



SOMERSET/KNOB HILL
WATER DISTRIBUTION SYSTEM
2019 Water Quality Summary Report



Environmental Services

March 31, 2020

TABLE OF CONTENTS

1	Introduction	1
2	Approvals	1
3	Description of the Water Distribution system	1
3.1	Water Source	1
3.2	Water Distribution System.....	1
4	Water Quality Monitoring.....	2
4.1	Bacteriological Sampling and Results	2
4.2	Free Chlorine Residual Monitoring and Results	2
4.3	Physical/Chemical Testing Results	3
5	Water Usage	4
5.1	Water Consumption	4
5.2	Lawn Watering Ban.....	4
6	Operation and Maintenance	4
7	Public Complaints	5
8	Water Works and Operator Licenses	5
9	Compliance Status	5

LIST OF TABLES

Table 1: Somerset/Knob Hill - 2019 Free Chlorine Residuals	3
Table 2: Somerset/Knob Hill - 2019 Water Quality Laboratory Results	3
Table 3: Somerset/Knob Hill – 2019 Lead Testing Results	4
Table 4: Certified Operators	5

APPENDICES

Appendix A: 2019 Annual Report

1 INTRODUCTION

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 2019, 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 2019 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

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

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 used to measure the treated water flows.

4 WATER QUALITY MONITORING

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 105 samples were taken by the Township of Ramara from various locations in the distribution system in 2019. 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.

All bacteriological test results from the distribution water in 2019 met Ontario Regulation 169/03 – Ontario Drinking Water Quality Standards (O. Reg. 169/03), Schedule 1, Microbiological Standards.

Copies of the laboratory results are available upon request and summarized in Appendix A.

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 1.07 mg/L and 1.65 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 2019 are summarized in Table 1.

Table 1: Somerset/Knob Hill - 2019 Free Chlorine Residuals

Month	Daily Hand-held Measurement	
	Min	Max
January	1.10	1.34
February	1.07	1.44
March	1.29	1.50
April	1.28	1.57
May	1.48	1.64
June	1.24	1.38
July	1.25	1.65
August	1.09	1.56
September	1.20	1.59
October	1.26	1.59
November	1.21	1.48
December	1.21	1.33

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 2019. All test results were below the maximum acceptable concentration (MAC) specified in O. Reg. 169/03. Laboratory results for 2019 are summarized in Table 2.

Table 2: Somerset/Knob Hill - 2019 Water Quality Laboratory Results

Parameter	Feb	May	Aug	Nov	MAC
THM total (µg/L)	31.2	44.0	59	32	
THM (µg/L)*	40.2	40.5	40.58	41.5	100
HAA total (µg/L)	20.5	32.1	33.6	21.7	
HAA (µg/L)*	27.05	27.78	26.55	26.98	80

*Four Quarter Running Average

MAC – Maximum Acceptable Concentration

Lead

In accordance with the lead testing requirements of O. Reg.170, Schedule 15.1-5 (10), treated water in the distribution system was tested for lead, alkalinity and pH in March and August 2019. All parameters were within the OG and MAC of the ODWS. The laboratory results are summarized in Table 3.

Table 3: Somerset/Knob Hill – 2019 Lead Testing Results

Date	Location	pH	Alkalinity (mg/L)	Lead (ug/L)
March 11, 2019	Sample Station 7736	7.81	112	0.13
August 21, 2019	Sample Station #1	7.46	74	0.21

Maximum Acceptable Concentration for Lead: 10 ug/L
 Operational Guideline for Alkalinity: 30-500 mg/L
 Operational Guideline for pH: 6.5-8.5

5 WATER USAGE

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 2019 average daily flow was estimated to be 6.1 m³/day. This corresponds to an estimated per capita average water consumption of 132 L/p/day. The estimated total annual water consumption in 2019 was 2,230 m³, which is 15% higher than in 2018. 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

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.

7 PUBLIC COMPLAINTS

No complaints were received in 2019.

8 WATER WORKS AND OPERATOR LICENSES

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 2019 and their level of certification are listed in Table 4.

Table 4: Certified Operators

Operator	Water Treatment Class	License No.	Water Distribution Class	License No.
Dave Readman	Class II	12460	Class II	13530
Donald O'Connell	Class II	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

The MECP conducted an inspection of the Water Works on April 09, 2019. One issue of non-compliance was identified in the inspection. No orders were issued in conjunction with the inspection.

The secondary disinfectant residual was not measured as required in the distribution system. During the inspection review period a free chlorine residual was measured at minimum twice a week as required, however during four weeks there was not a minimum of 48 hours between samples as required. A corrective action was issued and issue resolved.

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 2019 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 28, 2019. A copy of the report is included in Appendix A.

APPENDIX A:
2019 Annual Report

Part III Form 2
Section 11. ANNUAL REPORT.

Drinking-Water System Number:	260046137
Drinking-Water System Name:	Somerset/ Knob Hill Water Distribution System
Drinking-Water System Owner:	The Corporation of the Township of Ramara
Drinking-Water System Category:	Small Municipal Residential
Period being reported:	January 1, 2019 to December 31, 2019

<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;"> Township of Ramara Municipal Office 2297 Highway 12 Brechin, ON L0K 1B0 </div>	<p><u>Complete for all other Categories.</u></p> <p>Number of Designated Facilities served: <div style="border: 1px solid black; padding: 2px; display: inline-block;">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; display: inline-block;">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

Regular sampling and testing.

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

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	106	0	0	106	0-3

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 #)
Turbidity	N/A	
Chlorine	109	1.07 – 1.65
Fluoride (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
Antimony				
Arsenic				
Barium				
Boron				
Cadmium				
Chromium				
Lead (Distribution)	11-Mar-19	0.13	µg/L	
Lead (Distribution)	21-Aug-19	0.21	µg/L	
Mercury				
Selenium				
Sodium				
Uranium				
Fluoride				
Nitrite				
Nitrate				

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				
Distribution	2	0.13-0.21	ug/L	0

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
THM – Quarterly Average <i>(NOTE: Latest annual average)</i>	27-Feb-19 to 27-Nov-19	41.53	µg/L	
Temephos				
Terbufos				
Tetrachloroethylene				
2,3,4,6-Tetrachlorophenol				
Triallate				
Trichloroethylene				
2,4,6-Trichlorophenol				
2,4,5-Trichlorophenoxy acetic acid (2,4,5-T)				
Trifluralin				
Vinyl Chloride				

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