



Town of Newmarket
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2018 Newmarket Water Distribution System Annual Water Quality Summary Report Staff Report

Report Number: 2019-27

Department(s): Public Works Services

Author(s): Director, Public Works Services

Meeting Date: March 18, 2019

Recommendations

1. That the report entitled Development & Infrastructure Services – Public Works Services Report dated March 18, 2019 be received; and,
2. That members of the public be directed to view any documents referenced herein as attached (where applicable), online at newmarket.ca, by request at the customer service counter, 395 Mulock Drive, as well as at the Newmarket Operations Centre, 1275 Maple Hill Court
3. That Staff be authorized and directed to do all things necessary to give effect to this resolution.

Executive Summary

The purpose of this report is to provide information to system owners and stakeholders and to satisfy the regulatory requirements of the *Safe Drinking Water Act, 2002* (SDWA) including the Drinking Water Quality Management Standard (DWQMS), and regulatory reporting required under O.Reg. 170/03 (Section 11 and Schedule 22). The report is a compilation of information that helps to demonstrate the ongoing provision of a safe supply of high quality drinking water to customers located within the Town of Newmarket.

The Town of Newmarket Drinking Water System (DWS) is required to comply with the *Safe Drinking Water Act, 2002* (SDWA) and Regulations as well as requirements contained in Municipal Drinking Water Licences (MDWL) and Drinking Water Works

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Permits (DWWP). Having met the quality management system requirements of the SDWA, The Town of Newmarket is an accredited Operating Authority with an up-to-date Operational Plan.

The Newmarket Water Distribution System is a Class I Distribution Subsystem. From January 1, 2018 to December 31, 2018, 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 (System Control and Data Acquisition) system.

The Town and York Region operations staff works closely to deliver source to tap drinking water in the integrated and complex 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 DWS is comprised of approximately;

- 318 kilometers of distribution system watermain
- 4,035 mainline valves
- 2,358 municipally owned fire hydrants
- 26,407 metered water services

Purpose

This report and included attachments, along with the information released online, satisfies reporting requirements in Ontario Regulation 170/03 – Drinking Water Systems, and helps Council to meet its Standard of Care requirements in the *Safe Drinking Water Act, 2002* (SDWA). This report provides municipal council with an Annual Summary Report on the quality of the Drinking Water System for the 2018 reporting year.

The Ministry of the Environment, Conservation and Parks (MECP) regulates drinking water systems in Ontario. The SDWA requires municipal drinking water system owners to report annually on the quality and quantity of drinking water produced.

This year, the regulatory requirement is satisfied through:

- This report, presentation and attachments to Council

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- Water quality Section 11 reports available at newmarket.ca/waterwastewater

It also serves to provide Council with information related to the Drinking Water Quality Management Standard (DWQMS), as well as the MECP annual inspection of the Town's compliance with Provincial regulations pertaining to the Town's Drinking Water System (DWS).

Background

Safe Drinking Water Act, 2002

The SDWA purpose is to protect human health through the regulation of drinking water systems and drinking water testing. The Act also has the benefit of gathering in one place all legislation and 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

This report helps Council exercise due diligence and meet it's Standard of Care under the SDWA

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. The Town of Newmarket Council is considered the owner of the Town of Newmarket's drinking water distribution system.

Annual Report

Legislative amendments to the *Safe Drinking Water Act, 2002*, released in 2004 resulted in substantial changes to Water and Wastewater operations. Amendments to O. Reg. 170/03 increased regulatory compliance requirements on system operations. The amendments also required an increase in reporting by system owners on the performance of systems to the MECP and applicable stakeholders.

Reporting under Schedule 22 and Section 11 of O. Reg. 170/03 was mandated, requiring the owner of a drinking water system to prepare an annual report in accordance with the Regulation and submit these reports to Council and the public.

Town staff has annually submitted these reports to Council and have made the information available to the public through the Town website.

Drinking Water Quality Management System (DWQMS)

The MECP mandates the implementation of an Operational Plan under the DWQMS for all DWS in the Province of Ontario. The Operational Plan serves to provide an understanding of the DWS, the responsibilities of the owner and operator (operating authority) of the water system, and a commitment to the provision of safe drinking water. This, in turn allows the municipality to plan, implement, check, and continually improve the system.

Newmarket's Operational Plan is available to view upon request from the Town of Newmarket Operations Centre at 1275 Maple Hill Court, or by emailing Luigi Colangelo, Manager of Water Wastewater at lcolangelo@newmarket.ca.

The DWQMS requires that the relevant aspects of the standard and its effectiveness be communicated by Top Management to the Owner (Mayor and Council, and CAO) of the drinking water system, along with the results of the Management Review no later than the 31st of March each year.

2018 MECP Drinking Water System Inspection

The primary focus of an annual drinking water system inspection by the MECP is to confirm compliance with MECP legislation, as well as evaluating conformance with Ministry drinking water policies and guidelines during the inspection period. The Newmarket Water Distribution 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). The 2018 Inspection was conducted pursuant to Section 81 of the SDWA.

