



Report of the Commissioner of Public Works

**2023 Integrated Management System Update Report for Water,
Wastewater and Waste Management**

1. Recommendation

The Regional Clerk circulate this report to Clerks of the local municipalities and the Ontario Chief Drinking Water Inspector (Ministry of the Environment, Conservation and Parks).

2. Purpose

The Integrated Management System update for water, wastewater and waste management operations summarizes key strategies to mitigate service delivery risk and demonstrates operational due diligence. This report is a companion report to the 2023 Drinking Water Systems Report, also on this agenda. Together, these reports support Council in meeting statutory standard of care requirements and update Council on progress on the Ontario Drinking Water Quality Management Standard under the *Safe Drinking Water Act, 2002*.

Key Points:

- Public Works' Integrated Management System is mature, well-established and provides a structured approach to risk mitigation and continuous improvement
- Audits of water, wastewater and waste management facilities provided valuable insight into delivery of services resulting in improved operational performance
- Water, wastewater, and waste management operations participated in three multi-site external audits, resulting in successful re-registration to International Organization for Standardization (ISO) 9001 Quality Management Standard
- The Owner Representative role, as required by the Ontario Drinking Water Quality Management Standard, is the Commissioner of Public Works who is responsible for monitoring Integrated Management System performance and endorsing the system on behalf of Council

3. Background

Members of Regional Council have a legal obligation to ensure safe drinking water is provided to residents under the *Safe Drinking Water Act, 2002*

Regional Councillors have an important role in ensuring York Region's drinking water systems provide safe, high-quality drinking water. *Safe Drinking Water Act, 2002* establishes a legal duty on municipal Councillors to exercise a level of care and diligence with respect to municipal drinking water system oversight that a reasonably prudent person would be expected to exercise. The Integrated Management System (the System) supports Council with meeting standard of care, providing confidence that water, wastewater, and waste management services are delivered in accordance with policies and procedures.

Public Works' role is to help ensure York Region Council members have the information needed to meet this legal obligation. The System encompasses three standards focusing on quality and environmental management. The system provides a consistent framework to mitigate risk, comply with applicable legal requirements, minimize operational impacts on the environment, and continually improve processes.

Roles and responsibilities are clearly defined including delegation of an Owner Representative

Council supports the System by providing financial resources and appointing an Owner Representative. The Owner Representative is delegated authority for submission of drinking water licence applications and supporting components under the Municipal Drinking Water Licensing Program. Appendix A summarizes roles and responsibilities, as defined in the System. Council and the Chief Administrative Officer identified as Corporate Top Management, are required to provide oversight to ensure suitability and effectiveness of the System. Operational Top Management fulfill their role in the System by making strategic and operational decisions and preparing this annual report for Council.

York Region is a leading municipality in management system implementation

York Region was the first organization in North America to apply International Organization for Standardization's Environmental Management Standard (ISO 14001) to a wastewater system. Table 1 summarizes standards applied to each operational area. York Region's adherence to International Organization for Standardization (ISO) standards is voluntary, while adoption of the Drinking Water Quality Management Standard (DWQMS) is a legal requirement under the *Safe Drinking Water Act, 2002* and the Municipal Drinking Water Licensing Program. By subscribing to multiple standards, the system effectively mitigates environmental and quality risks, while supporting service delivery excellence and compliance with regulatory requirements.

Table 1
Integrated Management System Framework

Operations	Management Standard	Registered Since
Wastewater	ISO 14001 Environmental Management Standard	2000
Water	ISO 9001 Quality Management Standard	2001
	Drinking Water Quality Management Standard	2009
Waste Management	ISO 14001 Environmental Management Standard	2010
	ISO 9001 Quality Management Standard	2018

Auditing confirms system effectiveness by evaluating conformance with each management system standard

Audit programs monitor conformance with internal processes, compliance with regulatory requirements and strengthen system performance by identifying opportunities for continual improvement. Facilities and programs are audited via three main types of audits:

- **Internal Proactive Audits** – completed regularly by qualified Public Works staff to confirm conformance to management system requirements and evaluate compliance with regulatory requirements
- **ISO External Audit** – completed annually by a third-party registration body to confirm conformance to ISO 9001 and ISO 14001 requirements
- **DWQMS External Audit** – completed annually by a third-party registration body to confirm conformance to the standard on behalf of the Ministry of the Environment, Conservation and Parks

Integrated Management System Policy and Operational Plan update planned for 2024 to align with service delivery priorities

The Integrated Management System Policy (Appendix B) and Operational Plan are a requirement of our registration and provides the foundation for management system commitments. In 2024, both the Policy and Operational Plan will be updated to reflect service delivery priorities. Endorsement of both will be completed by the delegated Owner Representative (Commissioner, Public Works).

4. Analysis

Audits confirmed high level of conformance, demonstrating system maturity

In 2023, staff conducted 87 internal proactive audits resulting in 67 findings. Each year, audit findings identify internal process improvements and system enhancements. Table 2 summarizes the number of audit findings by audit type, from 2021 to 2023. The number of audit findings have remained consistent year over year, demonstrating a rigorous audit program.

Table 2
Number of Audit Findings for Water, Wastewater and Waste Management

Audit Type	Number of Audit Findings		
	2021	2022	2023
Internal Proactive Audits	67	80	67
ISO External Audits	1	0	3
Regulatory DWQMS Audits	0	0	0

Audit findings highlight key priorities and continual improvement initiatives

Key areas of focus for 2023 internal proactive audits included confirming equipment calibration records, assessing physical site security measures at waste management facilities, evaluating customer service requirements, and considering process improvements for water analyzer verification, odour complaints, and spill kit inspections. Table 3 identifies internal audit findings by category.

