

REPORT TO COUNTY COUNCIL

2025 Drinking Water Quality Management System Update

To: Warden and Members of County Council

From: Director of Public Works

RECOMMENDATION

1. That County Council receive Report PW 2025-07 entitled “2025 Drinking Water Quality Management System Update”, in accordance with DWQMS (Version 2.0, February 2017) and the requirements of subsection 16(2) of the *Safe Drinking Water Act, 2002*.

REPORT HIGHLIGHTS

- In accordance with the *Safe Drinking Water Act, 2002*, this report presents County Council, recognized as the Owner responsible for all municipal drinking water systems in Oxford County, with a summary of key processes and activities undertaken in 2025 to evaluate the continuous improvement, suitability, adequacy and effectiveness of the water Quality Management System (QMS) against the provincial Drinking Water Quality Management Standard (DWQMS), version 2.0.
- The annual QMS processes are successfully facilitated by the Supervisor of Compliance and Programs (QMS representative) to drive continuous improvement for the County water systems.

IMPLEMENTATION POINTS

The County and its contracted service providers (Town of Tillsonburg and City of Woodstock) continue to follow the County’s water QMS policies and procedures to meet the requirements of the DWQMS (Version 2.0, February 2017) and to comply with the requirements of subsection 16(2) of the *Safe Drinking Water Act, 2002*.

The County's QMS representative will continue to review and reaffirm coverage and oversight of the County's 17 municipal drinking water systems under the consolidated Operational Plan. In addition, the County QMS representative and professionally trained internal auditors will perform a planned internal audit of the same in 2026.

The refinements to the consolidated Operational Plan underwent the final full reaccreditation audit by an independent Accreditation Body (SAI Global) in 2024. Reaccreditation audits occur once every three years to reaffirm an organization as an approved Operating Authority, which serves as one of the required components of the Municipal Drinking Water License. Based on the results of the audit, it was determined that the management system is effectively implemented and maintained and meets the requirements of the standard relative to the scope of certification identified; therefore, a recommendation for certification was submitted and approved.

The County must apply to renew each Municipal Drinking Water License and Drinking Waterworks Permit every five years with the Ministry of Environment Conservation and Parks (MECP). All 17 Municipal Drinking Water System Licences in Oxford County were successfully renewed in 2025 by the MECP. The updated Licenses required the County to undertake a review of all disinfection calculations in 2025. The review was a coordinated effort between staff from Water and Engineering Services that involved validating existing calculations through drawings and signing off a final detailed report by a Licensed Engineer.

Financial Impact

In 2025, it cost \$116,000 to maintain the County-wide QMS, which is the cost of one full time equivalent staff member, as well as third-party external audits.

The Municipal Drinking Water Licence renewal process includes submission of the 2024 Water Financial Plan for all County Drinking Water Systems. The Financial Plan is a legislated requirement that ensures adequate resources are available to fund the drinking water system over the upcoming license period. The Water Financial Plan covers a period of 2024-2030, as approved by County Council through Report [CS 2024-23](#).

There are no financial impacts as a result of this report. Any required actions that will result in expenditures have been accounted for in the 2026 Business Plan and Budget for the respective drinking water systems.

Communications

This report, along with the 2025 Drinking Water System Performance report ([PW 2026-05](#)), serves to meet the DWQMS requirements of reporting the results of the water QMS Annual Management Review to the drinking water system Owner representatives (Oxford County Council/Chief Administrative Officer). For public information, the annual Drinking Water Quality Management System Update is posted to the County website in the "[Reports and publications](#)" section.

2023-2026 STRATEGIC PLAN

Oxford County Council approved the [2023-2026 Strategic Plan](#) on September 13, 2023. The Plan outlines 39 goals across three strategic pillars that advance Council's vision of "Working together for a healthy, vibrant, and sustainable future." These pillars are: (1) *Promoting community vitality*, (2) *Enhancing environmental sustainability*, and (3) *Fostering progressive government*.

The recommendation in this report supports the following Strategic Plan pillars and goals:

Strategic Plan Pillars and Goals

		
Promoting community vitality	Enhancing environmental sustainability	Fostering progressive government
Goal 1.3 – Community health, safety and well-being		Goal 3.1 – Continuous improvement and results-driven solutions Goal 3.2 – Collaborate with our partners and communities Goal 3.4 – Financial sustainability

See: [Oxford County 2023-2026 Strategic Plan](#)

DISCUSSION

Background

Oxford County Drinking Water Systems

Under the *Municipal Act, 2001*, the County of Oxford holds exclusive municipal authority and responsibility for all water and wastewater services. Accordingly, Oxford County is a recognized municipal water authority which owns all municipal drinking water system assets, including water treatment and distribution system assets in all 17 municipal drinking water systems.

The Owner of the municipal drinking water system, represented by County Council and the Chief Administrative Officer (CAO), must uphold the Statutory Standard of Care when executing decision making related to the municipal drinking water system. The Statutory Standard of Care provisions of the *Safe Drinking Water Act, 2002* makes individuals with oversight responsibilities for municipal drinking water systems legally responsible for decisions made regarding the system.

