



Town of Newmarket
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2019 Newmarket Water Quality Report Information Report to Council

Report Number: INFO-2020-09

Department(s): Public Works Services

Author(s): Director, Public Works Services

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In accordance with the Procedure By-law, any member of Council may make a request to the Town Clerk that this Report be placed on an upcoming Committee of the Whole agenda for discussion.

Executive Summary

The Town of Newmarket 2019 Water Quality Report, and its associated attachments, includes information pertaining to the Town of Newmarket's Drinking Water System from the January 1, 2019 to December 31, 2019 reporting period.

This Annual Water Quality Report, and its associated attachments, satisfies the applicable requirements of the Ministry of the Environment, Conservation and Parks (MECP) Safe Drinking Water Act, 2002 (SDWA) and O. Reg. 170/03 as outlined below.

Section 11 of O. Reg. 170/03 states that the Annual Report must include:

- a brief description of the Drinking Water System;
- a summary of adverse test results and other observations that were reported to the MECP during the reporting period;
- A description of any corrective actions that were taken in response to any adverse test results and other observations that were encountered during the reporting period;
- a summary of the most recent water testing results, required under O. Reg. 170/03 and our respective Municipal Drinking Water License (MDWL), that occurred during the reporting period;

Schedule 22 of O. Reg. 170/03 states that Summary Reports for Municipalities must also:

- List the requirements of the SDWA, the regulations, the system's approval, Drinking Water Works Permit (DWWP), MDWL, and any orders applicable for the system that were not met at any time during the period covered by the report;
- Identify each requirement that was not met, the duration of the failure and the measures that were taken to correct the failure;
- Provide a summary of the quantities and flow rates of the water supplied during the period covered by the report, including monthly average and maximum daily flows.
- A comparison of the above summary against the rated capacity and flow rates approved in the systems approval, drinking water works permit or municipal drinking water license; or if the system is receiving all of its water from another system under an agreement pursuant to subsection 5(4) of O.Reg. 170/03, to the flow rates specified in this written agreement

O.Reg. 170/03 requires that a copy of the annual report be provided, without charge, to every person who requests a copy, and that a copy of the annual report be available to the public at no charge on our website. O.Reg. 170/03 also requires that the Owner of a drinking water system take effective steps to advise users of the drinking water system that the annual report is available, at no cost, and how to obtain a copy of the annual report. Additionally, O.Reg. 170/03 requires that the annual report be given to members of council by no later than March 31st of the year following the associated reporting period.

The Town of Newmarket 2019 Water Quality Report, and its associated attachments, satisfies all the above regulatory reporting requirements that are applicable to the Town of Newmarket.

Copies of Newmarket's 2019 Water Quality Report are available for viewing at:

- Robert N. Shelton Operations Centre (1275 Maple Hill Court)
- Newmarket Municipal Offices, Customer Service Counter (395 Mulock Drive)
- Online at www.newmarket.ca

Purpose

The purpose of the Town of Newmarket 2019 Water Quality Report, and its associated attachments is to satisfy the annual reporting requirements stipulated within the *Ontario Safe Drinking Act, 2002*, and its associated regulations; as well as the communication requirements stipulated within the Ontario Drinking Water Quality Management Standard. The Town of Newmarket 2019 Water Quality Report, and its associated

attachments, also contains information pertaining to the 2019 Annual MECP Inspection so that the Owner may stay abreast of the Operating Authorities compliance with applicable legislative and regulatory requirements.

Background

Drinking Water System Description

A detailed description of the Town's drinking water system can be located within the "Drinking Water System Description" section of the Town of Newmarket 2019 Water Quality Report.

Safe Drinking Water Act, 2002

The purpose of the Ontario *Safe Drinking Water Act, 2002* (SDWA) is to protect human health through the control and regulation of drinking-water systems and drinking-water testing. The Act also contains all the regulations relating to the treatment and distribution of drinking water.

Highlights of the Act address:

- Accreditation of operating authorities
- Municipal drinking water systems
- Drinking water testing
- Inspections, Compliance and Enforcement
- Standard of Care

Standard of Care, Section 19, *Safe Drinking Water Act, 2002*

Standard of Care defines the legal responsibility of the owner and operating authority of a municipal drinking water system. It requires that the owners and operating authorities exercise the level of care, diligence and skill with regard to a municipal drinking water system that a reasonably prudent person would be expected to exercise in a similar situation. Owners and operating authorities must exercise this due diligence honestly, competently and with integrity. Based upon the definition of "Owner" in the SDWA, the Town of Newmarket Council is considered to be the "Owner" of the Town of Newmarket's drinking water distribution system.

The information contained within the Town of Newmarket 2019 Water Quality Report, and its associated attachments, can help Council to meet its Standard of Care requirements identified within the *Safe Drinking Water Act, 2002* (SDWA).

Ontario Regulation 170/03: Drinking Water Systems Regulation

The Drinking Water Systems Regulation (O. Reg. 170/03) regulates municipal drinking water systems. This regulation stipulates treatment equipment usage, operational checks and sampling, chemical and microbiological testing requirements, reporting adverse test results, corrective actions, and reporting requirements; among many other things. Compliance with O. Reg. 170/03 is determined by system inspections conducted annually by the Ministry of the Environment, Conservation and Parks (MECP). The annual reporting requirements for drinking water systems is also stipulated within O.Reg. 170/03 under Section 11 (Annual Reports) and Schedule 22 (Report).

Drinking Water Quality Management System (DWQMS)

The DWQMS sets out the framework for Operating Authorities and Owner's of Drinking Water Systems to develop and maintain a Quality Management System (QMS) that is relevant and appropriate for drinking water systems. The purpose of a QMS is to establish policy and objectives, achieve those objectives as well as direct and control an organization with regards to quality. In the development of a QMS, the Operating Authority must create an Operational Plan; this document defines the QMS and will be subject to internal and external audits for accreditation. As referenced in the DWQMS, the QMS must be acknowledged by all those with active roles in the water system, from front line staff to the highest level of management and Council.

Under the DWQMS the Operating Authority is required to communicate with the Owner of the drinking water system on a number of items, these include the following:

- The description of the Operating Authority organizational structure including respective roles, responsibilities and authorities under Element 9;
- The results of the Annual Provision of Infrastructure Review under Element 14;
- The Infrastructure Maintenance, Rehabilitation and Renewal Programs under Element 15;
- Sampling, Testing and Monitoring Results under Element 16; and
- The results of the Annual Management Review under Element 20

For more detailed information regarding the Town's respective legislative and regulatory requirements please refer to the "Legislative and Regulatory Requirements" section of the Town of Newmarket 2019 Water Quality Report.

2019 Annual MECP Drinking Water System Inspection

The primary focus of the annual MECP drinking water system inspection is to confirm compliance, with applicable legislation, regulations and additional requirements that fall under the jurisdiction of the MECP, during the inspection period. Annual drinking water system inspections are conducted by the MECP pursuant to Section 81 of the SDWA.

The Town participated in an “Unannounced” MECP inspection on April 17th and 18th, 2019 and data was reviewed for the time period covering August 23rd, 2018 to April 17th, 2019. The Town received a Final Inspection Rating of 91.39% from the MECP as a result of the 2019 inspection; this was due to a non-compliance that was identified by the MECP in regards to a regulatory reporting requirement. On September 14th, 2018 and September 22nd, 2018 AWQI’s 142884 and 143146 were not immediately reported to the MECP and Medical Officer of Health (MOH), followed by a written notice of the AWQI’s to the MECP and MOH within 24 hours of the immediate notification being made. This occurred in relation to a capital works project, where microbiological samples were taken by a certified operator from a third party company and submitted to the York Durham Regional Environmental Laboratory for analysis. These samples were submitted as “non-regulatory samples” when they should have been submitted as “regulatory samples”; these administrative errors, that were performed by the third party company that collected the samples, resulted in a delay for the Town to be notified of AWQI’s 142884 and 143146 and ultimately the above non-compliance that was identified during the 2019 MECP Inspection. Although not completed within the regulatory time frame, notification of AWQI 142884 and 143146 was ultimately made to the MECP and MOH, by the Town, once the Town was made aware of these AWQI’s. Additionally, once the Town was notified of these occurrences all the corrective actions necessary to resolve AWQI 142884 and 143146 were completed by the Town in a timely manner. The final inspection rating received during the 2019 MECP inspection still resulted in an improvement over the final inspection rating of 90.95% received in relation to the 2018 MECP Inspection. For more detailed information regarding the 2019 Annual MECP Drinking Water System Inspection please refer to “Attachment One: 2019 MECP Newmarket Distribution System Inspection Report” of the Town of Newmarket 2019 Water Quality Report. Additionally, “Table One: Incidents of Regulatory Non-Compliance and Actions Required”, of the Town of Newmarket 2019 Water Quality Report, contains specific details regarding the above non-compliance that was identified during the 2019 annual MECP drinking water system inspection.

Discussion

The Town of Newmarket is committed to the consistent delivery of safe drinking water through compliance with applicable legislative and regulatory requirements.

In 2019, Water/Wastewater Services collected and submitted 1449 microbiological samples for analysis.

In 2019, Water/Wastewater Services collected and submitted 26 distribution system lead samples and 10 private plumbing lead samples for analysis; of which 1 (one) exceedance of O.Reg. 169/03 - Ontario Drinking Water Quality Standards was observed for a private plumbing lead sample that was collected. The Owner of the residential location where the private plumbing lead exceedance occurred was provided the results of the sampling event as well as the literature and guidance provided to the Town by the local Medical Officer of Health. This literature identified steps that the property owner could take to minimize the lead levels within the internal plumbing associated with the location as well as reduce overall lead exposure. All Municipal obligations in regards to this exceedance, as specified within O.Reg. 170/03, were adhered to and met. The results associated with this sampling event, as well as the other 2019 data associated with the Town's lead sampling program, identified that this lead exceedance was isolated to this address; as no other lead exceedances were observed.

Water/Wastewater Services also completed 5798 operational grab samples for chlorine analysis in 2019. For more detailed information regarding the 2019 water quality data please refer to "Attachment Two: 2019 Ontario Drinking Water Systems Regulation Annual Report" of the Town of Newmarket 2019 Water Quality Report

In 2019, a total of 152 Adverse Water Quality Incidents (AWQI's) were reported to the MECP and MOH.

Of these:

- 128 were due to adverse (low) combined chlorine residual
- 24 were due to the presence of Total Coliform
- 0 were due to the presence of E.coli

This is relatively comparable to the 147 AWQI's that occurred in 2018; where 124 were due to adverse (low) combined chlorine, 22 were due to the presence of Total Coliform and 1 was due to the presence of E.coli.

In 2019, it was observed that 16 out of the 24 Total Coliform AWQI's that occurred were associated with drinking water infrastructure replacement activities completed as part of Capital projects. Only 8 out of the 24 Total Coliform AWQI's that occurred in 2019 were associated with routine drinking water system operations. Total Coliform may be present within drinking water distribution system samples for numerous reasons; these reasons include, but are not limited to the following:

- Poor housekeeping practices during the construction and installation of new watermains and appurtenances;
- Poor housekeeping practices during the repair of watermains and appurtenances;

- Degradation of water quality due to the use of above ground temporary water mains;
- Degradation of water quality within the distribution system due to seasonal temperature variations;
- Degradation of water quality within the distribution system due to bacterial re-growth post-treatment;
- Sampling from less than ideal locations (i.e. anything that is not a designated drinking water sample station; ex. fire hydrant)
- Sampling during less than ideal weather conditions;

Based upon the information possessed by the Operating Authority, in 2019 all AWQI's were reported in accordance with *Safe Drinking Water Act, 2002* and O.Reg. 170/03 requirements. Based upon the information possessed by the Operating Authority, all corrective actions that were necessary to resolve the AWQI's that occurred in 2019 were completed in accordance with the requirements with stipulated within O.Reg. 170/03, our respective MDWL as well as any additional instruction provided by the Medical Officer of Health.

For more detailed information regarding AWQI's and the AWQI's that occurred in 2019 please refer to "Attachment Two: 2019 Ontario Drinking Water Systems Regulation Annual Report" of the Town of Newmarket 2019 Water Quality Report as well as the Town of Newmarket 2019 Water Quality Report itself.

Drinking Water Quality Management Standard (DWQMS)

Under the DWQMS the Operating Authority is required to communicate with the Owner of the drinking water system on a number of items, these include the following:

- The description of the Operating Authority organizational structure including respective roles, responsibilities and authorities under Element 9;
- The results of the Annual Provision of Infrastructure Review under Element 14;
- The Infrastructure Maintenance, Rehabilitation and Renewal Programs under Element 15;
- Sampling, Testing and Monitoring Results under Element 16; and
- The results of the Annual Management Review under Element 20

The description of the Operating Authority organizational structure including respective roles, responsibilities and authorities can be located within the Element 9 content of the Town's DWQMS Operational Plan.

The results of the Annual Provision of Infrastructure Review are communicated to the

Owner in accordance with the procedure identified within Appendix 20a of the Town's DWQMS Operational Plan.

Information regarding the Town's Infrastructure Maintenance, Rehabilitation and Renewal Programs is located within the "Infrastructure Maintenance, Rehabilitation and Renewal Programs" section of the Town of Newmarket 2019 Water Quality Report; which starts on Page 11.

Information regarding the Town's Sampling, Testing and Monitoring Results is located within "Attachment Two: 2019 Ontario Drinking Water Systems Regulation Annual Report" as well as the "2019 Water Quality Data" section of the Town of Newmarket 2019 Water Quality Report.

The results of the Annual Management Review are communicated to the Owner in accordance with the procedure identified within Appendix 20a of the Town's DWQMS Operational Plan.

Drinking Water System License and Permit

The MECP has issued the Town the following license and permit so that the Town may be able to operate its respective drinking water system:

Municipal Drinking Water Licence (MDWL) number: 124-101

Drinking Water Works Permit (DWWP) number: 124-201

These documents outline detailed conditions and regulatory requirements in regards to the operation, maintenance, and monitoring of the drinking water system.

In 2019, no non-compliances were identified, by the MECP, in relation to the Town's requirements to adhere to the terms and conditions identified within its respective MDWL and DWWP.

2019 Water Quantity & Flow Rate Data

Information regarding 2019 water quantity and flow rate data can be found within "Attachment Three: 2019 Town of Newmarket Water Quantity & Flow Rate Data" of the 2019 Town of Newmarket Water Quality Report.

2019 Major Expenses Incurred

In 2019, The Town of Newmarket spent approximately \$2,855,296.03 million installing, repairing, replacing and maintaining infrastructure used to deliver safe drinking water. Costs are funded through the water budget which is approved annually by Council. Major expenses that were incurred by the Town in 2019 included;

Drinking Water System Capital Improvements: \$ 1,881,409.50
Which is approximately 15.6% less than what was spent on drinking water system capital improvements in 2018.

Watermain Maintenance: \$ 450,000 (approx.)
Which is approximately 25.0% more than what was spent on watermain maintenance in 2018.

Hydrant Maintenance: \$ 80,886.53
Which is approximately 10.1% less than what was spent on hydrant maintenance in 2018.

Watermain Flushing/Swabbing Contractor Costs: \$ 443,000
Which is approximately 7.0% less than what was spent watermain flushing/swabbing contractor costs in 2018.

Conclusion

The 2019 Town of Newmarket Water Quality Report, and its associated attachments, satisfies the annual reporting requirements stipulated within O.Reg. 170/03 of the *Safe Drinking Water Act, 2002*. Council is better able to demonstrate due diligence under the Standard of Care provisions of the *Safe Drinking Water Act, 2002* by reviewing, in detail, the information contained within the 2019 Town of Newmarket Water Quality Report and its associated attachments. Council will also likely be better able to make more informed decisions regarding the Town's drinking water system, moving forward, upon the detailed review of the 2019 Town of Newmarket Water Quality Report and its associated attachments.

