



26557 Civic Centre Rd.  
Keswick, Ontario L4P 3G1

# 2019 ANNUAL SUMMARY REPORT FOR TOWN OF GEORGINA MUNICIPAL COUNCIL

## DRINKING WATER SYSTEM NO.260062686





## **Summary**

This annual summary report provides the results of sampling, testing and monitoring of the Keswick-Sutton drinking water subsystem as required by the *Safe Drinking Water Act, SDWA 2002*.

## **Background**

The Town of Georgina operates the water distribution system, and The Regional Municipality of York provides the treatment and storage of drinking water.

*Section 19* of the *Safe Drinking Water Act: Standard of Care*, requires every person who on behalf of the municipality oversees the accredited operating authority of the system or exercises decision-making authority over the system, to act honestly, competently and with integrity while exercising a level of care, diligence and skill to protect the health and safety of the users of the Town's drinking water system. This includes, the Mayor, Municipal Councilors, Management and *Ministry of Environment, Conservation and Parks (MECP)* Certified Operators.

*Schedule 22*, of *O.Reg 170/03*, under the *Safe Drinking Water Act* require owners of municipal drinking water systems to prepare annual reports describing the operation of the drinking water system and the results of testing performed that ensures residents are provided with safe drinking water. This report covers the period from January 1, 2019 to December 31, 2019.

## **The Drinking Water System**

The source of water supply for the Keswick-Sutton subsystem is Lake Simcoe. York Region owns and operates two water treatment plants, one in Keswick and one in Willow Beach. York Region also owns and operates four (4) water storage tanks. Water is taken from Lake Simcoe at each plant and undergoes a complete treatment process consisting of screening, filtration, taste and odor control, disinfection and fluoridation before being supplied to the Town's water distribution system. York Region also carries out extensive testing at each plant and summarizes the results of these tests in an annual report. The reports describe the treatment and chemicals used in the process in more detail.

Copies of York Region's annual report may be obtained by contacting York Region at 1-877-464-9675, accessing their web site at;

<https://www.york.ca/wps/portal/yorkhome/environment/yr/waterandwastewater/drinkingwaterqualityandmonitoring/drinkingwaterqualityandmonitoring> . A copy of the Region's



report may also be obtained at the Town of Georgina Civic Centre located at 26557 Civic Centre Road, Keswick, Ontario.

The Town of Georgina owns and operates the water distribution system that receives water from the York Region treatment plants. The system is comprised of two (2) water pumping stations, watermains, service connections (up to the property line), valves, hydrants, meters, and connected appurtenances.

### **MECP Inspection**

The Compliance and Enforcement Regulation (O. Reg. 242/05) of the SDWA requires the MECP to carry out a number of specific activities such as taking mandatory actions and conducting inspections of municipal residential drinking water systems.

The Ministry of Environment, Conservation and Parks (MECP) performed an inspection of the Town of Georgina drinking water distribution system on November 4, 2019. The MECP Inspector performed an off-site desktop audit, and an on-site inspection of processes, operations manuals, standard operating procedures, logbooks, operator certification and training credentials, water quality, water quality monitoring processes, reporting procedures, and corrective actions. Resulting from the Inspection, the Town was provided with zero (0) non-conformities, and one (1) Best Management Practice (BMP).

The Town received an inspection rating of 100%. This score indicates the lowest possible risk rank and highest possible inspection rating for drinking water systems. The inspection rank indicates that there were no instances of non-compliance with the requirements of the Safe Drinking Water Act, the regulations, the system's approval, drinking water works permit, municipal drinking water licence, and any orders applicable to the system.



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Ministry of the Environment - Inspection Summary Rating Record (Reporting Year - 2019-2020)

<b>DWS Name:</b> KESWICK-SUTTON DISTRIBUTION SYSTEM
<b>DWS Number:</b> 260062686
<b>DWS Owner:</b> Georgina, The Corporation Of The Town Of
<b>Municipal Location:</b> Georgina
<b>Regulation:</b> O.REG 170/03
<b>Category:</b> Large Municipal Residential System
<b>Type Of Inspection:</b> Adhoc
<b>Inspection Date:</b> November 4, 2019
<b>Ministry Office:</b> York-Durham District

Maximum Question Rating: 244

Inspection Module	Non-Compliance Rating
Treatment Processes	0 / 35
Operations Manuals	0 / 28
Logbooks	0 / 18
Certification and Training	0 / 28
Water Quality Monitoring	0 / 51
Reporting & Corrective Actions	0 / 63
Treatment Process Monitoring	0 / 21
<b>TOTAL</b>	<b>0 / 244</b>

