

Drinking water systems

Flow summary report 2019



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List of Acronyms and Definitions

| Adverse | Adverse water results are listed in Schedule 16, O. Reg. 170/03. Examples of adverse water results: |
|----------------|---|
| | An analytical result that exceeds a health-based water quality standard (O. Reg. 169/03) Any evidence that disinfection may not have been effective Low chlorine residuals |
| CFU | colony forming units |
| CL 2 | chlorine |
| СТ | contact time – used in determining level of disinfection treatment |
| DWWP | Drinking Water Works Permit |
| EC | E. coli |
| GUDI | groundwater under the direct influence of surface water |
| L/s | litres per second |
| m³/d | cubic metres per day |
| MDWL | Municipal Drinking Water Licence |
| MECP | Ministry of the Environment, Conservation and Parks (Ontario) |
| mg/L | milligrams per litre |
| mL | millilitre |
| ML/d | megalitres (million litres) per day (1 ML = $1,000 \text{ m}^3$) |
| МОН | Medical Officer of Health |
| NDOGT | No data; total coliform plate overgrown with target bacteria |
| O. Reg. | Ontario Regulation |
| PA | Presence/Absence |
| PTTW | Permit to Take Water |
| Rated Capacity | Volume of treated water that meets all applicable Ontario drinking water quality regulations including the aesthetic water quality objectives and that may be made available by the water treatment plant for delivery to the drinking water system in any 24-hour period |
| R.R.O. | Revised Regulations Ontario (1990) |
| SCADA | Supervisory Control and Data Acquisition |
| SDWA | Safe Drinking Water Act, 2002 |
| ТС | total coliform |
| WTP | water treatment plant |

Executive Summary

Halton Region is committed to providing reliable access to clean, safe drinking water for more than 580,000 residents in Burlington, Halton Hills, Milton and Oakville. Halton Region operates 11 drinking water systems that are governed by four municipal drinking water licences and associated drinking water works permits issued by the Ministry of the Environment, Conservation and Parks (MECP). Each year, a summary report for municipal drinking water systems is prepared and provided to Regional Council. The report addresses the regulatory requirements for Schedule 22 of the Drinking Water Systems Regulation (O. Reg. 170/03) under the *Safe Drinking Water Act, 2002*.

This report includes information about the drinking water systems' approvals, any MECP orders and inspection findings, a summary of the quantities and flow rates of the water supplied during the reporting period, and a data comparison of the related capacity of each system.

Here are some key findings from the report:

- Halton Region's water treatment and distribution facilities demonstrated excellent operational performance in 2019, achieving an overall average 99.7 per cent inspection rating.
- Halton Region's water systems produced more than 61,865 megalitres (ML) of safe, clean drinking water in 2019. This is the average equivalent of 170 ML of treated water per day, which is nearly enough to fill 68 Olympic-sized swimming pools.
- There was an approximate two per cent decline in demand for water from 2018 to 2019, which may be the result of a longer, rainy spring and the continued success of water conservation practices.

Protecting the natural environment is a priority for the Region, and one of the ways we are doing this is by reducing the impact of climate change. Halton Region is currently working to maximize energy efficiencies and develop an improved maintenance program, which will help reduce greenhouse gas emissions generated through the water treatment process and ensure a reliable supply of drinking water for the future. Halton Region is also participating in the American Water Works Association's Partnership for Safe Water Program. This voluntary program aims to go beyond regulatory requirements for safe drinking water through detailed and documented water treatment optimization to provide enhanced water quality for Halton residents. Through these programs and partnerships, Halton Region can continue to provide safe, clean and reliable drinking water to residents, now and into the future.

To learn more about the Region's drinking water, you can visit **halton.ca**.

2 Legislated Requirements

In Ontario, water taking, drinking water treatment and distribution are governed by a number of acts and regulations. The owner/operator of each waterworks is required to follow additional legally-binding requirements laid out in various licenses, permits and approvals. Individual approvals issued by the MECP are site-specific, meaning the conditions of operation are tailored to a facility's characteristics, circumstances and the local environment.

Under Schedule 22 of the Drinking Water Systems Regulation (O. Reg. 170/03), annual summary reports are required to be prepared and distributed to owners of both small and large municipal residential systems. The summary report must be submitted no later than March 31 to members of Municipal Council. The contents must list the requirements of the *Safe Drinking Water Act, 2002*, the regulations, the system's approval and any applicable system orders for the reporting period where legislative requirements were not met along with the duration of these events and the resulting corrective measures.

In addition, the report must include a summary of the quantities and flow rates of the water supplied during the period covered by the report, including monthly averages and maximum daily flows. The summary must be compared to the rated capacity provided in each system's approval.

The reporting requirements are identified in Table 2-1

Table 2-1 Drinking Water System Annual Reports

| Report Name | Description | Legislation or Regulation | Submitted to | Annual Due Date |
|---|---|--|--|--------------------|
| Annual Flow Summary Report for Municipalities | Summary of flows Description of any failure to meet requirements of an Act, regulations or the system's approval | O. Reg. 170/03, Schedule 22 | Regional Council; available to the public | March 31 |
| Annual Water Quality Report | Description of system Water quality test results Adverse test results and corrective action Major expenses to repair, replace or install equipment | O. Reg. 170/03, Section 11 | Posted on Halton's website | February 28 |
| Water Taking and Transfer Report | Electronic submission of water taking data | O. Reg. 387/04 | MECP | March 31 |
| Permit to Take Water Annual Report | Reporting conditions set out in individual Permits to Take Water Halton's groundwater systems only | Permits to Take Water issued under the <i>Ontario Water</i> <i>Resources Act</i> | MECP | March 31 |
| Water Conservation Charges Report | Names, addresses and water usage of industrial and commercial water customers which used 50,000 litres of water in a single day in the year | O. Reg. 450/07 | MECP | March 31 |

The structure of this report is as follows:

Section 2 lists legislation and regulations of significance to drinking water systems and outlines the reporting requirements of O. Reg. 170/03, Schedule 22.

Section 3 provides an overview of Halton's drinking water systems.

Section 4 provides a description of how data is compiled and analyzed for this report.

Sections 5 to 15 include descriptions of each drinking water system, flow data and summaries of adverse water quality incidents.

Section 16 summarizes the MECP drinking water system inspections.

Section 17 includes the conclusions of the report.



3 Halton's Drinking Water Systems

Figure 1 shows Halton Region's operational drinking water systems.

Figure 1 Halton's Drinking Water Systems



Everything within the dashed line is owned and operated by Halton Region

4 Annual Water Data

Halton's Public Works Department manages all of Halton's drinking water treatment and distribution systems, including: surface water intakes; wells; reservoirs; elevated tanks; booster stations; and distribution systems. Staff's primary responsibilities are water taking, treatment and distribution in compliance with all applicable legislation and system approvals. Routine water quality testing and continuous monitoring of water quality and quantity is also conducted to ensure compliance. A comprehensive maintenance program is in place that ensures continuous and reliable drinking water systems.