The Town's drinking water system is subject to strict regulations implemented by the Province of Ontario to keep drinking water safe. Results from the 2019 reporting year continue to demonstrate the excellent performance of the Town's drinking water system as well as the Operating Authority.

Business Plan and Strategic Plan Linkages

The 2018-2022 Council Strategic Priorities identifies "Environmental Stewardship" as strategic priority. The 2019 Town of Newmarket Water Quality Report and its associated attachments have linkages to this strategic priority by 'supporting highly effective partnerships with the MECP and York Region'.

Consultation

Key stakeholders that contributed to the content of this report include:

- Operating Authority Staff and Management
- The MECP
- The Regional Municipality of York

Human Resource Considerations

None required for the purpose of this report.

Budget Impact

None required for the purpose of this report.

Attachments

The Town of Newmarket 2019 Water Quality Report includes the following attachments:

- Attachment One: 2019 MECP Newmarket Distribution System Inspection Report
- Attachment Two: 2019 Ontario Drinking Water Systems Regulation Annual Report
- Attachment Three: 2019 Town of Newmarket Water Quantity & Flow Rate Data

Contact

For more information, contact Luigi Colangelo, Manager of Water/Wastewater, at 905-953-5300, ext. 2553, or by email at icolangelo@newmarket.ca

Approval

Jeff Ellis, ORO, Supervisor, Water/Wastewater
Public Works Services

Luigi Colangelo, C.Tech. CRS, Manager, Water/Wastewater
Public Works Services

Christopher Kalimootoo, B.A., P.Eng., MPA, PMP,
Director, Public Works Services

Peter Noehammer, P.Eng.,
Commissioner, Development & Infrastructure Services

Ministry of the Environment,
Conservation and Parks
*Drinking Water and Environmental
Compliance Division*

Ministère de l'Environnement, de la
Protection de la nature et des Parcs
*Division de la conformité en matière
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May 27, 2019

The Town of Newmarket
1275 Maple Hill Ct.
[Newmarket, ON](#), L3Y 9E8

Attention: Mr. Luigi Colangelo, Manager of Operations, Public Works

**RE: Newmarket Distribution System
Drinking Water Inspection Report**
File: SI YO NE MA 540A

Please find attached the Ministry of the Environment, Conservation and Parks inspection report for the above facility. The report details the findings of the inspection that began on April 17, 2019.

Please note that as of June 29, 2018 the Ministry of the Environment and Climate Change's name has changed to the Ministry of the Environment, Conservation and Parks. This name change will take some time to be reflected in ministry materials and systems.

The Appendix section of the inspection includes the Stakeholder Appendix A with links to key reference and guidance materials available on the Ministry of the Environment Conservation and Parks (MECP) website. Appendix B contains the inspection rating record.

In the inspection report, any "*Actions Required*" are linked to incidents of non-compliance with regulatory requirements contained within the Act, a regulation, or site-specific approvals, licenses, permits, orders or instructions. Such violations could result in the issuance of mandatory abatement instruments including Orders, tickets, penalties, or referrals to the ministry's Investigations and Enforcement Branch.

"*Recommended Actions*" convey information that the owner or operating authority should consider implementing in order to advance efforts already in place to address such issues as emergency preparedness, the availability of information to consumers, and conformance with existing and emerging industrial standards. Please note that items which appear as recommended actions do not, in themselves, constitute violations.

Please note, you will find in the report that bullets are shown in bold print and are the consistent and standard responses to the information gathered during the inspection. Statements shown in regular font provide additional site-specific details.

Section 19 of the Safe Drinking Water Act (Standard of Care) creates a number of obligations for individuals who exercise decision-making authority over municipal drinking water systems. Please be aware that the Ministry has encouraged such individuals, particularly municipal councillors, to take steps to be better informed about the drinking water systems over which they have decision-making authority. These steps could include asking for a copy of this inspection report and a review of its findings. Further information about Section 19 can be found in *"Taking Care of Your Drinking Water: A guide for members of municipal council"* found under "Resources" on the Drinking Water Ontario website at www.ontario.ca/drinkingwater.

I would like to thank the Town of Newmarket staff for the assistance afforded to me during this compliance assessment. If you have any questions or concerns please contact myself or Tessa Villeneuve, Water Compliance Supervisor (A), Central Region at 905-427-5630.

Yours truly,



Dee Cox
Provincial Officer
Ministry of the Environment, Conservation and Parks
Drinking Water and Environmental Compliance Division
Central Region
Office: (905) 427-5615

ec:

Jeff Ellis, Supervisor Water and Wastewater, Town of Newmarket
Tyler, Adamson, Compliance & Training Coordinator, Water/Waste Water
Ben Longstaff, Lake Simcoe Conservation Authority
York Public Health Inspector
Tessa Villeneuve, Supervisor, York Durham District Office, MECP



Ontario

Ministry of the Environment, Conservation and Parks

NEWMARKET DISTRIBUTION SYSTEM

Inspection Report

Site Number:	260003188
Inspection Number:	1-KXWF3
Date of Inspection:	Apr 17, 2019
Inspected By:	Dee Cox



Ministry of the Environment, Conservation and Parks
Drinking Water Inspection

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1. Drinking Water System Owners Information
2. Drinking Water System Inspection Report

Appendix:

- A. Stakeholders Appendix**
- B. Inspection Rating Record**

OWNER INFORMATION:

Company Name: NEWMARKET, THE CORPORATION OF THE TOWN OF
Street Number: 395 **Unit Identifier:**
Street Name: MULOCK Dr
City: NEWMARKET
Province: ON **Postal Code:** L3Y 4X7

CONTACT INFORMATION

Type: Director **Name:** Christopher Kalimootoo
Phone: (905) 478-4282 x3815 **Fax:** (905) 478-8545
Email: ckalimootoo@eastgwillimbury.ca
Title: Director of Engineering and Environmental Services

Type: Manager **Name:** Luigi Colangelo
Phone: (905) 953-5300 x2553 **Fax:** (905) 953-5319
Email: lcolangelo@newmarket.ca
Title: Manager Water/Wastewater

Type: Supervisor **Name:** Jeff Ellis
Phone: (905) 953-5300 x2564 **Fax:** (905) 953-5319
Email: jellis@newmarket.ca
Title: Supervisor Water/Wastewater

INSPECTION DETAILS:

Site Name: NEWMARKET DISTRIBUTION SYSTEM
Site Address: 1275 MAPLE HILL Court NEWMARKET ON L3Y 9E8
County/District: NEWMARKET
MECP District/Area Office: York-Durham District
Health Unit: YORK REGION HEALTH SERVICES DEPARTMENT
Conservation Authority:
MNR Office:
Category: Large Municipal Residential
Site Number: 260003188
Inspection Type: Unannounced
Inspection Number: 1-KXWF3
Date of Inspection: Apr 17, 2019
Date of Previous Inspection: Aug 23, 2018

COMPONENTS DESCRIPTION

Site (Name): MOE DWS Mapping
Type: DWS Mapping Point **Sub Type:**

Site (Name): Newmarket Distribution System

Type: Other**Sub Type:****Comments:**

The Newmarket Distribution System is owned and operated by the Town of Newmarket (The Town) and serves approximately 84,000 residents. The System receives treated water from the York Drinking Water System - Newmarket, which is owned and operated by The Regional Municipality of York (The Region).

The Region is responsible for the supply, production, treatment, and storage of the water and the Town owns and operates the distribution system that delivers the water from the regional watermains to homes in Newmarket. The Town owns and maintains approximately 300 km of watermains, 3,000 mainline valves, 2,500 fire hydrants, 25 sampling stations and 25,900 metered water services.

The Newmarket Well Supply System, owned and operated by the Region, consists of five production wells that draw water from the Yonge St. Aquifer and six water storage facilities. Chloramination (adding chlorine and ammonia) is the disinfection process used for the Newmarket production wells. The Newmarket Well Supply System also receives treated water from the Queensville Water Supply System, the Aurora Well Supply System, and two pipelines that supply water from the Region of Peel and the City of Toronto.

INSPECTION SUMMARY:

Introduction

- The primary focus of this inspection is to confirm compliance with Ministry of the Environment, Conservation and Parks (MECP) legislation as well as evaluating conformance with ministry drinking water policies and guidelines during the inspection period.

This drinking water system is subject to the legislative requirements of the Safe Drinking Water Act, 2002 (SDWA) and regulations made therein, including Ontario Regulation 170/03, "Drinking Water Systems" (O. Reg.170/03). This inspection has been conducted pursuant to Section 81 of the SDWA.

This report is based on an inspection of a "stand alone connected distribution system". This type of system receives treated water from a separately owned "donor" system. This report contains the elements required to assess key compliance and conformance issues associated with a "receiver" system. This report does not contain items associated with the inspection of the donor system, such as source waters, intakes/wells and treatment facilities.

This report is based on a "focused" inspection of the system. Although the inspection involved fewer activities than those normally undertaken in a detailed inspection, it contained critical elements required to assess key compliance issues. This system was chosen for a focused inspection because the system's performance met the ministry's criteria, most importantly that there were no deficiencies as identified in O.Reg. 172/03 over the past 3 years. The undertaking of a focused inspection at this drinking water system does not ensure that a similar type of inspection will be conducted at any point in the future.

This inspection report does not suggest that all applicable legislation and regulations were evaluated. It remains the responsibility of the owner to ensure compliance with all applicable legislative and regulatory requirements.

On April 17, 2019, Provincial Officer, Dee Cox conducted an unannounced inspection of the Newmarket Distribution System (DS). A follow-up on-site inspection was conducted on April 18, 2019. The Inspection included the physical inspection of the works and a compliance assessment with all applicable legislation and legal documents.

Documents reviewed in association with this report included, but where not limited to:

1. Ministry of the Environment, Conservation and Parks Drinking Water Works Permit (DWWP), No.124-201, issue number: 2 dated May 19, 2016.
2. Ministry of the Environment, Conservation and Parks Municipal Drinking Water Licence (MDWL), No.124-101, Issue Number: 5, dated March 7, 2018.
3. Other documents maintained by the owner/operating authority for the period of August 24, 2018 through to April 17, 2019, were also reviewed in conjunction with this inspection.

For the purpose of this report, "the Town" refers to the Corporation of the Town of Newmarket" and "the Ministry" refers to the Ontario Ministry of the Environment, Conservation and Parks.

This inspection was conducted under the authority of Section 81 (1) of the Safe Drinking Water Act, 2002.

Treatment Processes

- The owner had ensured that all equipment was installed in accordance with Schedule A and Schedule C of the Drinking Water Works Permit.

Treatment Processes

Schedule A of the DWWP No. 124-201, Issue number 2, describes the system as consisting of approximately 300 kilometers of distribution watermains.

Treatment Processes

- **Where an activity has occurred that could introduce contamination, all parts of the drinking water system were disinfected in accordance with Schedule B, Condition 2.3 of the Drinking Water Works Permit.**

The Town follows Standard Operator Procedures (SOP), the Ministry Watermain Disinfection Procedure and applicable AWWA standards when required. A review of the Towns "Procedure for the Disinfection of Watermains" SOP outlines the requirements.

The Town completes Watermain Break Reports when a watermain break occurs which list the details of the steps taken by operators.

Treatment Process Monitoring

- **The secondary disinfectant residual was measured as required for the distribution system.**

Chlorine residual samples were collected and tested several days a week from multiple locations as per Ontario Regulation (O.Reg.) 170/03.

The Town records Free and Total chlorine residuals during their microbiological sampling, dead end flushing, unidirectional flushing, and water quality sampling/monitoring testing.

The Newmarket Distribution System has experienced chlorine residual decay, particularly in the Northern portions of the Central East and Central West zones. The Town continues to work collaboratively with the Region of York, as well as industry experts to help with data analysis, system maintenance recommendations, flow monitoring, and modelling water quality trends.

Operations Manuals

- **The operations and maintenance manuals contained plans, drawings and process descriptions sufficient for the safe and efficient operation of the system.**

Up to date plans and drawings were available for review at the time of the inspection. The Town of Newmarket is using GIS (Geographic Information System) programming to capture and store information pertaining to the distribution system. The data is current and is available to view by operations staff.

- **The operations and maintenance manuals met the requirements of the Drinking Water Works Permit and Municipal Drinking Water Licence issued under Part V of the SDWA.**

The operations manual and contingency plans developed for the drinking water system appear to contain the information and directives required by condition 16.2 of the MDWL. However, it was noted that some procedures have not been maintained.

Please see " Summary of Recommendations and Best Practice Issues" at the back of the report.

Logbooks

- **Logbooks were properly maintained and contained the required information.**

Section 27 of O.Reg. 128/04 contains requirements for what information is to be noted within the logbooks. The required items were recorded within "Daily Work Logs" maintained for each operators truck. The log sheets are collected at the end of each shift, reviewed and signed by each operator and the Overall Responsible Operator

Logbooks

(ORO).

- **Records or other record keeping mechanisms confirmed that operational testing not performed by continuous monitoring equipment was being done by a certified operator, water quality analyst, or person who suffices the requirements of O. Reg. 170/03 7-5.**

Security

- **The owner had provided security measures to protect components of the drinking water system.**

The majority of the drinking water components are underground. Extra equipment is stored securely at the operations centre inside the building and within the fenced area. The building and fence are locked with intruder alarms after hours.

Certification and Training

- **The overall responsible operator had been designated for each subsystem.**

The Town utilizes the "Personnel Coverage" procedure to clarify the roles and responsibilities of the Overall Responsible Operator (ORO) and Operator-In-Charge (OIC).

During the inspection review period, the ORO possessed the appropriate operator certificate to serve in this capacity.

Certification and Training

- **Operators-in-charge had been designated for all subsystems which comprised the drinking water system.**
- **All operators possessed the required certification.**

Water Quality Monitoring

- **All microbiological water quality monitoring requirements for distribution samples were being met.**

The Newmarket DS serves an estimated population of 84,227 people; therefore, 92 samples are required to be obtained monthly as a minimum requirement from within the distribution system. These samples are required to be tested for E.Coli (EC). and Total Coliform (TC); and at least 25 percent of the samples are required to be tested for general bacteria populations expressed as colony counts on a Heterotrophic Plate Count (HPC).

Records provided for the review period indicate that the Town is routinely collecting more than 100 distribution samples monthly and throughout the week in order to comply with the regulatory requirement. Each of those samples were tested for EC, TC, and approximately more than 25% of the samples were tested for general bacteria populations expressed as colony counts on a heterotrophic plate count.

- **All haloacetic acid water quality monitoring requirements prescribed by legislation are being conducted within the required frequency and at the required location.**

Sample data reviewed showed samples for Haloacetic acid where taken on June 18, 2018, September 17, 2018, December 18, 2018, and March 18, 2019.

- **All trihalomethane water quality monitoring requirements prescribed by legislation were conducted within the required frequency and at the required location.**

Sample data reviewed showed samples where taken on April 11, 2018, July 9th, 2018 and October 10th, 2018 and

Water Quality Monitoring

January 9th, 2019.

- **Records confirmed that chlorine residual tests were being conducted at the same time and at the same location that microbiological samples were obtained.**

The chain of custody forms reviewed at the time of the inspection, confirmed that chlorine residual tests were conducted at the same time and same location the microbiological samples were taken.

Water Quality Assessment

- **Records did not show that all water sample results taken during the inspection review period did not exceed the values of tables 1, 2 and 3 of the Ontario Drinking Water Quality Standards (O.Reg. 169/03).**

During the inspection period, the town reported nine (9) Total Coliform Adverse Water Quality Incidents (AWQIs) to the Ministry that exceeded the values set out in Schedule 1 of O.Reg. 169/03.

Reporting & Corrective Actions

- **Corrective actions (as per Schedule 17) had been taken to address adverse conditions, including any other steps that were directed by the Medical Officer of Health.**

During the inspection period, the Town reported 87 AWQIs to the Ministry.