The Town participated in a "focused" MECP inspection on August 22, 2018 and data was reviewed for the period covering October 1, 2017 to August 11, 2018. A focused inspection involves fewer activities than those normally undertaken in a detailed inspection. The Town's system was chosen for a focused inspection because its performance met the Ministry's criteria and that there were no deficiencies as identified in O. Reg. 170/03 in the past 3 years.

Discussion

2018 Annual Water Quality Summary Report

Ontario Regulation 170/03, Drinking Water System outlines the testing and reporting requirements for water systems. This regulation is in support of the *Safe Drinking Water Act, 2002* and outlines all the testing and reporting requirements for drinking water systems in Ontario. The 2018 Annual Water Quality Summary Report fulfills the requirements of this regulation. (2018 Annual Water Quality Summary Report - Newmarket Water Distribution System attached)

The provision of safe drinking water is the Town's top priority

The report provides a summary of the legislative requirements under the SDWA. It contains the water quality information for the dates between January 1, 2018 and December 31, 2018. In 2018, Public Works Services' provincially certified Water Operators collected over 1,300 microbiological samples and 25 mandated samples for lead for submission to the York Durham Regional Environmental Laboratory for analysis. Operators also field tested over 6,000 chloramine (disinfectant) residuals.

The annual report includes the corrective actions taken by operators to address any sample(s) failing to meet parameters referred to in the regulation and resulting in an adverse water quality incident (AWQI)

An adverse bacteriological sample is the result of the presence of bacteria in a test referred to as a presence/absence test.

An adverse chlorine residual event occurs when the measured combined chlorine residual is <0.25 mg/L **and** the free chlorine residual is <0.05mg/L.

In 2018, 98.3% of the Town's microbiological drinking water samples met the Ontario drinking water standards.

In 2018, 98% of the 6064 chlorine residual samples taken by certified Town operators met regulatory requirements.

An AWQI must be reported to the MECP and local Medical Officer of Health (MOH) - York Region Community & Health Services immediately and corrective action taken as required by O. Reg 170/03.

In 2018, a total of one hundred and forty seven (147) adverse samples were reported to the MECP and MOH.

Of these:

- 124 were due to adverse (low) combined chlorine residual
- 22 for the presence of Total Coliform
- 1 for the presence of E Coli

Operators initiated corrective actions for all of the AWQIs listed above as per requirements under O. Reg. 170/03, and all were resolved without incident.

In all cases, the drinking water supplied to the public was confirmed safe. At no time did the MOH or MECP require further actions to be taken by the Town.

Drinking Water Quality Management Standard (DWQMS)

Newmarket’s Operational Plan was created internally and exceeds minimum requirements laid out by the MECP under the DWQMS. In 2018, it was audited both internally (two (2) audits) and externally by SAI Global (January) and AET Consultants (September). The next external certification audit will be carried out in the spring of 2019.

Audit Non Conformances Identified	Town’s Response
Improve document and record controls	PWS and Corporate Records Management staff continue to work together to develop an improved document and record control system for water and wastewater
Improve the process for addressing preventive and corrective actions identified through audits and inspections	Element 21 of the DWQMS has been reviewed and updated. Corrective actions are being reviewed and documented and action plans are being implemented for corrective actions
Reviewing the Operational Plan with staff on a more frequent basis	Staff are reviewing the Operational Plan on a frequency that meets the satisfaction of the auditor
Reviewing infrastructure needs annually	PWS and Engineering Services met in February, 2019 to review Infrastructure needs

All non-conformances are being addressed to the satisfaction of the auditor and Town continues to meet the requirements of the DWQMS

On November 6 2018, PWS staff completed the DWQMS Management Review. This review, conducted annually, evaluates the continuing suitability, adequacy and effectiveness of the Quality Management System. Members of staff who participated in this review included:

- Peter Noehammer, Commissioner, Development & Infrastructure Services
- Chris Kalimootoo, Director, Public Works Services

- Luigi Colangelo, Manager of Water/Wastewater
- Jeff Ellis, Supervisor of Water/Wastewater
- Pauline Pierce, Acting Compliance and Training Coordinator

Water and Wastewater Operator Training

The Town provides training and development for its certified water and wastewater operators. Training is provided by internal staff and external training providers, as well as continuous on the job training. The Province regulates operator training and Town operators are required to meet established training requirements in order to maintain certification.

In 2018, 100% of the Town’s certified water and wastewater operators meet regulatory training requirements.

2018 MECP Drinking Water System Inspection

The Town of Newmarket’s 2018 MECP Drinking Water System inspection, conducted August 22, 2018 resulted in a 90.95% inspection rating.

Based on inspection results, the Town reviewed and updated AWQI reporting and instrument calibration procedures and is developing processes for enhanced data collection. Training was provided to Operations staff related to any procedure changes by internal staff and external training providers. Any non-compliance identified through MECP inspections were addressed promptly in collaboration and with the acceptance of the MECP.