Inspection Risk Rating | 0.00%

**FINAL INSPECTION RATING: 100.00%**

**Top Requested Water Quality Parameters**

<p><b>Chlorine</b></p> <div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 0 auto;"> <p>Range 0.07 – 2.04 mg/L</p> </div>	<p><b>Lead</b></p> <div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 0 auto;"> <p>Range &lt;0.0005 mg/L – 0.0009 mg/L</p> </div>	<p><b>Sodium</b></p> <div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 0 auto;"> <p>34 mg/L</p> </div> <p><small>*Data provided by York Region</small></p>	<p><b>Fluoride</b></p> <div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 0 auto;"> <p>0.68 mg/L</p> </div> <p><small>*Data provided by York Region</small></p>
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\*The owner of a drinking water system and the operating authority for the system shall ensure that at least one water sample is taken every 60 months and tested for sodium. **Data provided by York Region.**

\*If a drinking water system provides fluoridation, the owner of the system and the operating authority for the system shall ensure that a water sample is taken at the end of the fluoridation process at least once every day and is tested for fluoride. Data provided by York Region.

Water Quality in the drinking water system remains excellent.

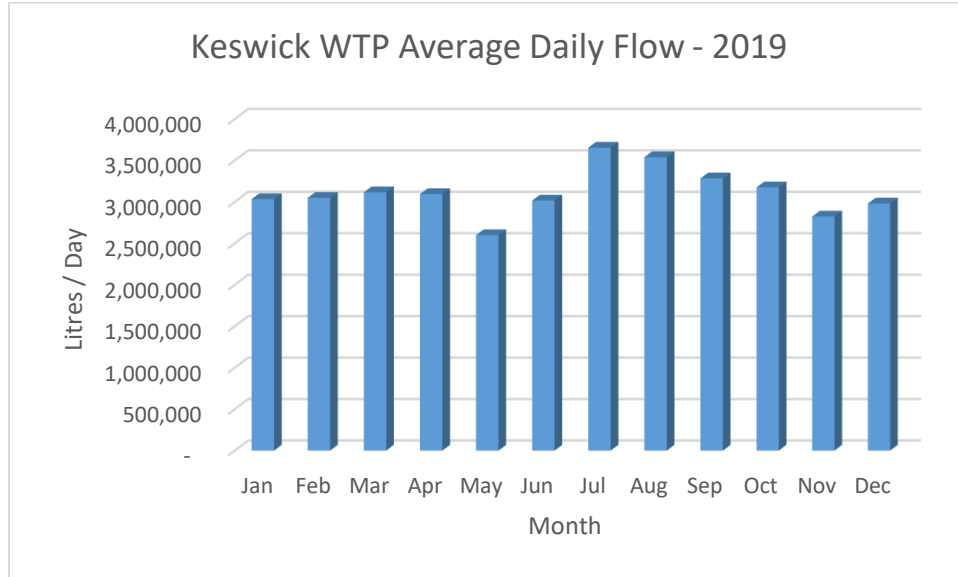
During 2019 there was considerable public interest in the amount of Lead (Pb) found in samples of drinking water taken in schools. The Town is currently only required to test for Lead (Pb) in the distribution system, not in private plumbing. The Regulatory Limit for Lead (Pb) is 0.010 mg/L. All test for Lead are significantly below the Regulatory Limit.



**System Monthly Average Flow (m3/day)**

**Keswick Water Treatment Plant (Operated by York Region)**

The following chart shows the average flow of water produced (treated) in the Keswick Water Treatment Plant and is expressed in litres per day.\*



