



Subject: Drinking Water Quality Management System 2022 Annual and 4th Quarter Report

Report to: Thorold City Council

Recommendations

1. That report PWCS 36-2023 **BE RECEIVED**;
2. That the presented Operational Plan for the City of Thorold's Water Distribution systems **BE APPROVED** and **BE ENDORSED**;
3. That Mayor and Clerk **BE AUTHORIZED** to endorse the 2023 Drinking Water Quality Management System Operational Plan on behalf of Council; and
4. That the 2022 Annual Water Quality Reports **BE POSTED** on the City website.

Key Facts

- The purpose of this report is to keep Council, (owners) informed and updated with the status of the drinking water system(s)
- There was 1 adverse drinking water sample within the fourth quarter
- Seeking Council's endorsement on the 2023 Drinking Water Quality Management System Operational Plan
- The drinking water system(s) are operating proficiently

Budgetary Status

N/A

Analysis

As recommended by Justice Dennis O'Connor, in Part 2 of the Walkerton Inquiry, the government of Ontario has implemented a licensing program for municipal drinking water systems. The program requires owners and operators of drinking water systems to incorporate the concepts of quality management into system operation and maintenance. For drinking water systems to receive its licence, the owner and operator must have the following in place:

- A Drinking Water Works Permit
- An accepted Operational Plan endorsed by the System Owner
- An accredited Operating Authority
- A financial plan, and
- A Permit To Take Water

The Operational Plan (OP) was introduced to the City of Thorold in 2009 as part of the legislative requirements implemented by the province and sets out the framework to develop a Quality Management System that is specific and relative to its drinking water system. The OP serves as a Quality Management System Guidance Manual that describes the methods by which the City of Thorold implements Drinking Water Quality Management.

In accordance with the requirements of the Drinking Water Quality Management Standard (DWQMS) the OP shall be reviewed and updated as required on an annual basis by the appointed Quality Management System Representative. To avoid frequent reports to Council, the Director of Public Works and Community Services or the Quality Management System Representative has been delegated by Council, to act on behalf of the Owner for the purposes of endorsing adjustments to the Operational Plan that are minor in nature and do not change the intent of the Operational Plan. These types of changes would typically include, but are not limited to, administrative adjustments such as typos, minor edits and wording clarifications, revisions to the organizational structure and other such minor adjustments as determined by the Director of Public Works and Community Services.

Attached as Appendix A, for Council's information and endorsement is the most current version of the City of Thorold's Drinking Water Quality Management System Operational Plan.

In conformance with the requirements of the Operational Plan, staff must also keep System Owners (Council) apprised of the following items:

- Top Management Meeting
- Infrastructure Review Meeting
- Internal/External audit results
- Risk Assessment Outcome results
- Emergency Response Plan operator training records

Copies of meeting minutes and training records for 2022 are available upon request.

2022 Drinking Water System Quarterly Summary Reports

In accordance with the City's Drinking Water Systems Operations and Maintenance Manual, staff is required to provide Council, owners of the system, quarterly reports of all "adverse water quality incidents" and the review of completed "Daily Log Sheets".

Drinking water samples are taken on a weekly basis in accordance with Ontario Regulation 170/03. Daily Log Sheets are to be completed by designated operators at the end of each shift in accordance with Ontario Regulation 128/04. The following is a summary report for quarter 4 of 2021.

Quarter 4 – October 1, 2022 to December 31, 2022

"Adverse Water Quality Incident Summary"

Total Number Drinking Water Samples Collected = 190

Total Number of Adverse Drinking Water Samples = 1

Staff followed MECP regulations along with instructions from Niagara Public Health and Ontario's Spills Action Centre to address the adverse drinking water sample. Follow up samples were taken and the lab results were within normal parameters deeming the system safe and operable.

Total Number of Free Chlorine Residual Tests = 367

Total Number of Adverse Free Chlorine Residual Tests = 0

Free Chlorine Residual range: 0.25mg/L-1.76mg/L

"Review of completed Daily Log Sheets"

Total number of completed shifts = 63

Total number of daily log's **NOT** completed or not completed correctly = 0

The Provincial Government, through the Ministry of Environment, Conservation and Parks, regulates drinking water systems to ensure drinking water safety and quality. Every owner and operator of a drinking water system must ensure that systems meet the legal requirements set out under the Safe Drinking Water Act, 2002 and include the following key duties:

1. Provide water that meets all prescribed drinking water quality standards
2. Operate in accordance with the act and its regulations, and are kept in a fit state of repair
3. Are appropriately staffed and supervised by qualified persons
4. Comply with all sampling, testing and monitoring requirements
5. Meet all reporting requirements

This report includes information and attachments that support the legislative requirements set out under the Safe Drinking Water Act, 2002 including drinking water quality and flow reports, Ministry of Environment, Conservation and Parks Inspection reports, and Water Distribution System Operation and Maintenance Summary Reports.