4.1 Water Quality Data

Raw and treated water is sampled and tested for chemical, physical and microbiological parameters in accordance with the requirements of O. Reg. 170/03 and individual system approvals. Sampling is also conducted in the distribution system primarily for bacteriological indicators and evidence of sustained chlorine residuals. Enhanced sampling programs are defined by Water Treatment Operations, System Operations and the Regional Laboratory for parameters beyond those mandated or at a frequency greater than prescribed by the MECP. This level of water quality monitoring along with a proven "multi barrier" approach to water treatment helps protect public health and ensures public confidence in the water supply. As mandated, annual reports summarizing the water quality for each water system are posted on Halton's website for the public to review.

The majority of analysis is conducted by Halton's Regional Laboratory, with some specialized analysis contracted to other accredited laboratories. In accordance with Schedule 16 of O. Reg. 170/03, all notifications of adverse water quality incidents are provided to the Spills Action Centre and Medical Officer of Health. Halton has an *Adverse Water Quality Incidents Procedure* in place that summarizes internal and external reporting requirements as well as ensuring that the appropriate corrective actions are implemented. A summary of notifications in 2019 for each system is provided in this report.

4.2 Flow Data

While water quality is of utmost priority, attention is also directed to flow measurement and data management. In Halton Region, continuous monitoring equipment is used for measuring flow, including the rate and volume of taking. The flow measuring devices are connected to the Supervisory Control and Data Acquisition (SCADA) system for monitoring, alarming and data storage. In addition, the devices are verified in accordance with the manufacturer's specifications, or at least once every year, to help ensure data reliability. The MECP is notified if the flow or volume exceeds a system approval or if there is a problem with any flow monitoring device.

This annual flow report is prepared through retrieval of archived SCADA data and logbook entries. The archived data is then analyzed and used to compile a summary report. The raw water flows are compared to the Permits to Take Water (allowable volume of water to be taken). The treated water volumes are the amounts of water sent into the water distribution systems. These volumes are compared to the plant rated capacities in each Municipal Drinking Water License. The reporting of treated water flows is required by the MECP "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" (O. Reg. 170/03, Schedule 22 (22-2(3)1)).

Halton Region's water systems produced just over 61,865 ML of drinking water in 2019. This marked a slight reduction in total production of approximately two per cent over the previous calendar year. On average, Halton produced 170 ML of treated water per day in 2019 which is nearly enough to fill 68 Olympic-sized swimming pools with clean, safe drinking water.



5 Burlington Water Treatment Plant

5.1 Water System Description

The Burlington Water Treatment Plant (WTP) is located at 3249 Lakeshore Road in Burlington. The facility is a conventional filtration treatment plant with a process that consists of the Actiflo[®] process (microsand-enhanced clarification), filtration, fluoridation, optional pH adjustment, ozonation (disinfection and taste and odour control) and chlorination (secondary disinfection). Seasonally, the water is chlorinated at the intake for zebra mussel control. The plant is controlled through a computerized SCADA system that is monitored 24 hours per day, seven days a week. The treated drinking water is pumped into the South Halton Water Distribution System.

Table 5-1 Burlington WTP General Information

| Municipal Drinking Water Licence Drinking Water Works Permit | 004-104 (South Halton) 004-204 |
|---|--|
| Drinking Water System Number | 220001664 |
| Classification | |
| Class | Treatment Class 4 |
| Certificate Number | 561 |
| | |
| Service Population | n/a – see South Halton Distribution System |
| Service Population Permit to Take Water | n/a – see South Halton Distribution System |
| Service Population Permit to Take Water Number | n/a – see South Halton Distribution System 2581-8QSMHV |
| Service Population Permit to Take Water Number Expiry Date | n/a – see South Halton Distribution System 2581-8QSMHV January 31, 2022 |
| Service Population Permit to Take Water Number Expiry Date Water Taking Permitted | n/a – see South Halton Distribution System 2581-8QSMHV January 31, 2022 291,000 m³/d or 202,083 L/min. (equivalent) |



A summary of the flows in 2019 is provided in the following table (5-2). At the Burlington WTP, some water is used in the chemical feed systems and for backwashing filters; thus, the raw water flow may be greater than the treated water flow. The treatment plants are designed to handle peak hour flows and, as such, a comparison of maximum and average daily volumes to permitted levels is not always the most accurate representation of available capacity. The data presented in Table 5-3 complies with the reporting requirements of the regulation (O. Reg.170/03, Schedule 22).

| Month | Raw Water Flow m³/d | | Treated Water Flow m³/d | |
|--------------------|------------------------|-------------|----------------------------|-------------|
| | Maximum Day | Average Day | Maximum Day | Average Day |
| January | 86,617 | 75,681 | 78,401 | 68,638 |
| February | 97,673 | 79,556 | 89,825 | 72,478 |
| March | 82,627 | 73,912 | 77,894 | 69,525 |
| April | 105,020 | 78,085 | 98,236 | 73,582 |
| May | 106,708 | 84,468 | 97,771 | 79,090 |
| June | 126,152 | 96,676 | 116,518 | 89,771 |
| July | 134,100 | 118,654 | 123,374 | 109,949 |
| August | 134,545 | 115,593 | 123,864 | 107,206 |
| September | 126,572 | 105,723 | 117,791 | 97,738 |
| October | 110,445 | 83,986 | 100,555 | 78,392 |
| November | 97,386 | 72,372 | 90,244 | 67,561 |
| December | 85,599 | 71,295 | 76,091 | 65,067 |
| Annual Average Day | | 88,000 | | 81,583 |

Table 5-2 Burlington WTP Flow Summary 2019

Note: The shaded blocks denote the annual maximum daily flows for 2019.



Table 5-3 Burlington WTP Flow Comparison to MDWL and PTTW

| Burlington WTP | Raw Water | | Burlington WTP Raw Water | | Treated | d Water |
|------------------|-----------|-------------|--------------------------|-------------|---------|---------|
| | Max. Day | Average Day | Max. Day | Average Day | | |
| % PTTW | 46% | 30% | | | | |
| % Rated Capacity | | | 47% | 31% | | |

5.3 Adverse Test Results

In accordance with Schedule 16 of O. Reg. 170/03, notifications of adverse water quality incidents are provided to the Spills Action Centre and the Medical Officer of Health. In 2019, there were no adverse test results/incidents at the Burlington WTP.



6 Oakville Water Treatment Plant

6.1 Water System Description

The Oakville Water Treatment Plant (WTP) is located at 21 Kerr Street in Oakville. This facility is a conventional filtration treatment plant with a process that consists of the Actiflo[®] process (microsand-enhanced clarification), filtration, fluoridation, ozonation (disinfection and taste and odour control) and chlorination (disinfection). Seasonally, the water is chlorinated at the intake for zebra mussel control. The plant is controlled through a computerized SCADA system that is monitored 24 hours per day, seven days a week. The treated drinking water is pumped into the South Halton Water Distribution System.

