MW-2025-06
Operations

Report

Report to:	Mayor and Council
Date:	March 18, 2025
Title:	**Drinking Water System Summary Report and Overview**

Recommendation(s)
That Council **RECEIVE** this report for information.

Executive Summary
In accordance with the Safe Drinking Water Acts Ontario Regulation (O. Reg.) 170/03, Schedule 22, each Municipal Council having jurisdiction over its water distribution system is required to receive and publish a Distribution Summary Report prior to March 31 in each calendar year. This report provides technical data regarding the system's performance.

Additionally, attached is the Drinking Water Quality Management Standard (DWQMS) Management Review which is to be provided to the system Owner annually. The Management Review evaluates the suitability, adequacy, and effectiveness of the quality management system.

The purpose of this report is to provide the Owners of the drinking water system documentation confirming that the City is operating in accordance with all current legislation and is taking appropriate measures to guarantee the safety of the drinking water quality to all its consumers.

Revision 8 of the DWQMS Operational Plan was endorsed by Council on March 19, 2024, via MW-2024-13. Revision 9 of the Operational Plan was created in February of 2025, and changes were very minor, and mostly administrative in nature, with the only substantial adjustment being the insertion of the official Commitment and Endorsement document (signed by the Owner and Top Management in 2024). A summary of changes can be found as an appendix v) to the Management Review. The Management Review and its appendices can be found as Attachments 1 & 2 of this Report, respectively.

Background
Distribution System Summary Report

Each year the Distribution Summary report is presented to Council to illustrate the effectiveness and performance of the drinking water system. The attached Distribution Summary report provides detailed quantitative and qualitative information regarding the

performance of the drinking water system. This Summary Report can be found as Attachment 3 to this Report.

Highlights of the report include:

In 2024 the Water & Wastewater Services Division responded to 49 watermain breaks. In 2023 there were 48 watermain breaks.
In Q2 of 2024 NSF-International performed a surveillance audit on the City's Drinking Water Quality Management System. Zero non-conformances were found during the audit. This audit document can be found as Appendix ii) of the Management Review.

DWQMS Management Review

The DWQMS Management Review takes place once every calendar year, as per the Standard. The review provides an overall picture as to the effectiveness and adequacy of the Drinking Water Quality Management System.

Items of note from the Management Review Include:

Final compliance rating of 100% during 2024 Ministry of Environment, Conservation and Parks inspection
The City continues involvement with Niagara Region regarding the future decommissioning of Lundy's Lane tank and new raw water intake location.
The City will move forward in potentially developing a backflow prevention program, beginning with a structured risk assessment or an updated bylaw.
Levels of service for a variety of repairs/maintenance programs will be more closely monitored and reported to Top Management and Council in the coming years. This will increase system wide operational performance awareness. Prior to this year, watermain breaks, percentage of pipe material types within the distribution system and water losses were the only statistics reported on during the Management Review and Report to Council.

Standard of Care

It is important to mention Section 19 of the Safe Drinking Water Act, entitled Standard of Care. This section states:

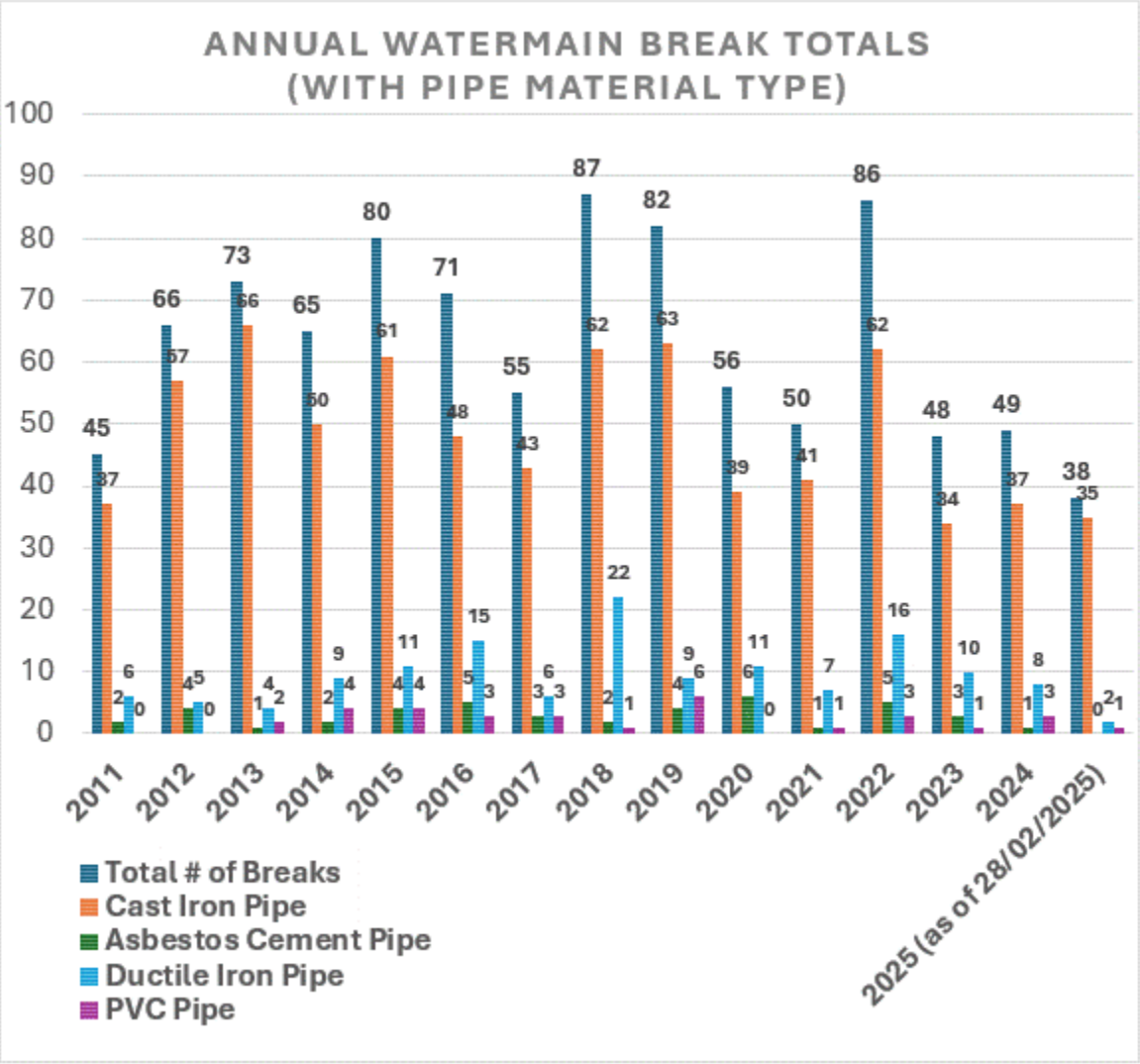
The Owner and/or each person on behalf of the Municipality that oversees the operating authority or exercises decision making authority over the system must exercise the level of care, diligence, and skill in respect of a municipal drinking water system that a reasonable prudent person would be expected to exercise in a similar situation.

Section 19, in its entirety has can be found as Attachment 4 to this Report, for reference.

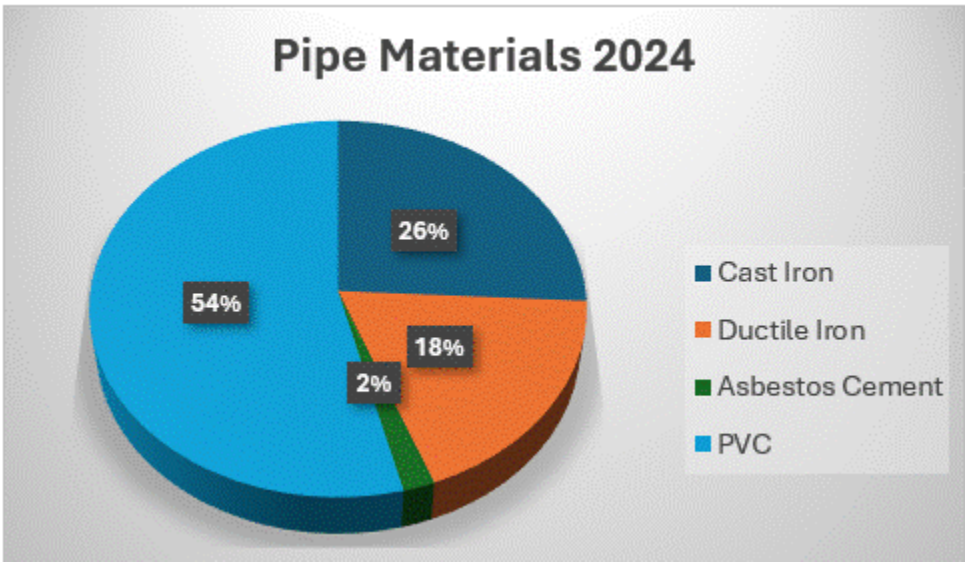
Analysis

As stated above, the City had only one more watermain break in 2024 than in 2023. The number of watermain breaks fluctuate annually based on a variety of factors including weather, ground water table and capital infrastructure projects. The Graph below illustrates watermain break history since 2011. It should be noted that the remaining Cast Iron watermains in the system are the major cause of watermain breaks and should continue to be the focus of capital replacement projects. It should also be noted that historically, the majority of watermain breaks occur within the first two months of each year (due to extreme weather fluctuations).

The average length of time properties experienced water interruptions due to main breaks in 2024 was four hours and forty-five minutes. This is similar to 2023's average interruption time of four hours and twenty minutes.



The City's overall length of watermain is 493 km. PVC is currently the highest percentage material type of watermain from a system perspective. However, this value is skewed by the increase in new development since 2010. The City still has a significant portion of its watermains made of Cast Iron and Ductile Iron, representing approximately 44% of the overall system. It should be noted that some portions of cast iron watermain are over 100 years old, still in active service and are being relied on to providing residents with drinking water and support fire suppression in the event of an emergency.



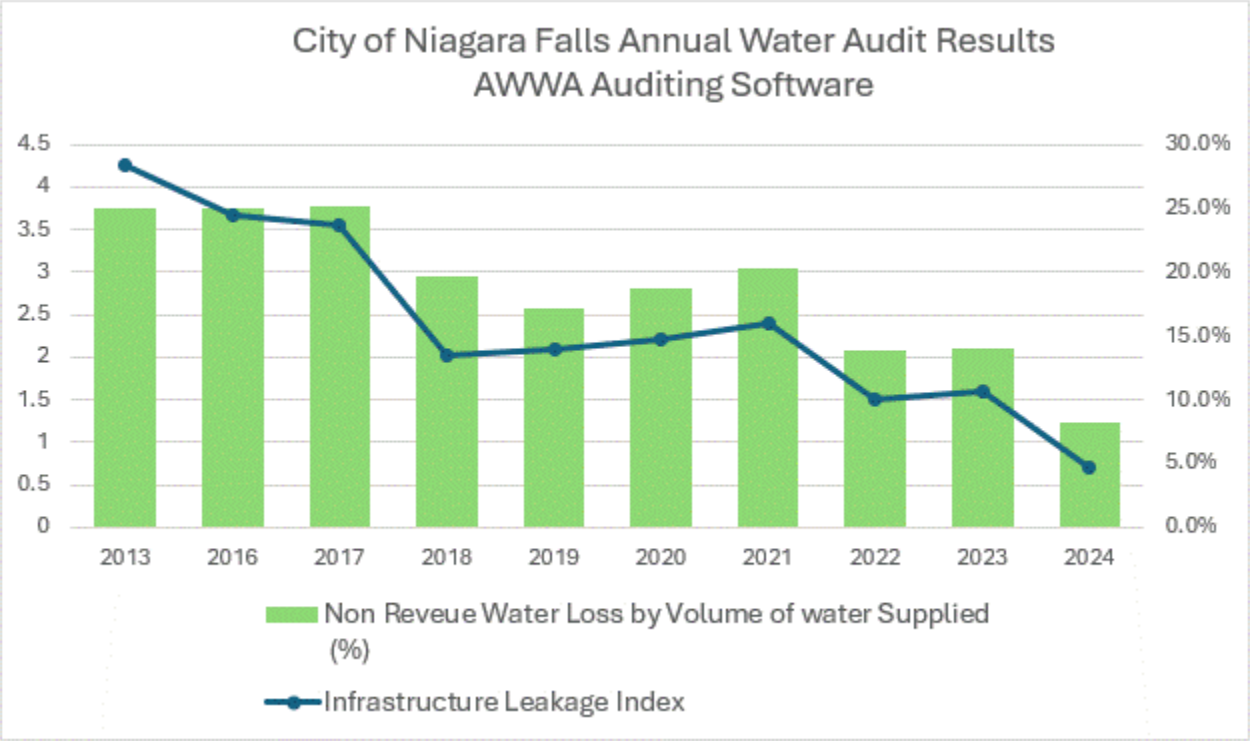
Section 11 of O. Reg. 170/03 stipulates that a systems Annual Summary Report must be created and made available to the public by February 28th of each year (outlining the water quality indicators for the system for the previous year). The 2024 Annual Summary Report has been placed on the City's website and can also be found as Attachment 5 to this Report.

Other Performance Indicators

Water Loss

The City utilized the American Waterworks Association Audit Software v6.0 to assess the annual water distribution system leakage index. This is the industry standard for determining infrastructure leakage indexes. As evidenced in the below graphic, the City's estimated leakage index value for 2024 is 0.7, which is an improvement to last year's value. It is estimated that continued improved tracking of all water loss channels, paired with the full implementation of the City's water meter replacement program will

continue to lower this value. The City will continue to identify and proactively mitigate all water losses.



Valve Turning

4.5% of City system valves were exercised/proven out in 2024, compared to 2% in 2023.

Hydrant Inspections

41.3 % of City owned hydrants were inspected/flushed in 2024, compared to 59.9% in 2023.

Operational Implications and Risk Analysis

In accordance with the *Safe Drinking Water Act*, the Annual Summary Report must be received by the drinking water system owner by a date of no later than March 31 of the following year. Failure to submit this would contravene the *Safe Drinking Water Act*.

The drinking water quality management standard requires that the results of the Management Review be provided to the Owner on an annual basis. Failure to provide the results would initiate a non-conformance with the Standard.

Financial Implications/Budget Impact

This contents of this report do not contain any individual financial or budgetary impacts.

Strategic/Departmental Alignment
This report is to ensure adherence to Provincial Legislation and is consistent with the Council's strategic commitment to continually monitor the efficiency and effectiveness of the City's operations.

Strategic Plan Pillars

Contributor(s)
Savannah Wells-Bisson, Acting Senior Manager of Water & Wastewater Services

List of Attachments
Attachment 1 - Management Review 2024
Attachment 2 - Management Review Appendices
Attachment 3 - 2024 City of Niagara Falls Water Distribution System Summary Report
Attachment 4 - Section 19- Standard of Care, Safe Drinking Water Act 2002
Attachment 5 - 2024 Annual Report

Written by:
Jessica Blanchard, Water & Wastewater Services Compliance Program Manager

Submitted by:	**Status:**
Erik Nickel, General Manager of Municipal Works	Approved - 10 Mar 2025
Jason Burgess, CAO	Approved - 11 Mar 2025

DWQMS Management Review

Covering: from January 1, 2024, through to and including December 31, 2024

Table of Contents

List of Acronyms and Definitions

BMP – Best Management Practise

DWQMS – Drinking Water Quality Management Standard

DWS – Drinking Water System

LOS – Levels of Service

MAC - Maximum Acceptable Concentration. It is the level that has been established for certain substances that are known or suspected to cause adverse health effects.

MECP – Ministry of the Environment, Conservation and Parks

QMS – Quality Management System

THM –Trihalomethanes are a group of compounds that can form when the chlorine used to disinfect drinking water reacts with naturally occurring organic matter (e.g., decaying leaves and vegetation).

HAA - Haloacetic Acid. HAA values refer to the sum of the concentration of six haloacetic acid compounds which include mono-, di-, and trichloroacetic acids, and mono- and dibromoacetic acids, and bromochloroacetic acid. HAAs are a type of chlorination disinfection by-product that are formed when the chlorine used to disinfect drinking water reacts with naturally occurring organic matter, usually in raw water.

OFI – Opportunity for Improvement

Ontario Regulation 170/03 – Regulation under the Safe Drinking Water Act governing Drinking Water Systems

Ontario Regulation 169/03 – Ontario Drinking Water Quality Standards which outline maximum allowable concentrations for microbiological, chemical and radiological elements and compounds in drinking water systems.

Watermain Disinfection Procedure
Section 4 – Documentation requirements for operators who are performing maintenance and repair activities associated with disinfecting watermains as part of an addition, modification, replacement, extension, planned maintenance, or emergency repair in a municipal residential drinking water system

Niagara Region Emergency Drinking Water Provision Plan

- A Niagara Region document initially created in 2018 (in collaboration the key officials, agencies, departments and stakeholders), to establish framework for responding to an emergency involving the drinking water supply in Niagara Region. It is intended to service as a guideline that outlines the responsibilities and activities in managing a drinking water emergency.

Introduction

Element 20 of the Drinking Water Quality Management Standard states that a Management Review must be completed at least once every calendar year.

The purpose of the Management Review is to document the actions and effectiveness of the Quality Management System. The outcome of the Management Review must be reported to the Owner of the Drinking Water System.

The information reported to the Owner can be relayed at the same time as the Annual Drinking Water System Report, scheduled to be provided to Council in March of each year.

1. Incidents of regulatory non-compliance

From June 10 to June 18, 2024, the Ministry of the Environment, Conservation and Parks completed an inspection of the City of Niagara Falls DWS for the June 1, 2023, to May 31, 2024, inspection period. The inspection report indicated that there were zero (0) incidents of regulatory non-compliance. The Final Inspection Rating was 100%.

The MECP 2024 Final Inspection Report is attached as Appendix i), for review.

2. Incidents of adverse drinking-water tests

The City experienced one (1) adverse sample result within its distribution system in 2024.

i. October 28, 2024:

A microbiological distribution sample collected at 6838 Morrison Street (Animal Medical Centre) resulted in an adverse reading of one (1) Total Coliform (1 CFU/100 mL). The maximum acceptable concentration (MAC) for total coliforms in a distribution system is zero (0). It was determined that this reading was likely caused by a sampling or lab error, as the free chlorine residual at the time of the sample was 0.44 mg/L and re-samples collected the day following the adverse sample were clear (0 coliforms).

Upon receiving the adverse notification from the Licenced Lab in the instance noted above, staff followed SOP “MW-WWW-DWS-SOP-012-001 – Adverse Water Quality Incident Reporting – O. Reg. 170/03”, and the incident was resolved by re-sampling.

3. Deviations from critical control point limits and response actions

There were no deviations from critical control points during this report period.

4. Efficacy of the risk assessment process

It should be noted that currently there are items listed as critical control points in the risk assessment matrix that the City cannot control, regardless of their importance, such as backflow prevention devices not owned by the City, and Niagara Region processes (such as water treatment).

Outcomes of the most recent risk assessments are highlighted and considered during the infrastructure review.

In April of 2022, The Environmental Registry of Ontario posted Notice #019-4855: “Potential Hazardous Events for Municipal Residential Drinking Water Systems to Consider in the DWQMS Risk Assessment”. The body of this notice included new risks to consider cybersecurity threats. These specific risks were not captured in the Risk Assessment of 2022 but were captured in the 2023 & 2024 Risk Assessments and will be included in all future Risk Assessments.

Element 14: Niagara Region: “System Pressure Maintenance and Pressure Surge Protection” was added to the matrix during the Risk Assessment process in 2020, based on Niagara Regions consideration of decommissioning the Lundy’s Lane tank and installing one in a different area due to increased demands in the growing south end of the City. The current elevated tank on Lundy’s is requiring substantial upgrades/repairs to maintain current legislative requirements. It has been discussed internally that the City of Niagara Falls must be a strong presence in the decision making of this tentative project (which is assumed to involve several flow studies to confirm feasibility and seamless service transition and continuance), as it will be stressed that if this is to occur, the residents should continue to receive the same, if not better service levels of water delivery (specifically related to pressure). This project will also require the City to install/upgrade/take over the current Niagara Region watermain along Lundy’s lane. The greatest risk to the system if this tank is decommissioned is likely frequent pressure surges (currently absorbed by the Lundy’s Lane tank), that would work through the system and likely cause several watermain breaks, which always increases the likelihood of microbiological contamination before and during their repair. Also, without the tank providing consistent pressure in the

system, the north end residents may experience a pressure drop in their water. If this was to become severe enough, the risk is a backflow event. Further discussion to this during the 2024 Infrastructure Review outlined that the preferred site for the new tank has been chosen and acquisition of this land is in progress. As the design of this project has not yet commenced, the project's start and completion dates are therefore yet to be determined. The City will likely install municipal main along Lundy's Lane (as the current main in this area is a Regional main and will be decommissioned along with the tank. The City, however, will likely not inherit the QEW critical crossing of this watermain, and the new municipal system will be looped at this location. The entire decommissioning process (tank and main) lays in design model. Impacts are being studies/considered (with focus on pressure surge protection, service levels and water quality standards), and the City will remain in communication with Niagara Region as these plans further develop, to ensure a seamless transition throughout and following this decommissioning project. Element 14 remains rated under the risk threshold, as the tank is still in service.

Many of the Niagara Region controlled risks were consolidated into one line item in the 2024 risk matrix, as they lie solely within the Regions critical control points, had similar MECP MAC limits, and the same Region controllable measures (SOP's).

5. Third-party and Internal Audit Reports

Third Party Audit

From July 3 to July 4, 2024, NSF Internal performed a surveillance audit of the City's Drinking Water System for the July 1, 2023, to June 30, 2024, audit period. There were not any non-conformances found during this third-party audit.

However, the Auditor suggested, in the "Opportunities for Improvement" section of the report to:

- Consider stating exact time frame which the Management Review covers on the title page, for ease of auditing (e.g. January 1 – December 31, 2023). It was noted during the audit that the Management Review consisted of items which occurred during the previous calendar year and was therefore generally titled "2023 Management Review".
- Consider adding any staff ACTION items which improve emergency preparedness (resulting from the Emergency Management Review) to the continual improvement initiatives

The NSF Third Party Audit Report is attached as Appendix ii), for review.

Internal Audit

An internal audit of the City's Drinking Water System was completed by Acclaims Environmental on December 5 and 6, 2024. This covered the audit period of December 19, 2023, to December 6, 2024. During this internal audit, zero non-conformances were noted by the auditor.

However, there were some opportunities for improvement noted which included:

- Consider adding document ID and date to the City's QMS Policy.
- Consider adding document control to the Bulk Filling Station records and the Sample Location documents.
- Consider updating the Drinking Water Quality section of the website and the Communication procedure as they currently reference CGSB as the accreditation body for DWQMS.
- Consider removing the reference to Appendices that aren't part of the OP document. The procedures can be referenced as stand-alone documents.
- Consider adding the new DWQMS position to the Org Chart and the Roles, Responsibilities and Authorities Document.
- Consider getting staff tours of the Region water plants.
- Consider an on-call rotation with operations staff. Element 11 requires a procedure to ensure competent staff are available for duties that directly impact the drinking water system.
- Consider reviewing the procedure for the annual vendor performance. It currently states that it will be completed and recorded annually.
- Consider starting a water meter exchange program for large water meters. If these were on a regular rotation it could help water loss.
- Consider requiring the company that performs the calibrations on the chlorine kits to put calibration stickers on the instruments.
- Consider creating a program for quarterly verifications of the portable chlorine analyzers.
- Consider adding information on adverse water quality incidents that would fall under 16.4 of Schedule 16 of O.Reg. 170/03 (i.e. Low-pressure incidents) and Total Coliforms to the Adverse Reporting Procedure.
- Consider adding a report of the items in Table 15.1 of the OP to the Operational Control section of Management Review.
- Consider including the Action Items from the Risk Assessment, Infrastructure Review, Emergency Drills and Management Review to the Continual Improvement Initiatives List.
- Consider updating the Continual Improvement procedure to better describe how BMPs are considered.

The 2024 Internal Audit Report is attached as Appendix iii), for review.

6. Results of emergency response testing

On November 21, 2024, Water & Wastewater Services Staff participated in an Emergency Response desktop training exercise.

The scenarios during this training focused on cyber security and water disruption notification procedures.

