant are notified immediately, verbally and in writing. The site is also resampled. A Notice of Adverse Test Results was completed on October 17, 2018 due to a sample that exceeded the maximum acceptable concentration for total coliforms. The site was resampled and results met the required standards.

All bacteriological test results from the distribution water in 2018 met Ontario Regulation 169/03 – Ontario Drinking Water Quality Standards (O. Reg. 169/03), Schedule 1, Microbiological Standards.

Copies of the laboratory results can be made available upon request.

### 4.2 FREE CHLORINE RESIDUAL MONITORING AND RESULTS

In accordance with O. Reg. 170/03, Schedule 7, the distribution system was monitored daily to verify that the free chlorine residual was within the acceptable range of 0.2 mg/L to 4.0 mg/L. The operator used a portable Hach Chlorine Residual Meter and colorimetric chlorine analyzer. Daily hand-held measurements of free chlorine residual ranged between 0.82 mg/L and 1.85 mg/L.

Free chlorine residual was therefore maintained between the operational limits of 0.2 mg/L and 4.0 mg/L throughout the year.

Results from free chlorine residual monitoring in 2018 are summarized in Table 1.

*Table 1: Somerset/Knob Hill - 2018 Free Chlorine Residuals*

<b>Month</b>	<b>Daily Hand-held Measurement</b>
January	1.16 – 1.56 ppm
February	1.13 – 1.48 ppm
March	1.11 – 1.36 ppm
April	1.03 – 1.48 ppm
May	1.14 – 1.34 ppm
June	0.82 – 1.47 ppm
July	0.88 – 1.51 ppm
August	0.86 – 1.43 ppm
September	1.02 – 1.45 ppm
October	1.11 – 1.85 ppm
November	1.11 – 1.71 ppm
December	1.16 – 1.41 ppm

#### 4.3 PHYSICAL/CHEMICAL TESTING RESULTS

In accordance with O. Reg. 170/03, the water in the distribution system was tested for trihalomethanes (THMs) and haloacetic acids (HAAs) by SGS in February, May, August and November 2018. All test results were below the maximum acceptable concentration (MAC) specified in O. Reg. 169/03. Laboratory results for 2018 are summarized in Table 2.

*Table 2: Somerset/Knob Hill - 2018 Water Quality Laboratory Results*

<b>Parameter</b>	<b>Feb</b>	<b>May</b>	<b>Aug</b>	<b>Nov</b>	<b>MAC</b>
THM total (µg/L)	31.9	43.1	58.2	28.4	
THM (µg/L)*	40.6	41.0	41.5	40.4	100
HAA total (µg/L)	18.2	29.2	38.5	20	
HAA (µg/L)*	20.3	23.4	26.6	26.5	80

*\*Four Quarter Running Average*

*MAC – Maximum Acceptable Concentration*

## 5 WATER USAGE

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### 5.1 WATER CONSUMPTION

Daily water consumption is monitored by a magnetic flow meter owned and operated by the Township of Severn. Township of Ramara operators take intermittent flow readings (typically once a week) at the flow metering chamber in Washago. A limited flow data set is available.

From the magnetic flow meter readings obtained by the Township of Ramara operators, the 2018 average daily flow was estimated to be 5.3 m<sup>3</sup>/day. This corresponds to an estimated per capita average water consumption of 116 L/p/day. The estimated total annual water consumption in 2018 was 1,950 m<sup>3</sup>, which is 29% less than in 2017. The accuracy of the flow meter data was not confirmed.

### 5.2 LAWN WATERING BAN

No owner or occupant within Somerset / Knob Hill is permitted to use water from the Water Works for the purpose of watering lawns or gardens or for any other non-domestic use, as per municipal Bylaw No. 2005.72.

## 6 OPERATION AND MAINTENANCE

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Maintenance of the water distribution system typically includes monitoring water consumption data and repairing any defective and/or leaking sections, and annual flushing. Water consumption is monitored to identify possible leaks in the distribution piping by both the Township of Ramara and the Township of Severn operators. Once a week, a visual inspection of the right-of-ways where the distribution piping is located, is conducted to search for possible leaks. The pressure in the distribution piping is checked bi-weekly.

- One curb stop was replaced on Meadow Crescent

There was one service interruption for residents of Somerset / Knob Hill in 2018. The interruption was a result of a watermain break in Washago forcing the shutdown of the Washago Water Treatment Plant. A boil water was issued upon water being restored. After the appropriate sampling procedure, the boil water was lifted.

## 7 PUBLIC COMPLAINTS

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No complaints were received in 2018.

## 8 WATER WORKS AND OPERATOR LICENSES

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The Water Works has been classified in accordance with O. Reg. 435/93 as:

- Water Distribution Class I (Certificate No. 3738 issued October 27, 2005)

A summary of the facility operators in 2018 and their level of certification are listed in Table 3.

*Table 3: Certified Operators*

<b>Operator</b>	<b>Water Treatment Class</b>	<b>License No.</b>	<b>Water Distribution Class</b>	<b>License No.</b>
Dave Readman	Class II	12460	Class II	13530
Donald O'Connell	Class I	53308	N/A	N/A
Rob Smith	Class III	53310	Class III	96079
Nicholas Leroux	Class III	68579	Class III	83999
Joe Foley	Class II	87270	N/A	N/A
Kyle Readman	Class I	102762	N/A	N/A

The Operators attended workshops and seminars throughout the year.