Table 6-1 Oakville WTP General Information

| Municipal Drinking Water Licence Drinking Water Works Permit | 004-104 (South Halton) 004-204 |
|---|---|
| Drinking Water System Number | 220001637 |
| Classification Class Certificate Number | Treatment Class 4 557 |
| Service Population | n/a - see South Halton Distribution System |
| Permit to Take Water Number Expiry Date Water Taking Permitted | 3760-AZ8PKN July 31, 2028 155,000 m³/d or 107,639 litres/minute (equivalent) |
| Rated Capacity: | 109,000 m³/d |



A summary of the flows in 2019 is provided in the following table (6-2). At the Oakville WTP, some water is used in the chemical feed systems and for backwashing filters. Thus, the raw water flow is greater than the treated water flow. The treatment plants are designed to handle peak hour flows and, as such, a comparison of maximum and average daily volumes to permitted levels is not always the most accurate representation of available capacity. The data presented in Table 6-3 complies with the reporting requirements of the regulation (O. Reg.170/03, Schedule 22).

| Month | Raw Water Flow m³/d | | Treated Water Flow m³/d | |
|--------------------|------------------------|-------------|----------------------------|-------------|
| | Maximum Day | Average Day | Maximum Day | Average Day |
| January | 64,971 | 53,957 | 61,593 | 50,629 |
| February | 66,441 | 50,476 | 63,915 | 47,408 |
| March | 63,854 | 51,560 | 60,631 | 48,141 |
| April | 67,717 | 46,143 | 65,295 | 45,445 |
| May | 75,102 | 52,130 | 71,228 | 48,467 |
| June | 69,168 | 57,299 | 65,031 | 52,300 |
| July | 76,003 | 56,393 | 71,343 | 53,159 |
| August | 81,924 | 62,680 | 75,668 | 57,675 |
| September | 74,796 | 52,427 | 69,213 | 47,704 |
| October | 75,803 | 46,704 | 71,584 | 42,806 |
| November | 66,405 | 50,062 | 64,361 | 47,031 |
| December | 62,007 | 51,616 | 59,208 | 48,380 |
| Annual Average Day | | 52,620 | | 49,095 |

Table 6-2 Oakville WTP Flow Summary 2019

Note: The shaded blocks denote the annual maximum daily flows for 2019.



Table 6-3 Oakville WTP Flow Comparison to MDWL and PTTW

| Oakville WTP | Raw Water | | Treate | d Water |
|------------------|-----------|-------------|----------|-------------|
| | Max. Day | Average Day | Max. Day | Average Day |
| % PTTW | 53% | 34% | | |
| % Rated Capacity | | | 69% | 45% |

6.3 Adverse Test Results

In accordance with Schedule 16 of O. Reg. 170/03, notifications of adverse water quality incidents are provided to the Spills Action Centre and Medical Officer of Health. In 2019, there were no adverse test results/incidents at the Oakville WTP.



7 Burloak Water Treatment Plant

7.1 Water System Description

The Burloak Water Treatment Plant (WTP) is located at 3380 Rebecca Street, Oakville. This facility is a membrane filtration plant with a process that consists of flocculation, ultra-filtration (via membranes), optional ultra-violet irradiation, ozonation (disinfection and taste and odour control), fluoridation and chlorination (disinfection). Seasonally, the raw water intake is chlorinated for zebra mussel control. The plant is controlled through a computerized SCADA system that is monitored 24 hours per day, seven days per week. The treated drinking water is pumped into the South Halton Water Distribution System.

Table 7-1 Burloak WTP General Information

| Municipal Drinking Water Licence Drinking Water Works Permit | 004-104 (South Halton) 004-204 |
|---|--|
| Drinking Water System Number | 260085436 |
| Classification Class Certificate Number | Treatment Class 4 5224 |
| Convice Deputation | n /a sea Cauth Haltan Distribution Castan |
| Service Population | n/a - see South Halton Distribution System |
| Permit to Take Water Number Expiry Date Water Taking Permitted | 7500-A4ZM5N December 31, 2025 64,000 m ³ /d or 88,889 L/min |



A summary of the flows in 2019 is provided in the following table (7-2). At the Burloak WTP, some water is used in the chemical feed systems and for backwashing filters and subsequently the raw water flow is greater than the treated water flow. The treatment plants are designed to handle peak hour flows and, as such, a comparison of maximum and average daily volumes to permitted levels is not always the most accurate representation of available capacity. The data presented in Table 7-3 complies with the reporting requirements of the regulation (O. Reg.170/03, Schedule 22).

| 84 - m44 | Raw Water F | low m³/d | Treated Water Flow m ³ /d | |
|--------------------|-------------|-------------|--------------------------------------|-------------|
| Month | Maximum Day | Average Day | Maximum Day | Average Day |
| January | 18,997 | 18,113 | 14,965 | 14,476 |
| February | 25,247 | 18,666 | 21,356 | 14,937 |
| March | 19,630 | 18,390 | 15,730 | 14,658 |
| April | 19,149 | 17,608 | 15,239 | 14,077 |
| May | 18,791 | 18,120 | 14,717 | 14,400 |
| June | 36,062 | 19,535 | 31,585 | 15,845 |
| July | 28,605 | 18,650 | 24,605 | 15,198 |
| August | 24,254 | 18,660 | 21,328 | 15,821 |
| September | 30,597 | 21,970 | 27,678 | 18,898 |
| October | 38,160 | 19,213 | 33,444 | 16,501 |
| November | 28,864 | 21,440 | 24,397 | 17,734 |
| December | 35,421 | 22,515 | 30,874 | 18,403 |
| Annual Average Day | | 19,407 | | 15,912 |

Table 7-2 Burloak WTP Flow Summary 2019

Note: The shaded blocks denote the annual maximum daily flows for 2019.



Table 7-3 Burloak WTP Flow Comparison to MDWL and PTTW

| Burloak WTP | Raw V | Vater | Treated Water | | | | |
|------------------|----------------------|-------|---------------|-------------|--|--|--|
| | Max. Day Average Day | | Max. Day | Average Day | | | |
| % PTTW | 60% | 30% | | | | | |
| % Rated Capacity | | | 61% | 29% | | | |

7.3 Adverse Test Results

In accordance with Schedule 16 of O. Reg. 170/03, notifications of adverse water quality incidents are provided to the Spills Action Centre and Medical Officer of Health. In 2019, there was one adverse test result/incident at the Burloak WTP as summarized in Table 7-4.

Table 7-4 Adverse Test Results and Actions – Burloak Water Treatment Plant

| Date | Location | Adverse Condition | Corrective Action | Notice of Issue Resolution |
|-------------------|---------------|--|--|----------------------------|
| February 19, 2019 | Plant Treated | Sodium = 22.7 mg/L/ Sodium = 22.6 mg/L (Duplicate) | Resamples collected and results within acceptable limits | February 21, 2019 |



8.1 Water System Description

The South Halton Distribution System is supplied by the Burlington, Oakville and Burloak WTP's. The South Halton Distribution System serves Burlington, Oakville and parts of Milton and Halton Hills, and includes 16 reservoirs/storage tanks: Appleby Line, Bailie, Beaufort, Tyandaga, Brant, Headon, Mount Forest, Washburn, Waterdown, Kitchen, McCraney, Eighth Line, Moore, Burnhamthorpe Tower, Third Line Reservoir and Steeles Avenue Tower in Milton. As the South Halton System is distribution only, it does not require a Permit to Take Water. Flows into the distribution system are reported under the three water treatment plants, which provided the treated water in 2019.

Table 8-1 South Halton Distribution System General Information

| Municipal Drinking Water Licence Drinking Water Works Permit | 004-104 (South Halton) 004-204 |
|---|-----------------------------------|
| Drinking Water System Number | 260085462 |
| Classification Class Certificate Number | Distribution Class 4 5284 |
| Service Population | 500,730 |

8.2 Adverse Test Results

In accordance with Schedule 16 of O. Reg. 170/03, notifications of adverse water quality incidents are provided to the Spills Action Centre and the Medical Officer of Health. In 2019, there were 12 adverse test results/incidents in the South Halton Distribution System as summarized in Table 8-2. Some reported incidents included more than one test result.