Team discussion touched on items such as security precautions, emergency water provisions, emergency aid means, optimum communication, water advisory procedures, operational reporting requirements and health and safety procedures.

7. Operational performance

In 2024, the Water & Wastewater Services Division responded to 49 watermain breaks. This total number is a very slight increase from the previous year (2023), during which 48 watermain breaks occurred. The winters of 2023 and 2024 were similar in weather patterns during the winter months.

Other operational levels of service statistics monitored included the following:

- Average time of water interruption per main break in 2024 was 4 hours and 45 minutes per break, compared to 4 hours and 20 minutes per break in 2023
- 41.3% of all fire hydrants were flushed in 2024, compared to 59.9% in 2023
- 4.5% of system valves were exercised in 2024, compared to 2% in 2023

8. Raw water supply and drinking-water quality trends

Niagara Region is responsible for all sampling and testing of raw water. Through a previous year's hydrant maintenance program, City staff members have found areas of the municipal drinking water system where weekly or bi-weekly flushing's can improve water quality. These areas are tracked by way of a flushing report form and this practice has continued throughout 2024.

Source water temperature changes in late spring and fall have historically resulted in resident inquiries about chlorine levels. The majority of these calls originate from the south end of the City which is the geographic area closest to the water treatment plant. The City receives weekly chlorine residual results from Niagara Region, which have indicated no significant fluctuation in chlorine levels leaving the treatment plant. This remained unchanged in 2024.

The raw water intake for Niagara Falls Water Treatment plant is planned to be physically shifted to the south. Currently, the project remains stagnant, with an unknown tentative start date. The City remains in communication with Niagara Region on the development of this project.

Niagara Region is continuing to monitor THM (trihalomethane) levels in conjunction with all local area municipalities. Various methods of preventing THM levels from increasing have been discussed. The City's Water & Wastewater Services Division will continue to flush dead end watermains, which is a currently a suitable manner for which a distribution system can mitigate potential high THM levels. The Niagara Region replaced their granular activated carbon (GAC) filter at the Niagara Falls Water Treatment Plant in February of 2021.This filter media removes organic debris from the treated water and reduces THM formation. THM monitoring will carry on indefinitely, as we collaboratively strive for the continual improvement of water quality in the distribution system.

9. Follow-up on action items from previous management reviews

Historic Action Items:

Action Item	Assigned To	Due Dates	Status/Follow-up
Ensure the City has a liaison present at all discussions with Niagara Region involving the tentative decommissioning of the Lundy's Lane Tank	Erik Nickel/ James Sticca	2021 onward	Ongoing. The City has been a presence at discussions involving this process. The Region has chosen the site for the new tank and is currently in the process of acquiring the land, as of Feb 2025. Further details TBD
Collaborate with Infrastructure to develop a scoring matrix based on age, material type, tuberculation, so the score is standardized and not left up to the discretion of the Operator	/WWW Supervisor staff/ Infra. team	2021 onward	Ongoing. WWW staff were reminded in February of 2024 and monthly since that time to ensure photos are taken of the watermain which is being repaired and to provide comparative pipe condition sample pieces when possible

Consider performing a structured risk assessment to: Determine properties at the highest risk of experiencing a backflow (BF) event; Determine the likelihood of a BF event; Identify which high risk properties currently have a BF preventor on site – if they function properly and are being calibrated/ maintained; Review the current draft of the CoNF BFP program manual and; Identify/ develop trigger points to initiate the requirement for a property to have a BFP device installed	Jessica Blanchard/ QMS staff	Q1 2023 onward	In progress: New NU DWQMS Coordinator was tasked to commence this process in 2025. There was some movement on data collection for those properties who have existing backflow prevention devices which took place during the large meter change out and unofficial bypass inspection completed by the City Plumber in 2023. The direction for this initiative has changed since the 2024 Management Review, and the focus on demanding property surveys of current property owners to start a fulsome and recent data collection of internal plumbing infrastructure
Consider using upcoming changes to the distribution system (pressure changes due to elevated tank location shift) and possibility of backflow events as emergency scenarios for advanced preparedness	Jessica Blanchard	Q3 2023 onward	Delayed: With the MSP yet to be complete (which will house an updated water model), these scenarios would not be effective. To perform this once the updated water model is complete (if software is available to run test scenarios).
To promote public assurance regarding the provision of safe clean drinking water	Jessica Blanchard	Q3 of 2024 onward	In progress: WWW Services Coordinator to collaborate with Operations Support Services Supervisor in Q3 of 2025 to provide more detail for consistent messaging surrounding public reassurance, as the City's website is revamped. This was delayed from its intended Q3 2024 start
To create realistic scenarios (using system flow data) for emergency preparedness training	Jessica Blanchard	Q4 of 2024 onward	Delayed: Due to the yet to be released MSP, which one component is the updated water model. To push this deadline to Q4 of 2025

Action Items resulting from 2024 Management Review:

Action Item	Assigned To	Due Dates	Status/Follow-up
To investigate the possibility of sharing all SOP's and other support documents listed in the Operations Plan on Council's portal in Teams. This will shorten the actual Report to council, but still provide reference for those members interested in their review	Jessica Blanchard	Q1 2025	In progress
To search for business case (assumed completed in 2024 by former Senior Manager of WWW Services) to justify a full time on-call shift for WWW Services	Savannah	Q1 2025 onward	In progress: Access has been granted to emails and drives, and search will be initiated in Q1 of 2025.
Investigate wording in legislative documents surrounding ORO requirement as far as availability and response time when called	Jessica Blanchard	Q2 2025	In progress
To ensure our LOS indicated in the Operations plan are being achieved. Specifically for hydrant flushing and valve turning	WWW Supervisor or ORO overseeing respective operational maintenance program	by end of Q4, 2025	In progress
To investigate parameter changes which would move a WD system from a Class 2 to a Class 3	Jessica Blanchard	Q2 2025	In progress
To create a list of renewal projects which were compromised shortly after their completion due to watermain or sewer repairs, to illustrate the need for resurfacing and infrastructure renewal projects proper alignment	WWW Supervisor and ORO	Q2 2025 or before next annual Infra. Review	In progress

10. Status of management action items identified between management reviews

No action items identified during this review period.

11. Changes that could affect the Quality Management System

- To review, since July 1, 2017, schools and childcare centers in Ontario have been required to test all fountains and drinking water taps in their facilities by Ministry prescribed timelines. If a sample result exceeds the standard, immediate action needs to be taken until the issue is resolved. The increased lead testing requirement was developed to ensure all water taps serving drinking water to children in schools and childcare centers are sampled for lead. This program currently remains the responsibility of the Public Health System. There has been discussion that the MAC for lead in a water distribution system may be lowered to mimic the new Health Canada Guideline (currently the MAC is 0.01 mg/L in water distribution systems in Ontario, where the Health Canada MAC has been lowered to 0.005 mg/L).
- As mentioned in Section 8 of this Management Review, The raw water intake for Niagara Falls Water Treatment plant is planned to be physically shifted to the south. Raw water characteristics may be altered due to this adjustment, and the City will ensure ongoing communication with Niagara Region as it relates to any treatment process that may have to be altered if the raw water characteristics are substantial. This will ensure continued and consistent safe, clean drinking water is being provided throughout the Distribution System.
- Another substantial topic relating to the Quality Management System is the Niagara Regions tentative plans to decommission the Lundy's Lane elevated tank and the Regional watermain on Lundy's Lane (as mentioned in Section 4 of this Management Review). The City will ensure ongoing communication with Niagara Region, to ensure the decommissioning of these assets does not affect water pressure or create contamination (during the construction component of the decommissioning) in the City's Distribution System. This involvement is to achieve ongoing high customer service levels without interruption. The Region has chosen the site for this new tank in the City's southeastern quadrant.
- The Quality Management System may also expand to include a backflow prevention program – as there are continued plans for the City to move forward in further assessing the requirements for initiating such a program in 2025. This will begin with a structured risk assessment on existing properties within the City's Distribution System, and potentially a requirement for all IC & I properties within the City to provide surveys of their property, to aid with the development of a fulsome and accurate initial backflow inventory.

12. Consumer feedback (i.e., internal & external communications)

The Water & Wastewater Services Division continues to flush areas known to have low chlorine residuals weekly.

Discoloured or dirty water calls have continued to decrease; this is due to the extensive capital work taking place in areas known for water quality issues.

13. Resources needed to maintain the Quality Management System

The DWQMS representative (Water & Wastewater Services Compliance Program Manager) continues to use an external consultant for the internal audit. This provides the DWQMS representative with detailed reports and multi-industry expertise during the on-site audit. The city chose to utilize the same internal auditor in 2024 as in 2023, for a fulsome and continued comparative gauge of improvement.

14. Results of DWQMS Infrastructure Review

The DWQMS Infrastructure Review is one of many documents which aid in the decision-making process for determining Capital Works projects and schedules. The DWQMS Representative and the Senior Manager of Water & Wastewater Services, along with the Asset and Infrastructure teams have worked collectively to prioritize the proposal of capital work for design. Suggestions are also provided by Water & Wastewater Services staff based on field experience and observation and are taken into consideration along with other factors (sewer separation, removal of all cast/ductile infrastructure etc.).

Additionally, as operational challenges arise, the Water & Wastewater Services Compliance Program Manager (DWQMS Rep), and Water & Wastewater Services Supervisors ensure these are communicated to the Senior Manager of Water & Wastewater Services who flags these to the Asset and Infrastructure teams for future capital replacement programs.

This consistent line of communication between Operations and Engineering was absent prior to the initiation of the DWQMS.

As previously mentioned, the outcomes of the most recent Risk Management Assessment were presented and considered in during the 2024 Infrastructure Review, and this process will continue for all future Infrastructure Reviews, as suggested by the City's Internal Auditor.

During the 2023 Internal Audit, it was suggested, in keeping with the requirements of Element 15 of the DWQMS, to ensure infrastructure review

findings and the City's infrastructure maintenance, rehabilitation, and renewal programs are communicated to the Owner. Therefore, the 2024 infrastructure review meeting minutes and the Water/Wastewater Services "areas of concern" list of infrastructure (which was developed in 2023 and updated annually) continues to be a component of the Management Review. This "areas of concern list" was further expanded in 2024 to include the Asset Managements tentative timelines for capital renewal projects.

The 2024 Management Review meting minutes and associated Areas of Concern list are attached as Appendix iv) (a and b respectively), for review.

15. Operational Plan currency, content & updates

The Operational Plan was updated in February of 2025 which created the current version/revision 9.

Revision 9 of the Operational Plan had mostly minor alterations from revision 8, which were generally administrative and grammatical, with the only substantial adjustment being the insertion of the official Commitment and Endorsement document (signed by the Owner and Top Management).

City of Niagara Distribution System Operational Plan Revision 9: Summary of Changes: February 2025 is attached as Appendix v).

16. Staff suggestions

Throughout 2024, Water & Wastewater Services staff offered several process improvement/knowledge expansion suggestions for the DWQMS. They included:

- Arranging a tour of the Niagara Falls Water Treatment Plant, to review plant processes and obtain a visual process of how the water is prepared for distribution
- Highlighting areas concern for renewal to ensure they align with road resurfacing, so those recently paved roads are not immediately compromised with main break repairs.
- Consider re-locating or adding an additional Service Centre, to aid with response times, as the City's boarders, infrastructure and populations expand.
- Developing a permanent, year-round on-call shift, to prioritize after hour emergencies and improve response time to them.

17. List of Appendices

- Appendix i)
  - 2024 MECP Inspection Report
- Appendix ii)
  - 2024 NSF Third Party Audit Report
- Appendix iii)
  - 2024 Internal Audit Report
- Appendix iv)
  - a: 2024 Infrastructure Review Meeting Minutes
  - b: 2024 Areas of Concern Excel Doc
- Appendix v)
  - City of Niagara Distribution System Operational Plan Revision 9: Summary of Changes: February 2025

Management Review's Appendices Index

Ministry of the Environment, Conservation and Parks

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June 24, 2024

Jessica Blanchard
Water & Wastewater Services Coordinator
Niagara Falls Distribution System
3200 Stanley Avenue, Niagara Falls, ON L2E 6S4

Re: MECP Inspection – Niagara Falls Distribution System (DWS# 260002304)

Please find the enclosed copy of the inspection report # 1-204034968 for the Niagara Falls Distribution System completed under the Ministry's focused inspection protocol to assess compliance with Safe Drinking Water legislation. The report is based on conditions encountered at the time of inspection, and subsequent follow-up.

If applicable, any items found within the section entitled "Non-Compliance/Non-Conformance Items" which have sections under legislative requirements outline noncompliance with regulatory requirements contained within an Act, a Regulation, or site specific approvals, licenses, permits, orders, or guidelines. Please ensure that the required actions are completed within the prescribed timeframe, if applicable.

The items with "Not Applicable" legislative requirements provide information to the owner or operating authority outlining practices or standards established through existing and emerging industry standards that should be considered in order to advance current efforts. These items do not, in themselves, constitute violations. More recommendations may also be provided within the body of the report.

In order to measure individual inspection results, the Ministry has established an inspection compliance risk framework based on the principles of the Inspection, Investigation & Enforcement (II&E) Secretariat and advice of internal/external risk experts. The Inspection Summary Rating Record (IRR), included as an Appendix of the inspection report, provides the Ministry, the system owner and the local Public Health Units with a summarized quantitative measure of the drinking water system's annual inspection and regulated water quality testing performance. IRR ratings are published (for the previous inspection year) in the Ministry's Chief Drinking Water Inspectors' Annual Report.

Thank you for your time and assistance during the inspection process. If you have any questions or concerns, do not hesitate to contact me or Elizabeth Chee Sing, Water Compliance Supervisor, West Central Region at 519-400-6731 or Elizabeth.cheesing@ontario.ca.

Sincerely,

Kiersten Atamanyk
Provincial Officer #2067, Water Compliance Officer
MECP Niagara District Office
West Central Region
kiersten.atamanyk@ontario.ca

Cc:

Adam Allcock – City of Niagara Falls
Colin Horne - Niagara Public Health Department
Jason Wolf - Niagara Public Health Department
Leilani Lee-Yates - Niagara Peninsula Conservation Authority
Thomas Proks- Niagara Peninsula Conservation Authority
Elizabeth Chee Sing – Water Compliance Supervisor, MECP

Ontario

CITY OF NIAGARA FALLS DISTRIBUTION SYSTEM
Physical Address: 3200 STANLEY AVE, , NIAGARA FALLS, ON

INSPECTION REPORT

System Number:	260002304
Entity:	CITY OF NIAGARA FALLS
Inspection Start Date:	June 10, 2024
Site Inspection Date:	June 10, 2024
Inspection End Date:	June 18, 2024
Inspected By:	Kiersten Atamanyk
Badge #:	2067

(signature)

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APPENDICES:

INTRODUCTION

Purpose

This announced, focused inspection was conducted to confirm compliance with Ministry of the Environment, Conservation and Parks' (MECP) legislation and conformance with ministry drinking water policies and guidelines.

Scope

The ministry utilizes a comprehensive, multi-barrier approach in the inspection of water systems that focuses on the source, treatment, and distribution components as well as management and the operation of the system.

The inspection of the drinking water system included both the physical inspection of the component parts of the system listed in section 4 "Systems Components" of the report and the review of data and documents associated with the operation of the drinking water system during the review 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 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.

Facility Contacts and Dates

The drinking water system is owned and operated by the City of Niagara Falls.

The system serves an estimated population of 92, 069 and is categorized as a Large Municipal Residential System. Information reviewed for this inspection covered the time period of June 1, 2023, to May 31, 2024.

The water compliance officer met with Jessica Blanchard, Water & Wastewater Services Coordinator, as part of the inspection process.

Systems/Components

The Niagara Falls Distribution System only maintains secondary disinfection and distribution of water. Primary disinfection is undertaken by another regulated drinking water system which provides treated water to this drinking water system.

Treated water is received from the Region of Niagara's Niagara Falls Water Treatment Plant. The Niagara Falls Water Treatment Plant is inspected separately from this drinking water system.

Permissions/Approvals

This drinking water system was subject to specific conditions contained within the following permissions and/or approvals (please note this list is not exhaustive) at the time of the inspection in addition to the requirements of the SDWA and its regulations:

- Drinking Water Works Permit (DWWP) 068-201, Issue 4, approved on August 30, 2019.
- Municipal Drinking Water Licence (MDWL) 068-101, Issue 5, approved on January 15, 2020.
- Consolidated Linear Infrastructure Environmental Compliance Approval (CLI-ECA) 068-W601, Issue 2, approved on June 20, 2023.

NON-COMPLIANCE

This should not be construed as a confirmation of full compliance with all potential applicable legal requirements. These inspection findings are limited to the components and/or activities that were assessed, and the legislative framework(s) that were applied. It remains the responsibility of the owner to ensure compliance with all applicable legislative and regulatory requirements.

If you have any questions related to this inspection, please contact the signed Provincial Officer.

RECOMMENDATIONS

This should not be construed as a confirmation of full conformance with all potential applicable BMPs. These inspection findings are limited to the components and/or activities that were assessed, and the legislative framework(s) that were applied. It remains the responsibility of the owner to ensure compliance with all applicable legislative and regulatory requirements.

If you have any questions related to this inspection, please contact the signed Provincial Officer.

INSPECTION DETAILS

This section includes all questions that were assessed during the inspection.

Ministry Program: DRINKING WATER | **Regulated Activity:** DW Municipal Residential

Question ID	DWMR1018001	**Question Type**	Legislative

Legislative Requirement(s):
SDWA | 31 | (1);

Question:
Did the owner ensure that equipment was installed in accordance with Schedule A and Schedule C of the Drinking Water Works Permit?

Compliance Response(s)/Corrective Action(s)/Observation(s):
The owner ensured that equipment was installed as required.

Question ID	DWMR1020001	**Question Type**	Legislative

Legislative Requirement(s):
SDWA | 31 | (1);

Question:
Were Form 1 documents prepared as required?

Compliance Response(s)/Corrective Action(s)/Observation(s):
Form 1 documents were prepared as required.

During the inspection period seven Form 1s were reviewed for the following watermain projects:
- Montrose Rd, Lyons Creek Rd and Biggar Rd
- Jordan Ave, Fern Ave and Marieclaude Ave
- Lyons Creek Rd and Reixinger Rd
- Stanley Business Park
- Waters Ave, Ann St and Richmond Cres
- Brown Rd
- Ferry St

Completed forms appear to meet the requirements of Condition 3 of Schedule B of the DWWP.

Question ID	DWMR1025001	Question Type	Legislative

Legislative Requirement(s):
SDWA | 31 | (1);

Question:
Were all parts of the drinking water system that came in contact with drinking water disinfected in accordance with a procedure listed in Schedule B of the Drinking Water Works Permit?

Compliance Response(s)/Corrective Action(s)/Observation(s):
All parts of the drinking water system were disinfected as required.

The Ministry's Watermain Disinfection Procedure (WDP) was updated and approved in August 2020. As per Condition 2.3.2, the City of Niagara Falls is required to follow the requirements of the updated Watermain Disinfection Procedure, August 2020. The City's watermain commissioning and watermain repairs documentation met the requirements of the 2020 Ontario Watermain Disinfection Procedure.

Question ID	DWMR1033001	Question Type	Legislative

Legislative Requirement(s):
SDWA | O. Reg. 170/03 | 7-2 | (3); SDWA | O. Reg. 170/03 | 7-2 | (4);

Question:
Was secondary disinfectant residual tested as required for the large municipal residential distribution system?

Compliance Response(s)/Corrective Action(s)/Observation(s):
Secondary disinfectant residual was tested as required.

The City of Niagara Falls monitors free chlorine residual (FCR) in the distribution system, utilizing the 4/3 option as described in Sched. 7-2(4) of O. Reg. 170/03 (ie. at least 4 samples taken on one day of the week, at least 3 samples taken on a second day of the week, at least 48 hours apart).

The City generally samples more locations than required. The minimum FCR concentration recorded during the period was 0.22 mg/L on March 12, 2024. The City flushes three areas of concern two to three times a week.

Question ID	DWMR1099001	Question Type	Information

Legislative Requirement(s):
Not Applicable

Question:
Do records show that water provided by the drinking water system met the Ontario Drinking Water Quality Standards?

Compliance Response(s)/Corrective Action(s)/Observation(s):
Records showed that not all water sample results met the Ontario Drinking Water Quality Standards.

During the inspection period there was one sample result that exceeded the value under O. Reg.169/03 of the Ontario Drinking Water Quality Standard.
• November 20, 2023, Total Coliform 1, sample taken at Wally's Auto at 5580 Swayze Drive. All re-samples came back clear.

All corrective actions were completed as required.

Question ID	DWMR1081001	**Question Type**	Legislative

Legislative Requirement(s):
SDWA | O. Reg. 170/03 | 10-2 | (1); SDWA | O. Reg. 170/03 | 10-2 | (2); SDWA | O. Reg. 170/03 | 10-2 | (3);

Question:
Were distribution microbiological sampling requirements prescribed by Schedule 10-2 of O. Reg. 170/03 for large municipal residential systems met?

Compliance Response(s)/Corrective Action(s)/Observation(s):
Distribution microbiological sampling requirements were met.

As per Schedule 10-2 of O. Reg 170/03, the City is required to take a minimum of 100 (8+92) microbiological samples per month.

During the inspection period, the City complied with the minimum microbiological sampling requirements. In addition, at least 25% of these samples must also be tested for Heterotrophic Plate Count (HPC). All bacteriological samples were tested for HPC.

Question ID	DWMR1096001	**Question Type**	Legislative

Legislative Requirement(s):
SDWA | O. Reg. 170/03 | 6-3 | (1);

Question:
Did records confirm that chlorine residual tests were conducted at the same time and location as microbiological samples?

Compliance Response(s)/Corrective Action(s)/Observation(s):
Records confirmed that chlorine residual tests were conducted as required.

Question ID	DWMR1086001	**Question Type**	Legislative

Legislative Requirement(s):
SDWA | O. Reg. 170/03 | 13-6.1 | (1); SDWA | O. Reg. 170/03 | 13-6.1 | (2); SDWA | O. Reg. 170/03 | 13-6.1 | (3); SDWA | O. Reg. 170/03 | 13-6.1 | (4); SDWA | O. Reg. 170/03 | 13-6.1 |

(5); SDWA | O. Reg. 170/03 | 13-6.1 | (6);

Question:
Were haloacetic acid sampling requirements prescribed by Schedule 13-6 of O. Reg. 170/03 met?

Compliance Response(s)/Corrective Action(s)/Observation(s):
Haloacetic acid sampling requirements were met.

Haloacetic Acid (HAA) samples were collected and tested on a quarterly basis with an annual running average of 8.875 ug/L. The limit for this parameter is 80 µg/L. The City takes samples at two different locations throughout its distribution system, Hydrant 00101 on Stanley Avenue and 8251 Wiloughby Drive.

Question ID	DWMR1087001	**Question Type**	Legislative

Legislative Requirement(s):
SDWA | O. Reg. 170/03 | 13-6 | (1); SDWA | O. Reg. 170/03 | 13-6 | (2); SDWA | O. Reg. 170/03 | 13-6 | (3); SDWA | O. Reg. 170/03 | 13-6 | (4); SDWA | O. Reg. 170/03 | 13-6 | (5); SDWA | O. Reg. 170/03 | 13-6 | (6);

Question:
Were trihalomethane sampling requirements prescribed by Schedule 13-6 of O. Reg. 170/03 met?

Compliance Response(s)/Corrective Action(s)/Observation(s):
Trihalomethane sampling requirements were met.

Trihalomethane (THM) samples were collected and tested on a quarterly basis with an annual running average of 31.75 ug/L.

Question ID	DWMR1094001	**Question Type**	Legislative

Legislative Requirement(s):
SDWA | 31 | (1);

Question:
Were water quality sampling requirements imposed by the Municipal Drinking Water Licence and Drinking Water Works Permit met?

Compliance Response(s)/Corrective Action(s)/Observation(s):
Water quality sampling requirements were met.

Condition 1 of Schedule D of Issue 5 of MDWL 068-101 allows the City of Niagara Falls to take less lead samples than would be required by Schedule 15.1 of O. Reg. 170/03. However, the City is required to make every reasonable effort to ensure samples taken in accordance with Table 1 are within areas identified in the Niagara Falls Distribution System Lead Sampling Map, dated July 24, 2014.