2022 Annual Water Quality Reports (Section 11, O.Reg.170/03) – attached in Appendix B

In accordance with Section 11 of Ontario's Drinking Water Regulation 170/03, owners of a drinking water system shall ensure that an annual report is prepared and that effective steps are taken to inform users of the Annual Report, and that the report is available to every person who requests a copy, free of charge.

The City of Thorold owns and operates three "Large Municipal Residential" Drinking Water Systems[Decew, Port Robinson, and South End.

Attached for Council's information is a copy of the Drinking Water System Annual Water Quality Reports for the period of January 1, 2022 to December 31, 2022. A copy of the reports will be posted at City Hall, Public Works Office, and available on the City of Thorold website at www.thorold.ca.

Copies of the report can also be obtained at the Public Works Department Office located at 70 Front St North, to anyone who requests a copy, free of charge during regular business hours, Monday to Friday 8:00am to 4:00pm.

2022 Drinking Water System Annual Reports (Schedule 22 - O.Reg.170/03) – Attached in Appendix C

Annually, owners of drinking water systems shall be informed and provided with summary reports of the information included in Schedule 22 of Ontario Drinking Water Regulation 170/03.

The summary reports must include monthly average flow rates, maximum daily flows, and daily instantaneous peak flow rates. The report must also include times that the municipality was not able to meet the requirements of the Act, the regulations, the system's approval, drinking water works permit, municipal drinking water license or any order issued by the Ministry of the Environment, Conservation and Parks. Each failure must specify the duration and measures taken to correct the failure.

Attached for Council's information are flow summary reports provided by the Regional Municipality of Niagara for water treatment plants that supply the City of Thorold's drinking water systems for the period of January 1, 2022 to December 31, 2022 in accordance with the requirements set out in schedule 22, O.Reg.170/03.

2022 Water Distribution System Operation and Maintenance Summary Reports –
The summaries can be requested from Public Works staff.

Preventative maintenance represents a proactive approach to maintaining the water distribution system. Acts of preventative maintenance often address issues before they cause a major problem or breakdown and can result in significant cost savings. The following are some of the key programs that are performed annually:

1. Watermain Flushing – helps remove sediments that collect in watermain
2. Hydrant Inspection – ensures hydrants are operable and maintained
3. Hydrant Pressure and Flow Testing – assists with system functionality
4. Valve Exercising – ensures functionality and identifies deficiencies
5. Water Quality Sampling – identifies potential adverse water quality
6. Leak Detection – assists in reducing non-revenue water, increases reliability of infrastructure and avoidance of failures
7. Water Meter Maintenance – provides accurate water billing data

Copies of the program summary reports can be requested from staff. In order to track and record other operator activities that are not included as part of the preventative maintenance programs listed above, log sheets titled “Non-Regular Duties” are used. The following is a summary of “Non-Regular” duties completed in 2022:

1. Watermain Break Repairs – 28
2. Hydrant Repairs – 6
3. Water Service Repairs – 9
4. New Water Service Installation – 0
5. Valve Repairs - 6

The information and attachments included in this report is for information purposes and have been prepared in compliance with the legislative requirements under the Safe Drinking Water Act, 2002

Ministry of the Environment, Conservation and Parks Inspection Reports –

MECP completed their annual inspection. The 2022 MECP reports for all three systems are attached in Appendix D

In order to measure individual inspection results, the Ministry has established an inspection compliance risk framework that includes an inspection summary rating record (IRR), which 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.

A non compliance was found that affected all three systems. It was pertaining to weekly chlorine sampling and regulated timelines. Appropriate action was taken with direction from the Provincial Water Inspector. The non compliance was resolved and no further action is required.

The following is a summary of the results from the inspection initiated in February of 2023 for the 2022 calendar year:

Drinking Water System	Non-Compliance Rating	Inspection Risk Rating	Final Inspection Rating
Port Robinson	21/189	11.11%	88.89%
South End	21/179	11.73%	88.27%
Decew	21/224	9.38%	90.62%

2022 Internal Drinking Water Quality Management System (DWQMS) Audit

The City of Thorold hires an external credited company to perform the annual internal audit of our Drinking Water Quality Management System. The audit's main objectives are:

- Determine if non-conformances, potential non-conformances and opportunities for improvement identified in recent audits have been addressed and cleared;
- Identify possible new non-conformances and potential non-conformances; and
- Identify improvements to the QMS

2022's Internal Audit findings came back as follows:

- Non-Conformances: 0
- Potential Non-Conformances: 0
- Opportunities For Improvement: 2
- Other Recommendations: 0

A copy of the audit has been attached in Appendix E.

Alternatives Reviewed

N/A

Relationship to Strategic Plan

- Responsible Growth and Infrastructure Planning

Other Pertinent Reports

N/A

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This report was prepared in consultation with Steve Santo, Manager, Public Works.

Appendices

Appendix A	2023 Drinking Water Quality Management System Operational Plan
Appendix B	Thorold's 2022 Annual Drinking Water Quality Reports
Appendix C	Niagara Region's 2022 Annual Water Reports
Appendix D	2022 MECP Inspection Summaries
Appendix E	2022 Internal Audit Report