Table 8-2 Adverse Test Results and Actions – South Halton Distribution

| Date | Location | Adverse Condition | Corrective Action | Notice of Issue Resolution |
|-------------------|--------------|--|---|----------------------------|
| January 8, 2019 | Distribution | PA confirmed Total Coliform (Duplicate) | Resamples collected and results within acceptable limits | January 10, 2019 |
| January 24, 2019 | Distribution | TC = 1 CFU/100mL | Resamples collected and results within acceptable limits | January 26, 2019 |
| January 28, 2019 | Distribution | PA confirmed Total Coliform | Resamples collected and results within acceptable limits | January 30, 2019 |
| April 3, 2019 | Distribution | PA confirmed Total Coliform | Resamples collected and results within acceptable limits | April 5, 2019 |
| May 9, 2019 | Distribution | TC = 1 CFU/100 mL | Resamples collected and results within acceptable limits. | May 11, 2019 |
| June 27, 2019 | Distribution | EC = NDOGT TC = NDOGT | Resamples collected and results within acceptable limits. | June 29, 2019 |
| June 27, 2019 | Distribution | TC = 8 CFU/100 mL | Resamples collected and results within acceptable limits. | June 29, 2019 |
| June 27, 2019 | Distribution | TC = 1 CFU/100 mL | Resamples collected and results within acceptable limits. | June 29, 2019 |
| June 27, 2019 | Distribution | TC = 2 CFU/100 mL | Resamples collected and results within acceptable limits. | June 29, 2019 |
| July 17, 2019 | Distribution | PA confirmed Total Coliform | Resamples collected and results within acceptable limits | July 19, 2019 |
| September 6, 2019 | Distribution | TC = 3 CFU/100 mL | Resamples collected and results within acceptable limits. | September 8, 2019 |
| December 17, 2019 | Distribution | TC = 1 CFU/100 mL | Resamples collected and results within acceptable limits. | December 20, 2019 |



9 Milton Groundwater Supply System

9.1 Water System Description

The Town of Milton is supplied with both groundwater and surface water. Treated surface (Lake Ontario) water from South Halton is pumped to the Steele's Avenue Water Tower. Under normal operating conditions, lake water and groundwater do not mix in Milton's distribution system.

The groundwater system consists of two well fields: Kelso and Walkers Line. There are four wells in the Kelso well field that pump raw water into the Kelso Water Treatment Plant. The treatment includes greensand filters for manganese and iron removal and chlorination for disinfection. The water is pumped to the Milton Reservoir. From there, the water flows by gravity into the distribution system. The Walkers Line well field consists of one well with water being disinfected with chlorine and pumped to the Milton Surge Tank. From the surge tank, the water flows by gravity into the distribution system. Fluoride is not added to the Milton groundwater system. The system is controlled through a computerized SCADA system that is monitored 24 hours per day, seven days a week.

Table 9-1 Milton Groundwater System General Information

| Municipal Drinking Water Licence Drinking Water Works Permit | 004-104 (South Halton) 004-204 | | | | | |
|---|-----------------------------------|-----------------------------|--|--|--|--|
| Drinking Water System Number | 220001646 | | | | | |
| Classification Class Certificate Number | Treatment Class 2 3643 | Distribution Class 3 551 | | | | |
| Service Population | 27,273 | | | | | |



| Permit to Take Water | |
|---------------------------------------|--|
| Number | 87-P-3046 |
| Expiry Date | n/a |
| Water Taking Permitted | |
| Kelso | |
| Kelso Wells 3,4,5 and 6 combined Max. | 13,635 m³/d |
| combined for up to 5 days/year | 22,730 m³/d |
| combined for up to 10 days/year | 20,457 m³/d |
| combined for up to 30 days/year | 18,184 m³/d |
| combined for up to 60 days/year | 15,911 m³/d |
| Walkers Line | |
| Walkers Line Well 1 | 2,618 m ³ /d or 1818 L/min (equivalent) |
| Walkers Line Well 2 | 2,946 m³/d or 2046 L/min (equivalent) |
| Max. from Walkers Line 1 and 2 | 3,180 m³/d |
| Emergency, combined | 5,240 m³/d for up to 10 days/year |
| Rated Capacity | |
| Kelso WTP | 22,670 m³/d |
| Walkers Line | 5,240 m³/d |

A summary of the flows in 2019 is provided in the following table. At the Walkers Line site, the treated water flow is the same as the raw water flow. At the Kelso WTP, some water is used for backwashing filters and subsequently the raw water flow is greater than the treated water flow. However, due to rounding of flow data, the average treated water may be slightly higher than the average raw water taking for this report. The treatment plants are designed to handle peak hour flows and, as such, a comparison of maximum and average daily volumes to permitted levels is not always the most accurate representation of available capacity. The data presented in Tables 9-3 and 9-4 complies with the reporting requirements of the regulation (O. Reg. 170/03, Schedule 22).



Table 9-2 Milton Groundwater System Flow Summary 2019

| Month | Milton ⁻ Treated m³/ | Total Flow d | Walkers Line m ³ /d | | Kelso Rav m³/ | w Water ⁄d | Kelso Treated m³/d | | |
|-----------------------|---------------------------------------|--------------------|-----------------------------------|------------|---------------------|---------------|-----------------------|------------|--|
| | Max Day | Avg Day | Max Day | Avg Day | Max Day | Avg Day | Max Day | Avg Day | |
| January | 8,715 | 5,749 | 720 | 682 | 7,927 | 5,155 | 8,066 | 5,067 | |
| February | 8,379 | 5,542 | 711 | 684 | 8,021 | 4,901 | 7,720 | 4,858 | |
| March | 8,183 | 5,505 | 1,008 | 683 | 7,862 | 4,870 | 7,530 | 4,822 | |
| April | 6,993 | 5,507 | 746 | 722 | 6,591 | 4,838 | 6,272 | 4,786 | |
| Мау | 8,807 6,060 | | 759 | 616 | 8,971 | 5,667 | 8,594 | 5,444 | |
| June | 9,734 6,723 | | 721 | 416 | 9,385 | 6,516 | 9,124 | 6,306 | |
| July | 10,825 | 7,031 | 696 | 652 | 10,535 6,523 | | 10,181 | 6,379 | |
| August | 9,977 | 7,027 | 697 | 606 | 9,438 | 6,545 | 9,347 | 6,421 | |
| September | 9,279 | 6,162 | 811 | 525 | 10,501 | 5,817 | 8,844 | 5,638 | |
| October | 8,058 | 5,786 | 1,024 | 708 | 7,653 | 5,195 | 7,345 | 5,077 | |
| November | 7,878 | 5,506 | 792 | 730 | 7,013 | 4,750 | 7,175 | 4,777 | |
| December | 7,690 | 5,493 | 915 | 683 | 6,451 | 4,831 | 6,775 | 4,810 | |
| Annual Average Day | ual 6,007 rage Day | | 642 | | | 5,467 | | 5,365 | |

Note: The shaded blocks denote the annual maximum daily flows for 2019.