The City is required to take the following samples during every lead sampling session:
- Number of Sampling Points in Plumbing that Serves Private Residences: 20
- Number of Sampling Points in Plumbing that Does Not Serve Private Residences: 2
- Number of Sampling Points in Distribution System: 4

All water quality monitoring requirements were being met.

Question ID	DWMR1104001	**Question Type**	Legislative

Legislative Requirement(s):
SDWA | O. Reg. 170/03 | 16-6 | (1); SDWA | O. Reg. 170/03 | 16-6 | (2); SDWA | O. Reg. 170/03 | 16-6 | (3); SDWA | O. Reg. 170/03 | 16-6 | (3.1); SDWA | O. Reg. 170/03 | 16-6 | (3.2); SDWA | O. Reg. 170/03 | 16-6 | (4); SDWA | O. Reg. 170/03 | 16-6 | (5); SDWA | O. Reg. 170/03 | 16-6 | (6);

Question:
Were immediate verbal notification requirements for adverse water quality incidents met?

Compliance Response(s)/Corrective Action(s)/Observation(s):
Immediate verbal notification requirements for adverse water quality incidents were met.

Question ID	DWMR1101001	**Question Type**	Legislative

Legislative Requirement(s):
SDWA | O. Reg. 170/03 | 17-1; SDWA | O. Reg. 170/03 | 17-10 | (1); SDWA | O. Reg. 170/03 | 17-11; SDWA | O. Reg. 170/03 | 17-12; SDWA | O. Reg. 170/03 | 17-13; SDWA | O. Reg. 170/03 | 17-14; SDWA | O. Reg. 170/03 | 17-2; SDWA | O. Reg. 170/03 | 17-3; SDWA | O. Reg. 170/03 | 17-4; SDWA | O. Reg. 170/03 | 17-5; SDWA | O. Reg. 170/03 | 17-6; SDWA | O. Reg. 170/03 | 17-9;

Question:
For large municipal residential systems, were corrective actions, including any steps directed by the Medical Officer of Health, taken to address adverse conditions?

Compliance Response(s)/Corrective Action(s)/Observation(s):
Corrective actions were taken to address adverse conditions.

Question ID	DWMR1103001	**Question Type**	Legislative

Legislative Requirement(s):
SDWA | O. Reg. 170/03 | 15.1-10;

Question:
Were corrective actions as directed by the Medical Officer of Health taken by the owner and operating authority to address exceedances of the lead standard in plumbing?

Compliance Response(s)/Corrective Action(s)/Observation(s):
Corrective actions were taken as directed by the Medical Officer of Health.

Question ID	DWMR1114001	Question Type	Legislative

Legislative Requirement(s):
SDWA | 31 | (1);

Question:
Did the owner have evidence that, when required, all legal owners associated with the drinking water system were notified of the requirements of the Municipal Drinking Water Licence and Drinking Water Works Permit?

Compliance Response(s)/Corrective Action(s)/Observation(s):
The owner had evidence that the required notifications were made.

Question ID	DWMR1045001	Question Type	Legislative

Legislative Requirement(s):
SDWA | 31 | (1);

Question:
Did the owner update the document describing the distribution components within 12 months of completion of alterations to the system in accordance with the Drinking Water Works Permit?

Compliance Response(s)/Corrective Action(s)/Observation(s):
The owner had up-to-date documents describing the distribution components.

Question ID	DWMR1060001	Question Type	Legislative

Legislative Requirement(s):
SDWA | 31 | (1);

Question:
Did the operations and maintenance manual(s) meet the requirements of the Municipal Drinking Water Licence?

Compliance Response(s)/Corrective Action(s)/Observation(s):
The operations and maintenance manual(s) met the requirements of the Municipal Drinking Water Licence.

Question ID	DWMR1062001	Question Type	Legislative

Legislative Requirement(s):
SDWA | O. Reg. 170/03 | 7-5;

Question:
Did records or other record keeping mechanisms confirm that operational testing not performed by continuous monitoring equipment was done by a certified operator, water quality analyst, or person who met the requirements of Schedule 7-5 of O. Reg. 170/03?

Compliance Response(s)/Corrective Action(s)/Observation(s):
Records or other record keeping mechanisms confirmed that operational testing not performed by continuous monitoring equipment was done by a certified operator, water quality analyst, or person who met the requirements of Schedule 7-5 of O. Reg. 170/03.

The City moved to electronic logs on January 1, 2023, utilizing (Cartegraph OMS) where all operator reports, and main break reports are directly entered into the City's database. All records are associated to the City's assets and tasks have been created and time stamped when an operator has completed the task.

While reviewing the non-watermain break operator reports, there were 3 instances of negative flushing duration times for hydrants noted. In all 3 cases, the end flushing times were entered electronically as an "am" time instead of "pm" – creating the discrepancy and negative flushing times, this was confirmed by the operators to the Operations Supervisor and Overall Responsible Operator (ORO). The City has requested their IT Division mitigate this issue to prevent future occurrences. No further actions are required.

Question ID	DWMR1071001	Question Type	BMP

Legislative Requirement(s):
Not Applicable

Question:
Did the owner provide security measures to protect components of the drinking water system?

Compliance Response(s)/Corrective Action(s)/Observation(s):
The owner provided security measures to protect components of the drinking water system.

The City has two bulk filling stations, one located on Stanley Ave across from the Public Works building and one at the corner of Stanley Ave and Chippawa Parkway. Both stations are locked with access codes and the area is monitored using security cameras. The stations are also equipped with backflow devices and are tested annually, the devices were last calibrated/tested on May 1, 2024, and November 6, 2023, respectively.

Question ID	DWMR1073001	Question Type	Legislative

Legislative Requirement(s):
SDWA | O. Reg. 128/04 | 23 | (1);

Question:
Was an overall responsible operator designated for all subsystems which comprise the drinking water system?

Compliance Response(s)/Corrective Action(s)/Observation(s):
An overall responsible operator was designated for all subsystem.

Niagara Falls Distribution System (DS) is classified as a Class 2 DS which received License #1445 on July 18, 2005. The designated ORO is Michael Pullano, who holds a valid Class 2 license, expiring May 31, 2027. Jonathan Danyluck has been designated as the backup ORO, who holds a valid Class 2 license, expiring September 30, 2024.

Question ID	DWMR1074001	**Question Type**	Legislative

Legislative Requirement(s):
SDWA | O. Reg. 128/04 | 25 | (1);

Question:
Were operators-in-charge designated for all subsystems which comprise the drinking water system?

Compliance Response(s)/Corrective Action(s)/Observation(s):
Operators-in-charge were designated for all subsystems.

Question ID	DWMR1075001	**Question Type**	Legislative

Legislative Requirement(s):
SDWA | O. Reg. 128/04 | 22;

Question:
Were all operators certified as required?

Compliance Response(s)/Corrective Action(s)/Observation(s):
All operators were certified as required.

A search of the Ontario Water Wastewater Certification Office (OWWCO) operator listing report website showed that all operators have the required certification.

Question ID	DWMR1117001	**Question Type**	Information

Legislative Requirement(s):
Not Applicable

Question:
Were there any other items related to the drinking water system that should be recognized in the report?

Compliance Response(s)/Corrective Action(s)/Observation(s):
The following items were noted as being relevant to the drinking water system:

As part of the 2023 Internal and External Audit, it was suggested the City of Niagara Falls add a sample location to represent the Northwest area of the City. As a result, the City of Niagara Falls has started to utilize the sample station located across the road from 84 Concession 6 Road, Niagara-on-the-lake. The sample station is 450 meters from the City of Niagara Falls transition meter and is part of the Bevan Heights Distribution System. Niagara-on-the-Lake operators collect weekly chlorine residual and biweekly microbiological samples from this station, sample results are provided to the City of Niagara Falls on a monthly basis. The City of Niagara Falls has been receiving monthly samples from this station since January 2024.

Appendix A

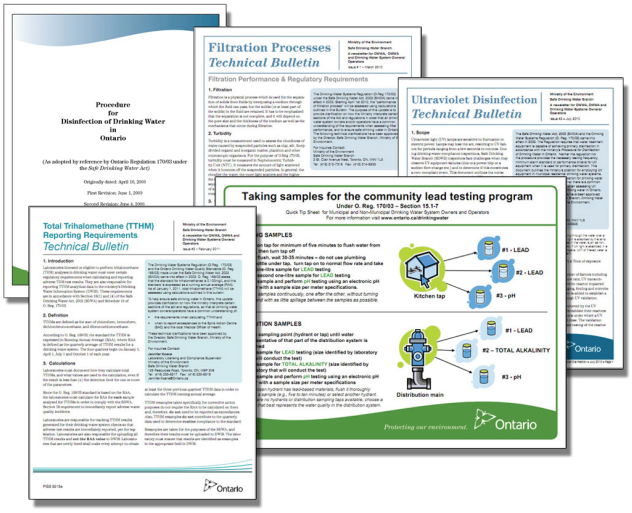
Stakeholder Appendix

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 Public Information Centre if you need assistance or have questions at 1-800-565-4923/416-325-4000 or **picemail.moe@ontario.ca**.

For more information on Ontario's drinking water visit **www.ontario.ca/drinkingwater** and email **drinking.water@ontario.ca** to subscribe to drinking water news.

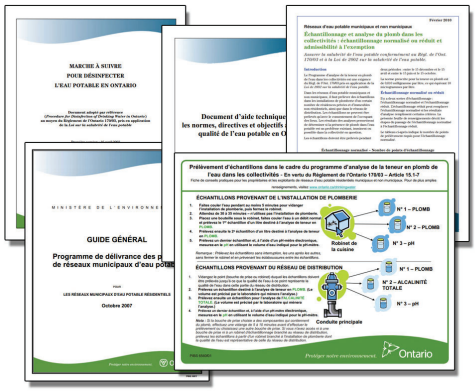


PUBLICATION TITLE	PUBLICATION NUMBER
Taking Care of Your Drinking Water: A Guide for Members of Municipal Councils	7889e01
FORMS: Drinking Water System Profile Information, Laboratory Services Notification, Adverse Test Result Notification Form	7419e, 5387e, 4444e
Procedure for Disinfection of Drinking Water in Ontario	4448e01
Strategies for Minimizing the Disinfection Products Trihalomethanes and Haloacetic Acids	7152e
Total Trihalomethane (TTHM) Reporting Requirements Technical Bulletin (February 2011)	8215e
Filtration Processes Technical Bulletin	7467
Ultraviolet Disinfection Technical Bulletin	7685
Guide for Applying for Drinking Water Works Permit Amendments, Licence Amendments, Licence Renewals and New System Applications	7014e01
Certification Guide for Operators and Water Quality Analysts	
Guide to Drinking Water Operator Training Requirements	9802e
Taking Samples for the Community Lead Testing Program	6560e01
Community Sampling and Testing for Lead: Standard and Reduced Sampling and Eligibility for Exemption	7423e
Guide: Requesting Regulatory Relief from Lead Sampling Requirements	6610
Drinking Water System Contact List	7128e
Technical Support Document for Ontario Drinking Water Quality Standards	4449e01

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 Centre d'information au public au 1 800 565-4923 ou au 416 325-4000, ou encore à **picemail.moe@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** ou envoyez un courriel à **drinking.water@ontario.ca** pour suivre l'information sur l'eau potable.

TITRE DE LA PUBLICATION	NUMÉRO DE PUBLICATION
Prendre soin de votre eau potable – Un guide destiné aux membres des conseils municipaux	7889f01
Renseignements sur le profil du réseau d'eau potable, Avis de demande de services de laboratoire, Formulaire de communication de résultats d'analyse insatisfaisants et du règlement des problèmes	7419f, 5387f, 4444f
Marche à suivre pour désinfecter l'eau potable en Ontario	4448f01
Strategies for Minimizing the Disinfection Products Thrihalomethanes and Haloacetic Acids (en anglais seulement)	7152e
Total Trihalomethane (TTHM) Reporting Requirements: Technical Bulletin (février 2011) (en anglais seulement)	8215e
Filtration Processes Technical Bulletin (en anglais seulement)	7467
Ultraviolet Disinfection Technical Bulletin (en anglais seulement)	7685
Guide de présentation d'une demande de modification du permis d'aménagement de station de production d'eau potable, de modification du permis de réseau municipal d'eau potable, de renouvellement du permis de réseau municipal d'eau potable et de permis pour un nouveau réseau	7014f01
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	
Guide sur les exigences relatives à la formation des exploitants de réseaux d'eau potable	9802f
Prélèvement d'échantillons dans le cadre du programme d'analyse de la teneur en plomb de l'eau dans les collectivités	6560f01
Échantillonnage et analyse du plomb dans les collectivités : échantillonnage normalisé ou réduit et admissibilité à l'exemption	7423f
Guide: Requesting Regulatory Relief from Lead Sampling Requirements (en anglais seulement)	6610
Liste des personnes-ressources du réseau d'eau potable	7128f
Document d'aide technique pour les normes, directives et objectifs associés à la qualité de l'eau potable en Ontario	4449f01

ontario.ca/eaupotable

Appendix B

Inspection Rating Record (IRR)

APPLICATION OF THE RISK METHODOLOGY USED FOR MEASURING MUNICIPAL RESIDENTIAL DRINKING WATER SYSTEM INSPECTION RESULTS

The Ministry of the Environment (MOE) has a rigorous and comprehensive inspection program for municipal residential drinking water systems (MRDWS). Its objective is to determine the compliance of MRDWS with requirements under the Safe Drinking Water Act and associated regulations. It is the responsibility of the municipal residential drinking water system owner to ensure their drinking water systems are in compliance with all applicable legal requirements.

This document describes the risk rating methodology, which has been applied to the findings of the Ministry's MRDWS inspection results since fiscal year 2008-09. The primary goals of this assessment are to encourage ongoing improvement of these systems and to establish a way to measure this progress.

MOE reviews the risk rating methodology every three years.

The Ministry's Municipal Residential Drinking Water Inspection Protocol contains 15 inspection modules consisting of approximately 100 regulatory questions. Those protocol questions are also linked to definitive guidance that ministry inspectors use when conducting MRDWS inspections.

The questions address a wide range of regulatory issues, from administrative procedures to drinking water quality monitoring. The inspection protocol also contains a number of non-regulatory questions.

A team of drinking water specialists in the ministry assessed each of the inspection protocol regulatory questions to determine the risk (not complying with the regulation) to the delivery of safe drinking water. This assessment was based on established provincial risk assessment principles, with each question receiving a risk rating referred to as the Question Risk Rating. Based on the number of areas where a system is deemed to be non-compliant during the inspection, and the significance of these areas to administrative, environmental, and health consequences, a risk-based inspection rating is calculated by the ministry for each drinking water system.

It is important to be aware that an inspection rating less than 100 per cent does not mean the drinking water from the system is unsafe. It shows areas where a system's operation can improve. The ministry works with owners and operators of systems to make sure they know what they need to do to achieve full compliance.

The inspection rating reflects the inspection results of the specific drinking water system for the reporting year. Since the methodology is applied consistently over a period of years, it serves as a comparative measure both provincially and in relation to the individual system. Both the drinking water system and the public are able to track the performance over time, which encourages continuous improvement and allows systems to identify specific areas requiring attention.

The ministry's annual inspection program is an important aspect of our drinking water safety net. The ministry and its partners share a common commitment to excellence and we continue to work toward the goal of 100 per cent regulatory compliance.

Determining Potential to Compromise the Delivery of Safe Water

The risk management approach used for MRDWS is aligned with the Government of Ontario's Risk Management Framework. Risk management is a systematic approach to identifying potential hazards, understanding the likelihood and consequences of the hazards, and taking steps to reduce their risk if necessary and as appropriate.

The Risk Management Framework provides a formula to be used in the determination of risk:

RISK = LIKELIHOOD × CONSEQUENCE
(of the consequence)

Every regulatory question in the inspection protocol possesses a likelihood value (L) for an assigned consequence value (C) as described in **Table 1** and **Table 2**.

TABLE 1:

Likelihood of Consequence Occurring	Likelihood Value
0% - 0.99% (Possible but Highly Unlikely)	L = 0
1 – 10% (Unlikely)	L = 1
11 – 49% (Possible)	L = 2
50 – 89% (Likely)	L = 3
90 – 100% (Almost Certain)	L = 4

TABLE 2:

Consequence	Consequence Value
Medium Administrative Consequence	C = 1
Major Administrative Consequence	C = 2
Minor Environmental Consequence	C = 3
Minor Health Consequence	C = 4
Medium Environmental Consequence	C = 5
Major Environmental Consequence	C = 6
Medium Health Consequence	C = 7
Major Health Consequence	C = 8

The consequence values (0 through 8) are selected to align with other risk-based programs and projects currently under development or in use within the ministry as outlined in **Table 2**.

The Question Risk Rating for each regulatory inspection question is derived from an evaluation of every identified consequence and its corresponding likelihood of occurrence:

- All levels of consequence are evaluated for their potential to occur
- Greatest of all the combinations is selected.

The Question Risk Rating quantifies the risk of non-compliance of each question relative to the others. Questions with higher values are those with a potentially more significant impact on drinking water safety and a higher likelihood of occurrence. The highest possible value would be 32 (4×8) and the lowest would be 0 (0×1).

Table 3 presents a sample question showing the risk rating determination process.

TABLE 3:

Does the Operator in Charge ensure that the equipment and processes are monitored, inspected and evaluated?

Risk = Likelihood × Consequence							
C=1	C=2	C=3	C=4	C=5	C=6	C=7	C=8
Medium Administrative Consequence	**Major** Administrative Consequence	**Minor** Environmental Consequence	**Minor** Health Consequence	**Medium** Environmental Consequence	**Major** Environmental Consequence	**Medium** Health Consequence	**Major** Health Consequence
L=4 (Almost Certain)	L=1 (Unlikely	L=2 (Possible)	L=3 (Likely)	L=3 (Likely)	L=1 (Unlikely	L=3 (Likely)	L=2 (Possible)
R=4	**R=2**	**R=6**	**R=12**	**R=15**	**R=6**	**R=21**	**R=16**

Application of the Methodology to Inspection Results

Based on the results of a MRDWS inspection, an overall inspection risk rating is calculated. During an inspection, inspectors answer the questions related to regulatory compliance and input their "yes", "no" or "not applicable" responses into the Ministry's Laboratory and Waterworks Inspection System (LWIS) database. A "no" response indicates non-compliance. The maximum number of regulatory questions asked by an inspector varies by: system (i.e., distribution, stand-alone); type of inspection (i.e., focused, detailed); and source type (i.e., groundwater, surface water).

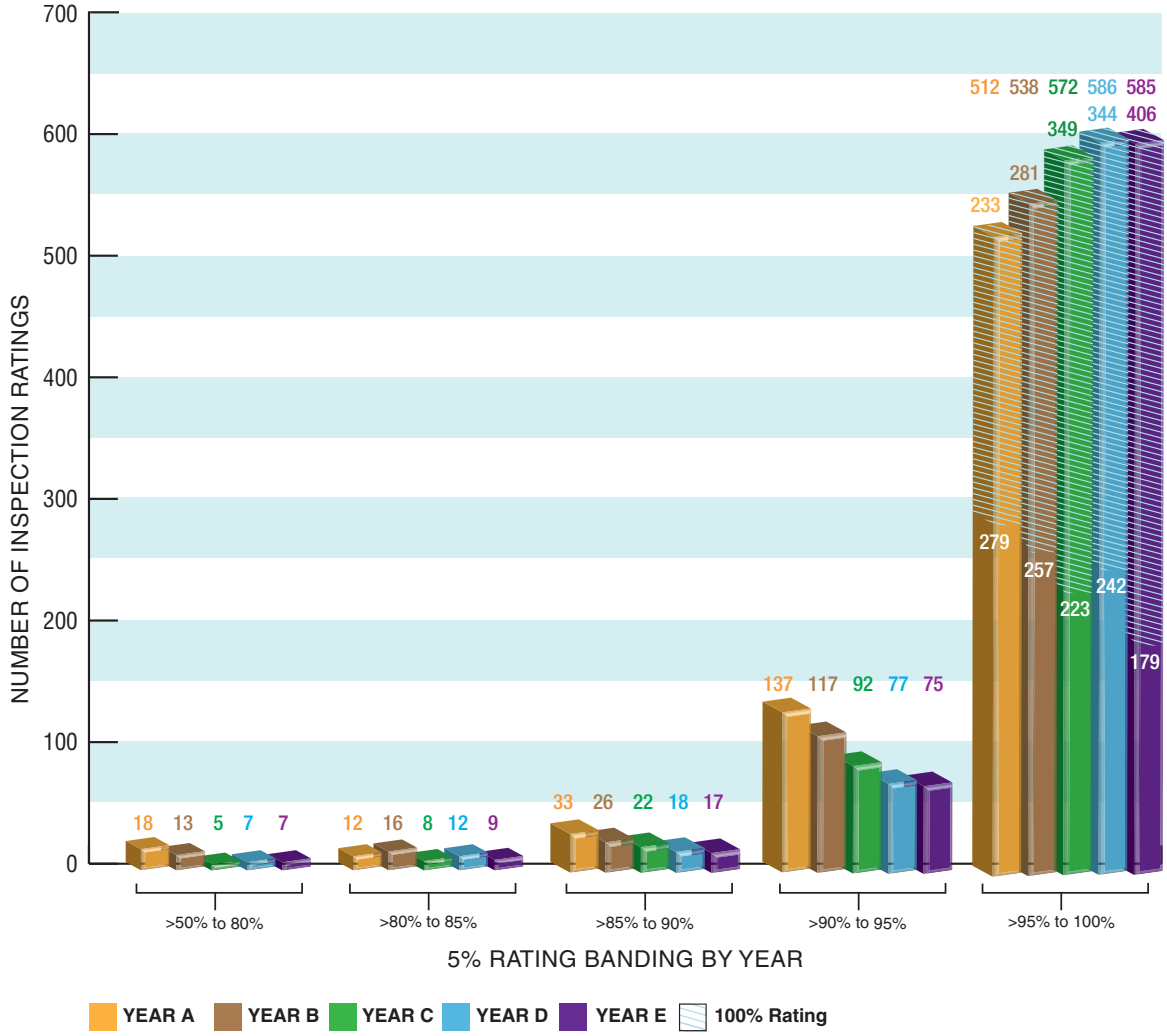
The risk ratings of all non-compliant answers are summed and divided by the sum of the risk ratings of all questions asked (maximum question rating). The resulting inspection risk rating (as a percentage) is subtracted from 100 per cent to arrive at the final inspection rating.

Application of the Methodology for Public Reporting

The individual MRDWS Total Inspection Ratings are published with the ministry's Chief Drinking Water Inspector's Annual Report.

Figure 1 presents the distribution of MRDWS ratings for a sample of annual inspections. Individual drinking water systems can compare against all the other inspected facilities over a period of inspection years.

Figure 1: Year Over Year Distribution of MRDWS Ratings



Reporting Results to MRDWS Owners/Operators

A summary of inspection findings for each system is generated in the form of an Inspection Rating Record (IRR). The findings are grouped into the 15 possible modules of the inspection protocol, which would provide the system owner/operator with information on the areas where they need to improve. The 15 modules are:

1. Source
2. Permit to Take Water
3. Capacity Assessment
4. Treatment Processes
5. Treatment Process Monitoring
6. Process Wastewater
7. Distribution System
8. Operations Manuals
9. Logbooks
10. Contingency and Emergency Planning
11. Consumer Relations
12. Certification and Training
13. Water Quality Monitoring
14. Reporting, Notification and Corrective Actions
15. Other Inspection Findings

For further information, please visit **www.ontario.ca/drinkingwater**

DWS Name:	City of Niagara Falls Distribution System
DWS Number:	260002304
DWS Owner:	CITY OF NIAGARA FALLS
Municipal Location:	NIAGARA FALLS
Regulation:	O.REG. 170/03
DWS Category:	DW Municipal Residential
Type of Inspection:	Focused
Compliance Assessment Start Date:	Jun-10-2024
Ministry Office:	Niagara District Office

Maximum Risk Rating: 234

Inspection Module	Non Compliance Risk (X out of Y)
Certification and Training	0/28
Distribution System	0/4
Logbooks	0/14
Operations Manuals	0/14
Reporting & Corrective Actions	0/63
Treatment Processes	0/60
Water Quality Monitoring	0/51
Overall - Calculated	**0/234**

Inspection Risk Rating:	**0.00%**

Final Inspection Rating:	**100.00%**

DWS Name:	City of Niagara Falls Distribution System
DWS Number:	260002304
DWS Owner Name:	CITY OF NIAGARA FALLS
Municipal Location:	NIAGARA FALLS
Regulation:	O.REG. 170/03
DWS Category:	DW Municipal Residential
Type of Inspection:	Focused
Compliance Assessment Start Date:	Jun-10-2024
Ministry Office:	Niagara District Office

All legislative requirements were met. No detailed rating scores.