The County operates and maintains all 17 municipal drinking water systems, with the exception of a limited portion of its linear water distribution systems in the Town of Tillsonburg (Tillsonburg) and the City of Woodstock (Woodstock). For the County's water systems located in Woodstock and Tillsonburg, the County operates and maintains all water treatment system assets (raw water supply wells, water treatment plants, high lift pumping stations) and part of the water distribution system assets (water transmission mains, water booster pumping stations, water re-chlorination facilities/analyzers, water towers, water reservoirs). The remaining portion of the water distribution system linear assets (distribution watermains, valves, fire hydrants, water meters) are operated and maintained by Tillsonburg and Woodstock, respectively, on behalf of the County, under service contract agreements (as permitted under the *Municipal Act, 2001*).

Through a collective effort and mutual participation, all parties updated the service agreements as per the resolution from Report PW 2023-26. The new agreements came into effect on January 1, 2024, and reflect the collective agreement to continue to provide enhanced service delivery with an emphasis on continuous improvement and implementation of industry best management practices.

Water Quality Management Systems (QMS)

The water QMS contains elements of both the ISO 9001 standard with respect to management systems and the Hazard Analysis and Critical Control Points (HACCP) standard with respect to product safety. The water QMS also incorporates the HACCP approach to risk assessment and reflects the multi-barrier approach for municipal drinking water system safety.

The water QMS must be fully documented in an Operational Plan that satisfies the requirements of the 21 best practice elements, which are comprehensively prescribed in the MECP's DWQMS. The Operational Plans are intended to reflect a fully implemented water QMS with a focus on continual improvement. An MECP-accepted Operational Plan is just one part of the five regulatory components that must be satisfied by the County, as the responsible Owner, to maintain each of its 17 Municipal Drinking Water Licenses as shown in Figure 1.



Figure 1 – Municipal Drinking Water License Regulatory Components

Oxford County maintains the Operational Plan and the water QMS policies and procedures that govern the operations and maintenance performed by the County and its contracted service providers on all 17 drinking water systems.

As shown in Figure 2, each stage of the annual water QMS review process (as documented in the Operational Plan) is undertaken to ultimately identify opportunities for improvement (OFIs) and improvement and corrective action records (ICARs) on the municipal drinking water system. Following the review process, the County's QMS representative subsequently incorporates any updates or new water QMS policies and procedures.



Figure 2 – Annual Water QMS Review and Continuous Improvement Process

Each of these components is discussed in greater detail in the Comments section below.

Comments

Internal Audit Findings

As required by the MECP's DWQMS, Oxford County and its contracted service providers undergo internal auditing of the water QMS documented in the Operational Plan against the provincial DWQMS at least once every calendar year. The internal audit is led by the County's Supervisor of Compliance and Programs and professionally trained internal auditors to assess conformance of the Operational Plan and associated QMS processes/procedures against the DWQMS (Version 2, Feb. 2017), under the *Safe Drinking Water Act, 2002*.

Each year, internal audits are performed as complete system audits, broken out into process audits or audits of specific individual DWQMS elements. Each of the 21 DWQMS elements must be audited once per audit cycle (completed on a rotational basis once every 36 months).

The water QMS processes and programs chosen for internal auditing in 2025 included fire hydrant inspection and maintenance, instrumentation calibration and verification, maintenance programs for water supply infrastructure (i.e. wells), and water treatment site audits. Site audits were conducted in eight different drinking water systems in 2025. The internal audit findings were minor and included:

- One non-conformity finding: During the audit, it was noted that document review found five instances in 2025, where an Operator performed scheduled analyzer verification, contrary to Procedures, which require the Instrumentation and Control Technician to be responsible for performing and scheduling verifications and calibrations for inline analyzers. The Procedures were revised for clarity and staff were trained on the updated versions.
- Seven OFIs were issued related to documentation and Cartegraph (work order management software) training.

Internal audit non-conformance and OFIs are addressed through the water QMS Continual Improvement Process. All continual improvement items from the 2025 Internal Audit have been resolved.

Emergency Response Plan Testing

Testing of the Water Emergency Response Plan can take the form of training sessions, mock incidents or debriefing the response to an emergency to identify opportunities for improvement.

In 2025, a mock cyber security incident was used to identify opportunities for improvement to the Emergency Response Plan. The scenario developed by the Cyber Security Division of Ontario covered the events following an employee entering sensitive business system vulnerability information into a Generative Artificial Intelligence (GenAI) Tool. The mock scenario was run three times in September, allowing participation from 28 staff from Operations (County and Service Providers), Technical Services, Information Technology, and Communications.

Three OFIs were identified, including a recommendation to perform small scale testing of the SCADA system isolation process in a controlled environment to determine any unforeseen operational issues, provide hands on training for staff, and provide input into the County's Emergency Response Plan for cyber security incidents as it relates to water operations.