C

The following tables (9-3 and 9-4) show the maximum day and average day raw water volumes for 2019 in comparison to the permitted water taking (PTTW) and the rated capacity in the MDWL.

Table 9-3 Kelso WTP Flow Comparison to MDWL and PTTW

| | Raw | Water | Treated Water | | | |
|------------------|----------|-------------|---------------|-------------|--|--|
| Kelso WTP | Max. Day | Average Day | Max. Day | Average Day | | |
| % PTTW | 77% | 40% | | | | |
| % Rated Capacity | | | 45% | 24% | | |

Table 9-4 Walkers Line Flow Comparison to MDWL and PTTW

| Walkers Line Wells | Maximum Day Flow | Average Day Flow | | | | |
|--------------------|---------------------|---------------------|--|--|--|--|
| % PTTW | 32% | 20% | | | | |
| % Rated Capacity | 20% | 12% | | | | |

In 2019, the maximum flows taken and pumped into the treatment systems were not greater than the values specified in the MDWL and the PTTW.

9.3 Adverse Test Results

In accordance with Schedule 16 of O. Reg. 170/03, notifications of adverse water quality incidents are provided to the Spills Action Centre and the Medical Officer of Health. In 2019, there were no adverse test results/incidents in the Milton Drinking Water System.

10 Georgetown Water Supply System

10.1 Water System Description

The Georgetown Drinking Water System draws groundwater from three well fields. There are four wells in the Cedarvale well field, two wells in the Princess Anne well field and two wells in the Lindsay Court well field.

The Georgetown WTP treats water from the four Cedarvale Wells with greensand filtration, ultraviolet light for primary disinfection, fluoridation, and chlorination for secondary disinfection. Water from the Princess Anne and Lindsay Court Wells receive treatment at the well sites with chlorination for disinfection and fluoridation. Together, these three sources pump water into the distribution system that includes 22 Side Road Reservoir, Moore Park Booster Station, Todd Road Tower and the Norval Standpipe under a water distribution Class III Certificate (# 566).

The Georgetown system is controlled through a computerized SCADA system that is monitored 24 hours per day, seven days a week.

Table 10-1 Georgetown Water System – General Information

| Municipal Drinking Water Licence | 004-101 | | | | | | |
|----------------------------------|-------------------|----------------------|--|--|--|--|--|
| Drinking Water Works Permit | 004-201 | | | | | | |
| Drinking Water System Number | 220001655 | | | | | | |
| Classification | | | | | | | |
| Class | Treatment Class 2 | Distribution Class 3 | | | | | |
| Certificate Number | 564 | 566 | | | | | |
| Service Population | 40,144 | | | | | | |



| Permit | to Take Water | | | | | | |
|---------|---------------------------------------|---|--|--|--|--|--|
| | Number | 4705-AFCJ82 | | | | | |
| | Date | December 31, 2021 | | | | | |
| | Materia Talia a Denne itte d | 2 (10 3/4 | | | | | |
| | water laking Permitted | 2,618 m ² /d | | | | | |
| | Cedarvale Well 1A Cedarvale | 3,931 m ² /d | | | | | |
| | Well 3A Cedarvale Well 4 | 7,854 m³/d | | | | | |
| | Cedarvale Well 4A | 5,890 m³/d | | | | | |
| | Maximum Daily (Cedarvale Well Field) | 12,500 m³/d | | | | | |
| | Annual Avg. Daily (Cedarvale Wells) | 6,972 m³/d | | | | | |
| | | | | | | | |
| | Princess Anne Well 5 | 4,582 m³/d | | | | | |
| | Princess Anne Well 6 | 13,090 m³/d | | | | | |
| | Annual Average Both PA Wells | 6,800 m³/d | | | | | |
| | | | | | | | |
| | Lindsay Court Well 9 and 9B Combined) | 6,545 m ³ /d or 5210 L/min (max. rate) | | | | | |
| Rated C | Capacity | | | | | | |
| | Georgetown WTP | 13,046 m³/d | | | | | |
| | Princess Anne Well 5 | 4,582 m ³ /d | | | | | |
| | Princess Anne Well 6 | $13080\mathrm{m}^{3}/\mathrm{d}$ | | | | | |
| | Lindsay Court Well 94 and/98 | 6 540 m ³ /d | | | | | |
| | Linusay Court Weir 2A and/ 20 | | | | | | |

A summary of the flows in 2019 is provided in Table 10-2 on the following page. At the Princess Anne and Lindsay Court wells, the treated water flow is the same as the raw water flow. At the Georgetown WTP (Cedarvale wells), some water is used in the chemical feed systems and for backwashing filters. Thus, the raw water flow is greater than the treated water flow. The treatment plants are designed to handle peak hour flows and, as such, a comparison of maximum and average daily volumes to permitted levels is not always the most accurate representation of available capacity. The data presented in Tables 10-3 and 10-4 complies with the reporting requirements of the regulation (O. Reg. 170/03, Schedule 22).



Table 10-2 Georgetown Drinking Water System Flow Summary 2019¹

| Month | Georgetown System Total Treated Flow m ³ /d (GWPP Treated, PA 5, PA 6, LC) | | Princess Anne Wells 5 and 6 m ³ /d | | Princess Princess Anne Anne 5 m³/d 6 m³/d | | s Anne ³/d | Lindsay Court 9 and 9B m³/d | | Lindsay Court Well 9 m³/d | | Lindsay Court Well 9B m³/d | | Cedarvale Wells (Georgetown WTP) Total Raw Flow m ³ /d | | Georgetown WTP Treated m ³ /d | | |
|--------------------------|--|------------|---|------------|--|------------|---------------|-----------------------------------|------------|------------------------------------|------------|-------------------------------------|------------|---|------------|--|------------|------------|
| | Max Day | Avg Day | Max Day | Avg Day | Max Day | Avg Day | Max Day | Avg Day | Max Day | Avg Day | Max Day | Avg Day | Max Day | Avg Day | Max Day | Avg Day | Max Day | Avg Day |
| January | 16,279 | 13,428 | 2,904 | 1,083 | 2,734 | 1,031 | 475 | 52 | 6,031 | 4,267 | 5,347 | 1,853 | 6,031 | 2,415 | 9,846 | 8,378 | 9,566 | 8,078 |
| February | 14,218 | 12,922 | 12,095 | 6,071 | 4,148 | 1,466 | 12,095 | 4,605 | 6,033 | 3,189 | 5,605 | 1,801 | 6,033 | 1,388 | 8,640 | 3,813 | 8,356 | 3,663 |
| March | 14,388 | 12,756 | 10,904 | 3,736 | 4,044 | 444 | 10,904 | 3,292 | 5,604 | 2,906 | 5,604 | 1,895 | 4,344 | 1,011 | 8,640 | 6,346 | 8,489 | 6,114 |
| April | 14,609 | 13,082 | 1,923 | 633 | 54 | 2 | 1,923 | 631 | 5,612 | 5,485 | 5,604 | 2,147 | 5,612 | 3,339 | 7,085 | 6,963 | 6,940 | 6,666 |
| May | 16,724 | 13,978 | 4,332 | 2,164 | 4,149 | 968 | 3,701 | 1,197 | 6,037 | 4,813 | 5,604 | 2,745 | 6,037 | 2,068 | 10,474 | 7,293 | 10,350 | 7,001 |
| June | 19,572 | 15,204 | 12,097 | 7,176 | 4,148 | 1,413 | 12,097 | 5,764 | 5,611 | 3,435 | 4,764 | 1,504 | 5,611 | 1,932 | 9,448 | 4,592 | 9,158 | 4,400 |
| July | 19,496 | 16,102 | 12,100 | 11,754 | 1,020 | 102 | 12,100 | 11,652 | 5,602 | 3,356 | 5,602 | 2,172 | 4,599 | 1,184 | 3,586 | 1,051 | 3,448 | 991 |
| August | 19,462 | 16,265 | 12,098 | 9,935 | 410 | 26 | 12,098 | 9,909 | 5,602 | 3,395 | 5,602 | 2,073 | 5,592 | 1,323 | 4,581 | 3,050 | 4,376 | 2,934 |
| September | 15,747 | 14,159 | 11,228 | 6,465 | 4,148 | 2,242 | 11,228 | 4,223 | 5,596 | 3,869 | 5,173 | 2,634 | 5,596 | 1,235 | 6,105 | 3,997 | 5,538 | 3,825 |
| October | 14,854 | 12,927 | 6,260 | 4,634 | 4,234 | 3,658 | 4,078 | 976 | 5,172 | 4,074 | 5,172 | 2,824 | 5,030 | 1,250 | 4,496 | 4,370 | 4,375 | 4,219 |
| November | 14,156 | 12,542 | 5,903 | 4,572 | 4,234 | 3,348 | 3,156 | 1,224 | 5,173 | 3,707 | 5,173 | 2,043 | 4,299 | 1,664 | 4,584 | 4,409 | 4,484 | 4,263 |
| December | 14,052 | 12,690 | 6,157 | 4,341 | 4,234 | 2,740 | 3,566 | 1,601 | 5,364 | 3,851 | 5,364 | 2,037 | 4,296 | 1,814 | 8,059 | 4,672 | 7,883 | 4,498 |
| Annual Average Day | | 13,838 | | 5,214 | | 1,453 | | 3,760 | | 3,862 | | 2,144 | | 1,718 | | 4,911 | | 4,721 |