Maximum Question Rating: 234

Inspection Risk Rating:	**0.00%**

FINAL INSPECTION RATING:	**100.00%**

NSF International Strategic Registrations Audit Report

Corporation of the City of Niagara Falls

3200 Stanley Avenue
Niagara Falls, Ontario L2E 6S4 CAN

C0122263

Audit Type

Surveillance Audit

Auditor

James Pang

Standard

Ontario's Drinking Water Quality Management Standard Version 2
(Exp Date: 06-OCT-2026)

Audit Date(s):

07/03/2024 - 07/04/2024

Recommendation

Ontario's Drinking Water Quality Management Standard Version 2 : Continue Certification (No NCRs)

Executive Summary

Ontario's Drinking Water Quality Management Standard Version 2	The QMS rep was diligent in the maintenance of this DWQMS.

Opportunities

Ontario's Drinking Water Quality Management Standard Version 2	Two OFIs

Corrective Action Requests

There is NO Corrective Action Request in this audit.

Site Information

The audit was based on a sampling of the company's management system.

Industry Codes

NACE:E 41

Scope of Registration

Ontario's Drinking Water Quality Management Standard Version 2 : City of Niagara Falls Drinking Water System, 068-OA1, Entire Full Scope Accreditation

Opportunities for Improvements

Ontario's Drinking Water Quality Management Standard Version 2

Opportunity	Observations / Auditor Notes
Opportunities for Improvements (DWQMS)-01	**Location of OFI** Management Review; **Discussed With** Jessica Blanchard and Ryan O'Donnell ; **Description** Reviewed the minutes of management review held on Feb 6, 2024. All the prescribed agenda items were addressed. The Top Management, the GM of Municipal Works was in attendance. Noted that the OFI from 2023 external audit "consider to document the new action items together with their respective timelines and responsible parties" was visible in this record. As an improvement to the record of future management reviews, the management concerned should consider to include the period reviewed.;
Opportunities for Improvements (DWQMS)-02	**Location of OFI** Continual Improvement; **Discussed With** Jessica Blanchard and Ryan O'Donnell ; **Description** Reviewed a tabulation of continual improvements of the QMS with 33 items listed of which 4 were for 2024 to be in general conformance. Lessons learned from the emergency exercise held on Nov 16, 2023 should be included in this table because they are also improvements to the emergency preparedness of the QMS. ;

General Information

Operating Authority: Legal Name & Address	**Corporation of the City of Nagara Falls, 4310 Queen Street, Niagara Falls, ON L2E 6X5**
Language Preference: Correspondence	**English**
Language Preference: Audit	**English**
Owner: Legal Name and Address	**Corporation of the City of Nagara Falls, 4310 Queen Street, Niagara Falls, ON L2E 6X5**
Owner Language Preference: Correspondence	**English**
Owner Language Preference: Audit	**English**
Applicant Representative Information; Include Name, Title, Phone, Fax, Email & Website	**Jessica Blanchard Compliance Program Manager City of Niagara Falls,(905) 356-7521 ext. 6209 Fax 905-356-6460 jblanchard@niagarafalls.ca**
Accreditation Option	**Full Scope - Entire DWQMS**
Date of Previous Systems Audit:	**May 10 & 11, 2022**
Date of Previous On-Site Verification Audit:	**July 28 to 31, 2023**

Processes

Ontario's Drinking Water Quality Management Standard Version 2

Process Name	Observations / Auditor Notes
Processes or Activities (DWQMS)-01	**Describe whether the process is effective or not (effectiveness should be supported with specific data/records/results). Include strengths & weaknesses of process:** Conforming elements reviewed are as below: Element 3 - Reviewed minutes of Council Resolution approving the OP on March 19, 2024 submitted by the Top Management (General Manager, Municipal Works) and the CAO. Element 4 - The Department of Municipal Works Water & Wastewater Services Coordinator has been appointed as the Quality Management System Representative for the City of Niagara Falls QMS. Element 7 - Noted from the Continual Improvement Initiative table that the OFI from the 2023 external audit had been accepted and action to be undertaken in the 2026. The last Risk Assessment was carried out on July 6, 2023. It was undertaken by more than the minimum personnel required by the management, which is a good thing. Record of what transpired were well documented. Element 8 - Reviewed the only AWQI case #164067 for the last 12 months. Records of reporting and resolution were in order. Element 14 - Noted that the 2023 external audit OFI, "to date the record of infrastructure review" was carried out as per new record of infrastructure review dated October 13, 2023. Element 15 - The improvement requested in the 2023 external audit OFI was noted to be in progress. Reviewed a draft 2025 10 year forecast, from 2025 to 2035. The proposed waterman replacements were identifiable to the the road names. Element 16 - Noted that the OA was implementing the OFI raised during the 2023 external audit. They were obtaining micro samples from the neighboring municipality Niagara-on-the-Lake. They planned to continue obtaining these samples as a representation of this area of their system on a monthly or bi-monthly basis moving forward, to mirror our system sampling schedules. Element 17 - Noted that checks had been performed on all components of the City's measuring and recording equipment (including supplies). This will be followed up during the next onsite audit. Element 18 - Reviewed a record of an emergency exercise held on Nov 16, 2023, participated by 10 staff members. It was noted that the number of staff involved had increased from 6 to 10. Lessons learned were documented, and followed up with evidence. Element 19 - Reviewed records as contained in an internal audit report dated Dec 22, 2023, prepared by Acclaims Environmental for their audit conducted on December 13 and 18, 2023 to be generally conformance. All the 21 elements were reviewed. Objective evidence were recorded for each requirement. The auditors were independent of the DWS activities. The period of review by the audit was clearly identified. Element 20 - Reviewed the minutes of management review held on Feb 6, 2024. All the prescribed agenda items were addressed. The Top Management, the GM of Municipal Works was in attendance. Noted that the OFI from 2023 external audit "consider to document the new action items together with their respective timelines and responsible parties" was visible in this record. As an improvement to the record of future management reviews, the management concerned should consider to include the period reviewed.;

Summary of Findings	
Requirement	**Finding**
1. Quality Management System	N/A
2. Quality Management System Policy	N/A
3. Commitment and Endorsement	C
4. Quality Management System Representative	C
5. Document and Record Control	N/A
6. Drinking-Water System	N/A
7. Risk Assessment	C
8. Risk Assessment Outcomes	C
9. Organizational Structure, Roles, Responsibilities, and Authorities	N/A
10. Competencies	N/A
11. Personnel Coverage	N/A
12. Communications	N/A
13. Essential Supplies and Services	N/A
14. Review and Provision of Infrastructure	C
15. Infrastructure Maintenance, Rehabilitation & Renewal	C
16. Sampling, Testing & Monitoring	C
17. Measurement & Recording Equipment, Calibration & Maintenance	N/A
18. Emergency Management	C
19. Internal Audits	C
20. Management Review	OFI
21. Continual Improvement	OFI

Mj	Major Non-Conformity. The auditor has determined one of the following: (a) a required element of the DWQMS has not been incorporated into a QMS: (b) a systemic problem with a QMS is evidenced by two or more minor conformities; or (c) a minor non-conformity identified in a corrective action request has not been remedied.
Mn	Minor Non-Conformity. In the opinion of the auditor, part of a required element of the DWQMS has not been incorporated satisfactorily into a QMS.
OFI	Opportunity for Improvement. Conforms to requirement, but there is opportunity for improvement.
C	Conforms to requirement.
	Not Applicable to this audit
*	Additional Comment added by auditor in the body of the report.

Verification of CARs For Ontario's Drinking Water Quality Management Standard Version 2
Have you verified the effectiveness of all previous CARs? (List all new CAR's that you initiated in this report because you did not verify effective implementation of a previous CAR) N/A.
Discuss your evaluation in detail. No CAR from the previous audit.

Drinking Water Quality Management Standard (DWQMS 2.0)

Internal Audit Report

For the period of:

December 19, 2023 to December 6, 2024

For:

City of Niagara Falls

Water & Wastewater Services

City of Niagara Falls Distribution System

Conducted by:

acclaims ENVIRONMENTAL
acclaims.ca

Audit dates: December 5-6, 2024

Report date: December 7, 2024

Contents

1.0 AUDIT DETAILS

1.1 Organization information

Owner name	City of Niagara Falls		
Owner mailing address	3200 Stanley Ave., Niagara Falls, ON, L2E6S5		
DWS class(es) and name(s) e.g. Class I "x" Water Distribution System or Class II "x" Drinking Water System ☒ Completed Subject System Description Form included	Niagara Falls Distribution System, Class II MDWL – 068-101, Issue 6 DWWP – 068-201, Issue 5		
Population served	92069		
Operating authority (OA)	City of Niagara Falls	**## of staff:**	40
OA mailing address	3200 Stanley Ave., Niagara Falls, ON, L2E6S5		
OA physical site address	3200 Stanley Ave., Niagara Falls, ON, L2E6S5		
Primary contact name	Jessica Blanchard	**Phone no.**	
Primary contact e-mail	jblanchard@niagarafalls.ca		
Secondary contact name	Ryan O'Donnell	**Phone no.**	
Secondary contact e-mail	rodonnell@niagarafalls.ca		

1.2 Audit information

Standards / criteria used	Drinking Water Quality Management Standard (DWQMS 2.0) ISO 19011:2018 – Guidelines for auditing management systems
Dates of previous audit	December 13 and 18, 2023
Dates of this year's audit	December 5-6, 2024
Lead auditor	Janine deBoer
Audit team member(s)	NA
Time period covered in scope	December 19, 2023 – December 6, 2024
DWS's in audit scope	As noted above and in the completed Subject System Description Form.

1.3 Audit objectives, constraints and confidentiality

To confirm that the organization's quality management system (QMS) is effectively implemented, achieving its intended outcomes, conforming to requirements of the DWQMS 2.0, and meeting QMS policy commitments throughout.

In order to conduct audits within scope, time and budgetary constraints, audit evidence is based on a sampling of processes, programs, and information available. The size of the sample selected is appropriate to the size and scale of the operation and information available. Objective evidence collected is based upon the sampling. The conclusions presented in the audit report are based on information presented during the internal audit.

Information gathered by the audit team is the property of the client only and will not be transmitted to any third party without the prior written consent of an authorized representative. All documents provided by the organization prior to and during the assessment are kept only for the purpose of audit review and audit report preparation.

1.4 Audit plan

Based on the drinking water system information provided in section 1.0, the following activities form part of the audit:

1. **Desktop review** (reviewing conformity of documented information (see s.1.5) against the DWQMS 2.0 requirements)
2. **QMS audit interviews** for processes and programs listed below, as applicable ("NA" is placed for topics not covered):

MM-DD	Time	Auditee	Process / Program (DWQMS elements covered in brackets)
12-06	8:00	ALL	**Opening meeting** (El. 1, 19, 21)
12-06	8:15	MP	**W/WW Services ORO** (El. 2, 5, 6-13, 15-18, 21)
12-06	9:00	EN	**Top Management's responsibilities** (El. 2-3, 7-9, 12-14, 18, 20-21)
12-06	10:00	PT	**Distribution sampling** (El. 2, 5-13, 15-18, 21)
12-06	11:00	CS	**Distribution maintenance** (El. 2, 5-13, 15-18, 21)
12-06	12:30	SWB	**Management** (El. 2, 5, 6-13, 15-18, 21)
12-06	13:00	RO	**DWQMS Coordinator** (El. 2, 4-10, 12-13, 18-21)
12-06	13:30	JB	**QMS Representative's responsibilities** (El. 2, 4-10, 12-13, 18-21)
12-06	14:30	ALL	**Closing meeting** (El. 1, 19, 21)

Legend for QMS Elements: **1**-Quality Management System, **2**-Quality Management System Policy, **3**-Commitment and Endorsement, **4**-QMS Representative, **5**-Document and Records Control, **6**-Drinking Water System, **7**-Risk Assessment, **8**-Risk Assessment Outcomes, **9**-Organizational Structure, Roles, Responsibilities and Authorities, **10**-Competencies, **11**-Personnel Coverage, **12**-Communications, **13**-Essential Supplies and Services, **14**-Review and Provision of Infrastructure, **15**-Infrastructure Maintenance, Rehabilitation and Renewal, **16**-Sampling, Testing and Monitoring, **17**-Measurement and Recording Equipment Calibration and Maintenance, **18**-Emergency Management, **19**-Internal Audits, **20**-Management Review, **21**-Continual Improvement

MP – Mike Pullano, EN – Erik Nickel, PT – Paul Tanasi, CS – Chris Scott, SWB – Savannah Wells-Bisson, RO – Ryan O'Donnell, JB – Jessica Blanchard

Process audits examine the resources (equipment, materials and people) used to transform the inputs into outputs, the methods (procedures and instructions) followed, and the measures collected to determine process performance. Process audits check the adequacy and effectiveness of the controls established by procedures, work instructions, training and specifications.

1.5 Documented information included in scope

Documented information	Reference (Doc. name, section, date and/or version)
1. Operational Plan (OP)	MW-WWW-DWS-09-001-001, February 2024
1.1. Website location re: OP available to public:	Reviewed www.niagarafalls.ca. Reference to the OP is posted on the site.
2. QMS Policy statement	MW-WWW-DWS-VIS-001-001 Water & Wastewater Services Mission Statement
2.1. Website location where QMS Policy is available:	Posted on www.niagarafalls.ca.
3. Endorsement records	Included as part of the OP
3.1. Top Management OP endorsement record	Endorsement Clause, June 2024
3.2. Owner OP endorsement record	Endorsement Clause, June 2024
4. QMS Representative identified	Included in the OP
5. Document & Records Control procedure	MW-WWW-DWS-PRO-002-001 DWQMS Control of Documents, December 2022, rev.10 MW-WWW-DWS-PRO-003-001 - Record Control, December 2022, rev.10 MW-WWW-DWS-LM-002-001 - DWQMS Document Control Matrix, rev.17 MW-WWW-DWS-LM-003-001 DWQMS Record Control matrix - rev 9
6. Drinking Water System description	Included in OP MW-WWW-DWS-VIS-001-002 Niagara Falls DWS Map
7. Risk Assessment procedure	MW-WWW-DWS-PRO-004-001 DWQMS Risk Assessment, December 2022, rev.10 2024 Risk Assessment, W&WW Services, October 16, 2024
8. Risk Assessment Outcomes records	2024 Risk Assessment Results, 2024-10-16 on MW-WWW-DWS-FRM-004-001 DWQMS Risk Assessment Matrix MW-WWW-DWS-SOP-011-001 Watermain Break Repair, June 2022, rev.11 MW-WWW-DWS-SOP-012-004 Chlorine Residual Sampling, September 2022, rev.7
9. Org. Structure, Roles, Responsibilities, Authorities	Org Chart is included as Figure 9.1 in OP MW-WWW-DWS-LM-005-001 DWQMS Roles, Responsibilities & Authorities December 2022, rev.7
10. Competencies procedure	MW-WWW-DWS-PRO-006-001 DWQMS Competencies and Training, December 2022, rev.7 MW-WWW-DWS-LM-006-001 DWQMS Competencies Matrix, December 2022, rev.6
10.1 List of current certified operators	MW-WWW-DWS-LM-007-001 Certified Drinking Water System Personnel, rev.10
11. Personnel Coverage procedure	MW-WWW-DWS-PRO-007-001 DWQMS Personnel Coverage, December 2022, rev11

	MW-WWW-DWS-LM-007-002 DWS On-Call Schedule, rev.13
12. Communications procedure	MW-WWW-DWS-PRO-008-001 DWQMS Communications, December 2022, rev.9
12.1 Sample of comms: Owner, Suppliers, Public, Staff	Viewed various examples
13. Essential Supplies and Services procedure	MW-WWW-DWS-PRO-009-001 DWQMS Essential Supplies and Services, December 2022, rev.8 MW-WWW-DWS-LM-009-001 List of Essential Supplies and Services, rev.12
14. Review & Provision of Infrastructure procedure	MW-WWW-DWS-PRO-010-001 DWQMS Review and Provision of Infrastructure, December 2022, rev.10 2024 Infrastructure Review, October 25, 2024 October 25, 2024 Infrastructure Review Areas of Concern
14.1 Infrastructure Review reported to Owner	Will go to Council with Annual Report in February
15. Infrastructure Maintenance, Rehabilitation & Renewal	Included in OP, Table 15.1 DWS Infrastructure Maintenance Programs and Table 15.2 Rehabilitation and Renewal Programs
15.1 Infra. Maintenance programs reported to Owner	Will go to Council with Annual Report in February
16. Sampling, Testing and Monitoring procedure	MW-WWW-DWS-PRO-012-001 DWQMS Sampling, Testing and Monitoring, February 2024, rev.10 MW-WWW-DWS-SOP-012-001 Adverse Water Quality Incident Reporting, December 2022, rev.8
16.1 Sampling program plan / schedule	MW-ES-DWS-VIS-012-005 Sampling Schedule 2024
17. Meas. & Recording Equip. Calibration & Maintenance	MW-WWW-DWS-PRO-013-001 DWQMS Measurement and Recording Equipment Calibration and Maintenance, September 2022, rev.10
17.1 List of measurement equipment & records	Chlorine Meter List 2024 Certificate of Verification of Equipment Accuracy for various analyzers. Date January 30, 2024
18. Emergency Management procedure	MW-WWW-DWS-PRO-014-001 Emergency Management, December 2022, rev.9 MW-WWW-DWS-MAN-014-001 Niagara Falls Emergency Response Procedures Manual for Drinking Water MW-WWW-DWS-SOP-014-001 - Boil Water and Do Not Use Water Advisory, September 2022, rev 9
18.1 Emergency records: training, test, debrief, OFI link	Emergency Response Training Minutes, November 21, 2024 Cyber Security Presentation
19. Internal Audits procedure	MW-WWW-DWS-PRO-015-001 DWQMS Internal Auditing, December 2022, Rev.11
19.1 External audits: MECP Inspection + Accreditation	MECP Inspection – June 24, 2024 EA - NSF, July 3-4, 2024
19.2 Previous internal audit report	Acclaims, December 22, 2023
20 Management Review procedure	MW-WWW-DWS-PRO-016-001 DWQMS Management Review, December 2022, rev.10

20.1 Latest Management Review minutes	February 6, 2024
20.2 Last Management Review report to owner	March 19, 2024
21 Continual Improvement procedure	MW-WWW-DWS-PRO-017-001 DWQMS Preventive & Corrective Action, December 2022, rev.9
21.1 Continual improvement tracking / status updates	DWQMS Continual Improvement Initiatives

1.6 Previous audit findings

Previous audit type	Details (e.g. dates of last inspection or audit, report date, audit organization name)
MECP Inspection	June 24, 2024 (no findings)
External Audit (EA)	July 3-4, 2024
Internal Audit (IA)	December 22, 2023

Source (MECP, EA, IA)	NC* or OFI?	High-level summary of finding	Status Update
**NC stands for "non-compliance" for MECP inspections; and "non-conformity" for external and internal audits.*			
EA	OFI	Include the period reviewed in the Management Review Report	To be included in the next MR
EA	OFI	Including the lessons learned from emergency exercises in the continual improvement log	Being considered
IA	OFI	Add document ID and date to the Quality Policy	Not going to be done
IA	OFI	Consider a formal commitment and endorsement clause	Will be reviewed during next update
IA	OFI	Add revision dates to documents	Not going to be considered at this time
IA	OFI	Consider adding reference to procedures for maintaining residuals in Element 6	References added to 6.1 under General
IA	OFI	Identifying back up equipment for critical tasks	Being considered
IA	OFI	Changes to the recording of 36-month vs. annual risk assessment	Added to 2024 risk assessment
IA	OFI	Remove reference to date of last risk assessment from the OP	Updated section 8.0 of the OP
IA	OFI	Consolidating risk assessment outcomes by grouping similar items	Being considered
IA	OFI	Setting CCL's higher than regulatory limits	CHECK ON THIS ONE

Source (MECP, EA, IA)	NC* or OFI?	High-level summary of finding	Status Update
IA	OFI	Add DWQMS as an agenda item for monthly tailgate meetings	Being considered
IA	OFI	DWQMS training for all positions in the OP	In progress
IA	OFI	Adding positions identified as directly affecting drinking water in the org chart	In progress
IA	OFI	Create a procedure for the notifications required if using ESO	Being considered
IA	OFI	Formal communication process between the city, Region and other local municipalities	In progress
IA	OFI	QMS rep attend pre-con meetings to deliver DWQMS requirements	Being considered
IA	OFI	Communicate with the owner the findings of infrastructure review	Was reported to council
IA	OFI	Use data in Cartegraph to evaluate the effectiveness of infrastructure maintenance	In progress
IA	OFI	Updating sampling reference to the Watermain Disinfection Procedure	Procedure was updated
IA	OFI	Add recovery to all emergency response procedures	Being considered
IA	OFI	Add BMP’s to management review	Being considered
IA	OFI	Updates to the CAR/PAR procedures	Being considered

2.0 AUDIT SUMMARY

2.1 Positive audit findings

The following positive audit findings were noted during the audit:

Category	Description of positive finding
Commitment	Staff interviewed were knowledgeable about their processes and programs and their roles' impacts on achieving the commitments included in the QMS Policy.
	All staff interviewed felt they had the support from management and resources they needed to carry out their jobs well. In addition, Top Management shows commitment to being available to staff by working out of the service centre on a regular basis.
Culture of continual improvement	Consistently throughout the audit, improvements were noted with regards to achieving intended outcomes of drinking water system processes and programs.
	All opportunities for improvement identified in the previous internal and external audits have been verified as completed or are in progress.
Risk Assessment	Reviewing the Risk Assessment and Risk Assessment Outcomes showed a in-depth knowledge of the process by all staff involved.

2.2 Non-conformities

No non-conformities were noted during the audit.

2.3 Opportunities for improvement

The following is a list of opportunities for improvement noted in conducting this audit:

Category	Description of opportunity for improvement
Element 2 – Quality Policy	Consider adding a review of the Mission Statement to Management Review and include the revision date on the document.
Element 5 – Document Control	Consider adding document control to the Bulk Filling Station records and the Sample Location documents. Consider updating the Drinking Water Quality section of the website and the Communication procedure as they currently reference CGSB as the accreditation body for DWQMS. Consider removing the reference to Appendices that aren't part of the OP document. The procedures can be referenced as stand-alone documents.
Element 9 – Org. Structure	Consider adding the new DWQMS position to the Org Chart and the Roles, Responsibilities and Authorities Document.
Element 10 – Competencies	Consider getting staff tours of the Region water plants.
Element 11 – Personnel Coverage	Consider an on-call rotation with operations staff. Element 11 requires a procedure to ensure competent staff are available for duties that directly impact the drinking water system.
Element 13 – Essential Supplies	Consider reviewing the procedure for the annual vendor performance. It currently states that it will be completed and recorded annually.

Category	Description of opportunity for improvement
Element 15 – Infrastructure Renewal	Consider starting a water meter exchange program for large water meters. If these were on a regular rotation it could help water loss.
Element 16 - Calibrations	Consider requiring the company that performs the calibrations on the chlorine kits to put calibration stickers on the instruments.
Element 16 - Verification	Consider creating a program for quarterly verifications of the portable chlorine analyzers.
Element 18 – AWQI	Consider adding information on adverse water quality incidents that would fall under 16.4 of Schedule 16 of O.Reg. 170/03 (ie. Low pressure incidents) and Total Coliforms to the Adverse Reporting Procedure.
Element 20 – Management Review	Consider adding a report of the items in Table 15.1 of the OP to the Operational Control section of Management Review.
Element 21 – Continual Improvement	Consider including the Action Items from the Risk Assessment, Infrastructure Review, Emergency Drills and Management Review to the Continual Improvement Initiatives List.
Element 21 – BMP's	Consider updating the Continual Improvement procedure to better describe how BMP's are considered.
Staff Suggestion – Service Centre	Numerous staff voiced the concern about the service centre not meeting the requirements of staff. This could be considered for a future capital improvement project.
Staff Suggestion – Areas of Concern Report	Staff indicated that for the Infrastructure Review Report for the Areas of Concern – jobs are not always prioritized as the way they listed in the Report.