**Permitted and Actual Maximum Daily Withdrawal:**

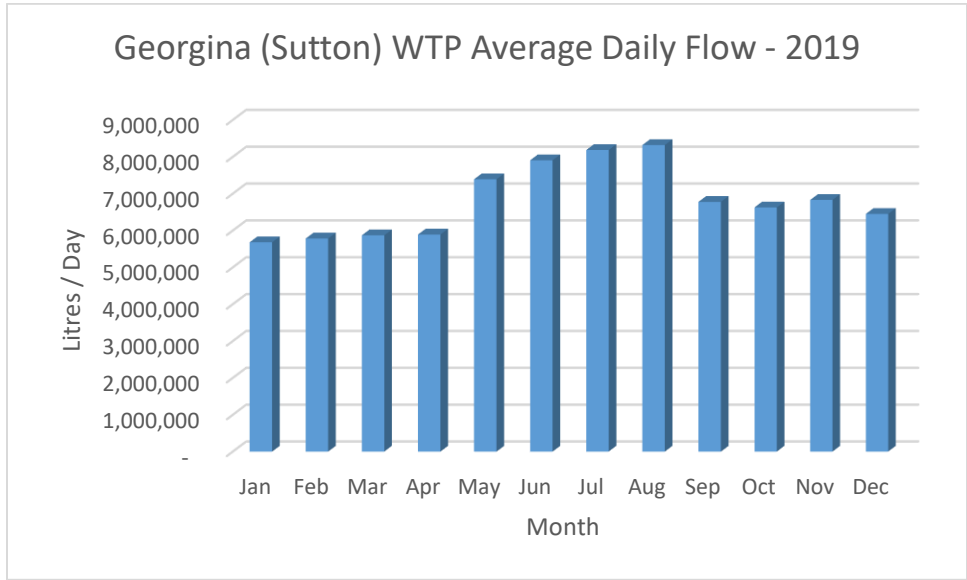
The following table shows the maximum volume of water produced in a single day from the Keswick Water Treatment Plant compared to the maximum withdrawal permitted by the Ministry of the Environment, Conservation and Parks.\*

*	Litres
<b>Maximum Permitted Withdrawal</b>	18,150,000
<b>Maximum Daily Production</b>	3,652,968

\*All data provided by the Regional Municipality of York

**Sutton (Georgina) Water Treatment Plant (Operated by York Region)**

The following chart shows the average flow of water produced (treated) in the Sutton (Georgina) Water Treatment Plant and is expressed in litres per day.\*



**Permitted and Actual Maximum Daily Withdrawal:**

The following table shows the maximum volume of water produced in a single day from the Georgina (Sutton) Water Treatment Plant compared to the maximum withdrawal permitted by the Ministry of the Environment, Conservation and Parks.\*

*	Cubic Meters
<b>Maximum Permitted Withdrawal</b>	50,000,000
<b>Maximum Daily Production</b>	8,317,863

\*All data provided by the Regional Municipality of York

**Microbiology Testing from January 1 to December 31, 2019**

Town of Georgina *MECP* Certified Drinking Water Operators take water samples from various locations serviced by the Keswick-Sutton water distribution system every week. The York-Durham Laboratory in Pickering analyses and tests each sample for the presence of bacteria. York and Durham Regions jointly own this accredited laboratory and employees of Durham Region staff the laboratory.

Seven hundred and fifty two (752) samples from the Keswick-Sutton distribution system were analyzed for the presence of coliform bacteria between January 1, 2019 and December 31, 2019. Of the seven hundred and fifty two (752) microbiological samples taken in 2019, one (1) sample tested positive for Total Coliforms. Town staff took immediate corrective action in accordance with *O.Reg 170/03: Drinking Water Systems*. The location of the adverse sample, as well as upstream and downstream locations was resampled. The results of the resample were negative for the presence of coliforms



indicating the likely cause of the initial positive result was from secondary contamination due to sampling error, and not from the treated water within the Distribution System.

Two hundred and six (206) samples were analyzed by using the heterotrophic plate count (HPC) method to check for background colonies within the drinking water. This test is used as a supplement to the routine analysis for coliform bacteria and is used as an aide in assessing overall drinking water quality and the condition of the distribution system. At minimum, 25% of all routine microbiological sampling tests must be tested for HPC. The sampling quantity of two hundred and six (206) is 28% of all routine microbiological samples, surpassing the MECP and SDWA requirement.

Shown in the table below are the results from two hundred and six (206) heterotrophic plate count (HPC) samples. The *MECP* Operational Guideline determines a maximum allowable concentration of 500 CFU/mL HPC. The maximum concentration of HPC analyzed within the Town of Georgina water distribution system in 2019 was 260 CFU/mL.

HPC Range in Colony Forming Units (CFU/mL)	Number of Samples
0	170
1 to 10	36
11 to 20	0
<b>Total HPC Sample Count</b>	<b>206</b>

The results above indicate overall drinking water quality is acceptable as all HPC samples throughout 2019 are well below the regulatory limit of 500 CFU/mL.

### Chlorine Residual

The Town is required to routinely monitor for “free chlorine residual” concentrations in order to ensure that bacteria does not develop within the drinking water distribution system.

Each of the seven hundred and fifty two (752) microbiological samples taken from the Town’s drinking water distribution system are required to have a free chlorine test analyzed in conjunction to ensure the drinking water at the time of sampling is sufficiently disinfected. Thus, in 2019, the Town’s MECP Certified Operators analyzed seven hundred and fifty two (752) free chlorine samples during routine and emergency microbiological sampling.