Note: The shaded blocks denote the annual maximum daily flows for 2019.

¹ The use of variable frequency drive pumps, such as those used at both Princess Anne and the Lindsay Court Wells, allow for accurate and consistent flow rates. It is not uncommon to have the same maximum flow rate for several days over the course of the year. Flow meters measure to one decimal place and when rounded, as is the case for the Annual Flow Report, may contribute to similar flow values on several days.



The following tables (10-3 and 10-4) compare the maximum day and average day volumes for 2019 to the permitted water taking (PTTW) and the rated capacity.

Table 10-3 Georgetown WTP Flow Comparison to MDWL and PTTW²

| | Raw \ | Vater | Treated Water | | |
|------------------|----------|-------------|---------------|-------------|--|
| Georgetown w rP | Max. Day | Average Day | Max. Day | Average Day | |
| % PTTW | 84% | 39% | | | |
| % Rated Capacity | | | 79% | 36% | |

Table 10-4 Princess Anne and Lindsay Court Well Flow Comparison to MDWL and PTTW²

| Facility | Maximum Day Volume | Average Day Volume | | | | | |
|-----------------------|--------------------------------------|------------------------------|--|--|--|--|--|
| Princess Anne Well 5 | | | | | | | |
| % PTTW | 92% | 77% (Wells 5 and 6 combined) | | | | | |
| % Rated Capacity | 92% | 32% | | | | | |
| Princess Anne Well 6 | | | | | | | |
| % PTTW | 92% | 77% (Wells 5 and 6 combined) | | | | | |
| % Rated Capacity | 93% | 29% | | | | | |
| Lindsay Court Well 9A | | | | | | | |
| % PTTW | % PTTW 92% (Wells 9 and 9B combined) | | | | | | |
| % Rated Capacity | 86% | 33% | | | | | |
| Lindsay Court Well 9B | | | | | | | |
| % PTTW | 92% (Wells 9 and 9B combined) | 26% | | | | | |
| % Rated Capacity | 92% 26% | | | | | | |

In 2019, the maximum flows taken and pumped into the treatment systems were not greater than the values specified in the PTTW and the MDWL.

² The current Georgetown PTTW contains specific conditions for water taking at the Princess Anne and Lindsay Court Well Fields. There is a combined maximum day water taking limit on the Lindsay Court Wells and a maximum annual average daily taking limit placed on the Princess Anne Wells. This has been reflected in the general information for the Georgetown Drinking Water System and the flow comparison chart.

10.3 Adverse Test Results

In accordance with Schedule 16 of O. Reg. 170/03, notifications of adverse water quality incidents are provided to the Spills Action Centre and the Medical Officer of Health. In 2019, there were no adverse test results/incidents in the Georgetown Water System.



11 Acton Water Supply System

11.1 Water System Description

The Acton Wells located in the Town of Acton draw groundwater from two separate aquifers. The two Davidson Wells and the two Fourth Line Wells draw from the Amabel Formation, and the Prospect Park Wells (Fairy Lake) draw from a sand-and-gravel aquifer. All of the wells use ultraviolet (UV) light for primary disinfection with chlorination for secondary disinfection. Fluoride is added to the water from all three sources. The Prospect Park facility is equipped with greensand filters for the removal of manganese and iron from the water. Treated water from the three sites is pumped to the Churchill Reservoir and the Acton water distribution system. The Acton system is controlled through a computerized SCADA system that is monitored 24 hours per day, seven days a week.

Table 11-1 Acton Water System – General Information

| Municipal Drinking Water Licence Drinking Water Works Permit | 004-102 004-202 | |
|---|---------------------------|-----------------------------|
| Drinking Water System Number | 220001673 | |
| Classification Class Certificate Number | Treatment Class 2 3642 | Distribution Class 2 569 |
| Service Population | 10,146 | |



| Permit to Take Water Number Expiry Date | 3687-ABKHAP December 31, 2021 |
|--|---|
| Water Taking Permitted Prospect Park Well 1 Prospect Park Well 2 Prospect Park Well 1 and 2 (Combined) Davidson Well 1 Davidson Well 2 Fourth Line Well A Fourth Line Well B Fourth Line Well A and B (Combined) | 3,400 m ³ /d 3,400 m ³ /d 1,250 m ³ /d 1,250 m ³ /d 1,309 m ³ /d 1,309 m ³ /d 1,711 m ³ /d |
| Rated Capacity Prospect Park WTP Davidson Well 1 and 2 Fourth Line Wells (Wells A and B combined) | 3,400 m³/d 2,500 m³/d 1,711 m³/d |

A summary of the flows in 2019 is provided in Table 11-2 on the following page. At the Prospect Park WTP, filter backwash water is withdrawn from the distribution system following the treated water flow meter; therefore, the metered treated water is the same as the raw water flow, but the actual volumes available to the distribution system are less than those shown. At the Davidson and Fourth Line wells, the raw water flow is the same as the treated water flow to the distribution system. The data presented in Table 11-3 complies with the reporting requirements of the regulation (O. Reg. 170/03, Schedule 22).