Of these:

- 78 were due to low combined chlorine residual.
- 9 for Total Coliform.

The Town responded to each low chlorine incident by immediately flushing the distribution system until residuals were restored. Resamples for the Total Coliform were collected and corrective actions taken for all adverse test results until results met the Ontario Drinking Water Quality Standards (ODWQS).

- **Corrective actions as directed by the Medical Officer of Health had been taken by the owner and operating authority to address exceedances of the lead standard.**
- **All required notifications of adverse water quality incidents were not immediately provided as per O. Reg. 170/03 16-6.**

On September 14, 2018 and September 22, 2018, 2 (two) incidents, AWQI #142884 and #143146, occurred causing the facility to not immediately report and submit a written notice within 24 hours after the immediate report, as per Schedule 16 of O.Reg. 170/03.

Samples taken by a certified operator from a third party company hired by the Town, sampled a temporary portable watermain causing a Total Coliform exceedance. The chain of custody forms completed stated the samples were non-regulated. The Lab and Town had attempted to contact the sampler and discovered the samples were regulated samples.

Please see "Non-Compliance with Regulatory requirements and Actions Required" at the back of the report and refer to action #1 of this report for actions required.

- **All changes to the system registration information were provided within ten (10) days of the change.**

On April 17, 2019, the system reviewed and confirmed the profile registration information was correct.

Other Inspection Findings

- **The following issues were also noted during the inspection:**

Other Inspection Findings

1. Condition 16.0 of Schedule B of the MDWL, No. 124-101, lists the items to be included in the operations and maintenance manual.

The operations manual and contingency plans developed for the drinking water system appear to contain the information and directives required by condition 16.2 of the MDWL. However, it was noted that some procedures have not been maintained.

2. Although no Form 1's were completed during the review period, the town has purchased automatic flusher for the Northern portions of the Central East and Central West zones where they frequently experience chloramine residuals below the minimum regulatory limit. An email to MECP Approvals dated March 5th, 2019 request for regulatory relief for the use of continuous chlorine analyzers installed for the auto-flushers. The automatic flusher is exempt from approval requirements and no Form 1, 2, or 3 is required.

3. Watermain break/repair records are not clear on which of the listed certified operators took chlorine residuals and at what time the residuals were taken. The Town provided an updated Watermain Break Repair record to the Ministry on November 30, 2018 which contained the requirements set out in Schedule 6-10 of O.Reg. 170/03. However, records reviewed for February and March 2019 revealed the new forms were not being used.

A review of the Engineering Design Standards and Criteria Chlorine Residual Reports used for temporary watermains, Form 2, records are not clear on which of the listed certified operators took the chlorine residuals and at what time the residuals were taken.

Please see " Summary of Recommendations and Best Practice Issues" at the back of the report.

NON-COMPLIANCE WITH REGULATORY REQUIREMENTS AND ACTIONS REQUIRED

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

1. All required notifications of adverse water quality incidents were not immediately provided as per O. Reg. 170/03 16-6.

On September 14, 2018 and September 22, 2018, 2 (two) incidents, AWQI #142884 and #143146, occurred causing the facility to not immediately report and submit a written notice within 24 hours after the immediate report, as per Schedule 6 of O.Reg. 170/03.

Samples taken by a certified operator from a third party company hired by the Town, sampled a temporary portable watermain causing a Total Coliform exceedance. The chain of custody forms completed stated the samples were non-regulated. The Lab and Town had attempted to contact the sampler and discovered the samples were regulated samples.

Action(s) Required:

Although not completed within the proper time frame, notification was ultimately made to the Ministry and Health Unit for both Total Coliform events as soon as the Town of Newmarket became aware of the Adverse Water Quality Incidents. To help prevent future reporting issues of this nature, a new tender package was created to include procedures for adverse reporting.

No further action required.

SUMMARY OF RECOMMENDATIONS AND BEST PRACTICE ISSUES

This section provides a summary of all recommendations and best practice issues identified during the inspection period. Details pertaining to these items can be found in the body of the inspection report. In the interest of continuous improvement in the interim, it is recommended that owners and operators develop an awareness of the following issues and consider measures to address them.

1. The following issues were also noted during the inspection:

1. Condition 16.0 of Schedule B of the MDWL, No. 124-101, lists the items to be included in the operations and maintenance manual.

The operations manual and contingency plans developed for the drinking water system appear to contain the information and directives required by condition 16.2 of the MDWL. However, it was noted that some procedures have not been maintained.

2. Although no Form 1's were completed during the review period, the town has purchased automatic flusher for the Northern portions of the Central East and Central West zones where they frequently experience chloramine residuals below the minimum regulatory limit. An email to MECP Approvals dated March 5th, 2019 request for regulatory relief for the use of continuous chlorine analyzers installed for the auto-flushers. The automatic flusher is exempt from approval requirements and no Form 1, 2, or 3 is required.

3. Watermain break/repair records are not clear on which of the listed certified operators took chlorine residuals and at what time the residuals were taken. The Town provided an updated Watermain Break Repair record to the Ministry on November 30, 2018 which contained the requirements set out in Schedule 6-10 of O.Reg. 170/03. However, records reviewed for February and March 2019 revealed the new forms were not being used.

A review of the Engineering Design Standards and Criteria Chlorine Residual Reports used for temporary watermains, Form 2, records are not clear on which of the listed certified operators took the chlorine residuals and at what time the residuals were taken.

Recommendation:

1. It is recommended that the town review and update all of their operations and maintenance manuals to ensure operational efficiency and currency.

2. It is recommended that the Town of Newmarket have the automatic flusher added to the system description during the ongoing Permit renewal process.

3. The Town has since archived/removed any previous versions of the Watermain Break Report forms from circulation.

It is recommended that the Town provide the undersigned officer when staff are provided training on the new Infomax system (electronic form service provider/platform) and provide an updated Form 2 that contains the requirements set out in Schedule 6-10 of O.Reg.170/03.

SIGNATURES

Inspected By:

Dee Cox

Signature: (Provincial Officer)



Reviewed & Approved By:

Tessa Villeneuve

Signature: (Supervisor)

Review & Approval Date:

Mar 27, 2019

Note: This inspection does not in any way suggest that there is or has been compliance with applicable legislation and regulations as they apply or may apply to this facility. It is, and remains, the responsibility of the owner and/or operating authority to ensure compliance with all applicable legislative and regulatory requirements.



APPENDIX A

STAKEHOLDER APPENDIX

Key Reference and Guidance Material for Municipal Residential Drinking Water Systems

Many useful materials are available to help you operate your drinking water system. Below is a list of key materials owners and operators of municipal residential drinking water systems frequently use.

To access these materials online click on their titles in the table below or use your web browser to search for their titles. Contact the Ministry if you need assistance or have questions at 1-866-793-2588 or waterforms@ontario.ca.

For more information on Ontario's drinking water visit www.ontario.ca/drinkingwater



PUBLICATION TITLE	PUBLICATION NUMBER
FORMS: Drinking Water System Profile Information Laboratory Services Notification Adverse Test Result Notification	012-2149E 012-2148E 012-4444E
Taking Care of Your Drinking Water: A Guide for Members of Municipal Councils	Website
Procedure for Disinfection of Drinking Water in Ontario	Website
Strategies for Minimizing the Disinfection Products Trihalomethanes and Haloacetic Acids	Website
Filtration Processes Technical Bulletin	Website
Ultraviolet Disinfection Technical Bulletin	Website
Guide for Applying for Drinking Water Works Permit Amendments, & License Amendments	Website
Certification Guide for Operators and Water Quality Analysts	Website
Guide to Drinking Water Operator Training Requirements	9802E
Community Sampling and Testing for Lead: Standard and Reduced Sampling and Eligibility for Exemption	Website
Drinking Water System Contact List	7128E01
Ontario's Drinking Water Quality Management Standard - Pocket Guide	Website
Watermain Disinfection Procedure	Website
List of Licensed Laboratories	Website

Principaux guides et documents de référence sur les réseaux résidentiels municipaux d'eau potable

De nombreux documents utiles peuvent vous aider à exploiter votre réseau d'eau potable. Vous trouverez ci-après une liste de documents que les propriétaires et exploitants de réseaux résidentiels municipaux d'eau potable utilisent fréquemment. Pour accéder à ces documents en ligne, cliquez sur leur titre dans le tableau ci-dessous ou faites une recherche à l'aide de votre navigateur Web. Communiquez avec le ministère au 1-866-793-2588, ou encore à waterforms@ontario.ca si vous avez des questions ou besoin d'aide.



Pour plus de renseignements sur l'eau potable en Ontario, consultez le site www.ontario.ca/eaupotable

TITRE DE LA PUBLICATION	NUMÉRO DE PUBLICATION
Renseignements sur le profil du réseau d'eau potable	012-2149F
Avis de demande de services de laboratoire	012-2148F
Avis de résultats d'analyse insatisfaisants et de règlement des problèmes	012-4444F
Prendre soin de votre eau potable - Un guide destiné aux membres des conseils municipaux	Site Web
Marche à suivre pour désinfecter l'eau potable en Ontario	Site Web
Stratégies pour minimiser les trihalométhanes et les acides haloacétiques de sous-produits de désinfection	Site Web
Filtration Processes Technical Bulletin (en anglais seulement)	Site Web
Ultraviolet Disinfection Technical Bulletin (en anglais seulement)	Site Web
Guide de présentation d'une demande de modification du permis d'aménagement de station de production d'eau potable	Site Web
Guide sur l'accréditation des exploitants de réseaux d'eau potable et des analystes de la qualité de l'eau de réseaux d'eau potable	Site Web
Guide sur les exigences relatives à la formation des exploitants de réseaux d'eau potable	9802F
Échantillonnage et analyse du plomb dans les collectivités : échantillonnage normalisé ou réduit et admissibilité à l'exemption	Site Web
Liste des personnes-ressources du réseau d'eau potable	Site Web
L'eau potable en Ontario - Norme de gestion de la qualité - Guide de poche	Site Web
Procédure de désinfection des conduites principales	Site Web
Laboratoires autorisés	Site Web



APPENDIX B

INSPECTION RATING RECORD

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

DWS Name: NEWMARKET DISTRIBUTION SYSTEM
DWS Number: 260003188
DWS Owner: Newmarket, The Corporation Of The Town Of
Municipal Location: Newmarket

Regulation: O.REG 170/03
Category: Large Municipal Residential System
Type Of Inspection: Adhoc
Inspection Date: April 17, 2019
Ministry Office: 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	21 / 63
Treatment Process Monitoring	0 / 21
TOTAL	21 / 244

Inspection Risk Rating	8.61%
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FINAL INSPECTION RATING:	91.39%
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Ministry of the Environment - Detailed Inspection Rating Record (Reporting Year - 2019-2020)

DWS Name: NEWMARKET DISTRIBUTION SYSTEM
DWS Number: 260003188
DWS Owner: Newmarket, The Corporation Of The Town Of
Municipal Location: Newmarket

Regulation: O.REG 170/03
Category: Large Municipal Residential System
Type Of Inspection: Adhoc
Inspection Date: April 17, 2019
Ministry Office: York-Durham District

Non-compliant Question(s)	Question Rating
Reporting & Corrective Actions	
Were all required verbal notifications of adverse water quality incidents immediately provided as per O. Reg. 170/03 16-6?	21
TOTAL QUESTION RATING	21

Maximum Question Rating: 244

Inspection Risk Rating	8.61%
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FINAL INSPECTION RATING:	91.39%
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2019 ONTARIO DRINKING WATER SYSTEMS REGULATION ANNUAL REPORT

Drinking-Water System Number:	260003188
Drinking-Water System Name:	Town of Newmarket Water Distribution System
Drinking-Water System Owner:	The Corporation of the Town of Newmarket
Drinking-Water System Category:	Large Municipal Residential
Period being reported:	January 1 st , 2019 to December 31 st , 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 [X] No []</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> <ul style="list-style-type: none"> • Newmarket Operations Centre, 1275 Maple Hill Court, Newmarket, ON • Newmarket Municipal Offices, Customer Service Counter, 395 Mulock Drive, Newmarket, ON • Online at newmarket.ca 	<p><u>Complete for all other Categories.</u></p> <p>Number of Designated Facilities served: <input type="text" value="N/A"/></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: <input type="text" value="N/A"/></p> <p>Did you provide a copy of your annual report to all Interested Authorities you report to for each Designated Facility? Yes [] No [] N/A</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
N/A	N/A

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 []

N/A



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

The Town of Newmarket purchases water from York Region, which in turn purchases it through supply agreements from the City of Toronto and Peel Region. York Region also operates and maintains groundwater wells located in the Yonge Street Aquifer that service the Town of Newmarket. The integrated system includes Newmarket's local distribution watermains and York Region's transmission watermains, pumping stations, storage facilities and groundwater treatment facilities. Treated water from the Region supply network is monitored on-line, 24 hours per day by operators through the Regional SCADA (System Control and Data Acquisition) system.

The Town's Distribution System Infrastructure (including watermains, valves, hydrants, water services, and meters) services approximately 84,224 people within the Town of Newmarket.

The Newmarket WDS is comprised of approximately;

- 318 kilometers of distribution system watermain
- 2,689 mainline valves
- 2,355 municipally owned fire hydrants
- 26,668 metered water services

List all water treatment chemicals used over this reporting period

Water treatment is the responsibility of York Region. Chlorine is added to provide primary disinfection, and chloramine (addition of ammonia) provides a secondary residual in the distribution system. Sodium silicate is added to sequester naturally occurring iron and manganese in the groundwater source.

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

Drinking Water System Capital Improvements:	\$ 1,881,409.50
Which is approximately 15.6% less than what was spent on drinking water system capital improvements in 2018.	
Watermain Maintenance:	\$ 450,000 (approx.)
Which is approximately 25.0% more than what was spent on watermain maintenance in 2018.	
Hydrant Maintenance:	\$ 80,886.53
Which is approximately 10.1% less than what was spent on hydrant maintenance in 2018.	
Watermain Unidirectional Flushing/Swabbing Program:	\$ 443,000
Which is approximately 7.0% less than what was spent watermain flushing/swabbing contractor costs in 2018.	

