

REPORT TO COUNTY COUNCIL

2024 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 2025-17 entitled “2024 Drinking Water Quality Management System Update” as information.

REPORT HIGHLIGHTS

- In accordance with provincial legislation, 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 2024 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).
- Full transition to the consolidated Operational Plan was completed in 2024 and successfully met the DWQMS requirements following a third-party external reaccreditation audit.
- The annual QMS processes are successfully facilitated by the QMS Coordinator to drive Continuous Improvement for the County water systems.

IMPLEMENTATION POINTS

The County and its contracted service providers (Town of Tillsonburg, City of Woodstock) continue to follow the County water QMS policies and procedures to meet the requirements of the DWQMS (V2.0, February 2017) and to comply with the requirements of subsection 16(2) of the *Safe Drinking Water Act, 2002*.

The County's QMS coordinator 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 2025.

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 (refer to Figure 1). 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.

Municipal Drinking Water Licenses must be renewed every five years with the Ministry of Environment Conservation and Parks (MECP). All 17 Municipal Drinking Water System Licences in Oxford County have been submitted for renewal in 2024 and are currently undergoing technical review by the MECP. The renewal packages included 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](#).

Financial Impact

The total operating budget for the County-wide QMS in 2024 included expenses of \$108,000 related to the development and ongoing maintenance of the water QMS for all municipal residential drinking water systems in the County. This also includes expenses related to the reaccreditation audit and full-scope transitional audit which affirmed the consolidated Operational Plan is compliant with the provincial DWQMS.

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 2025 Business Plan and Budget for the respective drinking water systems.

Communications




This report, along with the 2024 Drinking Water System Performance report ([PW 2025-10](#)), 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).

This report also serves to communicate back to Council that staff have fulfilled the resolution from Report [PW 2023-26](#) and completed the subsequent administrative updates to the municipal water QMS, which institutes a consolidated Operational Plan that governs the oversight of Oxford's 17 municipal drinking water systems.

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:

		
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* make 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 Tillsonburg and 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 limited 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 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 fully implemented water QMS with a focus on continual improvement. An MECP-accepted Operational Plan is just one part of the 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 Coordinator 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 QMS Coordinator and professionally trained internal auditors to assess conformance of the Operational Plan and associated QMS processes/procedures against the DWQMS (V2, 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 2024 included Distribution – New Connections: New Construction/Reconstruction (field audit), Management/Engineering – Infrastructure Planning, Administration – Customer Service, and water treatment site audits. Site audits were conducted in eight different drinking water systems in 2024. The internal audit findings were minor and included:

- One non-conformity finding: During the audit, it was noted that a Ministry Form 1 for Pemberton watermain reconstruction was completed, but had not been submitted to Water/Wastewater Program Coordinators for review and Manager approval, in advance of work being completed;
- Six OFIs that centred around improvements to the audit process and to the tracking and reporting of customer service calls; and
- Three strengths identified included the County's improvements to Project Governance, which has allowed for better coordination between Engineering Services and Water Services when it comes to Infrastructure Projects.

Internal audit non-conformance and OFI are addressed through the water QMS Continual Improvement Process.

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. In the last case, an incident debrief is recommended to point out opportunities for improvement.

In 2024, a training session was offered to all Operational staff in November and December, with 100% attendance. The session covered the purpose and key areas of the County's emergency response plan, including:

- What constitutes an emergency for Water Services;
- Roles and responsibilities during an emergency; and
- Existing emergency procedures and operational procedures related to the emergency response plan.

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 (completed in 2024) and 24 months (to be completed in 2025) between the assessments to verify the currency of the information and the validity of the assumptions used in the risk assessment.

During the 2024 Risk Assessment Review the following new hazardous events were identified for discussion:

- Hazards associated with abandoned petroleum wells within Well Head Protection Area (WHPA) A to C as identified by the Federal government; and

- Hazard of programmable logic controller (PLC) uninterruptible power supply (UPS) failure for all systems.

In addition to those previously identified in the 2024 Risk Assessment, the following Hazardous Events were above the calculated risk ranking threshold of eight as a result of this Review, and thus determined to be Critical Events with Critical Control Points (CCPs) in some or all of the systems:

- Distribution Main Break under waterway (Ingersoll); and
- Aquifer Contamination - Dry Hole, Gas Well, and Stratigraphic Test Well located in WHPA A to C.

Risk Assessment Review identifies capital projects or operational enhancements that could manage hazardous events that are forwarded for infrastructure review and budgetary considerations. Some examples from 2024 include:

- The inclusion of isolation valves on either side of critical crossings to be evaluated with capital works;
- Ongoing condition assessment, relining and valving of critical feeder mains; and
- Operational UPS Replacement Program.

External Audit Findings

The independent Accreditation Body (SAI Global) completed a full systems reaccreditation audit, as required every three years, in October 2024. As a result of this audit, it was 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, but some minor OFIs were identified:

- Five improvements to documents or processes which were able to be immediately addressed; and
- Two which require more substantial updates to processes for tracking of documents and emergency management testing, which are being addressed 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 2025-10).

The annual Management Review conducted in February 2025 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 of operational considerations and challenges, there were discussions regarding the security of supply during maintenance activities for many of our smaller water systems. As a result, these concerns are being brought forward to both capacity and risk assessments in 2025 for review of future priority infrastructure projects.

Summary of Overall Continuous Improvement

The County QMS Coordinator facilitates the continual improvement process. In addition to closing 19 outstanding continual improvement items from previous years, 76% of all new OFI and ICARS created in 2024 were successfully implemented. A comparison of the continual improvement status for ICAR and OFI is shown in Table 1.

Table 1 – Overall summary of Outstanding Water QMS Corrective Actions

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

Outstanding implementation of key items such as long-term implementation plans to streamline the Asset Management software used across all County water systems, and improvements to the workflow and standardization of the GIS for all water systems, will continue to be monitored by County staff and the City of Woodstock and Town of Tillsonburg staff to complete this critical work.

The QMS Coordinator 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 Coordinator to harmoniously undertake all quality management tasks for all 17 drinking water systems in a singular (versus triplicate) 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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