Table 11-2 Acton Flow Summary 2019

| Month | Actoi Fl m | n Total ow I ³ /d | Davidso m ³ | on Wells /d | 4th Line m³ | e Well A /d | 4th Lin m | e Well B ³/d | 4th Lind A an m ³ | e Wells nd B /d | Prospe WTP Ray m ³ | ct Park w Water ⁄d | Prospe WTP | ct Park m³/d |
|-------------------|------------------|------------------------------------|---------------------------|----------------|----------------|----------------|--------------|-----------------|------------------------------------|-----------------------|-------------------------------------|--------------------------|---------------|-----------------|
| | Max Day | Avg Day | Max Day | Avg Day | Max Day | Avg Day | Max Day | Avg Day | Max Day | Avg Day | Max Day | Avg Day | Max Day | Avg Day |
| January | 3,440 | 2,736 | 2,332 | 663 | 278 | 47 | 278 | 47 | 556 | 93 | 2,193 | 2,080 | 2,193 | 2,080 |
| February | 4,169 | 3,002 | 1,498 | 776 | 766 | 146 | 766 | 146 | 1,532 | 292 | 2,196 | 1,843 | 2,196 | 1,843 |
| March | 3,416 | 2,858 | 1,753 | 412 | 478 | 187 | 480 | 188 | 958 | 375 | 2,195 | 2,195 | 2,195 | 2,195 |
| April | 3,712 | 2,914 | 705 | 95 | 757 | 319 | 759 | 320 | 1,516 | 639 | 2,205 | 2,179 | 2,205 | 2,179 |
| May | 4,263 | 3,238 | 509 | 69 | 777 | 489 | 778 | 491 | 1,554 | 980 | 2,204 | 2,188 | 2,204 | 2,188 |
| June | 3,663 | 2,955 | 1,542 | 574 | 392 | 106 | 394 | 106 | 786 | 212 | 2,214 | 2,169 | 2,214 | 2,169 |
| July | 3,434 | 2,829 | 1,065 | 274 | 428 | 431 | 859 | 342 | 859 | 342 | 2,286 | 2,213 | 2,286 | 2,213 |
| August | 3,929 | 3,066 | 1,728 | 574 | 603 | 147 | 605 | 148 | 1,208 | 295 | 2,289 | 2,197 | 2,289 | 2,197 |
| September | 4,570 | 3,050 | 2,073 | 392 | 603 | 293 | 605 | 294 | 1,207 | 588 | 2,290 | 2,070 | 2,290 | 2,070 |
| October | 3,528 | 2,937 | 1,124 | 448 | 460 | 160 | 462 | 160 | 922 | 320 | 2,235 | 2,154 | 2,235 | 2,154 |
| November | 3,500 | 3,074 | 1,411 | 379 | 519 | 246 | 522 | 247 | 1,041 | 493 | 2,317 | 2,201 | 2,317 | 2,201 |
| December | 3,636 | 2,992 | 1,395 | 473 | 399 | 157 | 401 | 157 | 800 | 314 | 2,241 | 2,205 | 2,241 | 2,205 |
| Annual Avg Day | | 2,971 | | 427 | | 227 | | 221 | | 412 | | 2,141 | | 2,141 |

Note: The shaded blocks denote the annual maximum daily flows for 2019.



Table 11-3 compares the maximum day and average day volumes for 2019 to the permitted water taking (PTTW) and the rated capacity.

| Facility | Maximum Day Volume | Average Day Volume | | | |
|--------------------|------------------------------|-----------------------|--|--|--|
| Davidson Wells | | | | | |
| % PTTW | 93% | 17% | | | |
| % Rated Capacity | 93% | 17% | | | |
| Fourth Line Well A | | | | | |
| % PTTW | 91% (Wells A and B combined) | 17% | | | |
| % Rated Capacity | 91% (Wells A and B combined) | 13% | | | |
| Fourth Line Well B | | | | | |
| % PTTW | 91% (Wells A and B combined) | 17% | | | |
| % Rated Capacity | 91% (Wells A and B combined) | 13% | | | |
| Prospect Park | | | | | |
| % PTTW | 68% (Wells 1 and 2 combined) | 63% | | | |
| % Rated Capacity | 68% (Wells 1 and 2 combined) | 63% | | | |

Table 11-3 Acton Water System Flow Comparison to MDWL and PTTW³

³ The current Acton PTTW contains specific conditions for the Prospect Park and Fourth Line Well Fields. In addition to the water taking limits on the individual wells, there is also combined maximum day water taking limits stated for these sites. This has been reflected in the general information for the Acton Water System and the flow comparison chart. Additionally, Prospect Park Wells were taken out service for well rehabilitation in 2019.

11.3 Adverse Test Results

In accordance with Schedule 16 of O. Reg. 170/03, notifications of adverse water quality incidents are provided to the Spills Action Centre and Medical Officer of Health. In 2019, there were no adverse test results/incidents in the Acton Drinking Water System.



12 Campbellville Water Supply System

12.1 Water System Description

The Campbellville Well Supply, located in the Town of Milton, services a residential development of approximately 35 households in the village of Campbellville. The supply consists of two wells and the water is disinfected with ultraviolet (UV) light and chlorination. Four pressure tanks provide a small amount of treated water storage and maintain pressure in the distribution system. The Campbellville system is controlled through a computerized SCADA system that is monitored 24 hours per day, seven days a week.

Table 12-1 Campbellville Water System General Information

| Municipal Drinking Water Licence Drinking Water Works Permit | 004-103 004-203 |
|---|--|
| Drinking Water System Number | 220012162 |
| Classification Class | Limited Groundwater System |
| Certificate Number | Distribution Class 1 #6504 |
| Service Population | 145 |
| Permit to Take Water Number Expiry Date Water Taking Permitted Campbellville Well 1 Campbellville Well 2A Total from both wells | P-300-8039181501 June 30, 2029 524 m ³ /d 524 m ³ /d 524 m ³ /d 524 m3/d |
| Rated Capacity | 524 m³/d |



A summary of the flows in 2019 is provided in Table 12-2. In the Campbellville system, the treated water flow is the same as the raw water flow. The treatment plants are designed to handle peak hour flows and, as such, a comparison of maximum and average daily volumes to permitted levels is not the most accurate representation of available capacity. The data presented in Table 12-3 complies with the reporting requirements of the regulation (O. Reg. 170/03, Schedule 22).

| Month | Campbellville Flow m ³ /d | | | | |
|--------------------|---|-------------|--|--|--|
| | Maximum Day | Average Day | | | |
| January | 24 | 19 | | | |
| February | 23 | 19 | | | |
| March | 23 | 18 | | | |
| April | 33 | 19 | | | |
| Мау | 55 | 23 | | | |
| June | 33 | 24 | | | |
| July | 63 | 31 | | | |
| August | 54 | 32 | | | |
| September | 39 | 25 | | | |
| October | 62 | 22 | | | |
| November | 26 | 19 | | | |
| December | 27 | 19 | | | |
| Annual Average Day | | 22 | | | |

Table 12-2 Campbellville Water System Flows 2019

Note: The shaded block denotes the annual maximum daily flow for 2019.



Table 12-3 Campbellville Flow Comparison to MDWL and PTTW

| Compholly illo Wolls | Raw V | Vater | Treated Water | | |
|----------------------|----------|-------------|---------------|-------------|--|
| | Max. Day | Average Day | Max. Day | Average Day | |
| % PTTW | 12% | 4% | | | |
| % Rated Capacity | | | 12% | 4% | |

12.3 Adverse Test Results

In accordance with Schedule 16 of O. Reg. 170/03, notifications of adverse water quality incidents are provided to the Spills Action Centre and Medical Officer of Health. In 2019, there were no adverse test results/incidents in the Campbellville Drinking Water System.