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	AWQI Number	Parameter	Result (mg/L or Present)	Corrective Action(s)	Resolution Date
1/2/2019	144427	Low Combined Chlorine	0.09 mg/L	Flush & Resample	1/2/2019
1/4/2019	144443	Low Combined Chlorine	0.07 mg/L	Flush & Resample	1/4/2019
1/7/2019	144457	Low Combined Chlorine	0.19 mg/L	Flush & Resample	1/7/2019
1/8/2019	144469	Low Combined Chlorine	0.21 mg/L	Flush & Resample	1/8/2019
1/11/2019	144507	Low Combined Chlorine	0.10 mg/L	Flush & Resample	1/11/2019
1/14/2019	144513	Low Combined Chlorine	0.19 mg/L	Flush & Resample	1/14/2019
1/23/2019	144612	Low Combined Chlorine	0.16 mg/L	Flush & Resample	1/23/2019
2/5/2019	144708	Low Combined Chlorine	0.14 mg/L	Flush & Resample	2/5/2019
2/5/2019	144727	Total Coliform	Present	Flush & Resample	2/11/2019
2/11/2019	144768	Total Coliform	Present	Flush & Resample	2/15/2019



2/19/2019	144814	Low Combined Chlorine	0.18 mg/L	Flush & Resample	2/19/2019
2/20/2019	144821	Low Combined Chlorine	0.15 mg/L	Flush & Resample	2/20/2019
2/25/2019	144853	Low Combined Chlorine	0.22 mg/L	Flush & Resample	2/25/2019
3/4/2019	144906	Low Combined Chlorine	0.23 mg/L	Flush & Resample	3/4/2019
3/5/2019	144914	Low Combined Chlorine	0.22 mg/L	Flush & Resample	3/5/2019
3/6/2019	144923	Low Combined Chlorine	0.13 mg/L	Flush & Resample	3/6/2019
3/11/2019	144953	Low Combined Chlorine	0.21 mg/L	Flush & Resample	3/11/2019
3/12/2019	144967	Low Combined Chlorine	0.24 mg/L	Flush & Resample	3/12/2019
3/17/2019	145009	Low Combined Chlorine	0.16 mg/L	Flush & Resample	3/17/2019
3/18/2019	145011	Low Combined Chlorine	0.22 mg/L	Flush & Resample	3/18/2019
3/19/2019	145021	Low Combined Chlorine	0.18 mg/L	Flush & Resample	3/19/2019
3/25/2019	145049	Low Combined Chlorine	0.24 mg/L	Flush & Resample	3/25/2019
3/26/2019	145057	Low Combined Chlorine	0.05 mg/L	Flush & Resample	3/26/2019
4/1/2019	145096	Low Combined Chlorine	0.20 mg/L	Flush & Resample	4/1/2019
4/3/2019	145113	Low Combined Chlorine	0.17 mg/L	Flush & Resample	4/3/2019
4/8/2019	145138	Low Combined Chlorine	0.12 mg/L	Flush & Resample	4/8/2019
4/9/2019	145147	Low Combined Chlorine	0.13 mg/L	Flush & Resample	4/9/2019
4/10/2019	145156	Low Combined Chlorine	0.10 mg/L	Flush & Resample	4/10/2019
4/15/2019	145190	Low Combined Chlorine	0.19 mg/L	Flush & Resample	4/15/2019
4/16/2019	145204	Low Combined Chlorine	0.18 mg/L	Flush & Resample	4/16/2019
4/17/2019	145218	Low Combined Chlorine	0.17 mg/L	Flush & Resample	4/17/2019
4/23/2019	145244	Low Combined Chlorine	0.15 mg/L	Flush & Resample	4/23/2019
4/24/2019	145266	Low Combined	0.18 mg/L	Flush &	4/24/2019



		Chlorine		Resample	
4/25/2019	145275	Low Combined Chlorine	0.12 mg/L	Flush & Resample	4/25/2019
4/26/2019	145280	Low Combined Chlorine	0.08 mg/L	Flush & Resample	4/26/2019
4/30/2019	145298	Low Combined Chlorine	0.24 mg/L	Flush & Resample	4/30/2019
5/1/2019	145304	Low Combined Chlorine	0.06 mg/L	Flush & Resample	5/1/2019
5/3/2019	145321	Low Combined Chlorine	0.14 mg/L	Flush & Resample	5/3/2019
5/6/2019	145327	Low Combined Chlorine	0.24 mg/L	Flush & Resample	5/6/2019
5/7/2019	145331	Low Combined Chlorine	0.14 mg/L	Flush & Resample	5/7/2019
5/7/2019	145333	Low Combined Chlorine	0.21 mg/L	Flush & Resample	5/7/2019
5/8/2019	145342	Low Combined Chlorine	0.16 mg/L	Flush & Resample	5/8/2019
5/13/2019	145384	Low Combined Chlorine	0.07 mg/L	Flush & Resample	5/13/2019
5/14/2019	145395	Low Combined Chlorine	0.24 mg/L	Flush & Resample	5/14/2019
5/15/2019	145404	Low Combined Chlorine	0.05 mg/L	Flush & Resample	5/15/2019
5/15/2019	145405	Low Combined Chlorine	0.06 mg/L	Flush & Resample	5/15/2019
5/22/2019	145458	Low Combined Chlorine	0.08 mg/L	Flush & Resample	5/22/2019
5/27/2019	145499	Low Combined Chlorine	0.07 mg/L	Flush & Resample	5/27/2019
6/4/2019	145577	Low Combined Chlorine	0.12 mg/L	Flush & Resample	6/4/2019
6/10/2019	145651	Low Combined Chlorine	0.14 mg/L	Flush & Resample	6/10/2019
6/11/2019	145654	Low Combined Chlorine	0.24 mg/L	Flush & Resample	6/11/2019
6/12/2019	145664	Low Combined Chlorine	0.15 mg/L	Flush & Resample	6/12/2019
6/13/2019	145679	Low Combined Chlorine	0.12 mg/L	Flush & Resample	6/13/2019
6/14/2019	145698	Low Combined Chlorine	0.11 mg/L	Flush & Resample	6/14/2019
6/18/2019	145730	Low Combined Chlorine	0.09 mg/L	Flush & Resample	6/18/2019



6/24/2019	145799	Low Combined Chlorine	0.16 mg/L	Flush & Resample	6/24/2019
6/25/2019	145813	Low Combined Chlorine	0.19 mg/L	Flush & Resample	6/25/2019
6/26/2019	145840	Low Combined Chlorine	0.15 mg/L	Flush & Resample	6/26/2019
6/26/2019	145958	Total Coliform	Present	Flush & Resample	7/2/2019
6/27/2019	146012	Total Coliform	Present	Flush & Resample	7/2/2019
7/2/2019	146035	Low Combined Chlorine	0.21 mg/L	Flush & Resample	7/2/2019
7/4/2019	146082	Low Combined Chlorine	0.06 mg/L	Flush & Resample	7/4/2019
7/8/2019	146159	Low Combined Chlorine	0.16 mg/L	Flush & Resample	7/8/2019
7/10/2019	146255	Low Combined Chlorine	0.15 mg/L	Flush & Resample	7/10/2019
7/10/2019	146271	Low Combined Chlorine	0.08 mg/L	Flush & Resample	7/10/2019
7/11/2019	146307	Low Combined Chlorine	0.08 mg/L	Flush & Resample	7/11/2019
7/15/2019	146433	Low Combined Chlorine	0.24 mg/L	Flush & Resample	7/15/2019
7/17/2019	146498	Low Combined Chlorine	0.13 mg/L	Flush & Resample	7/17/2019
7/22/2019	146635	Low Combined Chlorine	0.18 mg/L	Flush & Resample	7/22/2019
7/22/2019	146636	Low Combined Chlorine	0.17 mg/L	Flush & Resample	7/22/2019
7/23/2019	146652	Low Combined Chlorine	0.21 mg/L	Flush & Resample	7/23/2019
7/23/2019	146658	Low Combined Chlorine	0.13 mg/L	Flush & Resample	7/23/2019
7/24/2019	146736	Total Coliform	Present	Flush & Resample	7/26/2019
7/29/2019	146860	Low Combined Chlorine	0.13 mg/L	Flush & Resample	7/29/2019
7/30/2019	146918	Low Combined Chlorine	0.22 mg/L	Flush & Resample	7/30/2019
8/1/2019	147001	Low Combined Chlorine	0.18 mg/L	Flush & Resample	8/1/2019
8/6/2019	147068	Low Combined Chlorine	0.14 mg/L	Flush & Resample	8/6/2019
8/12/2019	147211	Low Combined	0.08 mg/L	Flush &	8/12/2019



		Chlorine		Resample	
8/14/2019	147283	Total Coliform	Present	Flush & Resample	8/19/2019
8/14/2019	147285	Total Coliform	Present	Flush & Resample	8/19/2019
8/19/2019	147407	Low Combined Chlorine	0.08 mg/L	Flush & Resample	8/19/2019
8/26/2019	147576	Low Combined Chlorine	0.16 mg/L	Flush & Resample	8/26/2019
8/26/2019	147577	Low Combined Chlorine	0.03 mg/L	Flush & Resample	8/26/2019
8/27/2019	147617	Low Combined Chlorine	0.11 mg/L	Flush & Resample	8/27/2019
8/28/2019	147651	Low Combined Chlorine	0.10 mg/L	Flush & Resample	8/28/2019
8/29/2019	147670	Low Combined Chlorine	0.15 mg/L	Flush & Resample	8/29/2019
9/1/2019	147752	Total Coliform	Present	Flush & Resample	9/3/2019
9/3/2019	147768	Low Combined Chlorine	0.10 mg/L	Flush & Resample	9/3/2019
9/3/2019	147775	Low Combined Chlorine	0.22 mg/L	Flush & Resample	9/3/2019
9/3/2019	147776	Low Combined Chlorine	0.10 mg/L	Flush & Resample	9/3/2019
9/4/2019	147795	Low Combined Chlorine	0.15 mg/L	Flush & Resample	9/4/2019
9/5/2019	147827	Low Combined Chlorine	0.09 mg/L	Flush & Resample	9/5/2019
9/6/2019	147872	Low Combined Chlorine	0.23 mg/L	Flush & Resample	9/6/2019
9/4/2019	147886	Total Coliform	Present	Flush & Resample	9/9/2019
9/4/2019	147887	Total Coliform	Present	Flush & Resample	9/9/2019
9/6/2019	147890	Low Combined Chlorine	0.08 mg/L	Flush & Resample	9/6/2019
9/9/2019	147901	Low Combined Chlorine	0.11 mg/L	Flush & Resample	9/9/2019
9/9/2019	147903	Low Combined Chlorine	0.21 mg/L	Flush & Resample	9/9/2019
9/10/2019	147930	Low Combined Chlorine	0.14 mg/L	Flush & Resample	9/10/2019
9/10/2019	147992	Total Coliform	Present	Flush & Resample	9/20/2019



9/12/2019	148038	Total Coliform	Present	Flush & Resample	9/20/2019
9/12/2019	148040	Total Coliform	Present	Flush & Resample	9/17/2019
9/12/2019	148041	Total Coliform	Present	Flush & Resample	9/23/2019
9/13/2019	148048	Total Coliform	Present	Flush & Resample	9/17/2019
9/16/2019	148055	Low Combined Chlorine	0.20 mg/L	Flush & Resample	9/16/2019
9/16/2019	148056	Low Combined Chlorine	0.16 mg/L	Flush & Resample	9/16/2019
9/16/2019	148062	Low Combined Chlorine	0.06 mg/L	Flush & Resample	9/16/2019
9/14/2019	148068	Total Coliform	Present	Flush & Resample	9/20/2019
9/14/2019	148069	Total Coliform	Present	Flush & Resample	9/23/2019
9/17/2019	148086	Low Combined Chlorine	0.12 mg/L	Flush & Resample	9/17/2019
9/15/2019	148087	Total Coliform	Present	Flush & Resample	9/20/2019
9/17/2019	148132	Total Coliform	Present	Flush & Resample	9/23/2019
9/20/2019	148149	Low Combined Chlorine	0.09 mg/L	Flush & Resample	9/20/2019
9/19/2019	148174	Total Coliform	Present	Flush & Resample	9/23/2019
9/23/2019	148183	Low Combined Chlorine	0.04 mg/L	Flush & Resample	9/23/2019
9/23/2019	148186	Low Combined Chlorine	0.20 mg/L	Flush & Resample	9/23/2019
9/21/2019	148189	Total Coliform	Present	Flush & Resample	9/25/2019
9/24/2019	148199	Low Combined Chlorine	0.18 mg/L	Flush & Resample	9/24/2019
9/23/2019	148207	Total Coliform	Present	Flush & Resample	9/27/2019
9/30/2019	148306	Low Combined Chlorine	0.16 mg/L	Flush & Resample	9/30/2019
10/1/2019	148316	Low Combined Chlorine	0.12 mg/L	Flush & Resample	10/1/2019
10/7/2019	148435	Low Combined Chlorine	0.12 mg/L	Flush & Resample	10/7/2019
10/7/2019	148444	Low Combined	0.13 mg/L	Flush &	10/7/2019



		Chlorine		Resample	
10/8/2019	148465	Low Combined Chlorine	0.14 mg/L	Flush & Resample	10/8/2019
10/9/2019	148493	Low Combined Chlorine	0.24 mg/L	Flush & Resample	10/9/2019
10/10/2019	148512	Low Combined Chlorine	0.14 mg/L	Flush & Resample	10/10/2019
10/15/2019	148573	Low Combined Chlorine	0.22 mg/L	Flush & Resample	10/15/2019
10/15/2019	148575	Low Combined Chlorine	0.21 mg/L	Flush & Resample	10/15/2019
10/16/2019	148581	Low Combined Chlorine	0.17 mg/L	Flush & Resample	10/16/2019
10/16/2019	148582	Low Combined Chlorine	0.21 mg/L	Flush & Resample	10/16/2019
10/17/2019	148600	Low Combined Chlorine	0.19 mg/L	Flush & Resample	10/17/2019
10/17/2019	148601	Low Combined Chlorine	0.08 mg/L	Flush & Resample	10/17/2019
10/21/2019	148645	Low Combined Chlorine	0.24 mg/L	Flush & Resample	10/21/2019
10/22/2019	148669	Low Combined Chlorine	0.17 mg/L	Flush & Resample	10/22/2019
10/22/2019	148680	Low Combined Chlorine	0.18 mg/L	Flush & Resample	10/22/2019
10/21/2019	148699	Total Coliform	Present	Flush & Resample	10/25/2019
10/25/2019	148739	Low Combined Chlorine	0.21 mg/L	Flush & Resample	10/25/2019
10/28/2019	148760	Low Combined Chlorine	0.17 mg/L	Flush & Resample	10/28/2019
10/29/2019	148777	Low Combined Chlorine	0.19 mg/L	Flush & Resample	10/29/2019
10/29/2019	148783	Low Combined Chlorine	0.19 mg/L	Flush & Resample	10/29/2019
10/30/2019	148792	Low Combined Chlorine	0.24 mg/L	Flush & Resample	10/30/2019
10/30/2019	148804	Low Combined Chlorine	0.23 mg/L	Flush & Resample	10/30/2019
11/5/2019	148882	Low Combined Chlorine	0.15 mg/L	Flush & Resample	11/5/2019
11/11/2019	148959	Low Combined Chlorine	0.17 mg/L	Flush & Resample	11/11/2019
11/12/2019	148967	Low Combined Chlorine	0.13 mg/L	Flush & Resample	11/12/2019



11/11/2019	148993	Total Coliform	Present	Flush & Resample	11/18/2019
11/18/2019	149024	Low Combined Chlorine	0.11 mg/L	Flush & Resample	11/18/2019
11/19/2019	149032	Low Combined Chlorine	0.11 mg/L	Flush & Resample	11/19/2019
11/25/2019	149093	Low Combined Chlorine	0.19 mg/L	Flush & Resample	11/25/2019
11/25/2019	149094	Low Combined Chlorine	0.20 mg/L	Flush & Resample	11/25/2019
12/2/2019	149151	Low Combined Chlorine	0.15 mg/L	Flush & Resample	12/2/2019
12/10/2019	149215	Low Combined Chlorine	0.22 mg/L	Flush & Resample	12/10/2019

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	1449	0 “Present” samples	24 “Present” samples	653	0 - 860 CFU/mL

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 #)	Unit of Measure
Turbidity	N/A	N/A	N/A
Chlorine	5798	0.03 - 3.43 (combined Cl ₂)	mg/L
Fluoride (If the DWS provides fluoridation)	N/A	N/A	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
N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A

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

Parameter	Sample Date	Result Value	Unit of Measure	Exceedance
Sodium	Jan 1 - Dec 31 2019	15.4 - 23.6	mg/L	Yes - Next required reporting date is January 7 th , 2021
Fluoride	Jan 1 - Dec 31 2019	0.19 - 0.67	mg/L	No
Nitrite	Jan 1 - Dec 31 2019	0 - 0.07	mg/L	No
Nitrate	Jan 1 - Dec 31 2019	0 - 0.76	mg/L	No

Summary of lead testing under Schedule 15.1 during this reporting period

Location Type	Number of Samples	Range of Lead Results (min#) – (max #)	Unit of Measure	Number of Exceedances
Plumbing	10	0.0005 - 0.0583	mg/L	1
Distribution	26	0.0005 - 0.0005	mg/L	0

Note: The Town of Newmarket possesses Lead Regulatory Relief under Schedule D of Municipal Drinking Water License 124-101; and is only required to sample “8” (eight) points in our respective distribution system during each of the sampling periods identified within O.Reg 170/03 and our respective Municipal Drinking Water License. All other lead sampling that is completed is above the requirements stipulated within the above referenced license and regulation and is done at the sole discretion of the Town of Newmarket.