2.4 Conclusions

The results of this audit confirm that the quality management system (QMS) established is:

- effectively implemented,
- achieving its intended outcomes,
- conforming to the requirements of the DWQMS 2.0, and
- meeting QMS policy commitments throughout.

Brigitte Roth, BES, EP(EMSLA)

Janine deBoer

3.1 DWQMS CHECKLIST

Summary of DWQMS 2.0 Requirement (*Condition Expected*)	**Evaluation: Y/NA/NC/OFI**
1. PLAN The OP documents a QMS that meets the requirements of the DWQMS.	Y
DO The OA has established and maintains the QMS in accordance with the DWQMS requirements and the OP's policies and procedures.	Y
Director's Directions for OP's are met, including:	Y
– single OP for DWS(s) with same owner / operating authority	Y
– version numbers and/or revision date(s)	Y
– OP title describes municipal DWS(s)	Y
– completed Subject System Description form	Y
– audited OP's retained for a minimum of 10 years	Y
– OP available to public (hard copy or on website)	OFI
2. PLAN The OP documents a QMS Policy that provides the foundation for the QMS and includes the required commitments, to:	Y
a) maintain & continually improve the QMS,	Y
b) provide safe drinking water to the consumer, and	Y
c) comply with applicable legislation and regulations.	Y
QMS Policy is communicated to all OA personnel, the owner, and the public.	Y
DO The QMS established and maintained consistently meets QMS Policy commitments.	Y
3. PLAN The OP contains a written endorsement of its contents by top management – and – the owner.	Y
Confirmed current member(s) of top management and current owner have endorsed the OP.	Y
DO There is evidence of top management commitment to an effective QMS by:	Y
a) ensuring that a QMS is in place that meets the requirements of the DWQMS,	Y
b) ensuring the OA is aware of all applicable legislative and regulatory requirements,	Y
c) communicating the QMS according to the procedure for communications, and	Y
d) determining, obtaining and providing the resources needed to maintain and continually improve the QMS.	Y
4. PLAN The OP identifies a QMS Representative.	Y
DO Top management has appointed and authorized a QMS Representative who, irrespective of other responsibilities:	Y

Summary of DWQMS 2.0 Requirement (*Condition Expected*)	**Evaluation: Y/NA/NC/OFI**
a) administers the QMS by ensuring processes and procedures needed for the QMS are established and maintained,	Y
b) reports to top management on the performance of the QMS and any need for improvement,	Y
c) ensures that current versions of documents required by the QMS are being used at all times,	Y
d) ensures that personnel are aware of all applicable legislative and regulatory requirements that pertain to their duties for the operation of the Subject System, and	Y
e) promotes awareness of the QMS throughout the OA.	Y
5. PLAN The OP documents a procedure for document and records control that describes how:	Y
a) Documents required by the QMS are: i. kept current, legible and readily identifiable,	OFI
ii. retrievable,	Y
iii. stored, protected, retained and disposed of, and	Y
b) Records required by the QMS are: i. kept legible and readily identifiable,	Y
ii. retrievable,	Y
iii. stored, protected, retained and disposed of	Y
DO The OA has implemented and conforms to the procedure for document and records control and ensures QMS documentation includes:	Y
a) the OP and its associated policies and procedures,	Y
b) documents and records determined by the OA as being needed to ensure the effective planning, operation and control of its ops, and	Y
c) the results of internal and external audits and management reviews.	Y

Audit notes, findings and recommendations (Elements 1-5)

1 – all required information is included in the OP. The subject system description form is complete. Information on the OP is available at www.niagarafalls.ca. Accessed on December 1, 2024

OFI – consider updating the Drinking Water Quality section of the website as it currently references CGSB as the accreditation body for DWQMS.

2 – The quality policy requirements are included in the Water & Wastewater Services Mission Statement. This is posted at www.niagarafalls.ca. Accessed on December 1, 2024

OFI – Consider adding a review of the Mission Statement to Management Review and include the revision date on the document.

3 – Reviewed minutes of the March 21, 2023 Council meeting which indicated that all members of Council endorsed the Operational Plan. Included an updated Endorsement Clause that is to be added to the next revision of the OP.

4 – The QMS Rep is the Water & Wastewater Services Coordinator. Currently this role is filled by Jessica Blanchard.

5 – Documents and records reviewed were

Summary of DWQMS 2.0 Requirement (*Condition Expected*)	**Evaluation: Y/NA/NC/OFI**
OFI – Consider removing the reference to Appendices that aren't actually part of the OP document. The procedures can be referenced as stand-alone documents.	
6. PLAN The OP documents a DWS description, as applicable: a) for the subject system:	Y
i. the name of the owner and operating authority,	Y
ii. if the system incl. equip. that provides primary disinfection and/or secondary disinfection:	NA
A. a description of the system including all applicable treatment system processes and distribution system components,	NA
B. a treatment system process flow chart,	NA
C. a description of the water source, including:	NA
I. general characteristics of the raw water supply,	NA
II. common event-driven fluctuations, and	NA
III. any resulting operational challenges and threats.	NA
iii. If the syst. does not incl. equip that provides primary disinfection or secondary disinfection:	Y
A. a description of the system including all distribution system components, and	Y
B. a description of any procedures that are in place to maintain disinfection residuals.	Y
b) if the subject system is an operational subsystem, a summary description of the municipal residential DWS is a part of incl. the name of the OA's for the other operational subsystems	NA
c) if the subject system is connected to one or more other DWS's owned by different owners, a summary description of those systems which:	Y
i. indicates whether the subject system obtains water from or supplies water to those syst's,	Y
ii. names the owner and operating authority(ies) of those systems, and	Y
iii. identifies which, if any, of those systems that the subject system obtains water from are relied upon to ensure the provision of safe drinking water.	Y
DO The OA ensures that the DWS description is kept current.	Y
7. PLAN The OP documents a risk assessment process that:	Y
a) considers potential hazardous events / assoc. hazards as ID'd in MECP's Potential Hazardous Events for Municipal Residential DWS's,	Y
b) identifies additional potential hazardous events and associated hazards,	Y
c) assesses the risks associated with the occurrence of hazardous events,	Y
d) ranks the hazardous events according to the associated risk,	Y
e) identifies control measures to address the potential hazards and hazardous events,	Y

Summary of DWQMS 2.0 Requirement (*Condition Expected*)	**Evaluation: Y/NA/NC/OFI**
f) identifies critical control points,	Y
g) ID's a method to verify, at least once every calendar year, the currency of the info + validity of the assumptions used in the risk assessment,	OFI
h) ensures that the risks are assessed at least once every thirty-six months, and	Y
i) considers the reliability and redundancy of equipment.	NA
DO The OA performs a risk assessment consistent with the documented process	Y
8. PLAN The OP documents risk assessment outcomes that includes:	Y
a) the identified potential hazardous events and associated hazards,	Y
b) the assessed risks associated with the occurrence of hazardous events,	Y
c) the ranked hazardous events,	Y
d) the identified control measures to address the potential hazards and hazardous events,	Y
e) the identified critical control points and their respective critical control limits,	OFI
f) procedures and/or processes to monitor the critical control limits,	Y
g) procedures to respond to deviations from the critical control limits, and	Y
h) procedures for reporting and recording deviations from the critical control limits.	Y
DO The OA has implemented and conforms to the procedures.	Y
Audit notes, findings and recommendations (Elements 6-8)	
6 - the drinking water system includes information on the water supply system (Niagara Falls WTP) and a list of procedures that are used to maintain good water quality. 7 – The 2024 Risk assessment was completed on October 16, 2024 and included 9 staff members. This was an annual review. The 36-month review was completed in 2023. The risk assessment review is thorough and well documented. OFI – Consider including the Action Items from the Risk Assessment to the Continual Improvement Initiatives List. 8 – DWQMS Risk Assessment Matrix lists numerous CCP's. Reviewed SOP's that are referenced in the chart including Chlorine Residual Sampling and Watermain Break Repair. NOTE: REVIEW SOME OF THE ITEMS THAT AREN'T LISTED AS CCP BUT ARE OVER THE LIMIT OF 18 (#22 AS AN EXAMPLE AND DISCUSS WHERE THE LIMITS ARE RECORDED.	
9. PLAN OP documents the OA's organizational structure and roles, responsibilities, authorities and:	Y
a) describes the org. structure of the OA incl. respective roles, responsibilities and authorities,	Y
b) delineates corporate oversight roles, responsibilities and authorities in the case where the OA operates multiple subject systems,	NA
c) identifies the person, persons or group of people w/in the mgmt. structure of the organization responsible for undertaking the management review described in El. 20,	Y

Summary of DWQMS 2.0 Requirement (*Condition Expected*)	**Evaluation: Y/NA/NC/OFI**
d) identifies the person, persons or group of people, having top management responsibilities required by the DWQMS, along with their responsibilities, and	Y
e) identifies the owner of the subject system.	Y
DO The OA keeps the above current and communicates this information to OA personnel and owner.	OFI
10. PLAN The OP documents competencies, including	Y
a) competencies required for personnel performing duties directly affecting drinking water quality,	Y
b) activities to develop and/or maintain competencies for personnel performing duties directly affecting drinking water quality, and	Y
c) activities to ensure that personnel are aware of the relevance of their duties and how they affect safe drinking water.	Y
DO The OA undertakes activities to	Y
a) meet and maintain competencies for personnel directly affecting drinking water quality and maintain records of these activities, and	Y
b) ensure that personnel are aware of the relevance of their duties and how they affect safe drinking water and maintain records of these activities.	Y
11. PLAN The OP documents a procedure to ensure that sufficient personnel meeting identified competencies are available for duties that directly affect drinking water quality.	Y
DO The OA has implemented and conforms to the procedure.	Y
12. PLAN The OP documents a procedure for communications that describes how the relevant aspects of the QMS are communicated between top management and	Y
a) the owner,	Y
b) OA personnel,	Y
c) suppliers that have been identified as “essential” under DWQMS El. 13, and	OFI
d) the public.	Y
DO The OA has implemented and conforms to the procedure.	Y

Audit notes, findings and recommendations (Elements 9-12)

9 – Reviewed Org chart and roles, responsibility and authorities. Numerous roles are listed and duties are complete. The ORO is declared through a memo signed by Erik (Top Management)

OFI – consider adding the new DWQMS position to the Org Chart and the Roles, Responsibilities and Authorities Document.

10 – Training and competencies are recorded and tracked by the Water & Wastewater Services Coordinator.

PT – WD1, 90899, exp. 09/30/27

CS – WD2, 73566, exp. 02/28/26

MP – WD2, 50210, exp. 31/05/27

Summary of DWQMS 2.0 Requirement (*Condition Expected*)	Evaluation: Y/NA/NC/OFI
Reviewed training records for staff. Anyone with upcoming renewals have enough hours. 11-Reviewed on-call schedule. Supervisors are on-call during winter months. 12-Reviewed Communication procedure and examples of communication between each of the groups including staff, other municipalities, the Owner and the Public. OFI – Consider updating the Accreditation Body. It is no longer CGSB (see OFI above)	
13. PLAN OP identifies all supplies and services essential for the delivery of safe drinking water, and:	Y
a) …states for each supply or service, the means to ensure its procurement, and	Y
b) includes a procedure by which the OA ensures the quality of essential supplies and services, in as much as they may affect drinking water quality.	OFI
DO The OA has implemented and conforms to the procedure.	Y
14. PLAN The OP documents a procedure for reviewing the adequacy of the infrastructure necessary to operate and maintain the subject system that	Y
a) considers the outcomes of the risk assessment documented under El. 8, and	Y
b) ensures that the adequacy of the infrastructure necessary to operate and maintain the subject system is reviewed at least once every calendar year.	OFI
DO The OA has implemented and conforms to the procedure and communicates findings to the owner.	Y
15. PLAN The OP documents:	Y
a) a summary of the OA's infrastructure maintenance, rehabilitation and renewal programs for the subject system, and	Y
b) a long-term forecast of major infrastructure maintenance, rehabilitation and renewal activities.	Y
DO The OA a) keeps the summary of infrastructure maintenance, rehabilitation + renewal programs current,	Y
b) ensures that the long-term forecast is reviewed at least once every calendar year,	Y
c) communicates the programs to the owner, and	Y
d) monitors the effectiveness of the maintenance program.	Y
Audit notes, findings and recommendations (Elements 13-15)	
13-Reviewed Essential Supplies List. Essential providers are listed along with minimum and maximum inventory. OFI – Consider reviewing the procedure for the annual vendor performance. It currently states that it will be completed and recorded annually. 14-Reviewed Infrastructure Review minutes and tracking sheet. Review was complete and identified actions to be taken. Numerous staff members attended the meeting as recorded in the minutes. OFI – Consider adding the Action Items from the Infrastructure Review meeting to the Continual Improvement Initiatives List 15-The OP Table 15-1 lists the DWS Infrastructure Maintenance Programs along with related SOP's.	

Summary of DWQMS 2.0 Requirement (*Condition Expected*)	**Evaluation: Y/NA/NC/OFI**
OFI – see EN	
16. PLAN The OP documents a sampling, testing and monitoring procedure for process control and finished drinking water quality	Y
a) including requirements for the sampling, testing and monitoring at the conditions most challenging to the subject system	Y
b) a description of relevant sampling, testing or monitoring activities, if any, that take place upstream of the subject system, and	OFI
c) a procedure that describes how sampling, testing and monitoring results are recorded and shared between the OA and the owner, where applicable.	Y
DO The OA has implemented and conforms to the procedure.	Y
17. PLAN The OP documents a procedure for the calibration and maintenance of measurement and recording equipment.	Y
DO The OA has implemented and conforms to the procedure.	OFI
18. PLAN The OP documents a procedure to maintain a state of emergency preparedness, including:	Y
a) a list of potential emergency situations or service interruptions,	Y
b) processes for emergency response and recovery,	Y
c) emergency response training and testing requirements,	OFI
d) owner and OA responsibilities during emergency situations,	Y
e) references to municipal emergency planning measures as appropriate, and	Y
f) an emergency communication protocol and an up-to-date list of emergency contacts.	Y
DO The OA has implemented and conforms to the procedure.	Y
19. PLAN The OP documents a procedure for internal audits that:	Y
a) evaluates conformity of the QMS with the requirements of the DWQMS,	Y
b) identifies internal audit criteria, frequency, scope, methodology and record-keeping req'ts,	Y
c) considers previous internal and external audit results, and	Y
d) describes how QMS corrective actions are identified and initiated.	Y
DO The OA has implemented and conforms to the procedure and ensures internal audits are conducted at least once every calendar year.	Y
Audit notes, findings and recommendations (Elements 16-19)	
16-reviewed Sampling, Testing and Monitoring procedure and associated SOP's including testing for chlorine residual, micro sampling, THM and Lead sampling.	

Summary of DWQMS 2.0 Requirement (*Condition Expected*)	**Evaluation: Y/NA/NC/OFI**
OFI – consider adding information on adverse water quality incidents that would fall under 16.4 of Schedule 16 of O.Reg. 170/03 (ie. Low pressure incidents) and Total Coliforms. 17-reviewed list of analyzers and calibration records. Verifications were completed on January 30, 2024. OFI – Consider creating a program for quarterly verifications of the portable chlorine analyzers and stickers. 18-Reviewed Emergency Management program and it lists numerous emergency situations including Watermain Break Repair, Boil Water and Do Not Use Water Advisory and Suspected Backflow or Cross Contamination. An emergency test was completed on November 21, 2024 with Cyber Security as the topic. There were some follow up actions identified from the test. OFI – Consider recording the action items from the emergency drills on the Continual Improvement Initiatives List 19-The last internal audit was completed by Acclaims Environmental on December 22, 2023. There were no non-compliances and numerous OFI's that have all been responded to. The last MECP Inspection report was dated June 24, 2024, there were no findings in this report. The last External Audit was completed on July 3-4, 2024, there were 2 OFI's identified in the report which have been responded.	
20. PLAN The OP documents a procedure for management review that evaluates the continuing suitability, adequacy and effectiveness of the QMS and that includes consideration of items a) to p)	

The following is a briefing from the **last Management Review Meeting** summarizing high-level notes recorded:

a) incidents of regulatory non-compliance,	There were no incidents of regulatory non-compliance but there were 2 OFI's
b) incidents of adverse drinking water tests,	There were 2 AWQI's reported both for TC.
c) deviations from CCL's and response actions,	None reported
d) the effectiveness of the risk assessment process,	Reviewed process. Added a risk due to perceived threats from social media posts.
e) internal and third-party audit results,	Reviewed the OFI's from both audits. No NC's identified
f) results of emergency response testing,	How to respond to AWQI's and responding to a substantial watermain break
g) operational performance,	Reviewed watermain breaks.
h) raw water supply and DW quality trends,	Obtain information from the Region
i) follow-up action items from prev. mgmt. reviews	Reviewed outstanding items from the previous management review. Numerous items are still ongoing
j) status of mgmt action items ID'd between reviews,	None identified

k) changes that could affect the QMS,	Considered such items as Lead MAC decrease, Chippawa Water Plant intake shift, tentative decommissioning of Lundy's Lane Elevated Tank and potential for upgrading system classification to III
l) consumer feedback,	Water complaints remain low
m) the resources needed to maintain the QMS,	Use of an external company for the internal audit
n) the results of the infrastructure review,	Reviewed results. Creating an Areas of Concern list to be sent to Council
o) OP currency, content and updates, and	Made some minor changes and these changes to be sent to Council in March 2024
p) staff suggestions.	Reviewed 5 staff suggestions.

Summary of DWQMS 2.0 Requirement (*Condition Expected*)	**Evaluation:** Y/NA/NC/OFI
DO Top management has implemented and conforms to the procedure and:	Y
a) ensured that a management review is conducted at least once every calendar year,	Y
b) considers the results of the management review and identified deficiencies and action items to address the deficiencies,	OFI
c) provided a record of any decisions and action items related to the management review including the personnel responsible for delivering the action items and the proposed timelines for their implementation, and	Y
d) reported the results of the management review, the identified deficiencies, decisions and action items to the owner.	Y

Summary of DWQMS 2.0 Requirement (*Condition Expected*)	**Evaluation:** Y/NA/NC/OFI
21. PLAN The OA has developed a procedure for tracking and measuring continual improvement of its QMS by	Y
a) reviewing and considering applicable BMP's, incl. any published by the Ministry at least once every thirty-six months,	OFI
b) documenting a process for identification + mgmt. of QMS corrective actions that includes:	Y
i. investigating the cause(s) of an identified non-conformity (NC),	Y
ii. documenting actions that will be taken to correct the NC + prevent it from recurring	Y

iii. reviewing actions taken to correct the NC, verifying that they are implemented and are effective in correcting and preventing the re-occurrence of the NC.	Y
c) documenting a process for identifying and implementing preventive actions to eliminate the occurrence of potential non-conformities in the QMS that includes:	Y
i. reviewing potential NC's that are identified to determine if preventive actions may be necessary,	Y
ii. documenting the outcome of the review, incl. actions if any that will be taken to prevent a non-conformity from occurring, and	Y
iii. reviewing the actions taken to prevent a non-conformity, verifying that they are implemented and are effective in preventing the occurrence of the non-conformity.	Y
DO The OA has continually improved the effectiveness of tis QMS by implementing and conforming to the procedure.	Y

Audit notes, findings and recommendations (Elements 20-21)

20-Reviewed Management Review minutes and Council Report. All items were covered including an extra section titled positives/best management practices.

OFI – Consider adding information to the Operational Performance section of Management Review including hydrant flushing program and valve program.

21 – Reviewed the continual improvement spreadsheet. Items from Internal and External Audits are included on the list along with staff suggestions.

OFI – Consider updating the Continual Improvement procedure to better describe how BMP's are considered

<table>
<tr><td>Process: W/WW Supervisor (ORO)</td><td>Auditee(s): Mike Pullano</td><td>Audit Date: December 6, 2024, 8:15</td></tr>
<tr><td>1.0 Who? (s. 2, 10)

-WD2/WWC2
-grade 12
-management training (Niagara College offers a leadership program)
-experience in the system (5 years)
-CEU training, OTJ training
-Quality Policy – provide safe drinking water
-Currently the ORO</td><td rowspan="2">4.0 Process Under Control? (s. 5, 17)

-signing authority for the certificate renewals. Forms come from Compliance Department
-hydrant flushing – pump out black ring hydrants in the winter (300 approximately). All hydrants are flushed annually (or try to). Map on Cartegraph to track the ones that are getting done.

-if deficiencies are discovered then it will be recorded in the flushing work order and it will get sent to a supervisor to create a new work order.

-continually maintaining the distribution

-valve maintenance – goal for next year to make the program better. Recently purchased a new valve turner. Infrastructure maintenance requirements are listed in Table 15.1 of the OP.

OFI – Consider adding a report of the items in Table 15.1 of the OP to the Operational Control section of Management Review.</td><td>6.0 Adequate Resources? (s. 3, 11, 13-15)

-more staffing would help with some of the routine maintenance which would mean more equipment, bigger facility
-parts for repairs are typically not an issue. Have a small inventory on site. Have a stockroom.
-informal agreements with other local municipalities. Emergency after hours contacts.
-2 vacant positions currently</td></tr>
<tr><td>2.0 Process Input? (s. 3, 4, 14, 15)

-review the night before via email
-who called in sick, vacation
-coordinate work that is required (if emergency situations occur would go check on them)
-review schedule in the morning with other supervisors.
-Outlook calendar for upcoming planned work then into OMS for the work orders
-</td><td>7.0 Output? (s. 5)

-Logbook using Cartegraph OMS, OIC hours are tracked here
-</td></tr>
<tr><td>3.0 Measured? (s. 8, 12, 16)

-hydrant flushing
-hydrant repairs
-emergency work (watermain breaks, service repairs, watermain tapping)
-Capital works projects
-planned repair work</td><td>5.0 What If Out-of-Control? (s. 7-8, 12, 18)

-large watermain break in a major intersection, the public will notify us. Foreman called to report it. Went to site. Major intersection would call 911 as required. Safety is the most important. Emergency locates, call out a crew, could delegate as required. Determine if a contractor is required. Send out a Main Break Alert (email list with all required contacts) and on website. Review maps to determine how to shutdown the area, record issues. Start digging and make repairs. Sample as required.
-For AWQI – call SAC, MOH, treatment plant

-cross-contamination</td><td>8.0 Interested parties? (s. 12, 20)

-public, personally, management, co-workers
-no complaints

9.0 Evidence of Continual Improvement? (s. 21)

-new DWQMS coordinator and WW/SW compliance analyst plus 2 new sampling positions

SS-Infrastructure review (areas of concerns) – jobs are not always prioritized as the way they listed in the Infrastructure Review Report</td></tr>
</table>

Process: Top Management	**Auditee(s):** Erik Nickel, General Manager Municipal Works/City Engineer	**Audit Date:** December 6, 2024, 9:00
1.0 Who? (s. 2, 10) -background in Engineering -Management skills, financial knowledge -big part of the role is working with Council and CAO, hiring management roles and downward. -Ensuring that all departments work together and how this fit together -planning for the future -stakeholder relationships including the Region, hydro, railway, highway. -City Engineer was a new role in 2019	**4.0 Process Under Control?** (s. 5, 17) POS-shows up to the operations centre to meet with staff weekly. -Top Management – signing the applicable documents, ensuring that resources, policies are in compliance. Advocate for staff for required resources (Training, equipment, staff, DWQMS program). Ensuring continuous improvement is happening. Management Review Meeting – key in on areas that are new or improving. May make suggestions for things that are happening in other areas. Capital Budgets Asset Management Plan – has a list of items that need to be addressed but the funding is not always available. As system gets older costs for maintaining the system increase. Backflow Prevention – currently in the planning process	**6.0 Adequate Resources?** (s. 3, 11, 13-15) -there has been talk of amalgamation, but this probably will not happen -challenging time to be able to balance growth and the resources to deal with this expansion (assuming new infrastructure). Some of the costs will still fall to the municipality. It is like walking a tightrope. -concerns with sustainability for the future
2.0 Process Input? (s. 3, 4, 14, 15) -dealing with customer complaints, from council -dealing with why things aren't getting done as required -participate in leadership teams -active in engineering department -Stakeholder work, BIA's, OPG -strategy work		**7.0 Output?** (s. 5) -council reports -asset management -Master Servicing Plan and Wet Weather Management Plan in second PIC (75%)
3.0 Measured? (s. 8, 12, 16) -Region has done a growth forecast. NF growth forecast is more aggressive. There has been agreement on a plan but there are still discussions that need. For instance, Marineland has a lot of property that could be redeveloped that would have some.	**5.0 What If Out-of-Control?** (s. 7-8, 12, 18) -role in emergency situations, would be involved in the formal EOC. For situations that impact public health, communicating to council (link with Operations). -activated for major snowstorms	**8.0 Interested parties?** (s. 12, 20) -personally, council, customers, MECP
		9.0 Evidence of Continual Improvement? (s. 21) -added resources to DWQMS -day-to-day operations/customer service is top notch. -taking a leadership role in asset management, community of practice to talk about level of service. Operational data and using it for making decisions. SS – the service centre needs to be updated. Doesn't meet the requirements of staff.