13 Bridgeview Distribution System

13.1 Water System Description

The Bridgeview community distribution system is located at the west end of the City of Burlington, but it is not connected to the South Halton Water Distribution System. Water is supplied by the City of Hamilton through an inter-connection to Hamilton's distribution system on Plains Road. There are approximately 70 homes and businesses in the Bridgeview system.

The City of Hamilton uses chloramination (a combination of chlorine and ammonia) for secondary disinfection in its drinking water system, and so the water in the Bridgeview distribution system has a combined chlorine residual rather than a free chlorine residual.

In November 2018, the City of Hamilton implemented a new Corrosion Control Program (CCP), approved by the MECP by utilizing low concentrations of orthophosphate. A letter outlining Hamilton's CCP was delivered to all affected Halton residents and select members of Council ahead of the implementation date.

Table 13-1 Bridgeview Distribution System General Information

| Municipal Drinking Water Licence Drinking Water Works Permit | 004-104 (South Halton) 004-204 |
|---|-----------------------------------|
| Drinking Water System Number | 260068419 |
| Classification Class Certificate Number | Distribution Class 1 3821 |
| Service Population | 220 |

The water flows in 2019 based on customer meter readings were as follows:

Total annual water consumption: 15,421 m³

Average day consumption: 42 m³

Since there is no flow limitation in the MDWL for this distribution system, a comparison of flow data with approvals is not required.

13.3 Adverse Test Results

In accordance with Schedule 16 of O. Reg. 170/03, notifications of adverse water quality incidents are provided to the Spills Action Centre and Medical Officer of Health. In 2019, there were no adverse test results/incidents in the Bridgeview Distribution System.



14 Snake Road Distribution System

14.1 Water System Description

The Snake Road distribution system is located at the north end of the City of Burlington, but it is not connected to the South Halton Water Distribution System. Water is supplied by the City of Hamilton through an inter-connection to Hamilton's distribution system on Snake Road. There are approximately 24 homes and businesses in the Snake Road system.

The City of Hamilton uses chloramination (a combination of chlorine and ammonia) for secondary disinfection in its drinking water system, and so the water in the Snake Road distribution system has a combined chlorine residual rather than a free chlorine residual.

In November 2018, the City of Hamilton implemented a new Corrosion Control Program (CCP), approved by the MECP by utilizing low concentrations of orthophosphate. A letter outlining Hamilton's CCP was delivered to all affected Halton residents and select members of Council ahead of the implementation date.

Table 14-1 Snake Road Distribution System General Information

| Municipal Drinking Water Licence Drinking Water Works Permit | 004-104 (South Halton) 004-204 |
|---|-----------------------------------|
| Drinking Water System Number | 260086775 |
| Classification Class Certificate Number | Distribution Class 1 5444 |
| Service Population | 265 |



The water flows in 2019 based on customer meter readings were as follows:

Total annual water consumption: 15,683 m³

Average day consumption: 43 m³

Since there is no flow limitation in the MDWL for this distribution system, a comparison of flow data with approvals is not required.

14.3 Adverse Test Results

In accordance with Schedule 16 of O. Reg. 170/03, notifications of adverse water quality incidents are provided to the Spills Action Centre and Medical Officer of Health. In 2019, there was one adverse test result/incident in the Snake Road Distribution System as summarized in Table 14-2.

Table 14-2 Adverse Test Results and Actions – Snake Road Distribution System

| Date | Location | Adverse Condition | Corrective Action | Notice of Issue Resolution |
|------------------|--------------|-------------------|---|----------------------------|
| February 7, 2019 | Distribution | TC = 5 CFU/100 mL | Resamples collected and results within acceptable limits. | February 9, 2019 |



15 North Aldershot Distribution System

15.1 Water System Description

The North Aldershot distribution system is located in the north end of the City of Burlington. The system is connected to the South Halton Water Distribution System; however, the connections are normally closed, thus isolating the two systems. Water is supplied by the City of Hamilton through an inter-connection to Hamilton's distribution system on Waterdown Road. There are approximately 105 homes and businesses in the North Aldershot system.

In November 2018, the City of Hamilton implemented a new Corrosion Control Program (CCP), approved by the MECP by utilizing low concentrations of orthophosphate. A letter outlining Hamilton's CCP was delivered to all affected Halton residents and select members of Council ahead of the implementation date.

Table 15-1 North Aldershot Distribution System General Information

| Municipal Drinking Water Licence Drinking Water Works Permit | 004-104 (South Halton) 004-204 |
|---|-----------------------------------|
| Drinking Water System Number | 260086762 |
| Classification Class Certificate Number | Distribution Class 1 5445 |
| Service Population | 280 |



The water flows in 2019 based on customer meter readings were as follows:

Total annual water consumption: 36,156 m³

Average day consumption: 99 m³

Since there is no flow limitation in the MDWL for this distribution system, a comparison of flow data with approvals is not required.

15.3 Adverse Test Results

In accordance with Schedule 16 of O. Reg. 170/03, notifications of adverse water quality incidents are provided to the Spills Action Centre and Medical Officer of Health. In 2019, there was one adverse test result/incident in the North Aldershot Distribution System as summarized in Table 15-2.

Table 15-2 Adverse Test Results and Actions – North Aldershot Distribution System

| Date | Location | Adverse Condition | Corrective Action | Notice of Issue Resolution |
|-------------------|--------------|--|---|----------------------------|
| November 22, 2019 | Distribution | Free Chlorine Residual = 0.01 mg/L Combined Chlorine Residual = 0.14 mg/L | Resamples collected and results within acceptable limits. | November 23, 2019 |



16 Drinking Water System Inspections

During the 2019 MECP inspection cycle, 11 drinking water system inspections were completed. Schedule 22-2(2) of O. Reg. 170/03 stipulates that any cases where the requirements of the SDWA were not met are to be listed in the Flow Summary Report along with the resulting corrective actions. For the inspections conducted in 2019, there was one identified incident of non-compliance in the Halton Drinking Water Systems.

During the February 2019 Burloak Water Treatment Plant MECP inspection, it was found that monthly UV sensor checks on water treatment trains 1,2,3 and 4 had been missed for September 2018. To ensure this does not happen again and to the Ministry's satisfaction, safeguards were put in place that include:

- a designated Maintenance Planner and Supervisor to oversee all preventative maintenance for each drinking water facility;
- improved maintenance record keeping; and
- implementation of a complete electronic maintenance scheduling process.



17 Conclusions

The report confirms that Halton residents and business continue to enjoy reliable access to safe drinking water, and the Region is meeting the requirements of the *Safe Drinking Water Act, 2002*. Compliance with regulatory requirements, Municipal Drinking Water Licences and Permits to Take Water continue to be monitored through MECP Inspections, the Region's SCADA system, professional staff and regular reporting mechanisms. In 2019, no regulatory compliance issues related to water quality were identified.

As required under O. Reg. 170/03, this report was prepared and presented to members of Municipal Council prior to March 31. Copies of the report are available on Halton's website at **halton.ca**.