Summary of Organic parameters sampled during this reporting period or the most recent sample results

Parameter	Sample Date	Result Value	Unit of Measure	Exceedance
HAA (Total) (NOTE: show latest annual average)	Jan 1 - Dec 31 2019	Q4 RAA 0.0080	mg/L	No
THM (Total) (NOTE: show latest annual average)	Jan 1 - Dec 31 2019	Q4 RAA 0.0151	mg/L	No

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
N/A	N/A	N/A	N/A

Town of Newmarket
Monthly Water 2019

Date: 2/2/2020



Newmarket	January	February	March	April	May	June	July	August	September	October	November	December	Year to Date Total
Aurora Ballymore (Aurora) m3	-3,403	-2,750	-2,408	-431	-2,375	-1,832	-3,006	0	-15	-10	-95	0	-16,326
Aurora Ballymore (Newmarket) m3	93,382	109,077	98,533	87,839	95,455	123,050	145,658	119,350	108,393	145,125	136,822	87,250	1,349,934
Aurora West 12" (Aurora) m3	-2	-5	-6	-9	-71	-7	-76	-4	-7	-18	-1	-1	-206
Aurora West 12" (Newmarket) m3	165,417	134,403	156,889	146,611	154,073	167,265	148,854	147,557	133,221	159,143	154,678	168,130	1,836,241
Aurora West 8" (Aurora) m3	0	0	0	0	0	0	0	0	0	0	0	0	0
Aurora West 8" (Newmarket) m3	0	0	0	0	0	0	0	0	0	0	0	0	0
Davis Drive/Hwy. 404 m3	-2,041	-1,754	-1,763	-1,631	-1,316	-1,401	-5,727	-6,765	-7,804	-7,388	-5,368	-4,592	-47,550
EG Leslie Street MC 12" Fwd to NW m3	0	0	0	0	0	0	0	0	0	0	0	0	0
EG Leslie Street MC 12" Rev to EG m3	0	0	0	0	0	0	0	0	0	0	0	0	0
EG Leslie Street MC 22" Fwd to NW m3	112,339	92,624	87,757	72,560	100,412	101,283	111,503	109,187	90,548	54,359	50,084	45,394	1,028,048
EG Leslie Street MC 22" Rev to EG m3	-2,820	-2,670	-5,396	-3,467	-1,243	-1,663	-445	-918	-5,359	-14,911	-24,097	-10,158	-73,147
Leslie/Broughton (Aurora) m3	-18	-11	-12	-6	-14	-4	-8	-17	-537	-16	-2	-5	-650
Leslie/Broughton (Newmarket) m3	166,698	150,364	153,818	144,286	164,355	171,341	201,987	198,828	154,391	136,437	136,452	162,766	1,941,720
Newmarket Well No. 1 m3	6,216	26,353	27,853	26,032	30,896	27,370	30,591	29,795	26,714	25,951	24,967	27,802	310,541
Newmarket Well No. 13 m3	32,700	34,792	41,432	33,715	34,105	27,631	12,746	21,004	35,142	65,884	61,743	69,743	470,637
Newmarket Well No. 15 m3	276	251	210	263	151	172	179	145	193	275	120	0	2,235
Newmarket Well No. 16 m3	44,056	36,877	36,277	37,086	44,960	37,450	66,725	66,649	42,188	0	0	0	412,267
Newmarket Well No. 2 m3	54,962	54,487	58,151	52,826	55,513	58,302	70,095	69,256	61,624	54,680	51,192	55,662	696,748
Newmarket/Aurora (Aurora) m3	-2,030	-4,452	-6,062	-4,230	-3,873	-4,682	0	0	0	0	0	0	-25,330
Newmarket/Aurora (Newmarket) m3	114,439	83,206	79,247	71,579	77,682	94,711	137,057	127,371	107,422	79,479	79,453	71,834	1,123,477
Woodspring Avenue (East Gwillimbury) m3	-14,922	-14,483	-14,107	-14,107	-14,383	-17,718	-19,220	-19,911	-17,117	-14,279	-14,386	-16,204	-190,834
Woodspring Avenue (Newmarket) m3	3	1	1	5	3	1	5	4	6	80	18	1	128
Yonge/Aspenwood (East Gwillimbury) m3	0	0	0	0	0	0	0	0	0	0	0	0	0
Yonge/Aspenwood (Newmarket) m3	0	0	0	0	0	0	0	0	0	0	0	0	0
Yonge/Bristol (East Gwillimbury) m3	-5,121	-6,235	-6,444	-5,030	-4,877	-5,692	-6,599	-7,491	-8,383	-4,410	-5,046	-6,340	-71,667
Yonge/Bristol (Newmarket) m3	19	21	19	19	24	22	15	16	17	96	16	13	296
Total Water Consumption m3	760,148	690,094	703,988	643,911	729,476	775,599	890,334	854,055	720,636	680,477	646,550	651,294	8,746,561

	January	February	March	April	May	June	July	August	September	October	November	December	Total
Maximum Daily Flow m3	27,522	27,424	27,967	24,976	27,400	31,971	32,483	31,596	28,260	26,126	25,359	23,600	32,483
Maximum Date	23-Jan-2019	03-Feb-2019	20-Mar-2019	07-Apr-2019	18-May-2019	24-Jun-2019	11-Jul-2019	14-Aug-2019	02-Sep-2019	02-Oct-2019	15-Nov-2019	15-Dec-2019	
Minimum Daily Flow m3	20,572	21,241	18,147	18,006	18,726	20,811	24,312	23,847	20,764	17,538	18,081	17,863	17,538
Minimum Date	01-Jan-2019	09-Feb-2019	13-Mar-2019	20-Apr-2019	13-May-2019	02-Jun-2019	06-Jul-2019	27-Aug-2019	25-Sep-2019	25-Oct-2019	14-Nov-2019	29-Dec-2019	
Average Daily Flow m3	24,521	24,646	22,709	21,464	23,531	25,853	28,720	27,550	24,021	21,951	21,552	21,009	23,961



Town of Newmarket 2019 Annual Water Quality Reports

This report contains the information necessary to satisfy the annual reporting requirements stipulated within the Ontario Safe Drinking Act, 2002, and its associated regulations; as well as the communication requirements stipulated within the Ontario Drinking Water Quality Standard.

Prepared by:
Public Works Services, Water/Wastewater Services Town of Newmarket
February 28, 2020

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Attachments:

There are a number of attachments associated with this report, these attachments consist of the following:

- [Attachment One: 2019 MECP Newmarket Distribution System Inspection Report](#)
- [Attachment Two: 2019 Ontario Drinking Water Systems Regulation Annual Report](#)
- [Attachment Three: 2019 Town of Newmarket Water Quantity & Flow Rate Data](#)

Background

Purpose

The purpose of this Annual Drinking Water Summary Report, and its associated attachments, is to satisfy the annual reporting requirements stipulated within the *Ontario Safe Drinking Act, 2002*, and its associated regulations; as well as the communication requirements stipulated within the Ontario Drinking Water Quality Management Standard. This report, and its associated attachments, also contains information pertaining to the 2019 Annual MECP Inspection so that the Owner may stay abreast of the Operating Authorities compliance with applicable legislative and regulatory requirements.

Scope

This Annual Drinking Water Summary Report includes information pertaining to the Town of Newmarket's Drinking Water System for the January 1, 2019 to December 31, 2019 reporting period.

Reporting Requirements under the Ontario Safe Drinking Water Act, 2002

This Annual Drinking Water Summary Report satisfies the requirements of the Ministry of the Environment, Conservation and Parks (MECP) *Safe Drinking Water Act, 2002 (SDWA)* and O. Reg. 170/03 as outlined below.

Section 11 of O. Reg. 170/03 states that the Annual Report must include:

- a brief description of the Drinking Water System;
- a summary of adverse test results and other observations that were reported to the MECP during the reporting period;
- A description of any corrective actions that were taken in response to any adverse test results and other observations that were encountered during the reporting period;
- a summary of the most recent water testing results, required under O. Reg. 170/03 and our respective Municipal Drinking Water License (MDWL), that occurred during the reporting period;
- a description of the major expenses incurred during the reporting period to install, repair, or replace required equipment/infrastructure;
- a statement identifying the locations where the annual report will be made available for the public; and,

- the specific number of points sampled during the lead sampling periods identified within O. Reg. 170/03 as well as the total number of samples taken and the number of points where a sample exceeded the prescribed standard for lead.

Specific Information regarding the summary of the most recent water testing results that occurred during the reporting period associated with this report, as required under O.Reg. 170/03 and the Ontario Drinking Water Quality Management Standard (DWQMS), can be found within “Attachment Two: 2019 Ontario Drinking Water Systems Regulation Annual Report” as well as the “2019 Water Quality Data” section of this report.

Specific information regarding the description of major expenses incurred during the reporting period associated with this report to install repair or replace required equipment/infrastructure can also be found within “Attachment Two: 2019 Ontario Drinking Water Systems Regulation Annual Report”.

Specific information regarding any lead sampling that took place during the reporting period associated with this report can also be found within “Attachment Two: 2019 Ontario Drinking Water Systems Regulation Annual Report” as well as the “2019 Water Quality Data” section of the report.

Schedule 22 of O. Reg. 170/03 states that Summary Reports for Municipalities must also:

- List the requirements of the SDWA, the regulations, the system’s approval, Drinking Water Works Permit (DWWP), MDWL, and any orders applicable for the system that were not met at any time during the period covered by the report;
- Identify each requirement that was not met, the duration of the failure and the measures that were taken to correct the failure;
- Provide a summary of the quantities and flow rates of the water supplied during the period covered by the report, including monthly average and maximum daily flows.
- A comparison of the above summary against the rated capacity and flow rates approved in the systems approval, drinking water works permit or municipal drinking water license; or if the system is receiving all of its water from another system under an agreement pursuant to subsection 5(4) of O.Reg. 170/03, to the flow rates specified in this written agreement

Please note that the Town of Newmarket does not have any rated capacities identified within its respective Municipal Drinking Water License or Drinking Water Works Permit as it is strictly a water distribution system. Similarly no agreement, under subsection 5(4) of O.Reg. 170/03, is in place between the Regional Municipality of York and the Town of Newmarket; therefore the above stipulated O.Reg. 170/03 Schedule 22 requirement is not

applicable to the Town of Newmarket.

The Town of Newmarket 2019 Drinking Water Summary report satisfies all the above regulatory reporting requirements that are applicable to the Town of Newmarket.

O.Reg. 170/03 requires that a copy of the annual report be provided, without charge, to every person who requests a copy, and that a copy of the annual report be available to the public at no charge on our website. O.Reg. 170/03 also requires that the Owner of a drinking water system take effective steps to advise users of the drinking water system that the annual report is available, at no cost, and how to obtain a copy of the annual report. Additionally, O.Reg. 170/03 requires that the annual report be provided to members of council by no later than March 31st of the year following the associated reporting period.

Copies of Newmarket's 2019 Annual Water Quality Summary Report are available for viewing at:

- Robert N. Shelton Operations Centre (1275 Maple Hill Court)
- Newmarket Municipal Offices, Customer Service Counter (395 Mulock Drive)
- Online at www.newmarket.ca

Drinking Water System Description

The Newmarket Water Distribution System is a Class I Distribution Subsystem. From January 1, 2019 to December 31, 2019, eighteen (18) water operators and staff were certified to operate/maintain the system.

The Town of Newmarket purchases water from York Region, which in turn purchases it through supply agreements from the City of Toronto and Peel Region. York Region also operates and maintains groundwater wells located in the Yonge Street Aquifer that service the Town of Newmarket. The integrated system includes Newmarket's local distribution watermains and York Region's transmission watermains, pumping stations, storage facilities and groundwater treatment facilities. Treated water from the Region supply network is monitored on-line, 24 hours per day by operators through the Regional SCADA (Supervisory Control and Data Acquisition) system.

The Town and York Region operations staff works closely to deliver source to tap drinking water in this complex integrated system.

The Region is also required to produce Annual Drinking Water Summary Report(s) summarizing applicable drinking water system(s) information for the preceding year; these are also made available for viewing by the public. More information, as well as electronic

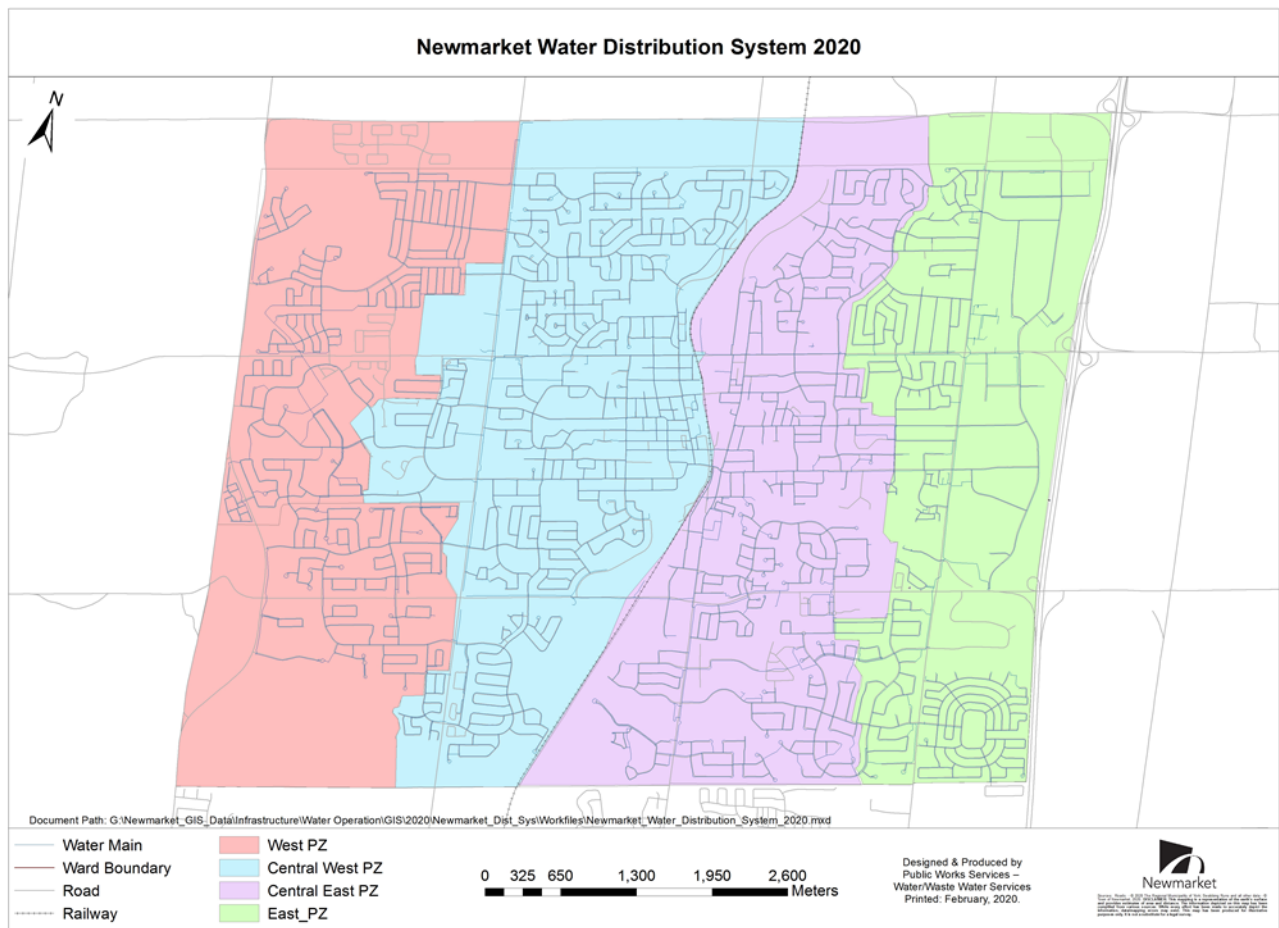
version(s) of these report(s) are found on their website at york.ca/drinkingwater.