## 9 COMPLIANCE STATUS

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The MECP conducted an inspection of the Water Works on April 25, 2018. No issues of non-compliance were noted and no orders were issued.

In 2018 the Water Works adhered to the sampling and testing requirements of the Safe Drinking Water Act and Municipal Drinking Water Licence. A summary of the minimum sampling and testing frequencies is included in the corresponding water works' Operations and Maintenance Manual.

The Somerset / Knob Hill Water Works operated in accordance with the DWWP and MDWL throughout the year. Based on the 2018 water distribution test results, at no time were the residents of Somerset / Knob Hill at any health risk.

The annual report required by O. Reg. 170/03, Schedule 11 was made available to the public on the Township of Ramara website on February 27, 2019. A copy of the report is included in Appendix A.



**Part III Form 2  
Section 11. ANNUAL REPORT.**

<b>Drinking-Water System Number:</b>	260046137
<b>Drinking-Water System Name:</b>	Somerset/ Knob Hill Water Distribution System
<b>Drinking-Water System Owner:</b>	The Corporation of the Township of Ramara
<b>Drinking-Water System Category:</b>	Small Municipal Residential
<b>Period being reported:</b>	January 1, 2018 to December 31, 2018

<p><b><u>Complete if your Category is Large Municipal Residential or Small Municipal Residential</u></b></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;">                 Township of Ramara Municipal Office                  2297 Highway 12                  Brechin, ON L0K 1B0             </div>	<p><b><u>Complete for all other Categories.</u></b></p> <p>Number of Designated Facilities served:  <div style="border: 1px solid black; padding: 2px; width: 100px; text-align: center;">N/A</div> </p> <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:  <div style="border: 1px solid black; padding: 2px; width: 100px; text-align: center;">N/A</div> </p> <p>Did you provide a copy of your annual report to all Interested Authorities you report to for each Designated Facility? Yes [ ] No [ ]</p>
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**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

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 [ ]  
 \*Not applicable

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**

Somerset/ Knob Hill water distribution system obtains water from the Township of Severn's Washago Water Treatment Plant (DWS No. 220005161).

**List all water treatment chemicals used over this reporting period**

No chemicals are added to the distribution system in Ramara Township. All chemicals used for treatment are injected at the Washago Water Treatment Plant, which supplies water to this distribution system.

**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**

Replace damaged curb stop on Meadow Crescent (\$2000)

**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
2018-10-17	Microbiological – Total Coliforms	1	Cfu/100mL	Flush and resample	2018-10-18

**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	N/A	N/A	N/A	N/A	N/A
Treated	N/A	N/A	N/A	N/A	N/A
Distribution	110	0	0-1	106	0-252

**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 #)
<b>Turbidity</b>	N/A	
<b>Chlorine</b>	157	0.82 – 1.85
<b>Fluoride</b> (If the DWS provides fluoridation)	N/A	

*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

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

Parameter	Sample Date	Result Value	Unit of Measure	Exceedance
<b>Antimony</b>				
<b>Arsenic</b>				
<b>Barium</b>				
<b>Boron</b>				
<b>Cadmium</b>				
<b>Chromium</b>				
<b>Lead (Distribution)</b>	29-Aug-18	0.20	µg/L	
<b>Mercury</b>				
<b>Selenium</b>				
<b>Sodium</b>				
<b>Uranium</b>				
<b>Fluoride</b>				
<b>Nitrite</b>				
<b>Nitrate</b>				

**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
<b>Plumbing</b>				
<b>Distribution</b>				

**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				
Aldicarb				
Aldrin + Dieldrin				
Atrazine + N-dealkylated metabolites				
Azinphos-methyl				
Bendiocarb				
Benzene				
Benzo(a)pyrene				
Bromoxynil				
Carbaryl				
Carbofuran				
Carbon Tetrachloride				
Chlordane (Total)				
Chlorpyrifos				
Cyanazine				
Diazinon				
Dicamba				
1,2-Dichlorobenzene				
1,4-Dichlorobenzene				
Dichlorodiphenyltrichloroethane (DDT) + metabolites				
1,2-Dichloroethane				
1,1-Dichloroethylene (vinylidene chloride)				
Dichloromethane				
2,4 Dichlorophenol				
2,4-Dichlorophenoxy acetic acid (2,4-D)				
Diclofop-methyl				
Dimethoate				
Dinoseb				
Diquat				
Diuron				
Glyphosate				
Heptachlor + Heptachlor Epoxide				
Lindane (Total)				
Malathion				
Methoxychlor				
Metolachlor				
Metribuzin				
Monochlorobenzene				
Paraquat				
Parathion				
Pentachlorophenol				
Phorate				
Picloram				
Polychlorinated Biphenyls(PCB)				
Prometryne				
Simazine				

Parameter	Sample Date	Result Value	Unit of Measure	Exceedance
<b>THM – Quarterly Average</b> <i>(NOTE: Latest annual average)</i>	28-Feb-18 to 21-Nov-18	40.4	µg/L	
<b>Temephos</b>				
<b>Terbufos</b>				
<b>Tetrachloroethylene</b>				
<b>2,3,4,6-Tetrachlorophenol</b>				
<b>Triallate</b>				
<b>Trichloroethylene</b>				
<b>2,4,6-Trichlorophenol</b>				
<b>2,4,5-Trichlorophenoxy acetic acid (2,4,5-T)</b>				
<b>Trifluralin</b>				
<b>Vinyl Chloride</b>				

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, non municipal year round residential, large non municipal non residential)**

### Notes on Additional Sampling

None