The Town of Georgina MECP Certified Operators perform a Weekly Flushing program on the Drinking Water Distribution System. The flushing is done at blow-Off valves, fire hydrants, and sample stations. This is done to purge stagnant water from within the



distribution system (ie. “dead ends”), allowing free chlorine residuals to be monitored and maintained at acceptable levels. Two thousand and thirty four (2034) free chlorine residual samples were analyzed while performing the water distribution system weekly flushing program in 2019.

Town MECP Certified Operations staff are also required to take daily samples at specific locations throughout the Town. One thousand nine hundred and twenty (1920) Free Chlorine samples were taken during the Daily Chlorine sampling program.

Free chlorine residuals must also be taken during routine Quarterly testing for Trihalomethanes (THM’s) and Haloacetic Acids (HAA’s). THM’s and HAA’s are disinfection by-products and are a good indicator of the efficacy of the chlorine disinfection process. Ten (10) free chlorine residuals were analyzed during routine THM sampling and eight (8) free chlorine residuals were analyzed during routine HAA sampling in 2019.

In total, four thousand seven hundred and twenty four (4724) free chlorine residual samples were analyzed in 2019. The range of free chlorine residual from the 4724 samples analyzed was 0.07 mg/L to 2.04 mg/L. The minimum acceptable chlorine residual is 0.05 mg/L and the maximum is 4.00 mg/L. All samples had sufficient chlorine residual levels to maintain bacterial disinfection within the Town’s water distribution system.

### **Lead Testing**

In 2007, the Ontario Government required municipal and non-municipal drinking water systems to undertake mandatory semi-annual testing for lead in drinking water to ensure levels meet the standards set forth in *O.Reg.169/03: Ontario Drinking Water Quality Standards and O.Reg.170/03: Drinking Water Systems*, under the *Safe Drinking Water Act, SDWA 2002*. The Ontario drinking water quality standard for lead is 10 micrograms per litre (10 µg/L) or 0.010 milligrams per litre (0.010 mg/L). This standard is based on the national guideline set by Health Canada, and reflects the most current estimate that consider children’s health as the primary concern.

The lead testing performed over the past decade has demonstrated that the vast majority of municipal and non-municipal residential drinking water systems have met the regulated standards. As a result, the Ministry has amended regulations under the *Safe Drinking Water Act* to clarify requirements for lead testing and to introduce an automatic lead testing exemption within plumbing systems for municipal drinking water systems serving under 50,000 people.

Systems serving under 50,000 users can transfer to a “reduced” lead sampling schedule on condition that no more than 10% of samples taken within the latest two (2) sampling periods do not exceed half of the 10ug/mL standard (0.010 mg/L). Since the Town has not had any exceedances for lead since 2007, the Town automatically follows this





“reduced” lead sampling schedule for the water distribution system, and is exempt from Lead sampling within the plumbing system. Lead samples are taken every 36-months on a rolling three (3) year schedule under “reduced” sampling protocol. Each year semi-annual alkalinity and pH sampling is mandatory, whereas lead must be sampled every 36-months on a semi-annual basis (summer, and winter).

The table below outlines the rolling three (3) year “reduced” Lead sampling schedule. In 2019, sampling was carried out as per year two (Y2).

<b>Sample Period (Year)</b>	<b>1<sup>st</sup> Round Sampling</b>	<b>Date of 1<sup>st</sup> Round Sampling</b>	<b>2<sup>nd</sup> Round Sampling</b>	<b>Date of 2<sup>nd</sup> Round Sampling</b>	<b># of Samples per Period</b>	<b>Sampling Requirements</b>
<b>3</b>	<b>Dec 15/17 to Apr 15/18</b>	<b>March 2018</b>	<b>Jun 15/18 to Oct 15/18</b>	<b>September 2018</b>	<b>4</b>	<b>Alkalinity, pH and Lead</b>
<b>1</b>	Dec 15/18 to Apr 15/19	March 2019	Jun 15/19 to Oct 15/19	September 2019	4	Alkalinity and pH
<b>2</b>	Dec 15/19 to Apr 15/20	March 2020	Jun 15/20 to Oct 15/20	September 2020	4	Alkalinity and pH
<b>3</b>	<b>Dec 15/20 to Apr 15/21</b>	<b>March 2021</b>	<b>Jun 15/21 to Oct 15/21</b>	<b>September 2021</b>	<b>4</b>	<b>Alkalinity, pH and Lead</b>

As of 2019, the Town was on year one (Y1) of this cycle, thus, was not required to sample for Lead. Town staff, however, did sample for Lead in the first sampling period (March 2019). All Lead results were below the regulatory limit of 0.010 mg/L.