The Town's Distribution System Infrastructure (including watermains, valves, hydrants, water services, and meters) services approximately 84,224 people within the Town of Newmarket.

The Newmarket DWS is comprised of approximately;

- 318 kilometers of distribution system watermain
- 2689 mainline valves
- 2,355 municipally owned fire hydrants
- 26,668 metered water services

Water pressure is periodically monitored throughout the Town's distribution system; in 2019 water pressures within the distribution system ranged between approximately 35 - 100 psi. Under the Ontario Design Guidelines for Drinking Water Systems, normal operating pressures within distribution systems should be approximately 50 - 70 psi and not less than 40 psi.



Legislative & Regulatory Requirements

The following are the primary pieces of legislation that directly affect the operation of the Town of Newmarket's drinking water distribution system.

Safe Drinking Water Act, 2002

The purpose of the Ontario *Safe Drinking Water Act, 2002* (SDWA) is to protect human health through the control and regulation of drinking-water systems and drinking-water testing. The Act also contains all the regulations relating to the treatment and distribution of drinking water.

Highlights of the Act address:

- Accreditation of operating authorities
- Municipal drinking water systems
- Drinking water testing
- Inspections, Compliance and Enforcement
- Standard of Care

Standard of Care, Section 19, Safe Drinking Water Act, 2002

Standard of Care defines the legal responsibility of the Owner and Operating Authority of a municipal drinking water system. It requires that the Owners and Operating Authorities exercise the level of care, diligence and skill with regard to a municipal drinking water system that a reasonably prudent person would be expected to exercise in a similar situation. Owners and Operating Authorities must exercise this due diligence honestly, competently and with integrity. Based upon the definition of "Owner" in the SDWA, the Town of Newmarket Council is considered to be the "Owner" of the Town of Newmarket's drinking water distribution system.

The information contained within this report and its associated attachments, can help Council to meet its Standard of Care requirements identified within the Ontario *Safe Drinking Water Act, 2002*.

Ontario Regulation 169/03: Ontario Drinking Water Quality Standards

The Ontario Drinking Water Quality Standards (O.Reg. 169/03) regulates the maximum allowable concentration of specific parameters in drinking water. This regulation contains

microbiological standards, chemical standards and radiological standards for drinking water. Compliance with O. Reg. 169/03 is determined through routine regulatory sampling and verified by system inspections conducted annually by Ministry of the Environment, Conservation and Parks (MECP) Inspectors.

Ontario Regulation 170/03: Drinking Water Systems Regulation

The Drinking Water Systems Regulation (O. Reg. 170/03) regulates municipal drinking water systems. This regulation stipulates treatment equipment usage, operational checks and sampling, chemical and microbiological testing requirements, reporting adverse test results, corrective actions, and reporting requirements; among many other things. Compliance with O. Reg. 170/03 is determined by system inspections conducted annually by the Ministry of the Environment, Conservation and Parks (MECP). The annual reporting requirements for drinking water systems is also stipulated within O.Reg. 170/03 under Section 11 (Annual Reports) and Schedule 22 (Report).

Ontario Regulation 128/04: Certification of Drinking Water System Operators and Water Quality Analysts

The Certification of Drinking Water Operators and Water Quality Analyst Regulation (O. Reg. 128/04) establishes ongoing training requirements that operators are required to meet in order to remain certified and licensed. O. Reg 128/04 provides direction on license requirements, overall responsible operator (ORO) responsibilities, operator in charge (OIC) responsibilities, record keeping, and operations/maintenance manuals; among other things.

Ontario Regulation 453/07: Financial Plans

The Financial Plans Regulation (O. Reg. 453/07) requirements dictate that all owners of municipal residential drinking water systems prepare a Financial Plan that detail the drinking water system's six year projected financial information. O.Reg. 453/07 also specifies what needs to be included in these Financial Plans. As part of the process identified within O.Reg. 453/07, Financial Plan's must be formally approved and acknowledged by the Owner of the drinking water system through a resolution of the municipal council. The Financial Plan is required to be updated prior to the renewal of an Operating Authorities respective Municipal Drinking Water License, which is every 5 years. In 2020 the Town's O. Reg. 453/07 Financial Plan will require updates, and approval through council resolution, as the Town's respective Municipal Drinking Water License expires in 2021 and the application for renewal is due November 18th, 2020.

Drinking Water Quality Management Standard (DWQMS)

The DWQMS sets out the framework for Operating Authorities and Owner's of Drinking Water Systems to develop and maintain a Quality Management System (QMS) that is relevant and appropriate for drinking water systems. The purpose of a QMS is to establish policy and objectives, achieve those objectives as well as direct and control an organization with regards to quality. In the development of a QMS, the Operating Authority must create an Operational Plan; this document defines the QMS and will be subject to internal and external audits for accreditation. As referenced in the DWQMS, the QMS must be acknowledged by all those with active roles in the water system, from front line staff to the highest level of management and Council.

Under the DWQMS the Operating Authority is required to communicate with the Owner of the drinking water system on a number of items, these include the following:

- The description of the Operating Authority organizational structure including respective roles, responsibilities and authorities under Element 9;
- The results of the Annual Provision of Infrastructure Review under Element 14;
- The Infrastructure Maintenance, Rehabilitation and Renewal Programs under Element 15;
- Sampling, Testing and Monitoring Results under Element 16; and
- The results of the Annual Management Review under Element 20

The description of the Operating Authority organizational structure including respective roles, responsibilities and authorities can be located within the Element 9 content of the Town's DWQMS Operational Plan.

The results of the Annual Provision of Infrastructure Review are communicated to the Owner in accordance with the procedure identified within Appendix 20a of the Town's DWQMS Operational Plan.

Information regarding the Town's Infrastructure Maintenance, Rehabilitation and Renewal Programs is located within the "Infrastructure Maintenance, Rehabilitation and Renewal Programs" section of this report as well as within the Element 15 content of the Town's DWQMS Operational Plan; which has been included to satisfy the DWQMS communication requirement identified within Element 15 of the DWQMS.

Information regarding the Town's Sampling, Testing and Monitoring Results is located

within “Attachment Two: 2019 Ontario Drinking Water Systems Regulation Annual Report” as well as the “2019 Water Quality Data” section of this report; which has been included to satisfy the DWQMS communication requirement identified within Element 16 of the DWQMS as well other regulatory reporting requirements.

The results of the Annual Management Review are communicated to the Owner in accordance with the procedure identified within Appendix 20a of the Town’s DWQMS Operational Plan.

Town Staff have developed and implemented a QMS specific to the Town of Newmarket. Certification was originally obtained in February 2009 and remains, in good standing, to this day.

The Town continues to meet the Quality Management System requirements as required under the SDWA



NEWMARKET WATER DISTRIBUTION SYSTEM QUALITY MANAGEMENT SYSTEM POLICY

The Town of Newmarket Water Distribution System is recognized by the Ministry of Environment & Climate Change (MOECC) as a Large Municipal Residential Drinking Water System.

The Town of Newmarket is committed to the consistent delivery of safe drinking water through compliance with applicable legislative and regulatory requirements.

The Town will strive to achieve this goal through the implementation, maintenance, and continuous improvement of the Drinking Water Quality Management System (DWQMS).

The Town commits to ensure open communication, both with the public, as well as staff concerning all policies, procedures and documentation pertaining to DWQMS.

The Quality Management Policy applies to all municipal management and staff, and is posted at the Operations Centre, Municipal Offices and on the Town’s website.



Revised: June 12, 2018

Drinking Water System Licence and Permit

- Municipal Drinking Water License (MDWL) number: 124-101
- Drinking Water Works Permit (DWWP) number: 124-201

The MDWL and the DWWP describe system-specific requirements in addition to those included in provincial regulations. These documents outline detailed conditions and regulatory requirements in regards to the operation, maintenance, and monitoring of the system.

In 2019, no non-compliances were identified, by the MECP, in relation to the Town's requirements to adhere to the terms and conditions identified within its respective MDWL and DWWP.

Regulatory Compliance and MECP Inspections

2019 Adverse Water Quality Incidents (AWQI's)

In 2019, a total of 152 AWQI events occurred, 128 were related to low chlorine residuals and 24 were related to the presence of Total Coliform. This is relatively comparable to the 147 AWQI's that occurred in 2018; where 124 were due to adverse (low) combined chlorine, 22 were due to the presence of Total Coliform and 1 was due to the presence of E.coli.

All applicable AWQI's must be reported to the MECP as well as the local Medical Officer of Health (MOH) in accordance with the *Safe Drinking Water Act, 2002* and O.Reg. 170/03 requirements. Based upon the information possessed by the Operating Authority, in 2019 all AWQI's were reported in accordance with *Safe Drinking Water Act, 2002* and O.Reg. 170/03 requirements. Additionally, any corrective actions that must be taken to resolve and AWQI must be completed in accordance with O.Reg. 170/03, our respective MDWL as well as any additional instruction provided by the MOH. Based upon the information possessed by the Operating Authority, all corrective actions that were necessary to resolve the AWQI's that occurred in 2019 were completed in accordance with the requirements stipulated within O.Reg. 170/03, our respective MDWL as well as any additional instruction provided by the MOH. More Specific information regarding the AWQI's that occurred in 2019, as well as any corrective actions that were taken, can be found within "Attachment Two: 2019 Ontario Drinking Water Systems Regulation Annual Report".

In 2019, it was observed that 16 out of the 24 Total Coliform AWQI's that occurred in 2019 were associated with drinking water infrastructure replacement activities completed as part of Capital projects. Only 8 out of the 24 Total Coliform AWQI's that occurred in 2019 were

associated with routine drinking water system operations. Total Coliforms may be present within drinking water distribution system samples for numerous reasons; these reasons include, but are not limited to the following:

- Poor housekeeping practices during the construction and installation of new watermains and appurtenances;
- Poor housekeeping practices during the repair of watermains and appurtenances;
- Degradation of water quality due to the use of above ground temporary watermains;
- Degradation of water quality within the distribution system due to seasonal temperature variations;
- Degradation of water quality within the distribution system due to bacterial re-growth post-treatment;
- Sampling from less than ideal locations (i.e. anything that is not a designated drinking water sample station; ex. fire hydrant)
- Sampling during inclement weather conditions;

2019 Annual MECP Inspection Results

As the Operating Authority, the Town of Newmarket undergoes an annual inspection of its drinking water system and all associated practices by the MECP. The primary focus of the annual MECP drinking water system inspection is to confirm compliance with applicable legislation, regulations and additional requirements that falls under the jurisdiction of the MECP, during the inspection period. In 2019, The Town's inspection occurred on April 17th and 18th, 2019 and included records and information that pertained to the August 23rd, 2018 to April 17th, 2019 time period.

The Town received a final inspection rating of 91.39% as a result of the 2019 MECP inspection; this was due to a non-compliance that was identified by the MECP in regards to a regulatory reporting requirement. On September 14th, 2018 and September 22nd, 2018 AWQI's 142884 and 143146 were not immediately reported to the MECP and Medical Officer of Health (MOH), followed by a written notice of the AWQI's to the MECP and MOH within 24 hours of the immediate notification being made. This occurred in relation to a capital works project, where microbiological samples were taken by a certified operator from a third party company and submitted to the York Durham Regional Environmental Laboratory for analysis. These samples were submitted as "non-regulatory samples" when they should have been submitted as "regulatory samples"; these administrative errors, that were performed by the third party company that collected the samples, resulted in a delay for the Town to be notified of AWQI's 142884 and 143146 and ultimately the above non-compliance that was identified during the 2019 MECP Inspection. Although not completed within the regulatory time frame, notification of AWQI 142884 and 143146 was ultimately made to the MECP and MOH, by the Town, once the Town was made aware of these

AWQI's. Additionally, once the Town was notified of these occurrences all the corrective actions necessary to resolve AWQI 142884 and 143146 were completed by the Town in a timely manner. The final inspection rating received during the 2019 MECP inspection still resulted in an improvement over the final inspection rating of 90.95% received in relation to the 2018 MECP Inspection.

Schedule 22 requires that all non-compliance(s) with applicable legislation be documented within the Summary Report. "Table One: Incidents of Regulatory Non-Compliance and Actions Required" further describes the non-compliant observation(s) associated with the MECP annual inspection that took place on April 17th and 18th, 2019.

Table One: Incidents of Regulatory Non-Compliance and Actions Required

Non-Compliance	MECP Observation	Action(s) Required	Town Response
<p>1. All required notifications of adverse water quality incidents were not immediately provided as per O. Reg. 170/03 16-6.</p>	<p>On September 14, 2018 and September 22, 2018, 2 (two) incidents, AWQI #142884 and #143146, occurred causing the facility to not immediately report and submit a written notice within 24 hours after the immediate report, as per Schedule 6 of O.Reg. 170/03.</p> <p>Samples taken by a certified operator from a third party company hired by the Town, sampled a temporary portable watermain causing a Total Coliform exceedance. The chain of custody forms completed stated the samples were non-regulated. The Lab and Town had attempted to contact the sampler and discovered the samples were regulated samples.</p>	<p>Although not completed within the proper time frame, notification was ultimately made to the Ministry and Health Unit for both Total Coliform events as soon as the Town of Newmarket became aware of the Adverse Water Quality Incidents. To help prevent future reporting issues of this nature, a new tender package was created to include procedures for adverse reporting.</p> <p>No further action required.</p>	<p>No further actions/response required.</p>

The full details regarding the Annual MECP inspection that occurred on April 17th and 18th, 2019 is located within “Attachment One: 2019 MECP Newmarket Distribution System Inspection Report”.

2019 Water Quantity & Flow Rate Data

The 2019 water quantity and flow rate data is located within “Attachment Three: 2019 Town of Newmarket Water Quantity & Flow Rate Data”

2019 Water Quality Data

The applicable 2019 water quality data is located within “Attachment Two: 2019 Ontario Drinking Water Systems Regulation Annual Report”. Within this attachment, 1 (one) exceedance is documented in relation to the O.Reg. 169/03 standards for lead. This single lead exceedance resulted from a lead sample that was collected from private plumbing at a residential location. The Owner of the residential location where the private plumbing lead exceedance occurred was provided the results of the sampling event as well as the literature and guidance provided to the Town by the local Medical Officer of Health; this literature identified steps that the property owner could take to minimize the lead levels within the internal plumbing associated with the location as well as reduce overall lead exposure. All Municipal obligations in regards to this exceedance, as specified within O.Reg. 170/03, were adhered to and met. The results associated with this sampling event, as well as the other 2019 data associated with the Town’s lead sampling program, identified that this lead exceedance was isolated to this address; as no other lead exceedances were observed.

Infrastructure Maintenance, Rehabilitation and Renewal Programs:

Watermain Swabbing:

Watermain swabbing involves scouring watermains with foam swabs and high velocity water. These swabs are inserted into a fire hydrant, where they are then pushed through a watermain, by high velocity water within the drinking water system, to later be ejected out of a downstream fire hydrant. The foam swabs and high velocity water scour the watermain and remove mineral deposits, biofilm as well as sediment that has accumulated in the watermains; which also helps to reduce chlorine residual decay. Once swabbing has taken place the targeted watermains are flushed to ensure that the water within the drinking water system is visually free of discolouration and contains an adequate chlorine residual. In 2019, approximately 25.4 kilometers of watermain, associated with the Town’s drinking water system, were swabbed.