Process: Water Sampling	**Auditee(s):** Paul Tanasi, W/WW System Tech	**Audit Date:** December 6, 2024, 10:00
1.0 Who? (s. 2, 10) -knowing how the system works, adverse limits, familiar with sampling techniques -relaying information to the public -WD2, chemical engineering technology -need CEU's. Confined space, first aid, Book 7 -Quality Policy – reliable, dependent, clean and safe water, continuous improvement	**4.0 Process Under Control?** (s. 5, 17) -sampling locations, will help find new locations or the sample tap isn't appropriate anymore. List of sampling locations. -28 sample locations a week -Lead sampling – no corrosion plan, on reduced sampling and regulatory relief (20 residences, 2 non-residences, 4 distribution). Take the distribution sample first, then in the system. pH and temperature. pH meter is calibrated pre-use. -chain of custody – ensure they are filled out, send to lab and filed by compliance. Can review results if interested. -Critical Users List (MW-WWW-DWS-LM-014-002, rev.20)	**6.0 Adequate Resources?** (s. 3, 11, 13-15) -enough resources, lots of knowledgeable people to help as required.
2.0 Process Input? (s. 3, 4, 14, 15) -procedure and sampling calendar -Chain of custody forms OFI – consider adding document control to the Bulk Filling Station records and the Sample Location documents.		**7.0 Output?** (s. 5) -Cartegraph OMS -Chain of custody
3.0 Measured? (s. 8, 12, 16) -THM/HAA, micro sampling, distribution chlorine (Tuesday/Friday, will move with holidays) -sampling ponds for suspended solids -Chlorine kit #20, no calibration sticker but report says that it was calibrated on January 20, 2024 OFI – consider requiring the company that performs the calibrations on the chlorine kits to put calibration stickers on the instruments. -Free PP – Lot A3284, exp.10/28 -reviewed sampling schedule and CofC's.	**5.0 What If Out-of-Control?** (s. 7-8, 12, 18) -low chlorine – ensure that the sample is representative, inform compliance, flush the main. Would call SAC, MOH, critical users list -Emergency drill – who to call if there was supply issues. -could be part of the adverse response -if a sample is missed would record as cancel on Cartegraph and report to compliance	**8.0 Interested parties?** (s. 12, 20) -residents, management, co-workers, mom -no trouble, no sickness
		9.0 Evidence of Continual Improvement? (s. 21) -sample ponds, valve turning -new positions for compliance SS – consider getting staff tours of the Region water plants -finding locations for lead sampling is a challenge.

Process: Distribution	**Auditee(s):** Chris Scott, USO	**Audit Date:** December 6, 2024
1.0 Who? (s. 2, 10) -WD1, DZ license, experience in the system -24 years with the city -CEU hours, constant training. -some safety training, confined space, monthly safety training -Quality Policy – clean, safe drinking water	**4.0 Process Under Control?** (s. 5, 17) -hydrant repair – work order created in Cartegraph for the work. Unless it is an emergency repair then would just select whatever one. Order parts from Emco. -hydrant flushing – post repair flushing as required. Recorded in Cartegraph -valve repairs and maintenance -acting supervisor for vacations or in the winter. -dealing with customers as they come -Reviewed Cartegraph	**6.0 Adequate Resources?** (s. 3, 11, 13-15) -enough resources to do a good.
2.0 Process Input? (s. 3, 4, 14, 15) -assigned work by supervisor (shift supervisor does the assigning for things that happen off hours) -no on-call schedule but always a shift supervisor. In the winter there is a supervisor on call. OFI – Consider an on-call rotation with operations staff. Element 11 requires a procedure to ensure competent staff are available for duties that directly impact the drinking water system.		**7.0 Output?** (s. 5) -cartegraph
3.0 Measured? (s. 8, 12, 16) **-**	**5.0 What If Out-of-Control?** (s. 7-8, 12, 18) -watermain – shut down water, be mindful of critical users. Shutdown road, locates. Sampling may be required for these. -low chlorine – keep flushing, if still low then call supervisor. -low pressure – fire department are made aware of main breaks -OnCall deals with locating.	**8.0 Interested parties?** (s. 12, 20) -public, management -equipment works **9.0 Evidence of Continual Improvement?** (s. 21) **-**always capital works projects ongoing -lead on leak detection program -could use a new service centre.

<table>
<tr><td>Process: Manager</td><td>Auditee(s): Savannah Wells-Bisson, Acting Manager W/WW</td><td>Audit Date: December 6, 2024</td></tr>
<tr><td>1.0 Who? (s. 2, 10)

-experience managing staff
-experience writing report, liaising with council, public, contractors, union staff, union matters
-health and safety concerns
-OIT in water
-</td><td rowspan="2">4.0 Process Under Control? (s. 5, 17)

-for work that is still to be completed there is a data technician to review the jobs in the system and would send a report to the appropriate supervisor for follow-up. Would review the reports and follow up as required.

-budgeting – run operations budget. Not many capital projects in Operations group. Review ops budget with supervisor to make sure that everything is appropriate. Materials are available.</td><td>6.0 Adequate Resources? (s. 3, 11, 13-15)

-enough resources. Going through level of service review which may affect staffing requirements</td></tr>
<tr><td>2.0 Process Input? (s. 3, 4, 14, 15)

-check with staff, look at assignments in work order system.
-Council complaints, concerns, communication with public for high level issues.</td><td>7.0 Output? (s. 5)

-council reports</td></tr>
<tr><td>3.0 Measured? (s. 8, 12, 16)</td><td>5.0 What If Out-of-Control? (s. 7-8, 12, 18)

-staff will loop her for emergencies and would link to upper management and council</td><td>8.0 Interested parties? (s. 12, 20)

-personally, other management, other staff, council, public
-performing at personal expected levels, being told I’m doing a good.</td></tr>
<tr><td></td><td></td><td>9.0 Evidence of Continual Improvement? (s. 21)

-Compliance group increased
-reporting structure for maintenance management system, staff feeling more empowered.

-Building is not functional for the staffing and vehicles

SS-start a water meter exchange program for large water meters. Put it on a regular rotation to help with water loss. Currently a pilot project.</td></tr>
</table>

DWQMS 2024 Management Review	
Date: Monday February 3, 2025	**Time: 1:00 pm – 3:00 pm**
In attendance: James Sticca, Savannah Wells-Bisson, Jessica Blanchard, Mike Pullano, Ryan O'Donnell **Regrets: Erik Nickel**	

Minutes from Agenda Items

1. Incidents of regulatory non-compliance
   - 0 - resulting in a final inspection rating of 100% and an inspection risk rating of 0%
   - MECP Inspection took place from June 10 to June 18, 2024, and covered the record period of June 1, 2024, to May 31, 2024.
   - Was a focused inspection
   - 0 OFI's recommended

2. Incidents of adverse drinking-water tests
   - 1 for the distribution system (Under O. Reg. 170) – microbiological (due to sampling or lab error, considering FCR at time of sample)
     - October 28, 2024 – 1 total coliform from sample at 6838 Morrison Street (Animal Medical Centre) – with a FCR of 0.44 mg/L. Flush and re-sample yielded satisfactory results.

3. Deviations from critical control point limits and response actions
   - None during this management period

4. Efficacy of the risk assessment process
   - All risks introduced during the annual Infrastructure Review
   - New Risk: Source water protection added to the matrix.
   - Niagara Region Risks were consolidated as many of the Regions Controlled Risks shared similar CCPs and mitigation measures, and therefore were grouped into one)
   - Update to the Lundy's Lane Tank relocation provided during the Infrastructure Review:
     - the preferred site for the new larger elevated tank has been chosen and acquiring the land is in progress. However, the design has not yet started, so likely decommissioning of the current tank will not begin until post 2026.

5. Third-party and Internal audit reports:

THIRD PARTY (ACCREDITATION AUDIT) - PERFORMED BY NSF - JULY 3, 2024 & JULY 4, 2024, which covered the period of July 1, 2023, to June 30, 2024
   - 2023 was a surveillance audit. The City's Certificate of Registration is valid until October 6, 2026
   - Zero non-conformances noted. Two OFI's (and actions taken/considered) from the audit are as follows:

Management Review currently consists of items which occurred during the previous calendar year and therefore is simply titled "2023 (or whatever year) Management Review". To consider stating exact time frame which the Review covers on the title page, for ease of auditing – COMPLETE - "JANUARY 1 THROUGH TO AND INCLUDING DECEMBER 31, 2024" ADDED ON THE 2024 MANAGEMENT REIVEW TITLE PAGE AND WILL CONTINUE TO BE PRESENT ON ALL FUTURE MANAGEMENT REVIEW TITLE PAGES
Consider adding any staff ACTION items which improve emergency preparedness (resulting from the Emergency Management Review) to the continual improvement initiatives– COMPLETE – FITTING ACTION ITEMS FROM 2024 EMERGENCY RESPONSE TESTING ADDED TO THE CONTINUAL IMPROVEMENT INTIATIVE TRACKING DOCUMENT

INTERNAL AUDIT - PERFORMED BY ACCLAIMS ENVIRONMENTAL - DECEMBER 5 & 6, 2024, which covered the period of December 19, 2023, to December 6, 2024

- Zero non-conformances noted in both. Several OFI's (and actions taken/considered) from the audit are as follows:

Consider adding a review of the Mission Statement to Management Review and include the revision date on the document. – COMPLETE – REVISION 4 – JANUARY 2025 OF THE MISSION STATEMENTS INCLUDES THIS
Consider adding document control to the Bulk Filling Station records and the Sample Location documents. – BEING CONSIDERED UPON NEXT FULSOME SOP AND SLP UPDATE
Consider updating the Drinking Water Quality section of the website and the Communication procedure as they currently reference CGSB as the accreditation body for DWQMS. – COMPLETE – WEBSITE ADJUSTED – NOW INDICATES NSF AS THE ACCREDITIATION BODY
Consider removing the reference to Appendices that aren't part of the OP document. The procedures can be referenced as stand-alone documents. – COMPLETE – APPENDICIES AND REFERENCE TO THEM REMOVED FROM REVISION 9 (2025) OF THE OPERATIONAL PLAN ▪ **ACTION: Jessica to investigate placing all SOP's and SLP's (now standalone documents) referenced in the Ops Plan in the shared Council portal in Teams – as to limit the length of the Annual Report to Council (which formerly included all appendices noted in the Ops Plan), yet still making them available to those Council members who wish to review them.**
Consider adding the new DWQMS position to the Org Chart and the Roles, Responsibilities and Authorities Document. – IN PROGRESS – ORG PLAN UPDATED IN REVISION 9 (2025) OF THE OPERATIONAL PLAN, OTHER DOCS TO BE UPDATED NEXT FULSOME SOP AND SLP REVIEW
Consider getting staff tours of the Region water plants. – BEING CONSIDERED FOR 2025
Consider an on-call rotation with operations staff. Element 11 requires a procedure to ensure competent staff are available for duties that directly impact the drinking water system. – BEING CONSIDERED ▪ **ACTION: Savannah to search A. Allcock's files to see if there is a business case assembled to validate the need for an on-call shift in WWW. It had been noted by others present at the meeting that A. Allcock stated he had created one, prior to his leave.** ▪ **ACTION: Jessica to research language surrounding MECP requirements for OROs availability and official back up presence always.**
Consider reviewing the procedure for the annual vendor performance. It currently states that it will be completed and recorded annually. – COMPLETE – VENDOR GRADING COMPONENT REMOVED FROM REVISION 9 (2025) OF THE OPERATIONAL PLAN (REPLACED WITH THE UPDATED/CURRENT ANNUAL REVIEW AND PERFORMANCE MONITORING PROCEDURES), AND DWQMS ESSENTIAL SUPPLIES AND SERVICES SOP MW-WWW-DWS-PRO-009-001 UPDATED TO REFLECT THE ADJUSTMENT
Consider starting a water meter exchange program for large water meters. If these were on a regular rotation it could help water loss. – IN PROGRESS WITH INPUT FROM SENIOR MANAGER OF WWW SERVICES – STARTING WITH A SURVEY OF THE CURRENT IC&I PROPERTIES METERS
Consider requiring the company that performs the calibrations on the chlorine kits to put calibration stickers on the instruments. – COMPLETE – CAR 2025-01 CREATED AND ISSUED TO THIS VENDOR

Consider creating a program for quarterly verifications of the portable chlorine analyzers. – BEING CONSIDERED – FOLLOWING ANNUAL CALIBRATION OF ALL UNITS, DWQMS COORDINATOR WILL BE ASSIGNED TO PERFORM QUARTERLY VERIFICATIONS ON SERVICE CENTRE CHLORINE METERS
Consider adding information on adverse water quality incidents that would fall under 16.4 of Schedule 16 of O. Reg. 170/03 (i.e. Low-pressure incidents) and Total Coliforms to the Adverse Reporting Procedure. – BEING CONSIDERED – TO BE UPDATED NEXT FULSOME SOP AND SLP REVIEW
Consider adding a report of the items in Table 15.1 of the OP to the Operational Control section of Management Review. – COMPLETE – FROM TABLE 15.1, IN ADDITION TO MAIN BREAKS, THE FOLLOWING 2024 DATA WAS ADDED TO THE MANAGEMENT REVIEW: AVERAGE TIME OF WATER DISRUPTION DURING MAIN BREAK, % OF HYDRANTS FLUSHED, % OF SYSTEM VALVES EXERCISED AND # OF WATER QUALITY COMPLAINTS RECEIVED
Consider including the Action Items from the Risk Assessment, Infrastructure Review, Emergency Drills and Management Review to the Continual Improvement Initiatives List. – IN PROGRESS – EMERGENCY DRILLS ADDED TO LIST, TO ADD THOSE FITTING ACTION ITEMS FROM THE OTHER REVIEWS ONCE ALL COMPLETE (EST. IN Q2 OF 2025)
Consider updating the Continual Improvement procedure to better describe how BMPs are considered. – BEING CONSIDERED - TO BE UPDATED NEXT FULSOME SOP AND SLP REVIEW

6. Results of emergency response testing
    - Complete, utilizing effective, relative examples and a presentation on Cyber Security.
    - Staff took a quiz which assessed their knowledge of water interruption notifications.
    - ACTION ITEMS from this exercise were placed on the Continual Improvement list.

7. Operational performance
    - 49 main breaks in 2024, which was one more than the 48 main breaks in 2023 (LOS goal is have less than 75 per year). Historic annual # of main breaks are as follows:
        - 2023: 48
        - 2022: 86
        - 2021: 50
        - 2020: 56
        - 2019: 82
        - 2018: 87
        - 2017: 55

      It was discussed if we should keep our LOS goal for this at 75, as the number of main breaks per year are very unpredictable and unavoidable, given the aging water infrastructure present in many parts of the City, but it was decided to leave this value at 75.

    - Average time of water interruption per main break in 2024 was 4:45, compared to 4:20 in 2023 (LOS goal is to ensure interruptions do not exceed 8 hours)
    - 41.3 % of hydrants flushed, compared to 59.9 % flushed in 2023 (LOS and Fire Code goal is to have 100% flushed)
        - This was noted as being a concern, due to a 31% decrease in hydrants flushed over the past 2 years (from approximately 60% to 40%). It was stated that this decrease may be due to staffing gaps (staffing leaves) or vehicle issues (i.e. having 4 Operators available to flush any given day, but only 2 vehicles available, so staff are paired up). It was determined that this decrease is most likely due to staff production, and lack of follow up with staff who are not flushing a reasonable

number of hydrants daily. This would be simple to monitor, given all information present in OMS.

- **ACTION: Jessica, Mike & Savannah to speak to Operators productivity, and the expectation of Supervisor staff to monitor this and correct underperformances at the next Supervisor meeting. The focus of this conversation will be on fire hydrants, as we are bound to our LOS by the Fire Code**

- 4.5 % of valves exercised/proven out, compared to 2% in 2023 (LOS goal is to have 20% of system valves exercised annually)
  - Great increase from 2023 to 2024, but still far from our LOS goals of 20% annually.
    - **ACTION: Mike to continue his progress with the valve turning program annually to meet or exceed our current LOS goal**
- Should we be looking at adjusting our LOS expectations or utilize stats as a tool to obtain more FTE operations staff – see notes above. If planned improvement options do not come to fruition, then to potentially investigate a business case for additional FTE's – using the LOS data we will gather over the next few years.

8. Raw water supply and drinking-water quality trends
   - Overall consistent over the past several years
     - Obtaining 2024 high/low averages for parameters pH, turbidity, and temperature from Niagara Region. Ops Plan (revision 9) will be updated accordingly.
   - Intake shift still in planning stages.
     - There are no updates currently. Tentative start date yet to be determined.

9. Follow-up on action items from previous management reviews

Historic DWQMS Management Review Action Items			
Action Items	**Assigned To**	**Due Dates**	**Status/Follow-up**
Ensure the City has a liaison present at all discussions with Niagara Region involving the tentative decommissioning of the Lundy's Lane Tank.	Erik Nickel/ Adam Allcock	2021 onward	**ONGOING**. The City has been a presence at discussions involving this decommissioning process.
Collaborate with Asset Management to develop a scoring matrix based on age, material type, tuberculation, so the pipe condition is standardized and not left up to the discretion of the Operator. Operator to take photos of mains during breaks as a first step to achieving this.	Jessica Blanchard/ WWW Supervisor Staff/ WWW Operations staff/AM Team	2023 onward	**IN PROGRESS.** ORO ensuring all Operations staff are taking photos of mains during breaks and these photos are being added to the MMS database associated with the watermain.

Consider performing a structured risk assessment to determine/identify: properties at the highest risk of experiencing a bf event; likelihood of a bf event; which of the high risk properties currently have a BFP on site – and if they function properly and are being calibrated/maintained; trigger points to initiate the requirement for a property to have a BFP device installed.	Jessica Blanchard/ DWQMS Coordinator	2023 onward	**IN PROGRESS.** DWQMS Coordinator tasked to commence this process in Q1 of 2025. ▪ **ACTION: Jessica & Savannah To re-address this action item: Perhaps take a different direction with this goal of developing a backflow program by way of requesting property owner surveys (which they would have to produce), and this would provide information on any back flow devices on the property). A new separate, or additions to the existing Water Use by-law would have to be established prior to requesting/mandating property surveys. Further information to be found on OWWCA site under cross connections (for establishing both noted above).**
Consider using upcoming changes to the distribution system (pressure changes due to elevated tank location shift) and possibility of backflow events as emergency scenarios for advanced preparedness. New addition to this consideration added in 2024 to include water model-based training for emergency scenarios.	Jessica Blanchard	2023 onward	**IN PROGRESS.** Site for new tower has been determined. To perform once updated water model is complete (if software is available to run test scenarios – through the MSP). Once water model is made available, it may be possible to initiate emergency response scenarios in real time & effect.
Reach out to WWW Training contacts at Niagara Region to inquire if this day course is being made available to area municipalities WWW staff.	Jessica Blanchard	2023 onward	**DELAYED.** Training Coordinator stated that the Region is still working to get all their Operators training that was lacking during the Covid years, and when this is complete, they will open the training to area Municipalities (estimated this may occur in Q3 2025).
To provide current approved budget and project list (from the City's website) to the Accreditation body in 2024.	Jessica Blanchard	2024	**COMPLETED.** 10-year budget forecast provided to Accreditation Body (along with Official Long Range Financial Plan) during 2024 Audit and will continue to be provided for all future audits.
Action Items from 2023 DWQMS Management Review			
Request IS and MMS program administrator to develop custom reports to house all pertinent data required for each regulated water work in a pdf for ease of review.	Jessica Blanchard	Q4 2024	**COMPLETE.** This was completed in Q2 of 2024, for form submission to the MECP during the 2024 Inspection**.** The report developed in OMS will allow data to quickly and easily be gathered for all future inspections.

As a mitigation means for perceived risks to the water system (identified in the 2024 Risk Assessment), collaborate with Operations Support Services Supervisor to provide more detail for consistent messaging surrounding public reassurance of safe clean drinking water, as the City's website is revamped.	Jessica Blanchard	Q3 2024 and beyond	**DELAYED.** Corporate website upgrades pushed to 2025. New due date for this objective is estimated at Q3 2025. ▪ **ACTION: Jessica to participate in website upgrade suggestions, which will be posed to staff in the summer or Q3 of 2025**
Investigate watermain commissioning training options for Municipal Works Inspectors.	Jessica Blanchard	Q2 2024	**COMPLETE.** Walkerton Clean Water Centre New Watermain Commissioning training for majority of MW Inspectors took place in Q4 of 2024, and the remining inspectors have been signed up to take this training in Q1 of 2025.
Include the most recent "WWW Areas of Concern" list (from the Infrastructure Review) as a component of the Management Review.	Jessica Blanchard	Q1 2024	**COMPLETE.** This list was included in the 2023 Management Review and will continue to be included for all future Management Reviews.
Add an official signed document to the Operational Plan indicating that it has been Endorsed by Council and Top Management.	Jessica Blanchard	Q2 2024	**COMPLETE.** This Endorsement clause is present in S. 3.0: Commitment and Endorsement in revision 9 (2025) of the Operational Plan.

10. Status of management action items identified between management reviews
    - None identified (other than noted above)

11. Changes that could affect the Quality Management System
    - Potential Lead MAC decrease - ongoing
    - Chippawa Water Plant intake shift
        - There are no updates currently. Tentative start date yet to be determined.
    - Tentative decommissioning of Lundy's Lane Elevated Tank
        - the preferred site for the new larger elevated tank has been chosen and acquiring the land is in progress. However, the design has not yet started, so likely decommissioning of the current tank will not begin until post 2026.
    - Tentative Classification of the Water System to increase based on potential pressure zone changes.
        - **ACTION: Jessica to summarize the parameters which cause a water system to go from a Class 2 to a Class 3, to provide for information by Q2 of 2025**

12. Consumer feedback (i.e., internal & external communications)
    - Water quality complaints remain consistently low (25 for 2024 compared to 33 in 2023)
        - These are the water quality complaints which require follow up action items or outside of current working areas (where water interruptions are expected).

13. Resources needed to maintain the Quality Management System
    - Internal Auditor – external
    - Staffing – to achieve self administered and Legislated LOS
        - We will continue to monitor our LOS achievements, while improving staff productivity and re-visit during the next Management Review to see if additional FTE's are required

14. Results of DWQMS Infrastructure Review
    - Areas of concern noted – and comment columns were expanded to include AM comments including tentative renewal project start dates.
        - **ACTION: Jessica to circulate this document with the Management Review Minutes, to remind of highly prioritized areas of concern.**
    - The risk assessment was considered during this Review.
    - This assessment list (areas WWW have determined require renewals) to be included in the Management Review and referenced in the Report to Council as well this year.