Inspection Non Compliance Identified by MECP	Town’s Response
All required notifications of adverse water quality incidents were not immediately provided as per O. Reg. 170/03 16-6	The Town conducted a comprehensive review of its standard operating procedures for AWQI reporting. The Town provided training to operations staff and contractors working in the Town’s DWS using internal staff and external training providers
For one adverse water quality incident a written notice of resolution was provided to the Ministry a day later than the prescribed seven (7) days.	The Town conducted a comprehensive review of its standard operating procedures for AWQI reporting. The Town provided training to operations staff and contractors working in the Town’s DWS using internal staff and external training providers

Review and update the "Measurement and Recording Equipment Calibration" procedure	The standard operating procedure for "Measurement and Recording Equipment Calibration" was reviewed by the Town and includes industry best practices and recommendations provided by the MECP. Training was provided to staff on the revised procedure
Watermain break/repair records were not clear on which of the listed certified operators took chlorine residuals and at what time the residuals were taken	The Town's "Watermain Break Repair Report Form" was reviewed and updated using industry best practices and includes all information as outlined in the Watermain Disinfection Procedure and recommendations made by the MECP. Training was provided to staff on the revised procedure

Drinking Water System Licence and Permit

MECP issues the Town the following licence and permit to operate the DWS;

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 regard to the operation, maintenance, and monitoring of the drinking water system

In 2018, the Town complied with all conditions of its Municipal Drinking Water Licence and Drinking Water Works Permit.

2018 Water Consumption Data

From January 1 to December 31, 2018, the Town of Newmarket received a total of 8,768,108 m³ of water from York Region (supplier). This compares to 8,061,649 m³ from the previous year (an increase of approximately 8.76 %).

The table below shows a summary of water billing from York Region to the Town of Newmarket for the supply of water for 2018.

Description	Amount
Total water billed to the Town of Newmarket by York Region (m ³)	8,768,108
Total water sold to the consumers of the Town of Newmarket (m ³)	6,885,791
Total unbilled water (m ³)	1,882,317
Percentage water loss*	21.47%

*Please note: “the 21.47 percentage water loss” includes the following;

- Water used for flushing to maintain water quality (approximately 750,840 m³, 8.56%)
- Routine maintenance activities (approximately 29,060 m³, 0.33%)
- Watermain breaks (approximately 26,060 m³, 0.30%)
- Other Water Loss including water meter inaccuracies, system leakage, firefighting, theft, new watermain commissioning / testing (1,076,357 m³, 12.28%)

Town staff will be providing a report to Council in Quarter 2 2019 to provide details on system water loss including current challenges, planned activities and opportunities to manage water loss and non-revenue water within the Town’s drinking water system.

2018 Major Expenses Incurred

Section 11 of the Drinking Water Systems regulation requires water utility owners to “describe any major expenses incurred during the period covered by the report to install, repair or replace required equipment.”

In 2018, The Town of Newmarket spent approximately \$3,133,499 million installing, repairing, replacing and maintaining infrastructure used to deliver safe drinking water. Costs are funded through department budget approved annually by Council. Major expenses in 2018 included;

Drinking Water System Capital Improvements:	\$ 2,229,924
Watermain Maintenance:	\$ 337,340
Hydrant Maintenance:	\$ 90,000
Watermain Flushing/Swabbing Program:	\$ 476,235

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*Note: These numbers do not include cost for non-regular maintenance activities, uni-directional flushing (UDF), which will be described fully in the Quarter 2 2019 report to Council.

Conclusion

This report and all attachments included and the content on the Town's website newmarket.ca/waterwastewater, satisfies reporting requirements under the Act. Council is able to demonstrate due diligence required for decision making under the Standard of Care by reviewing and considering the information on the Town's drinking water systems contained in this report when exercising decision making authority.

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 2018 reporting year continue to demonstrate the excellent performance of the Town's system.

Business Plan and Strategic Plan Linkages

The Community Strategic Plan for the Town of Newmarket articulates the goals of:

- Living well...focusing on health, safety, and the environment to promote activity and enrich lives
- Well-equipped and managed...implement policy and processes that reflect sound and accountable governance for fiscal responsibility, service excellence, and management of assets and services to meet operational demands

Consultation

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

- Public Works Services Management and Staff
- MECP
- York Region MOH

Human Resource Considerations

None required for the purpose of this report.

Budget Impact

The utility rate portion of the operating and capital budgets provide funding required to meet regulatory requirements under the SDWA.

Attachments

The attachments are as follows:

- 2018 Annual Water Quality Summary Report (Newmarket Water Distribution System)
- 2018 MECP Newmarket Distribution System Inspection Report
- 2018 DWQMS Management Review Minutes
- 2018 DWQMS External Audit Reports (Surveillance & On-site)

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

Contact

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