Enhanced Monitoring Program:

The Enhanced Monitoring Program is undertaken to better understand the characteristics and quality of water within the Town's drinking water system. Some of the water quality parameters observed as part of the Enhanced Monitoring Program, include but are not limited to, ammonia, nitrite, iron, fluoride and ATP (Adenosine Triphosphate) analysis. The Enhanced Monitoring Program is undertaken to better guide decision making when it comes to the operation of the drinking water system and the Town's associated infrastructure maintenance rehabilitation and renewal programs. In 2019, Water/Wastewater Services completed 16 two day enhanced monitoring events that included over 30 diagnostic monitoring locations.

Hydrant Inspection/Maintenance Program:

Under the Ontario Fire Code (O.Reg. 388/97) hydrants are required to be inspected annually. Water/Wastewater Services solicits the services of a contractor to perform annual inspections of the hydrants associated with the Town's drinking water system. In 2019, Canadian Hydrant Technologies (CHT) inspected 100% of the 2,355 municipally owned fire hydrants within the Town. Water/Wastewater Services staff, or a contractor that has been hired by the Town, performs any hydrant maintenance that may be required on municipally owned hydrants in any given year; in all circumstances this maintenance is performed as soon as reasonably possible.

Valve Inspection/Cycling Program:

Valves are routinely inspected and cycled as part of regular drinking water system operations. Routine drinking water system operations where valves may be routinely inspected and cycled include, but are not limited to, uni-directional flushing, swabbing, watermain commissioning and watermain break repairs. When a valve is identified as needing maintenance, or to be replaced, it is added to a drinking water system maintenance list. The necessary repairs and replacements are then performed by Water/Wastewater Services staff, or a contractor that has been hired by the Town, as soon as reasonably possible.

Uni-Directional Flushing (UDF):

UDF is a systematic, planned method for cleaning watermains that utilizes high velocity water to clean interior watermain walls through scouring. In short, the process involves manipulating valves associated with the Town's drinking water system to force the water through a single, pre-planned pipe length (UDF run), where it is then flushed out a hydrant located at the end of the run. Utilizing high velocity water to scour the watermain allows for

the removal of mineral deposits, biofilm, as well as sediment that has accumulated in the watermains; which also helps to reduce chlorine residual decay. In 2019, approximately 437 UDF events, or runs, were completed.

Dead End Flushing:

Dead end flushing is quite literally the flushing of dead ends associated with the Town's drinking water system; this is achieved by flushing water from fire hydrants, or another appurtenance, at the dead ends associated with the Town's drinking water system. This helps to prevent the build-up and accumulation of sediment and organic matter in the dead ends associated with the Town's drinking water system. This also helps to prevent chlorine residual decay in the dead ends associated with the Town's drinking water system. In 2019, when weather and staffing resources permitted, 77 dead end locations were flushed on a monthly basis and 55 dead-end locations were flushed on a quarterly basis.

Water Meter Replacements/Installations:

Water/Wastewater Services currently replaces and repairs residential, as well as industrial/commercial/institutional, water meters on an as needed and identified basis. The Town has also recently began installing its Advanced Metering Infrastructure (AMI) as part of the smart water meter program.

Operational Flow Testing:

Operational flow testing is completed to verify system pressure concerns raised by businesses and residents within the Town. Water/Wastewater Services performs flow testing on a request basis to verify system pressure concerns that are brought to the attention of the Town. The Town also works with York Region when system pressure concerns are raised to ensure that this issue is not being caused at the Regional drinking water system level. Upon internal verification of a system pressure concern a third party contractor that specializes in flow testing would be called in to further verify the concern and identify actions that may be necessary to rectify the system pressure issue. In 2019, 1 (one) operational flow test was performed by Water/Wastewater Services.

Watermain Lining:

Watermain lining is a method of structural watermain renewal that is achieved through the installation of a lining on the interior walls of existing watermains. Watermain lining is typically undertaken in situations where an aging watermain, associated with the Town's drinking water system, exists and the Town cannot justify potentially degrading other municipal infrastructure for the purposes of replacing the watermain in question. Watermain linings are typically designed to last 50 years and effectively rehabilitate existing watermains. In 2019, no watermains were lined.

Unplanned Maintenance & Repairs:



Unplanned maintenance and repairs consists of, but are not limited to, the following:

- Watermain break repairs
- Mainline valve repairs
- Curb stop repairs
- Emergency hydrant repairs

In 2019, Water/Wastewater Services responded to and repaired 22 watermain break events. Curb stops as well as mainline valves are repaired and/or replaced on an as needed or identified basis.

Additional Information:

Further drinking water infrastructure maintenance, rehabilitation and renewal takes place through the Town's 5-Year Capital Works Program; which Water/Wastewater Services provides input on through the Review and Provision of Infrastructure Process identified within the Element 14 content within the Town's DWQMS Operational Plan.

In 2019 The Town started working with Dalhousie University, ARCADIS and York Region on an ATP and total coliform comparison study; which is attempting to assess the effectiveness and accuracy of ATP field analysis as a means for releasing infrastructure into service. The Town is also working with the University of Toronto and York Region on a pipe loop reactor study to better understand the effects on watermain material, and condition, on water quality.

To date the Town has received approximately 2,105,443.94 dollars from the Government of Canada Clean Water and Wastewater Fund (CWWF). Some of the drinking water related Town projects, programs and initiatives that benefited from this funding in 2019 included:

- The optimization and automation of the drinking water distribution system
- Watermain condition assessment program
- Asset condition assessment and development of maintenance strategy for water valves
- The development and implementation of backflow prevention/cross connection program
- The development and implementation of a GIS strategy for liner water assets
- The assessment, construction and implementation of a drinking water system dead end looping strategy in the central pressure zones



2019 ONTARIO DRINKING WATER SYSTEMS REGULATION ANNUAL REPORT

Drinking-Water System Number:	260003188
Drinking-Water System Name:	Town of Newmarket Water Distribution System
Drinking-Water System Owner:	The Corporation of the Town of Newmarket
Drinking-Water System Category:	Large Municipal Residential
Period being reported:	January 1 st , 2019 to December 31 st , 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 [X] No []</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;"> <p>Robert N. Shelton Operations Centre (1275 Maple Hill Court) Municipal Offices - Customer Service Counter (395 Mulock Drive) Online: newmarket.ca</p> </div>	<p><u>Complete for all other Categories.</u></p> <p>Number of Designated Facilities served: <input type="text"/></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: <input type="text"/></p> <p>Did you provide a copy of your annual report to all Interested Authorities you report to for each Designated Facility? Yes [] No [] N/A</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
N/A	N/A

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 []

N/A



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

The Town of Newmarket purchases water from York Region, which in turn purchases it through supply agreements from the City of Toronto and Peel Region. York Region also operates and maintains groundwater wells located in the Yonge Street Aquifer that service the Town of Newmarket. The integrated system includes Newmarket's local distribution watermains and York Region's transmission watermains, pumping stations, storage facilities and groundwater treatment facilities. Treated water from the Region supply network is monitored on-line, 24 hours per day by operators through the Regional SCADA (System Control and Data Acquisition) system.

The Town's Distribution System Infrastructure (including watermains, valves, hydrants, water services, and meters) services approximately 84,224 people within the Town of Newmarket.

The Newmarket WDS is comprised of approximately;

- 318 kilometers of distribution system watermain
- 2,689 mainline valves
- 2,355 municipally owned fire hydrants
- 26,668 metered water services

List all water treatment chemicals used over this reporting period

Water treatment is the responsibility of York Region. Chlorine is added to provide primary disinfection, and chloramine (addition of ammonia) provides a secondary residual in the distribution system. Sodium silicate is added to sequester naturally occurring iron and manganese in the groundwater source.

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

Drinking Water System Capital Improvements:	\$ 1,881,409.50
Which is approximately 15.6% less than what was spent on drinking water system capital improvements in 2018.	
Watermain Maintenance:	\$ 450,000 (approx.)
Which is approximately 25.0% more than what was spent on watermain maintenance in 2018.	
Hydrant Maintenance:	\$ 80,886.53
Which is approximately 10.1% less than what was spent on hydrant maintenance in 2018.	
Watermain Unidirectional Flushing/Swabbing Program:	\$ 443,000
Which is approximately 7.0% less than what was spent watermain flushing/swabbing contractor costs in 2018.	

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	AWQI Number	Parameter	Result (mg/L or Present)	Corrective Action(s)	Resolution Date
1/2/2019	144427	Low Combined Chlorine	0.09 mg/L	Flush & Resample	1/2/2019
1/4/2019	144443	Low Combined Chlorine	0.07 mg/L	Flush & Resample	1/4/2019
1/7/2019	144457	Low Combined Chlorine	0.19 mg/L	Flush & Resample	1/7/2019
1/8/2019	144469	Low Combined Chlorine	0.21 mg/L	Flush & Resample	1/8/2019
1/11/2019	144507	Low Combined Chlorine	0.10 mg/L	Flush & Resample	1/11/2019
1/14/2019	144513	Low Combined Chlorine	0.19 mg/L	Flush & Resample	1/14/2019
1/23/2019	144612	Low Combined Chlorine	0.16 mg/L	Flush & Resample	1/23/2019
2/5/2019	144708	Low Combined Chlorine	0.14 mg/L	Flush & Resample	2/5/2019
2/5/2019	144727	Total Coliform	Present	Flush & Resample	2/11/2019
2/11/2019	144768	Total Coliform	Present	Flush & Resample	2/15/2019



2/19/2019	144814	Low Combined Chlorine	0.18 mg/L	Flush & Resample	2/19/2019
2/20/2019	144821	Low Combined Chlorine	0.15 mg/L	Flush & Resample	2/20/2019
2/25/2019	144853	Low Combined Chlorine	0.22 mg/L	Flush & Resample	2/25/2019
3/4/2019	144906	Low Combined Chlorine	0.23 mg/L	Flush & Resample	3/4/2019
3/5/2019	144914	Low Combined Chlorine	0.22 mg/L	Flush & Resample	3/5/2019
3/6/2019	144923	Low Combined Chlorine	0.13 mg/L	Flush & Resample	3/6/2019
3/11/2019	144953	Low Combined Chlorine	0.21 mg/L	Flush & Resample	3/11/2019
3/12/2019	144967	Low Combined Chlorine	0.24 mg/L	Flush & Resample	3/12/2019
3/17/2019	145009	Low Combined Chlorine	0.16 mg/L	Flush & Resample	3/17/2019
3/18/2019	145011	Low Combined Chlorine	0.22 mg/L	Flush & Resample	3/18/2019
3/19/2019	145021	Low Combined Chlorine	0.18 mg/L	Flush & Resample	3/19/2019
3/25/2019	145049	Low Combined Chlorine	0.24 mg/L	Flush & Resample	3/25/2019
3/26/2019	145057	Low Combined Chlorine	0.05 mg/L	Flush & Resample	3/26/2019
4/1/2019	145096	Low Combined Chlorine	0.20 mg/L	Flush & Resample	4/1/2019
4/3/2019	145113	Low Combined Chlorine	0.17 mg/L	Flush & Resample	4/3/2019
4/8/2019	145138	Low Combined Chlorine	0.12 mg/L	Flush & Resample	4/8/2019
4/9/2019	145147	Low Combined Chlorine	0.13 mg/L	Flush & Resample	4/9/2019
4/10/2019	145156	Low Combined Chlorine	0.10 mg/L	Flush & Resample	4/10/2019
4/15/2019	145190	Low Combined Chlorine	0.19 mg/L	Flush & Resample	4/15/2019
4/16/2019	145204	Low Combined Chlorine	0.18 mg/L	Flush & Resample	4/16/2019
4/17/2019	145218	Low Combined Chlorine	0.17 mg/L	Flush & Resample	4/17/2019
4/23/2019	145244	Low Combined Chlorine	0.15 mg/L	Flush & Resample	4/23/2019
4/24/2019	145266	Low Combined	0.18 mg/L	Flush &	4/24/2019



		Chlorine		Resample	
4/25/2019	145275	Low Combined Chlorine	0.12 mg/L	Flush & Resample	4/25/2019
4/26/2019	145280	Low Combined Chlorine	0.08 mg/L	Flush & Resample	4/26/2019
4/30/2019	145298	Low Combined Chlorine	0.24 mg/L	Flush & Resample	4/30/2019
5/1/2019	145304	Low Combined Chlorine	0.06 mg/L	Flush & Resample	5/1/2019
5/3/2019	145321	Low Combined Chlorine	0.14 mg/L	Flush & Resample	5/3/2019
5/6/2019	145327	Low Combined Chlorine	0.24 mg/L	Flush & Resample	5/6/2019
5/7/2019	145331	Low Combined Chlorine	0.14 mg/L	Flush & Resample	5/7/2019
5/7/2019	145333	Low Combined Chlorine	0.21 mg/L	Flush & Resample	5/7/2019
5/8/2019	145342	Low Combined Chlorine	0.16 mg/L	Flush & Resample	5/8/2019
5/13/2019	145384	Low Combined Chlorine	0.07 mg/L	Flush & Resample	5/13/2019
5/14/2019	145395	Low Combined Chlorine	0.24 mg/L	Flush & Resample	5/14/2019
5/15/2019	145404	Low Combined Chlorine	0.05 mg/L	Flush & Resample	5/15/2019
5/15/2019	145405	Low Combined Chlorine	0.06 mg/L	Flush & Resample	5/15/2019
5/22/2019	145458	Low Combined Chlorine	0.08 mg/L	Flush & Resample	5/22/2019
5/27/2019	145499	Low Combined Chlorine	0.07 mg/L	Flush & Resample	5/27/2019
6/4/2019	145577	Low Combined Chlorine	0.12 mg/L	Flush & Resample	6/4/2019
6/10/2019	145651	Low Combined Chlorine	0.14 mg/L	Flush & Resample	6/10/2019
6/11/2019	145654	Low Combined Chlorine	0.24 mg/L	Flush & Resample	6/11/2019
6/12/2019	145664	Low Combined Chlorine	0.15 mg/L	Flush & Resample	6/12/2019
6/13/2019	145679	Low Combined Chlorine	0.12 mg/L	Flush & Resample	6/13/2019
6/14/2019	145698	Low Combined Chlorine	0.11 mg/L	Flush & Resample	6/14/2019
6/18/2019	145730	Low Combined Chlorine	0.09 mg/L	Flush & Resample	6/18/2019



6/24/2019	145799	Low Combined Chlorine	0.16 mg/L	Flush & Resample	6/24/2019
6/25/2019	145813	Low Combined Chlorine	0.19 mg/L	Flush & Resample	6/25/2019
6/26/2019	145840	Low Combined Chlorine	0.15 mg/L	Flush & Resample	6/26/2019
6/26/2019	145958	Total Coliform	Present	Flush & Resample	7/2/2019
6/27/2019	146012	Total Coliform	Present	Flush & Resample	7/2/2019
7/2/2019	146035	Low Combined Chlorine	0.21 mg/L	Flush & Resample	7/2/2019
7/4/2019	146082	Low Combined Chlorine	0.06 mg/L	Flush & Resample	7/4/2019
7/8/2019	146159	Low Combined Chlorine	0.16 mg/L	Flush & Resample	7/8/2019
7/10/2019	146255	Low Combined Chlorine	0.15 mg/L	Flush & Resample	7/10/2019
7/10/2019	146271	Low Combined Chlorine	0.08 mg/L	Flush & Resample	7/10/2019
7/11/2019	146307	Low Combined Chlorine	0.08 mg/L	Flush & Resample	7/11/2019
7/15/2019	146433	Low Combined Chlorine	0.24 mg/L	Flush & Resample	7/15/2019
7/17/2019	146498	Low Combined Chlorine	0.13 mg/L	Flush & Resample	7/17/2019
7/22/2019	146635	Low Combined Chlorine	0.18 mg/L	Flush & Resample	7/22/2019
7/22/2019	146636	Low Combined Chlorine	0.17 mg/L	Flush & Resample	7/22/2019
7/23/2019	146652	Low Combined Chlorine	0.21 mg/L	Flush & Resample	7/23/2019
7/23/2019	146658	Low Combined Chlorine	0.13 mg/L	Flush & Resample	7/23/2019
7/24/2019	146736	Total Coliform	Present	Flush & Resample	7/26/2019
7/29/2019	146860	Low Combined Chlorine	0.13 mg/L	Flush & Resample	7/29/2019
7/30/2019	146918	Low Combined Chlorine	0.22 mg/L	Flush & Resample	7/30/2019
8/1/2019	147001	Low Combined Chlorine	0.18 mg/L	Flush & Resample	8/1/2019
8/6/2019	147068	Low Combined Chlorine	0.14 mg/L	Flush & Resample	8/6/2019
8/12/2019	147211	Low Combined	0.08 mg/L	Flush &	8/12/2019