15. Operational Plan currency, content & updates
    - Updated and endorsed in 2024, as noted to Council via MW-2024-13
    - New revision (with minor changes, to be summarized in a separate document) to be submitted in the March 2025 Report to Council and will include the written endorsement clause.
        - **ACTION: Jessica to provide a summary of Ops Plan changes to Supervisor staff at their next meeting, as an fyi**

16. Staff suggestions
    - Staff are interested in having on call procedures more defined and potentially developing a year-round on call shift.
    - Staff voiced concern that the Service Centre is a failing building which lacks ample space and has some deteriorating functions.
    - Staff interested in a tour of the Chippawa Water Treatment Plant
    - Staff would like to see the "Areas of Concern" list more reflected in capital renewal project timelines.
        - **ACTION: Mike & Jessica to assemble a list recent renewal projects which have already experienced breaks and therefore been compromised (i.e. ripping up brand new road, curbs, sidewalks etc.), to further illustrate these concerns and validate our list.**
        - **ACTION: Mike – to assemble a "top five" list of projects where the road and sewer or just road was renewed without consideration for the watermain – again to present at the next Infrastructure Review.**

Additional Items:

1. It was noted that QMS Declarations were updated in 2024 and included the following:
    - QMS Rep declared as Jessica Blanchard, with the back up QMS Rep identified as Ryan O'Donnell
    - Water ORO declared as Mike Pullano, with back up ORO noted as Andrew Carruthers
    - Sewer/Sanitary ORO declared as Jonathan Danyluck, with back up ORO's noted as Sean Escandon and Joe Gugliotta.

WATERMAIN

OCT 25 2024

	Area	Comment/Concern (based on priority - highest first)	Comments from 2024 Infrastructure Review , 2024 Capital Budget Review & WWW additional concerns	Estimated Capital Forecast Year (D=design, C=construction)	Updated Engineering and WWW Notes
1	TSR at Dorchester	break history in VERY BUSY INTERSECTION	This area is planned for resurfacing by NR within the next 2 years. To work collaboratively with the Region for watermain renewal in this area. Planning to advance in house designs for WM replacement on Dorchester Rd from Morrison to Mountain in advance of resurfacing. Will need to be phased over a few years due to scope and cost for construction. Replacement of watermain in the area south of the intersection with TSR is a priority. WWW Suggest replacement on Dorchester from approx. Pettit to Oxford. The budget for this is not yet formally approved, but will be brought to Council for design approval in 2024. Niagara Region to be upgrading forcemains off of TSR near Rolling Acres within next 5 years	Pettit to Oxford: D - 2024/2025	Dorchester Rd Ph 1 Pettit Dr to Oxford is an in-house design project initially for 2024/2025, construction TBD (construction likely to commence 2026 through to 2027).
2	Dorchester Road (Morrison to Willinger)	break history on old cast main	Due to the scope of this stretch of renewal recommendation, this project will be broken into smaller sub prioritized areas. 2 sections which have the most historical main breaks would be TSR to Cherrygrove and Waterloo to Russell. Resurfacing of stretch from Morrison to Mountain is currently in design phase. To coordinate to ensure watermains are replaced prior to resurfacing. The watermain replacement project will likely occur over the next 5 years.		Phase 2 of Dorchester renewal likely to put in the forecast in 2027 for renewal long term from Mountain to McLeod
3	Stanley Ave (Robinson - to HWY 420)	break history	NR has designed a 2 phase resurfacing of this area - to commence 2024 or 2025 (first phase likely being Murray to hwy 420). Will attempt to work collaboratively with NR for this watermain renewal. Planning information from Region of Niagara indicate that Stanley Ave from Murray to Peer is scheduled for 2025 and from Peer to Hwy 420 is scheduled for 2027. City Watermain replacement will be integrated into the NR projects. The City has recently requested a pause from Niagara Region, as far as the resurfacing of Stanley from Dunn to Marineland Parkway, as limited funds in for renewal of City mains may not be available for some time. Niagara Region will be upsizing their mains in this section to 12"- for future capacity demands. Projections to renew Stanley from Marineland Parkway to Hwy 420 will likely take 4 years, and 4 project phases.	C - 2028	Based on Niagara Region's draft 5 Year Capital Forecast, pending approval for their own road widening/lane modification works in 2028.
4	Stanley Ave (Robinson to McLeod)	break history	Watermain replacement between Murray and Dixon can proceed as an independent project, as an in house design for watermains. This can occur in advance of Regional plan to resurface this section of Stanley Avenue in the near future (deferred at City request to address deficient watermains). Niagara Region will be upsizing their mains in this section as well to 12" - for future capacity demands. Projections to renew Stanley from Marineland Parkway to Hwy 420 will likely take 4 years, and 4 project phases.	C - 2027 - Murray to Dixon 2026	Based on Niagara Region's draft 5 Year Capital Forecast, pending approval for their own road widening/lane modification works in 2027. - Plans to tie section into Regional Truck behind Corail drain. Some sections already started (approved in 2024 - Marineland to Dunn). Sewer may be twinned?
5	NEW 2023: Thorold Stone QEW crossing	currently not in service - causing water quality issues in the Rolling Acres subdivision. Should be fixed or an alternate crossing in this area needs to be established.	Engineering will be allotting funds in the 2024 budget to perform a feasibility assessment for re-lining the existing crossing infrastructure, in hopes of re-establishing flow there. If this is not feasible, will have to potentially find another appropriate highway crossing in the area.	D - 2024 C - TBD	Unable to line this watermain as a repair option, as only permitted to line 80 m, and this section is much longer than that. Must do a feasibility assessment for another QEW crossing in this vicinity to improve water quality in Rolling Acres. Or consider bridge hanging main.
6	Beaverdams Rd (Kalar to the Lane)	break history (high priority). If water renewal prior to this is possible it would mitigate claims to the City (from main breaks flooding out residents in the area). Break history is most prominent on the stretch from Booth St. west to Kalar. Older cast main.	This area has been allotted a budget for a consultant. First stage is developing a storm outlet for the Hodgson division. Scope of work includes watermain replacement and New Storm Sewer. Design may be complete with construction starting by 2025. Consider this problematic stretch be renewed in house. Design Phase for Reconstruction of Beaverdams from Kalar to Lundy's Lane was part of 2023 Capital Budget list for consideration/approval. Still awaiting to obtain an EA for this area.	D - 2026 C - 2027	
7	NEW 2023: Portage Road (Macklem to Norton)	increasing number of breaks recently and difficulty to repair	This is noted by Engineering, but this underground infrastructure renewal will likely be deferred until after this section of roadway has been resurfaced, as requested by Top Management.	D - 2032 C - 2033	Included in the 2024 DC Program - Titled: DC Water 52 Portage Road Watermain (Norton Street to Macklem Street) Replacement and Upsizing suggested timing window -2029-2033 Portage Rd - Norton St to Macklem St on 2024 Mill & Pave Program list; may need to be deferred further This plan has been in the works since 2016, but has lacked funding

8	Portage @ HWY 420	South end being rectified via Portage and Prospect Project 2022-503-16, however north dead end (5365 Portage) still requires a work around	Main break years ago at this location resulted in the watermain to be capped on the north and south side of the highway - resulting in dead ends. This has created water quality issues on the north side specifically, which is remedied by City staff flushing this area 3 x/week for the past 5 years. Residents in this area (2 specifically are affected) have escalated their water quality concerns to the Council level, citing poor service levels and wasted City resources. Best scenario to remedy this would be to tie the dead end into the adjacent Biamonte Cr main. Would need to obtain an easement from property 5365 Portage to facilitate this, which is currently in the process of being secured. There will be a renewal and increase sizing of Biamonte Cr watermain at the same time due to this being a 70 yr. old 6" main. This Valley Way/Biamonte area renewal will go out for tender in early 2024, and services on Portage Road which have been compromised due to the dead end will be connected to the new main.	C - 2024	Believe this was completed or is being completed for 2024 as part of the Biamonte Parkway Watermain Replacement project. Continues to be water quality issues for the 2 homes affected by this capped watermain. Now the Biamonte Pkwy WM renewal is going forward without the tie in to Portage. This is not acceptable - must find another means to loop/tie in Portage at this area for water quality purposes, and to save substantial water losses and staff time with continued 3x week flushing.
9	NEW 2024: Drummond Rd from Lundy's Lane to Frederica	Frequency of main breaks	old cast main with frequent failure in high traffic area	C - 2026	In House Design project, construction depends on when the design will be substantially complete.
10	TSR (5 corners to the rail way tracks)	breaks on the 200 mm cast main in VERY BUSY STRETCH OF ROAD	This area planned for resurfacing by NR within the next 5 years, as per the September 2023 document "DRAFT - Proposed 5 Year Capital Forecast City of Niagara Falls". We may consider this watermain renewal prior to this project due to watermain break history and the substantial interruptions this creates. WWW suggest one redundant 6" main should be eliminated the services could be shifted to the south side 8"main, and affected water services could be shifted to the single main. To align this City project to coincide with the Regions resurfacing project, for best efficiency.	D - 2029 C - 2030	Included in the 2024 DC Program - Titled: DC Water 57 Thorold Stone Road Watermain Upsizing from 150mm to 300mm (Portage Rd to CNR) suggested timing window 2029-2033
11	Drummond/Portage area	Regional main renewal in progress	2021-530-20 was completed in the spring of 2022 - replaced main on Drummond from TSR to Glengate. This area will continue to be renewed in the next 5 years (Portage from Gallinger to Elizabeth - and Gallinger in its entirety), beginning with Gallinger in 2025.	Portage/Gallinger: C - 2025	Drummond/Portage/Gallinger Ph 2 & Ph 3 Capital Project put forth for 2025 Capital Budget pending approval.
12	Drummond Rd in its entirety	break history - esp. Cherrywood area	Problematic area specifically in Cherrywood area. Portage Road phase 2 is currently design phase. The scope of this project will include Drummond from Glengate to railway and again to Althea.	C - 2026	
13	Bridge St (E of Victoria)	Regional project - substantial breaks here	This is a multiple break per pipe segment area as well (specifically at Erie) as well as a multiple main break area historically east of Victoria. This project has been delayed again until likely 2027 due to difficulties obtaining an EA and acquiring properties which will need to become part of the road allowance. The round about at Bridge and Victoria is complete, and experienced many complications. Watermain replacement should be going to RFP in 2024 or 2025.	D - 2025/2026 C - 2026/2027	Design money was not approved in Niagara Regions budget for 2025. Potential construction start for 2026. Difficult to ascertain time as this is a Region led project.
14	NEW 2024: Garner Road South of Brown	Main break history	Only section in this area yet to be renewed - ductile iron main (DI) results in large breaks	NEW - will incorporate into Forecast	This consideration will be reflected in the updated EAM to be released in the coming weeks. Engineering will be performing a corrosion study for the 10 most problematic DI mains in the City, with the promise of having them upgraded with cathodic protection. This will also be outlined in the 10 year capital plan
15	NEW 2024: Jubilee Dr from McLeod to Dorchester	Frequency of main breaks	DI - large breaks historically	NEW - will incorporate into Forecast	same as above
16	NEW 2024: Drummond Rd from McLeod to Oldfield	Frequency of main breaks	DI - large breaks historically	NEW - will incorporate into Forecast	same as above
17	Brown Rd (Garner to Montrose)	placement of main (in ditch) and hydrant locations make frequent repairs and operations difficult	This project has gone through design phase and will be tendered before the end of 2023. There were geological issues which slowed the progress down. Likely 2024 renewal construction project will begin**. COMPLETED IN 2024**	Completed 2024	COMPLETE
18	Portage Rd (McLeod to Marineland Pkwy)	break history, water quality concerns	Niagara Parks Commission has requested a new watermain in this area, to service an upgraded property (the old power plant). They have yet to provide the actual size of main they will be requiring, so this project is on hold until information is provided (no specific date as of yet). This section of roadway is also on the resurfacing schedule, but this will be delayed, in order to coincide the watermain replacement project.	D - TBD C - TBD To specify main entrance of Marineland to Old McLeod. Undetermined date as NPC is driving this project	Portage Rd from Oak Hall Entrance to Norton St part of 2022 Mill & Pave program
19	George Street	break history	Sewer separation EA continues to progress. Watermains to be renewed during this project, and it will include Fraser Street. Estimated timeline for completion of this project was within 5 years of the start, and it is currently estimated that this area will be in design phase in 2025 and construction could potentially begin in 2026. There was a PM shift as to who was overseeing this project, but it is currently assigned.	D - 2025/2026 C - 2026/2027	Put forward for the 2025 Capital Budget but may be deferred due to competing priorities. This has been problematic for years - and held up by an EA - but now with the release of the CLI ECA, this may fall into that scope. Other advancements here are that the storm system was found to have more capacity that first believed, so this may move along quicker now.

20	Carolyn/Bracken/Heather/Burdette	water flow/quality issues	This area has recently (2023) again had water quality concerns spike - low residual in the area due to aging mains which reduce flow. It was thought that the Cannery subdivision would aid in increasing flow to this area and alleviate water quality concerns, but this did not seem to occur. This was moved up this priority list as it relates to water quality concerns.	Burdette: D 2024, C 2025 Carolyn: D 2028, C 2029 Bracken/Heather: D 2028, C 2029	Burdette Drive put forth for 2025 Capital Budget, pending approval. It was determined that Carolyn and other streets of concern in this area would not be included in the 2024 Burdette renewal, and they should be - water quality in this area has been progressively worsening.
21	NEW 2023: Darcy Cres. and surrounding areas	water quality concerns in this aging subdivision	Area added to the mid point of this list as it involves potentially compromised water quality.	D - 2028 C - 2029	To add crescents along Sheldon (Linwood, Fernwood, Patten) in this upgrade, due to substantially low pressure (at or nearing fire flow requirement thresholds). Consider looping these mains when upgrading.
22	Wiltshire Blvd and surrounding area	break history, water quality concerns	Water quality and pressure continue to be an ongoing concern in this area - Wiltshire, McColl, Baker, Oxford, Valour etc. There are 3 upcoming projects (currently in design phase - to be completed in house). They include the remainder of Oxford (from Rolling Acres to Wiltshire - which was not renewed via contract 2019-458-18), and 2 sections of Wiltshire. This design will be complete over the next 2 years, with the projects likely starting in 2025 and 2026 respectively.	Wiltshire: D 2025, C 2026 Oxford: D 2025, C 2026 McColl: D 2029, C 2030	Wiltshire Blvd & Oxford St are currently in-house design phase.
23	Frances Ave - dead end	water flow issues	We are still investing a lot of resources in this flushing this dead end at a private hydrant (on school property). This area is on the list for renewal to tentatively commence within the next 5 years, however, sewer separation in the area will be prioritized, and should align watermain renewal with this project.	D - 2027 C - 2028	
24	NEW 2023: Sodom Road (Weinbrenner to Main)	break history, difficulty to repair and property damage caused by breaks	Niagara Region forecasted to upgrade all of Sodom Road, to allow for future increased service capacity to Chippawa East and other new subdivisions. This design is currently underway. Engineering to communicate with the Region so that City main upgrades can occur at the same time as Region upgrades and resurfacing, if possible.	D - 2027 C - 2028	Region has plans for road renewal construction in 2029, so the City will need to be ahead of this with their infrastructure upgrades.
25	NEW 2023: Brooks Cres. - east end	Main cuts across 2 private properties to tie into Carman main	Main passes through 5879 Brooks and 5858 Carman. This would be problematic to repair. WWW suggests to re-direct or loop. Engineering will consider placing a 2" loop in the area to alleviate this issue.		Best solution here would be o cut cap and loop the watermain in the Cul de Sac. This could be an in house design - with a tentative completion of 2025 or 2026. It is strongly suggested to add Portage (@ Biamonte - item 8 above) in this cut cap loop project.
26	NEW 2023: Erwin Cres.	Main cuts across 3 private properties and the Hydro corridor to tie into Dunn main	Main passes through 7627 Rainbow and 7766 Jubilee. This would be problematic to repair. WWW suggests to re-direct or loop. Engineering considering eliminating the section of main which travels through private properties and corridor, as there is a combined sewer also running along this path. This will have to go out for RFP, as the looping of the water and the capping of the combined main would have to have a substantial design.		same as above
27	NEW 2023: Rainbow Cres.	Main cuts across 2 private properties to tie into Jubilee main	Main passes through 6597 Erwin, the Hydro corridor, 6519 Dunn and 6527 Dunn . This would be problematic to repair. WWW suggest to re-direct or loop. Engineering will consider/plan to place a 2" loop in the area, to alleviate this issue - could be complete as a project grouped with looping Brooks.		same as above
28	Coventry/Buckingham	break history, cathodic protection worn off	This area will be considered for the tentative corrosion assessment study (2024) for application or re-application of cathodic protection		As per items 14, 15 & 16 above, this consideration will be reflected in the updated EAM to be released in the coming weeks. Engineering will be performing a corrosion study for the 10 most problematic DI mains in the City, with the promise of having them upgraded with cathodic protection. This will also be outlined in the 10 year capital plan
29	Swayze/Heritage/Johnson/Addison	break history, deep services, watermain location, difficulty to repair	It was repeated how costly even service breaks are in this area due to main placement. There is no official plan for work in this area at this time.		Was advised that this is on the radar, but no definite spot on the next 10 year list for renewal. WWW strongly suggests that it made a priority nearing the top of the next 10 years.
30	NEW 2023: Drummond Hill adjacent streets (Morse, Hanan, Lowell)	break history and difficulty to repair due to steep incline and sandy soils	This area has been flagged for renewal, but this will likely be 5-10 years down the road (beyond 2027). The reason for this is that this area affects the current redundant feeds to GNGH, and until that time that the new hospital in the City's south end has been established, renewal projects in this area will be on hold, including sewer separation in the area.	Morse & Hanan: D 2031, C 2032 Lowell & Latshaw: D 2032, C 2033	Frederica to Summer already planned?
31	Dorchester Road (Jill to Oldfield)	break history	Recently resurfaced without considering replacing aging watermain. This was driven by residential concerns of safety. This area will remain in the spotlight as there is to be a traffic assessment completed, and this may create the development of a round about at the south end of Dorchester - any watermain renewal to this area should coincide with the traffic assessment recommendations. This area will likely be considered for the corrosion assessment study, as it is also ductile iron.	D - TBD C - TBD	Dorchester Rd - 65m North of Cooper Dr to 45m South of Jubilee Dr part of 2022 Capital Project - Road Reconstruction- this is also DI, so should be included in the corrosion study.

32	AC Pipe in Chippawa	replace all	Corporate goals outline that within 20 years this will all be replaced. Willoughby from Weinbrenner to Main Street will be renewed over a 2 year period - likely to commence in 2024-2025.		Willoughby Dr Reconstruction - Main St to Weinbrenner put forth for 2025 Capital Budget - there will be a pilot lining program for AC pipes - starting with Banting and Roosevelt? Timeline?
33	Drummond/Dunn/Dorchester/McLeod quadrant	water quality concerns	Aging cast in this area causing multiple breaks and compromised water quality/flow. Particularly on Whitman, Hagar, Hawkins, Margaret and Caledonia. Whitman, Margaret Street (from Hagar to Caledonia), Caledonia (from Margaret to Dorchester) and Hawkins Street (to be completed in 2 sections: Adams to Dell, and Dell to Drummond) are all forecasted for renewal, but no tentative dates have yet to be set.	Caledonia: D 2027, C 2028 Hagar: D 2027, C 2028 Margaret: D 2028, C 2029 Whitman: D 2030, C 2031 Hawkins: D 2033, C 2034	
34	Murray Ave (E of Orchard)	break history	This renewal project is in the forecast as per Asset Management (with a more broad scope of almost the entire stretch of Murray to be renewed in 2 or 3 phases: Orchard to Finlay, Drummond to Orchard & Franklin to Drummond. A portion of this will likely be completed design in 2024 and the remainder in 2025. Once design phase is completed, City will make a decision regarding sewer separation in this area as well (unsure at this time if the area contains combined).	D - 2031 C - 2032	Portions may be removed?
35	NEW 2023: Old McLeod Road	history of breaks which are not evident initially, due to remote location, resulting in large volumes of water loss	Engineering noted this additional area of concern	D - 2025	Design money was asked for 2025 as part of Development Project: McLeod Rd Sewer Upgrade (Stanley Ave to Drummond Road) to upgrade the sanitary sewer in this section of roadway, construction potentially 27/28. - Part of Conrail Drain tie in? We have a grant application for this (or line item below?)
36	Kitchener St - East of Stanley	break history	should focus on extremely old sections of this stretch of roadway (some are original 1889 cast mains). This renewal project is in the forecast, and is to include sewer as well, for both the extremely aged water and sewer mains on Kitchener and Macdonald Ave. This will likely have to be completed via several projects due to length of roadway, and for ease of funding.	D - 2026 C - 2027	To commence at Macdonald @ Kitchener and head west - Do we have a grant application for this? Not sure if the grant application referenced old cast or line item above.
37	Wills St	break history	Engineering to consider adding this relatively small street into one of the Rolling Acres renewal projects.	D - 2031 C - 2032	
38	NEW 2023: Ellen Ave (Centre to Walnut)	difficulty to repair	This area is in the forecast for renewal - to begin once Ferry St upgrade project has been completed. As Ellen is part of the BIA, this section will be on the docket to be renewed. Timeline TBD	D - 2027 C - 2028	BIA driven
39	Simcoe/Crysler/St Clair	old cast	some 4" mains should be renewed for flow/water quality		Awaiting wet weather management study completion for sewer separation planning in this area. Watermains will be renewed during the time of the sewer separation. This is part of the MSP.
40	NEW 2023: Huron St (Valley Way to Crysler)	difficulty to repair, due to presence of abandoned cast gas main which aligns with watermain	This area had been on the renewal list, but was delayed due to lack of PM coverage. It has now been re introduced as a concern and will likely be assigned a PM to initiate this renewal. All pre war cast mains will be high on the cast replacement priority list. However, no tentative renewal date has been established as of yet.		same as above
41	Third Ave (Bridge to Maple)	break history	Renewal needed in the areas which were not captured during the 2019-434-17 renewal project due to aging main causing multiple breaks. There is now funding in the budget to perform sewer separation on Maple from Stanley east to Sixth Ave, likely to commence in 2024. Following this project, renewal for Homewood, Maple Cedar and Third to be scheduled. The Maple area is challenging, as there is no road allowance currently as the roadway crosses the Hydro corridor. Temporary easements will need to be established prior to any work being performed in this area.		same as above
42	Ellis St	break history	This is a multiple break per pipe segment area All pre-war cast in this general area	D - 2030 C - 2031	same as above
43	Whirlpool Rd/Church's Lane/Stanley	break history	The watermain on Whirlpool Road (between Church's Lane and Stanley) was taken out of service on August 24, 2022. Renewal has been planned for Church's Lane (from Portage to Stanley). This section will go into design phase in 2024.	D - 2026 C - 2027	This is Developer (Alterra?) driven from the Whirlpool Road project. Once this is complete, there will be an in house design for the surrounding areas renewal.
44	Martin Ave - Silvertown in its entirety	break history	This area is projected to be renewed. Currently, due to difficulty in determining an outflow storm location, and the fact that Victoria Avenue will require quite extensive preliminary work to its storm system, this project has been deferred to 2025, with entire completion of the area likely extending to 2028 (due to the many phases required)	D - 2033 C - 2034	
45	Hillcrest Cr	break history	This renewal project is in the forecast NOTE: The install date for this area states 1899 in OMS, which will likely require an adjustment for accuracy - WWW to email infraassets to have this adjusted	D - 2031 C - 2032	

46	NEW 2023: WM along Niagara River Pkwy which appears to potentially be a redundant feed to the Newer Casino (6380 Fallsview Blvd.), yet does not tie into Fallsview Blvd	unsure of the ownership of this section (along Niagara River Pkwy -WWM_06025) or if this feeding main (WWM_06033) is active or capped. Valving in the area does not allow for a prove out, without affecting many properties.	Engineering noted this additional area of concern, and will attempt to find historic information on these sections of watermain.		WWW Services has now determined the valving in this area, but it would be a very difficult if not impossible break to fix if one did occur. Exposed cast main along the parkway is very concerning as well. Should be protected in some manner.