Risk Assessment

The water QMS Risk Assessment Process ensures all potential hazards, associated hazards or hazardous events associated with drinking water quality are properly identified, ranked and assessed. The assessment results provide the County and its contracted service providers with guidance to identify critical events, control measures, critical control points and procedures to adequately manage risk while safeguarding the municipal drinking water quality and performance.

The Risk Assessment Process is required every 36 months for each of the County's drinking water systems (completed in 2023), with complementary risk assessment reviews to be completed at 12 months and 24 months (completed in 2024 and 2025) between the assessments to verify the currency of the information and the validity of the assumptions used in the risk assessment.

During the 2025 Risk Assessment Review, the following hazardous events were identified for discussion:

- Standby Power Failure – reviewed for small systems where power failure would cause system-wide pressure to drop.

No new hazardous events were considered during this review.

The following Hazardous Events were reassessed and determined to be Critical Events with Critical Control Points (CCPs) based on recent operational changes:

- Transmission Main Break - single feed or under waterway – Otterville to Springford
- Transmission Main Break - single feed or under waterway – Norwich to Springford

The threat of these events is managed by asset management, internal procedures, and planned future infrastructure studies.

External Audit Findings

The independent Accreditation Body (SAI Global) completed a surveillance audit, as required annually, in October 2025. The audit determined that the County's QMS is effectively implemented and maintained to meet the requirements of the DWQMS. No non-conformances to the DWQMS were noted. Four OFIs were identified:

- Three were regarding suggested improvements to documents, all of which were immediately incorporated; and
- One which required more substantial updates relating to Source Water Protection information in the Operational Plan, which is in progress under the continuous improvement process.

Management Review

Under legislation, the DWQMS requires that a Management Review meeting be held annually by the County to review findings of the annual QMS review and continual improvement process (refer to Figure 2). The Management Review process ensures that all levels of the organization (Owner, Top Management, Operations) are kept informed and aware of the performance of the DWQMS (as documented in the Operational Plan), which governs the operations and maintenance performed by the County and its contracted service providers across all 17 drinking water systems.

The DWQMS lists 16 specific information items that must be part of the annual Management Review including, but not limited to, incidents of regulatory non-compliance, incidents of adverse drinking water tests, raw water supply and drinking water quality trends, operational performance and results of the infrastructure review. These items formed part of the overall performance review of the County's 17 drinking water systems (PW 2026-05).

The annual Management Review conducted in February 2026 also included the review of:

- Discussion and follow up on action items from previous management reviews as well as any new items identified since the last review;

- Operational considerations and challenges as part of operational performance;
- Effectiveness of the Risk Assessment Process and deviations from critical control points and responses;
- Results of MECP drinking water system inspections, internal and external audits;
- Results of emergency response testing and training;
- Changes that could impact the water QMS, including resources needed to maintain the systems;
- Customer feedback;
- Suggestions brought forward by Operations and Compliance staff; and
- A summary of ongoing continual improvement efforts.

During the review, there were discussions regarding the County and area municipal declaration of a significant weather event for all County and Township roads on Monday, December 29, and its potential effect on the continuity of water operations. An OFI to review the impact of future events will be assessed through the QMS.

Summary of Overall Continuous Improvement

The County QMS Representative facilitates the continual improvement process. In addition to closing eight outstanding continual improvement items from previous years, 79% of all new OFI and ICARS created in 2025 were successfully implemented. A comparison of the continual improvement status for ICAR and OFI is shown in Table 1.

Table 1 –Summary Water QMS Corrective Actions

	2022	2023	2024	2025
Outstanding OFI <i>(as of January 1)</i>	18	41	12	4
New OFI <i>(created during reporting year)</i>	44	20	25	20
Implemented OFI (Closed) <i>(as of December 31)</i>	21	49	33	22
Total OFI Remaining	41	12	4	2
Outstanding ICAR <i>(as of January 1)</i>	3	11	12	10
New ICAR <i>(created during reporting year)</i>	15	12	16	13
Implemented ICAR (Closed) <i>(as of December 31)</i>	7	11	18	12
Total ICAR Remaining	11	12	10	11
TOTAL CORRECTIVE ACTIONS (active / open)	52	24	14	13

The QMS representative will continue to prioritize and close active/open OFI and ICARs. In many cases, an updated action plan and follow up system has already been established. This is in addition to any new OFIs and ICARs identified through the Annual QMS Review and Continuous Improvement Process, which is a continuous and critical component of the QMS.

CONCLUSIONS

The results of the annual Management Review of the County's DWQMS demonstrates continued compliance with drinking water regulations and the County's ongoing commitment to continual improvement in the provision of safe, reliable and sustainable supply of municipal drinking water for its residents and businesses.

Managing the County's water QMS within one consolidated Operational Plan has allowed the QMS Representative to harmoniously undertake all quality management tasks for all 17 drinking water systems in a singular fashion while achieving associated efficiencies and cost savings. The consolidated Operational Plan reflects and ensures that the same approach for care and control is consistently applied across all 17 drinking water systems from source to tap.

SIGNATURES

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