		Chlorine		Resample	
8/14/2019	147283	Total Coliform	Present	Flush & Resample	8/19/2019
8/14/2019	147285	Total Coliform	Present	Flush & Resample	8/19/2019
8/19/2019	147407	Low Combined Chlorine	0.08 mg/L	Flush & Resample	8/19/2019
8/26/2019	147576	Low Combined Chlorine	0.16 mg/L	Flush & Resample	8/26/2019
8/26/2019	147577	Low Combined Chlorine	0.03 mg/L	Flush & Resample	8/26/2019
8/27/2019	147617	Low Combined Chlorine	0.11 mg/L	Flush & Resample	8/27/2019
8/28/2019	147651	Low Combined Chlorine	0.10 mg/L	Flush & Resample	8/28/2019
8/29/2019	147670	Low Combined Chlorine	0.15 mg/L	Flush & Resample	8/29/2019
9/1/2019	147752	Total Coliform	Present	Flush & Resample	9/3/2019
9/3/2019	147768	Low Combined Chlorine	0.10 mg/L	Flush & Resample	9/3/2019
9/3/2019	147775	Low Combined Chlorine	0.22 mg/L	Flush & Resample	9/3/2019
9/3/2019	147776	Low Combined Chlorine	0.10 mg/L	Flush & Resample	9/3/2019
9/4/2019	147795	Low Combined Chlorine	0.15 mg/L	Flush & Resample	9/4/2019
9/5/2019	147827	Low Combined Chlorine	0.09 mg/L	Flush & Resample	9/5/2019
9/6/2019	147872	Low Combined Chlorine	0.23 mg/L	Flush & Resample	9/6/2019
9/4/2019	147886	Total Coliform	Present	Flush & Resample	9/9/2019
9/4/2019	147887	Total Coliform	Present	Flush & Resample	9/9/2019
9/6/2019	147890	Low Combined Chlorine	0.08 mg/L	Flush & Resample	9/6/2019
9/9/2019	147901	Low Combined Chlorine	0.11 mg/L	Flush & Resample	9/9/2019
9/9/2019	147903	Low Combined Chlorine	0.21 mg/L	Flush & Resample	9/9/2019
9/10/2019	147930	Low Combined Chlorine	0.14 mg/L	Flush & Resample	9/10/2019
9/10/2019	147992	Total Coliform	Present	Flush & Resample	9/20/2019



9/12/2019	148038	Total Coliform	Present	Flush & Resample	9/20/2019
9/12/2019	148040	Total Coliform	Present	Flush & Resample	9/17/2019
9/12/2019	148041	Total Coliform	Present	Flush & Resample	9/23/2019
9/13/2019	148048	Total Coliform	Present	Flush & Resample	9/17/2019
9/16/2019	148055	Low Combined Chlorine	0.20 mg/L	Flush & Resample	9/16/2019
9/16/2019	148056	Low Combined Chlorine	0.16 mg/L	Flush & Resample	9/16/2019
9/16/2019	148062	Low Combined Chlorine	0.06 mg/L	Flush & Resample	9/16/2019
9/14/2019	148068	Total Coliform	Present	Flush & Resample	9/20/2019
9/14/2019	148069	Total Coliform	Present	Flush & Resample	9/23/2019
9/17/2019	148086	Low Combined Chlorine	0.12 mg/L	Flush & Resample	9/17/2019
9/15/2019	148087	Total Coliform	Present	Flush & Resample	9/20/2019
9/17/2019	148132	Total Coliform	Present	Flush & Resample	9/23/2019
9/20/2019	148149	Low Combined Chlorine	0.09 mg/L	Flush & Resample	9/20/2019
9/19/2019	148174	Total Coliform	Present	Flush & Resample	9/23/2019
9/23/2019	148183	Low Combined Chlorine	0.04 mg/L	Flush & Resample	9/23/2019
9/23/2019	148186	Low Combined Chlorine	0.20 mg/L	Flush & Resample	9/23/2019
9/21/2019	148189	Total Coliform	Present	Flush & Resample	9/25/2019
9/24/2019	148199	Low Combined Chlorine	0.18 mg/L	Flush & Resample	9/24/2019
9/23/2019	148207	Total Coliform	Present	Flush & Resample	9/27/2019
9/30/2019	148306	Low Combined Chlorine	0.16 mg/L	Flush & Resample	9/30/2019
10/1/2019	148316	Low Combined Chlorine	0.12 mg/L	Flush & Resample	10/1/2019
10/7/2019	148435	Low Combined Chlorine	0.12 mg/L	Flush & Resample	10/7/2019
10/7/2019	148444	Low Combined	0.13 mg/L	Flush &	10/7/2019

		Chlorine		Resample	
10/8/2019	148465	Low Combined Chlorine	0.14 mg/L	Flush & Resample	10/8/2019
10/9/2019	148493	Low Combined Chlorine	0.24 mg/L	Flush & Resample	10/9/2019
10/10/2019	148512	Low Combined Chlorine	0.14 mg/L	Flush & Resample	10/10/2019
10/15/2019	148573	Low Combined Chlorine	0.22 mg/L	Flush & Resample	10/15/2019
10/15/2019	148575	Low Combined Chlorine	0.21 mg/L	Flush & Resample	10/15/2019
10/16/2019	148581	Low Combined Chlorine	0.17 mg/L	Flush & Resample	10/16/2019
10/16/2019	148582	Low Combined Chlorine	0.21 mg/L	Flush & Resample	10/16/2019
10/17/2019	148600	Low Combined Chlorine	0.19 mg/L	Flush & Resample	10/17/2019
10/17/2019	148601	Low Combined Chlorine	0.08 mg/L	Flush & Resample	10/17/2019
10/21/2019	148645	Low Combined Chlorine	0.24 mg/L	Flush & Resample	10/21/2019
10/22/2019	148669	Low Combined Chlorine	0.17 mg/L	Flush & Resample	10/22/2019
10/22/2019	148680	Low Combined Chlorine	0.18 mg/L	Flush & Resample	10/22/2019
10/21/2019	148699	Total Coliform	Present	Flush & Resample	10/25/2019
10/25/2019	148739	Low Combined Chlorine	0.21 mg/L	Flush & Resample	10/25/2019
10/28/2019	148760	Low Combined Chlorine	0.17 mg/L	Flush & Resample	10/28/2019
10/29/2019	148777	Low Combined Chlorine	0.19 mg/L	Flush & Resample	10/29/2019
10/29/2019	148783	Low Combined Chlorine	0.19 mg/L	Flush & Resample	10/29/2019
10/30/2019	148792	Low Combined Chlorine	0.24 mg/L	Flush & Resample	10/30/2019
10/30/2019	148804	Low Combined Chlorine	0.23 mg/L	Flush & Resample	10/30/2019
11/5/2019	148882	Low Combined Chlorine	0.15 mg/L	Flush & Resample	11/5/2019
11/11/2019	148959	Low Combined Chlorine	0.17 mg/L	Flush & Resample	11/11/2019
11/12/2019	148967	Low Combined Chlorine	0.13 mg/L	Flush & Resample	11/12/2019



11/11/2019	148993	Total Coliform	Present	Flush & Resample	11/18/2019
11/18/2019	149024	Low Combined Chlorine	0.11 mg/L	Flush & Resample	11/18/2019
11/19/2019	149032	Low Combined Chlorine	0.11 mg/L	Flush & Resample	11/19/2019
11/25/2019	149093	Low Combined Chlorine	0.19 mg/L	Flush & Resample	11/25/2019
11/25/2019	149094	Low Combined Chlorine	0.20 mg/L	Flush & Resample	11/25/2019
12/2/2019	149151	Low Combined Chlorine	0.15 mg/L	Flush & Resample	12/2/2019
12/10/2019	149215	Low Combined Chlorine	0.22 mg/L	Flush & Resample	12/10/2019

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	1449	0 “Present” samples	24 “Present” samples	653	0 - 860 CFU/mL

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 #)	Unit of Measure
Turbidity	N/A	N/A	N/A
Chlorine	5798	0.03 - 3.43 (combined Cl ₂)	mg/L
Fluoride (If the DWS provides fluoridation)	N/A	N/A	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
N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A

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

Parameter	Sample Date	Result Value	Unit of Measure	Exceedance
Sodium	Jan 1 - Dec 31 2019	15.4 - 23.6	mg/L	Yes - Next required reporting date is January 7 th , 2021
Fluoride	Jan 1 - Dec 31 2019	0.19 - 0.67	mg/L	No
Nitrite	Jan 1 - Dec 31 2019	0 - 0.07	mg/L	No
Nitrate	Jan 1 - Dec 31 2019	0 - 0.76	mg/L	No

Summary of lead testing under Schedule 15.1 during this reporting period

Location Type	Number of Samples	Range of Lead Results (min#) – (max #)	Unit of Measure	Number of Exceedances
Plumbing	10	0.0005 - 0.0583	mg/L	1
Distribution	26	0.0005 - 0.0005	mg/L	0

Note: The Town of Newmarket possesses Lead Regulatory Relief under Schedule D of Municipal Drinking Water License 124-101; and is only required to sample “8” (eight) points in our respective distribution system during each of the sampling periods identified within O.Reg 170/03 and our respective Municipal Drinking Water License. All other lead sampling that is completed is above the requirements stipulated within the above referenced license and regulation and is done at the sole discretion of the Town of Newmarket.

Summary of Organic parameters sampled during this reporting period or the most recent sample results

Parameter	Sample Date	Result Value	Unit of Measure	Exceedance
HAA (Total) (NOTE: show latest annual average)	Jan 1 - Dec 31 2019	Q4 RAA 0.0080	mg/L	No
THM (Total) (NOTE: show latest annual average)	Jan 1 - Dec 31 2019	Q4 RAA 0.0151	mg/L	No

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
N/A	N/A	N/A	N/A

Town of Newmarket
Monthly Water 2019

Date: 2/2/2020



Newmarket	January	February	March	April	May	June	July	August	September	October	November	December	Year to Date Total
Aurora Ballymore (Aurora) m3	-3,403	-2,750	-2,408	-431	-2,375	-1,832	-3,006	0	-15	-10	-95	0	-16,326
Aurora Ballymore (Newmarket) m3	93,382	109,077	98,533	87,839	95,455	123,050	145,658	119,350	108,393	145,125	136,822	87,250	1,349,934
Aurora West 12" (Aurora) m3	-2	-5	-6	-9	-71	-7	-76	-4	-7	-18	-1	-1	-206
Aurora West 12" (Newmarket) m3	165,417	134,403	156,889	146,611	154,073	167,265	148,854	147,557	133,221	159,143	154,678	168,130	1,836,241
Aurora West 8" (Aurora) m3	0	0	0	0	0	0	0	0	0	0	0	0	0
Aurora West 8" (Newmarket) m3	0	0	0	0	0	0	0	0	0	0	0	0	0
Davis Drive/Hwy. 404 m3	-2,041	-1,754	-1,763	-1,631	-1,316	-1,401	-5,727	-6,765	-7,804	-7,388	-5,368	-4,592	-47,550
EG Leslie Street MC 12" Fwd to NW m3	0	0	0	0	0	0	0	0	0	0	0	0	0
EG Leslie Street MC 12" Rev to EG m3	0	0	0	0	0	0	0	0	0	0	0	0	0
EG Leslie Street MC 22" Fwd to NW m3	112,339	92,624	87,757	72,560	100,412	101,283	111,503	109,187	90,548	54,359	50,084	45,394	1,028,048
EG Leslie Street MC 22" Rev to EG m3	-2,820	-2,670	-5,396	-3,467	-1,243	-1,663	-445	-918	-5,359	-14,911	-24,097	-10,158	-73,147
Leslie/Broughton (Aurora) m3	-18	-11	-12	-6	-14	-4	-8	-17	-537	-16	-2	-5	-650
Leslie/Broughton (Newmarket) m3	166,698	150,364	153,818	144,286	164,355	171,341	201,987	198,828	154,391	136,437	136,452	162,766	1,941,720
Newmarket Well No. 1 m3	6,216	26,353	27,853	26,032	30,896	27,370	30,591	29,795	26,714	25,951	24,967	27,802	310,541
Newmarket Well No. 13 m3	32,700	34,792	41,432	33,715	34,105	27,631	12,746	21,004	35,142	65,884	61,743	69,743	470,637
Newmarket Well No. 15 m3	276	251	210	263	151	172	179	145	193	275	120	0	2,235
Newmarket Well No. 16 m3	44,056	36,877	36,277	37,086	44,960	37,450	66,725	66,649	42,188	0	0	0	412,267
Newmarket Well No. 2 m3	54,962	54,487	58,151	52,826	55,513	58,302	70,095	69,256	61,624	54,680	51,192	55,662	696,748
Newmarket/Aurora (Aurora) m3	-2,030	-4,452	-6,062	-4,230	-3,873	-4,682	0	0	0	0	0	0	-25,330
Newmarket/Aurora (Newmarket) m3	114,439	83,206	79,247	71,579	77,682	94,711	137,057	127,371	107,422	79,479	79,453	71,834	1,123,477
Woodspring Avenue (East Gwillimbury) m3	-14,922	-14,483	-14,107	-14,107	-14,383	-17,718	-19,220	-19,911	-17,117	-14,279	-14,386	-16,204	-190,834
Woodspring Avenue (Newmarket) m3	3	1	1	5	3	1	5	4	6	80	18	1	128
Yonge/Aspenwood (East Gwillimbury) m3	0	0	0	0	0	0	0	0	0	0	0	0	0
Yonge/Aspenwood (Newmarket) m3	0	0	0	0	0	0	0	0	0	0	0	0	0
Yonge/Bristol (East Gwillimbury) m3	-5,121	-6,235	-6,444	-5,030	-4,877	-5,692	-6,599	-7,491	-8,383	-4,410	-5,046	-6,340	-71,667
Yonge/Bristol (Newmarket) m3	19	21	19	19	24	22	15	16	17	96	16	13	296
Total Water Consumption m3	760,148	690,094	703,988	643,911	729,476	775,599	890,334	854,055	720,636	680,477	646,550	651,294	8,746,561

	January	February	March	April	May	June	July	August	September	October	November	December	Total
Maximum Daily Flow m3	27,522	27,424	27,967	24,976	27,400	31,971	32,483	31,596	28,260	26,126	25,359	23,600	32,483
Maximum Date	23-Jan-2019	03-Feb-2019	20-Mar-2019	07-Apr-2019	18-May-2019	24-Jun-2019	11-Jul-2019	14-Aug-2019	02-Sep-2019	02-Oct-2019	15-Nov-2019	15-Dec-2019	
Minimum Daily Flow m3	20,572	21,241	18,147	18,006	18,726	20,811	24,312	23,847	20,764	17,538	18,081	17,863	17,538
Minimum Date	01-Jan-2019	09-Feb-2019	13-Mar-2019	20-Apr-2019	13-May-2019	02-Jun-2019	06-Jul-2019	27-Aug-2019	25-Sep-2019	25-Oct-2019	14-Nov-2019	29-Dec-2019	
Average Daily Flow m3	24,521	24,646	22,709	21,464	23,531	25,853	28,720	27,550	24,021	21,951	21,552	21,009	23,961