In total, four (4) samples were taken on March 6, 2019 and were tested for Lead, pH and Alkalinity, and four (4) samples were taken on September 11, 2019 and were tested for Alkalinity and pH. All results were within acceptable tolerance.

The table below summarizes the sample results, which demonstrate that the results are all within compliance limits.



Sample Date	Number of Samples	Lead (mg/L) Min. – Max.	Alkalinity CaCO <sub>3</sub> (mg/L)	pH Min. – Max.
Mar. 6/19	4	<0.0005 – 0.0009	111 – 114	7.09 – 7.43
Sep. 11/19	4	N/A	95.8 – 112	6.59 – 7.24
MAC – (Maximum Allowable Concentration) OG – (Operational Guideline)		MAC 0.01mg/L	OG 500mg/L	OG 6.5 – 8.5

### Trihalomethanes (THM'S) and Haloacetic Acids (HAA's) Testing

Ten (10) samples were tested for Trihalomethanes (THM's). The maximum twelve (12) month running average allowable limit is 100 µg/L. The results of the Town samples for the THM twelve (12) month running average for 2019 was 61.44 µg/L, demonstrating the Town's results are all within compliance limits.

Eight (8) samples were tested for Haloacetic Acids (HAA's). The maximum twelve (12) month running average allowable limit is 100 µg/L. The results of the Town samples for the HAA twelve (12) month running average for 2019 was 37.5 µg/L, demonstrating the Town's results are all within compliance limits.

	Date of Sample	Running Annual Average (µg/L)	ODWS Regulatory Limit	Exceedance
<b>Trihalomethanes (THM's)</b>	January 7, 2019	58.38	100 µg/L	No
	February 6, 2019	58.88		
	May 1, 2019	58.85		
	August 7, 2019	60.48		
	<b>November 6, 2019</b>	<b>61.44</b>		
<b>Haloacetic Acid (HAA's)</b>	February 6, 2019	31.13	100 µg/L	No
	May 1, 2019	35.25		
	August 19, 2019	36.13		
	<b>November 6, 2019</b>	<b>37.50</b>		

### The Drinking Water Quality Management Standard

The Drinking Water Quality Management Standard (DWQMS) sets out a framework for the operating authority and the owner of a drinking water system to develop a Quality Management System (QMS) that is relevant and appropriate for the system.

The DWQMS contains elements of both the ISO 9001 standard with respect to management systems and the hazard analysis and critical control points (HACCP) standard with respect to product safety. The DWQMS also incorporates the HACCP



approach to risk assessment and reflects the multi-barrier approach for drinking water safety.

### **Accredited Operating Authority**

**Part III, Section 13 of the SDWA** requires the Owner of the Drinking Water System to:

1. **Obtain, or become an Accredited Operating Authority of the Drinking Water System.** In order to become accredited, an Operating Authority must establish and maintain a Quality Management System (QMS). Minimum requirements for the QMS are specified in the Drinking Water Quality Management Standard (DWQMS), approved under Section 21 of the SDWA.

Certificate of Re-Accreditation for the Town of Georgina QMS was received on November 7th, 2018, and is valid until November 23rd, 2021. The Re-Accreditation was provided by the accreditation body SAI Global, through process of auditing elements fundamental to ensuring the long-term sustainability of the Towns' drinking water system, including; the DWQMS, operating plans, financial plans, water quality, risk management processes, and maintenance, rehabilitation and renewal of infrastructure activities used to supply drinking water, and ensure system security. Audits are conducted annually to facilitate the Towns' ability to consistently deliver safe drinking water to the public, and to enhance consumer protection through the effective application and continual improvement of the QMS.

2. **Obtain a Municipal Drinking Water Licence (MDWL) and a Drinking Water Works Permit (DWWP)** to operate a water system. The Town of Georgina received its latest Municipal Drinking Water Licence (No. 119-101) and Drinking Water Works Permit (No. 119- 201) on June 7, 2016, and is valid until June 6, 2021.

### **Private Wells**

Residents that obtain water from private wells are encouraged to take samples periodically to determine if their water is safe to drink. Sample bottles may be obtained at the Civic Centre and returned to the same location for testing conducted by the Ministry of Health laboratory at no cost to the residents.