SEWER MAIN

	Area	Comment/Concern	Comments from 2024 Infrastructure Review , 2024 Capital Budget Review & WWW additional concerns	Estimated Capital Forecast Year (D=design, C=construction)	Updated Engineering and WWW Notes
1	Jepson @ 3rd, 4th & 5th	sanitary chambers need renewal			
2	Ferguson St	sewer liner is failing from Victoria Ave to River Rd	Design plans are currently in place - renewal will commence at Victoria and move east. Estimated time for construction start is 2025.	D - 2024 C - 2025/2026	Ferguson St Reconstruction put forth for 2025 budget but will most likely be deferred
3	Lundy's Lane @ Royal manor	9" sewer main	NR has plans for 2025 for this road renewal, as per the Niagara Regions 5-year capital forecast draft document. This work would likely be performed at the same time- as well as renewing watermains in the subdivision behind this area (Strathmore, Royal Manor etc.), which would greatly improve water quality. This project will likely take 5 years to complete.		Royal Manor Dr watermain looping to connect to Dorchester Rd - D/C 2026
4	2019 Pipe Tech project	Indicated further renewal recommendations	This project is now complete, but approximately 20% of the pipes were missed for inspection (due to a variety of challenges and obstacles). These are now being scheduled for inspection, which will likely occur in 2024. Renewal strategies and associated timelines will likely be developed following a fulsome review once all data has been gathered.		

STORM MAIN

	Area	Comment/Concern	Comments from 2024 Infrastructure Review , 2024 Capital Budget Review & WWW additional concerns	Estimated Capital Forecast Year (D=design, C=construction)	Updated Engineering and WWW Notes
1	NEW 2024: OGS in Stanley Industrial Area	Ongoing MECP investigation			Consider some type of treatment train for this area of the City. Currently no City OGS units in this Industrial area.
2	North St	catchbasin install to reduce road flooding	There has been funding to go ahead in developing a CSO Management Strategy which will greatly aid in priority sequencing this large scale project. On a similar note, there will also be a condition assessment performed on all storm ponds and with this a clean out schedule/process will be developed. This project likely deferred until after the new south end hospital has been built and is active.		
3	combined sewers throughout City	to be removed			
4	2019 GM BluePlan I & I Study	would indicated further renewal recommendations	See Notes regarding Pipe Tech project in "Sewer Main" section, above		

CITY OF NIAGARA FALLS DISTRIBUTION SYSTEM OPERATIONAL PLAN REVISION 9: SUMMARY OF CHANGES: FEBRUARY 2025

- S. 1.2: Scope – the Appendices A through D were removed from the document, as moving forward, they will be stand alone supporting documents referenced in the Operational Plan, as recommended by the Internal Auditor in 2024. Subsequently, all references to Appendices throughout the body of the Operational Plan were removed.

- S. 1.3: Definitions – Director of Operations was added to the descriptor for "Top Management", as this role now has two titled positions (previously the General Manager, Municipal Works was the sole individual considered Top Management).

- S. 3.0: Commitment and Endorsement – official endorsement date of March 19, 2024 (via MW-2024-13) was added. Also, a signed "Commitment and Endorsement of Operational Plan" was added to this section.

- S. 4.0: Quality Management System Representative – title change of QMS Rep (formerly WWW Services Coordinator) to WWW Compliance Program Manager, and addition of back up QMS Rep (DWQMS Coordinator). The title change of the Compliance Program Manager was updated throughout the document.

- S. 13.0: Essential Supplies and Services – the section of the quality assurance review for vendors was removed (along with the vendor rating criteria table), as suppliers and service providers are monitored and chosen through strict recently developed Procurement and City Finance Department requirements. These establish continual quality assurance, along with the annual Essential Supply and Service Review completed by the DWQMS Team. Any non-conformances are remediated immediately with these procedures in place.

- S. 6.3: Niagara Falls WTP Source Water: Table 6-1 was updated to reflect 2024 raw water data (including max., min. and averages of turbidity, pH, and temperature).

- S. 6.4: Niagara Falls DWS – total number of assets for water meters, fire hydrants and valves were updated to reflect system data from January 2025. Also, the percentage of watermains with specific material types and total length of watermains were also updated in this section.

- S. 19.0: Internal Audits – many specific details regarding the internal audit process were removed from the Ops Plan for brevity, as they are all included in the procedure referenced in this section (DWQMS Internal Auditing – MW-WWW-DWS-PRO-015-001).

- S. 22.0: Schedule C – this schedule was updated to reflect title changes over the past year.

City of Niagara Falls
Water Distribution System
Annual Summary Report
Period: January 1, 2024, to December 31, 2024

Waterworks Number: 260002304

Created February 2025

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City of Niagara Falls Water Distribution Annual Summary Report

Introduction

In accordance with the *Safe Drinking Water Act* this report provides members of Niagara Falls Municipal Council, the legal Owners of the water distribution system with an annual summary report of actions that took place from January 1, 2024 to December 31, 2024.

In accordance with the *Act,* this report must list any time the City failed to meet the conditions and requirements of the Acts, Regulations, Approvals, Drinking Water Works Permits, Municipal Drinking Water Licences and Orders issued by the Ministry of the Environment, Conservation and Parks. For each requirement not met, the report must specify the duration of the failure and the measures taken to correct the failure.
Additionally, the report must list the summary of the quantities and flows of the water supplied.

Waterworks Description

The City of Niagara Falls is a Class 2 water distribution system, which receives all treated water from the Regional Municipality of Niagara via the Niagara Falls Water Treatment Plant. The raw water source is surface water supplied from the Niagara River, via the Welland River.

The distribution system consists of approximately 493 km of watermain, 3,172 fire hydrants and 5,388 valves owned and operated by the City of Niagara Falls. Additionally, there is 45 km of watermain owned and operated by Niagara Region.

The size of watermains owned by the City of Niagara Falls range from 25mm to 450 mm in size.

Additional information regarding the Niagara Falls Water Treatment Plant can be found on the Regional Municipality of Niagara website: http://www.niagararegion.ca/home.aspx

Compliance

Municipal Drinking Water Licensing Program

As part of a recommendation made by Justice O'Connor during the Walkerton Inquiry, the Ministry of the Environment introduced the Municipal Drinking Water Licensing Program. This program requires the Drinking Water System Owner (City of Niagara Falls) to obtain a licence to operate their drinking water system.

There are four components to each licence; the Drinking Water Works Permit, Implementation of a Drinking Water Quality Management System, Accreditation of the Quality Management System and preparation of a Financial Plan.

- Drinking Water Work Permit allows the Municipality to alter, add, replace, modify and extend the drinking water based on a series of predefined conditions.

- Drinking Water Quality Management Standard (DWQMS) is a series of 21 elements that address all aspects of a water system. The overall goal of the DWQMS is continuous improvement with respect to planning, operating and reviewing the drinking water system. Through the creation of an operational plan the drinking water system Owner demonstrates the ability to operate a safe and effective drinking water system, while continuously monitoring performance and compliance via internal and external audits.

- Accreditation of the Quality Management System is achieved through internal and external audits, the goal of these audits are to ensure that the Owner is following the processes and procedures laid out in the operational plan. The City of Niagara Falls has enlisted NSF International to act as the Quality Management System accreditation body.

- *Ontario Regulation 453/07*, *Safe Drinking Water Act* requires that each Owner prepare a Financial Plan for the drinking water system. The City has retained a consultant to aid in the preparation of the Financial Plan.

In 2024, a surveillance audit was performed on the City's Drinking Water Quality Management System by NSF-ISR. Zero non-conformances were found during this audit, allowing the City to continue their accreditation, meeting the requirements of the *Safe Drinking Water Act, 2002.*

Safe Drinking Water Act

To remain compliant with the *Safe Drinking Water Act*, the City performs a minimum of 101 microbiological samples a month. This monthly number of 101 was determined by the 2021 Census data. This Census data indicated that the population of the Niagara Falls serviced by the distribution system was 92069. Each of these samples is taken from a different location, providing a diverse profile of the water distribution system. Disinfection levels showing free chlorine residuals are also taken at the time of each sample; ensuring proper disinfection levels are maintained. The City takes additional free chlorine residuals throughout the week, again to ensure proper disinfection levels are maintained.

The City also takes water samples testing for elevated levels of trihalomethanes (THM), a chlorine disinfection by-product. The City takes these water samples from areas where the formation of THM would most likely occur.

In 2018, a clarification to the Ministry guidance document for HAA sampling occurred, which required the City to test for Haloacetic Acids (HAA) at two separate locations (previously one location) beginning in 2019, which was and continues to be satisfied. HAA like THM is a chlorine disinfection by-product. The City and Niagara Region keep in close communications regarding these test results.

The Ministry of the Environment, Conservation and Parks has also provincially mandated a Community Lead Testing Program. The City has been granted permission, by the Ministry of the Environment, Conservation and Parks to reduce the number of lead samples taken per sampling window due to the ratio of results that meet the Provincial Water Quality Objectives, compare to the samples that do not. The sample numbers have been reduced to 20 resident samples, 4 distribution system samples and 2 non-residential samples as per Table 2 of Schedule D of the City of Niagara Falls Distribution System Municipal Drinking Water Licence. This must be done once between December 15 and April 15 and again June 15 to October 15, on an ongoing cycle.

All the samples, in accordance with the *Act* must be taken by an individual with a Water Operators licence or a Water Quality Analyst licence. These licences are distributed by the Ontario Water Wastewater Certification Office, in accordance with *Ontario Regulation 128/04, Safe Drinking Water Act*.

Samples are then taken to a Ministry of the Environment, Conservation and Parks approved laboratory. Laboratories must meet quality standards determined by the Ministry of the Environment Parks and Conservation and are audited by the Canadian Association for Laboratories Accreditation. In the event an incident occurs where water samples do not meet Provincial water quality standards, this is deemed an Adverse Water Quality Incident (AWQI). This is detailed further in the chart following entitled *Adverse Water Quality Incidents and Actions*.

An Annual Drinking Water Report has been completed and is available free of charge to the public through the City website and at the Municipal Service Centre. Members of the public may also view water sample results at the Municipal Service Centre.

On December 31, 2012, section 19 of the *Safe Drinking Water Act, 2002*. Section 19 entitled; **Standard of Care** came into force. This section requires the Owner of the Drinking Water System and each person with decision making authority to exercise the level of care, diligence and skill in respect of a municipal drinking water system that a reasonably prudent person would be expected to exercise in a similar situation and to act honestly, competently and with integrity with a view ensuring the protection and safety of the users of the drinking water system. Section 19 has been listed as an attachment to the accompanying Council Report.

Niagara Falls Water Quality Test Results

Parameter		MAC	Number of Samples	Range	Comments
Microbiological Analysis					
Escherichia Coli (E. Coli) CFU/ 100mL		0	1431	0	Indicates presence of fecal matter
Total Coliforms CFU/ 100 mL		0	1431	0 -1	Indicates the possible presence of fecal contamination
Heterotrophic Plate Count (HPC) CFU/mL		N/A	1431	0 – 138	Indication of overall water quality
Chemical Analysis					
Trihalomethanes mg/L		0.10 mg/L	4	0.0260 - 0.0480	Average of Samples taken quarterly
Haloacetic Acids mg/L		0.08 mg/L	8	0.0053 - 0.0154	Average of Samples taken quarterly
Lead mg/L	Residential and Non- Residential Plumbing	0.010 mg/L	44	0.00004 - 0.00668	Lead services were used in construction prior to 1955.
	Distribution	0.010 mg/L	14	0.00002 - 0.00042	City does not have lead watermains
Disinfection					
Free Chlorine Residual mg/L		0.05 to 4.0 mg/L	1644	0.19 - 1.30	Level of disinfectant

Adverse Water Quality Incidents and Actions

Date	Location	Parameter	Result	Actions	Date of Resolution
28/10/2024	6838 Morrison Street	Total Coliform	1 CFU/100 mL	Flush and re-sample	01/11/2024

In the event of an adverse water quality incident (AWQI), the City receives immediate notification from the laboratory. The City is then required as per Ministry of the Environment, Conservation and Parks regulations to verbal notify the Regional Public Health Unit and the Ministry of the Environment Spills Action Centre.

To ensure water safety with a microbiological or chemical exceedance, the City immediately sends a member of staff to flush the nearest fire hydrant and take additional water samples at the source of the AWQI. In addition, in the instance of a microbiological exceedance, City immediately initiates sampling upstream and downstream of the AWQI. This upstream/downstream sampling occurs for two consecutive days (unless otherwise directed by Public Health) until the City receives verbal notification from the laboratory that the water samples are all clear.

In the above table, the column “Date of Resolution” indicates the date in which the City has received copies of the laboratory results or submits the “Notice of Resolution” to the Ministry of the Environment, Conservation and Parks and Public Health Unit.

It should be noted that an Adverse Water Quality Incident does not indicate that the drinking water is unsafe; rather it indicates that with respect to that specific sample, the Provincial water quality objective was exceeded.

In the event a lead result exceeds the Provincial standard, this result does not indicate system wide lead level, but rather at the specific sample site. Possible sources of lead include lead solder, leaded brass fixtures and lead service lines. Prior to 1955 it was common to use lead water service lines as opposed to copper due to the malleability of lead. Properties that have lead results that exceed the Provincial standard are given an information package on ways to best reduce lead in their drinking water.

The City of Niagara Falls experienced one (1) AWQI in 2024.

Operational Activities

In 2024, the City of Niagara Falls experienced 49 water main breaks, compared to 48 in the previous year.

With all water main breaks, the City follows a standard operating procedure, detailing the steps taken to repair the water main, while ensure water quality. Following Category 2 water main breaks, microbiological samples are taken upstream and downstream of the break; ensuring the break was repaired in such a way that water quality levels were not affected.

Flow Rates

2024 Monthly Water Flow Rates (Mega Litres)

Month	Quantity (ML)
January	1218.410
February	1117.434
March	1221.412
April	1233.388
May	1396.688
June	1459.657
July	1648.769
August	1545.722
September	1366.124
October	1265.429
November	1162.161
December	1221.477
Total	15856.671
Monthly Average	1321.39
Daily Average	43.30

1 Mega Litre = 1,000,000 Litres

Definitions

MAC - Maximum Acceptable Concentration

This is a health-related standard established for parameters which when present above a certain concentration, have known or suspected adverse health effects. The length of time the MAC can be exceeded without injury to health will depend on the nature and concentration of the parameter. (Ontario Drinking Water Standards. Ministry of the Environment and Climate Change. Revised January 2001. PIBS #4065e. Page 2.)

mg/L - milligrams per litre (parts per million)

cfu/100 mL - Colony Forming Units per 100 millilitres of sample

µg/L - micrograms per litre (parts per billion)

< - Less than

> - Greater than

Microbiological parameters (i.e. bacteria) - the source of bacteria may come from wastewater treatment plants, livestock operations, septic systems and wildlife. Microbiological analysis is the most important aspect of drinking water quality due to its association with dangerous waterborne diseases. (Paraphrased from Ontario Drinking Water Standards. Ministry of the Environment and Climate Change.)

Total Coliform - the group of bacteria most used as an indicator of water quality. The presence of these bacteria in a water sample indicates inadequate filtration and / or disinfection. (Ontario Drinking Water Standards. Ministry of the Environment and Climate Change.)

Escherichia coli (E. coli) - a sub-group of coliform bacteria. It is most frequently associated with recent fecal pollution. The presence of E. coli or fecal coliforms in drinking water is an indication of sewage contamination. (Ontario Drinking Water Standards. Ministry of the Environment and Climate Change)

Heterotrophic Plate Count (HPC) - an estimate of the number of background bacteria present in the distribution system. It is not an indicator of fecal contamination, but more a general indicator of disinfection effectiveness and distribution system status with respect to biofilm presence and the influence of bacterial re-growth in the distribution system.

Trihalomethanes (THM's) - The maximum acceptable concentration (MAC) for Trihalomethanes (THMs) in drinking water is 0.10 mg/L based on a four quarter moving annual average of test results. Trihalomethanes are the most widely occurring synthetic organics found in chlorinated drinking water.
The four most commonly detected Trihalomethanes in drinking water are chloroform, bromodichloromethane, chlorodibromomethane and bromoform. The principal source of Trihalomethanes in drinking water is the action of chlorine with naturally occurring organics (precursors) left in the water after filtration.

Haloacetic Acid (HAA) - The Guidelines for Canadian Drinking Water Quality (GCDWQ) recommend a maximum acceptable concentration (MAC) of 0.08 mg/L for HAAs in drinking water, based on a locational running annual average of a minimum of quarterly samples taken in the distribution system. The reported HAAs value refer to the sum of the concentration of six haloacetic acid compounds which include mono-, di-, and trichloroacetic acids, and mono- and dibromoacetic acids, and bromochloroacetic acid. HAAs are a type of chlorination disinfection by-product that are formed when the chlorine used to disinfect drinking water reacts with naturally occurring organic matter, usually in raw water. HAA's are a relatively new disinfection by-product.

Lead - Metals, for the most part, are naturally present in source water, or are the result of industrial activity. Some, such as Lead, may enter the drinking water from plumbing in the distribution system. Lead can occur in the source water because of erosion of natural deposits. The most common source of lead is corrosion of the household plumbing. The MAC for lead levels is 0.010 mg/L.

Standard of care, municipal drinking water system

19. (1) Each of the persons listed in subsection (2) shall,

(a) exercise the level of care, diligence and skill in respect of a municipal drinking water system that a reasonably prudent person would be expected to exercise in a similar situation; and

(b) act honestly, competently and with integrity, with a view to ensuring the protection and safety of the users of the municipal drinking water system. 2002, c. 32, s. 19 (1).

Same

(2) The following are the persons listed for the purposes of subsection (1):

1. The owner of the municipal drinking water system.

2. If the municipal drinking water system is owned by a corporation other than a municipality, every officer and director of the corporation.

3. If the system is owned by a municipality, every person who, on behalf of the municipality, oversees the accredited operating authority of the system or exercises decision-making authority over the system. 2002, c. 32, s. 19 (2).

Offence

(3) Every person under a duty described in subsection (1) who fails to carry out that duty is guilty of an offence. 2002, c. 32, s. 19 (3).

Same

(4) A person may be convicted of an offence under this section in respect of a municipal drinking water system whether or not the owner of the system is prosecuted or convicted. 2002, c. 32, s. 19 (4).

Reliance on experts

(5) A person shall not be considered to have failed to carry out a duty described in subsection (1) in any circumstance in which the person relies in good faith on a report of an engineer, lawyer, accountant or other person whose professional qualifications lend credibility to the report. 2002, c. 32, s. 19 (5).

OPTIONAL ANNUAL REPORT TEMPLATE

Drinking-Water System Number:	260002304
Drinking-Water System Name:	City of Niagara Falls Distribution System
Drinking-Water System Owner:	**The Corporation of the City of Niagara Falls**
Drinking-Water System Category:	Large Municipal
Period being reported:	Jan 1, 2024 – Dec 31, 2024

Complete if your Category is Large Municipal Residential or Small Municipal Residential

Does your Drinking-Water System serve more than 10,000 people? Yes [X] No [ ]

Is your annual report available to the public at no charge on a web site on the Internet? Yes [X] No [ ]

Location where Summary Report required under O. Reg. 170/03 Schedule 22 will be available for inspection.

3200 Stanley Ave
Niagara Falls, Ontario
L2E 6S4
Phone: 905-356-7521
Fax: 905-353-8612

Complete for all other Categories.

Number of Designated Facilities served:

Did you provide a copy of your annual report to all Designated Facilities you serve?
Yes [ ] No [ ]

Number of Interested Authorities you report to:

Did you provide a copy of your annual report to all Interested Authorities you report to for each Designated Facility?
Yes [ ] No [ ]

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
Port Robinson	**260049582**
Bevan Heights Drinking Water System	**260062452**

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 [X] No [ ]

Indicate how you notified system users that your annual report is available and is free of charge.

[X] Public access/notice via the web
[X] Public access/notice via Government Office
[ ] Public access/notice via a newspaper
[X] Public access/notice via Public Request
[ ] Public access/notice via a Public Library
[X] Public access/notice via other method Ad placed in newspaper same time as annual hydrant flushing notification

Describe your Drinking-Water System

The City of Niagara Falls purchases treated water from the Regional Municipality of Niagara. Surface water from Lake Erie is at the Region's Niagara Falls Treatment Plant. Treatment consists of pre-chlorinated, conventional screening, coagulation, flocculation and settling followed by filtration, UV treatment and post chlorination. Treated water is distributed by the City of Niagara Falls through approximately 490 km of watermains ranging in size from 25mm to 600mm. Niagara Falls is connected to the Niagara-on-the-Lake distribution system via a 300mm watermain, located on Mewburn Rd, and the entrance to Bevan Heights.

List all water treatment chemicals used over this reporting period

N/A

Were any significant expenses incurred to?

[ ] Install required equipment
[ ] Repair required equipment
[X] Replace required equipment

Please provide a brief description and a breakdown of monetary expenses incurred

In 2024, approximately 5.39 km of watermain was installed at a cost of approximately $5,411,797.42

Provide details on the notices submitted in accordance with subsection 18(1) of the Safe Drinking-Water Act or section 16-4 of Schedule 16 of O.Reg.170/03 and reported to Spills Action Centre

Incident Date	Parameter	Result	Unit of Measure	Corrective Action	Corrective Action Date
10/28/2024	Total Coliform	1	CFU/100 mL	Flush and resample	11/01/2024

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					
Treated					
Distribution	1431	0	0 - 1	1431	0 - 138

Operational testing done under Schedule 7, 8 or 9 of Regulation 170/03 during the period covered by this Annual Report.

	Number of Grab Samples	Range of Results (min #)-(max #)
Turbidity		
Chlorine	**1644**	**0.19 -1.30**
Fluoride (If the DWS provides fluoridation)		

***NOTE**: For continuous monitors use 8760 as the number of samples.*

***NOTE**: Record the unit of measure if it is **not** milligrams per litre.*

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**

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

Parameter	Sample Date	Result Value	Unit of Measure	Exceedance
Antimony				
Arsenic				
Barium				
Boron				
Cadmium				
Chromium				
***Lead**				
Mercury				
Selenium				
Sodium				
Uranium				
Fluoride				
Nitrite				

*only for drinking water systems testing under Schedule 15.2; this includes large municipal non-residential systems, small municipal non-residential systems, non-municipal seasonal residential systems, large non-municipal non-residential systems, and small non-municipal non-residential systems

Summary of lead testing under Schedule 15.1 during this reporting period
(applicable to the following drinking water systems; large municipal residential systems**,** small municipal residential systems, and non-municipal year-round residential systems)

Location Type	Number of Samples	Range of Lead Results (min#) – (max #)	Number of Exceedances
Plumbing	**44**	**0.00004 – 0.00668 mg/L**	**0**
Distribution	**14**	**0.00002 – 0.00042 mg/L**	**0**

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

Parameter	Sample Date	Result Value	Unit of Measure	Exceedance
Alachlor				
Aldicarb				
Aldrin + Dieldrin				
Atrazine + N-dealkylated metobolites				
Azinphos-methyl				
Bendiocarb				
Benzene				
Benzo(a)pyrene				
Bromoxynil				
Carbaryl				
Carbofuran				
Carbon Tetrachloride				
Chlordane (Total)				
Chlorpyrifos				
Cyanazine				
Diazinon				
Dicamba				
1,2-Dichlorobenzene				
1,4-Dichlorobenzene				
Dichlorodiphenyltrichloroethane (DDT) + metabolites				
1,2-Dichloroethane				
1,1-Dichloroethylene (vinylidene chloride)				
Dichloromethane				
2-4 Dichlorophenol				
2,4-Dichlorophenoxy acetic acid (2,4-D)				
Diclofop-methyl				

Dimethoate				
Dinoseb				
Diquat				
Diuron				
Glyphosate				
HAA (NOTE: showing latest annual average)	**Jan 2024 - Dec 2024**	**7.325**	**µg/L**	**0**
Heptachlor + Heptachlor Epoxide				
Lindane (Total)				
Malathion				
Methoxychlor				
Metolachlor				
Metribuzin				
Monochlorobenzene				
Paraquat				
Parathion				
Pentachlorophenol				
Phorate				
Picloram				
Polychlorinated Biphenyls(PCB)				
Prometryne				
Simazine				
THM (NOTE: showing latest annual average)	**Jan 2024 - Dec 2024**	**33.50**	**µg/L**	**0**
Temephos				
Terbufos				
Tetrachloroethylene				
2,3,4,6-Tetrachlorophenol				
Triallate				
Trichloroethylene				
2,4,6-Trichlorophenol				
2,4,5-Trichlorophenoxy acetic acid (2,4,5-T)				
Trifluralin				
Vinyl Chloride				

List any Inorganic or Organic parameter(s) that exceeded half the standard prescribed in Schedule 2 of Ontario Drinking Water Quality Standards.

Parameter	Result Value	Unit of Measure	Date of Sample