Year-over-year, audit findings have minor variances. For example, in 2023, asset tracking and calibration-related findings increased. Reviewing equipment calibration status is completed each year during audits; however, in 2023 it was an audit focus area, contributing to an increase in findings. Corrective actions are put in place to address each audit finding. Actions include updating guidance documents to reflect process changes, updating asset information and labelling requirements, completing equipment calibrations and implementing process enhancements to drive efficiencies. Trends in audit findings and corrective actions will inform key areas of focus for 2024 internal proactive audits.

Table 3
Number of Internal Audit Findings by Category

Category	2021	2022	2023
Asset Tracking and Calibration	9	11	16
Documentation	31	38	33
Process Improvements	14	9	6
Training	7	8	3
Miscellaneous	6	14	9

Third-party audits resulted in successful re-registration to ISO 9001 and identified two areas for improvement

Third-party audits are intended to confirm the System complies with requirements of DWQMS and ISO standards. Audits are completed by certified external auditors who stringently review internal processes. In 2023, three external audits were conducted over 18 audit days. Third-party audits resulted in successful re-registration to ISO 9001 and confirmation of adherence to DWQMS and ISO 14001 standards.

Three findings were identified during external audits. These findings did not impact service delivery or ISO registration status.

- One major finding was issued for ineffective storage of compressed gas cylinders at a maintenance facility. Immediate action was taken to rectify storage methods and add safety signage. Root cause analysis was implemented to determine additional corrective actions. All related corrective actions have been implemented and were confirmed by a third-party auditor in January 2024.
- Two minor findings were related to obsolete documentation found onsite and inconsistent waste oil storage practices. Both were investigated with corrective actions identified and implemented. The two minor findings will be reviewed by third-party auditors during the 2024 ISO external audit.

External audits provide insight into York Region’s systems and leverage industry experience when reviewing our processes and performance outcomes.

Risk mitigation is a key component of the Integrated Management System

The System provides a multi-pronged approach to identify and mitigate system risks through established risk management practices and proactive audits. Operational Top Management meets quarterly to evaluate emerging risks and track progress on risk mitigation projects. In

2023, an annual review of drinking water system risks was conducted (as required by the DWQMS) and environmental risks were reviewed for wastewater and waste management operations (as required by ISO 14001).

A growing system risk that is actively managed by cross-functional teams is the Region's approach to mitigating cybersecurity threats against its automation and control system. Cybersecurity risks are continually monitored and mitigation measures are identified, tested, and implemented to protect the Region's infrastructure, water quality and environment. In 2023, a cybersecurity procedure and training was implemented to help ensure water and wastewater staff follow best practices to reduce cybersecurity risks.

Emergency preparedness tools in the Integrated Management System provide critical support during emergency situations

In 2023, emergency testing included functional simulations and tabletop exercises for water, wastewater, and waste management staff. Simulations in 2023 involved staff from the Town of Newmarket and York Region Public Health, who worked with Public Works staff to discuss and respond to a hypothetical emergency scenario to test communication, response times and coordination of activities. Waste management and wastewater emergency exercises involved staff and contractors.

These exercises led to 21 improvement actions to enhance emergency preparedness. These actions aim to clarify roles and responsibilities, simplify response procedures, and ensure availability of critical supplies during emergencies.

Improvement initiatives drive performance efficiencies in the Integrated Management System

Staff completed several process enhancements in 2023 to drive efficiencies in water, wastewater, and waste management service delivery:

- Conducted six debriefs/root cause analysis workshops reviewing incidents such as odour complaints, near-miss, and operational events. Identified 30 improvement actions to capture lessons learned and prevent recurrence
- Supported digital initiatives and data transparency for internal stakeholders through improved access to information and data availability
- Streamlined internal proactive audit program by selecting high-risk procedures to audit, rather than a high-level review of all audit requirements
- Facilitated a management inspection of the eLogbook processes to provide Operational Top Management an opportunity to review industry leading technology used to collect regulatory data and capture operational change logs

Continual improvement is a keystone to Integrated Management System implementation. Improvement initiatives and results demonstrate system efficiencies, cost savings and risk

mitigation, which strengthen service delivery in water, wastewater, and waste management operations.

Operational Top Management confirm adequacy, suitability, and effectiveness of the Integrated Management System

Annual management review meetings are required by all three standards to review system performance and verify implementation of continual improvement initiatives. Operational Top Management use this opportunity to assess efficacy of the System. The review focuses on system and regulatory performance, audit results, resources, legal changes, customer feedback and operational risks and opportunities. Operational Top Management met in early April 2024 and confirmed the adequacy, suitability, system roles and responsibilities, and effectiveness of the System.

5. Financial

Integrated Management System generates a value-added return on investment for risk mitigation and regulatory compliance

In 2023, total actual program costs to operate the System were \$749,994, representing less than 0.1% of Public Works' gross operating costs. Program costs, including staffing and external audit services, are funded 80% through water and wastewater user rates and 20% from the tax levy designated for waste management activities.

Council's support of the System generates a value-added return on investment and helps sustain the Region's reputation as environmental stewards. Strong regulator inspection scores in water and wastewater are in part attributed to the activities and rigour of the System. The System provides substantial risk mitigation and consistent management of quality and environmental objectives, resulting in cost avoidance of potential environmental restoration or water quality situations. A worthwhile investment, the System supports Council in meeting standard of care obligations.

6. Local Impact

York Region and local municipal partners benefit from a collaborative approach to service delivery

Public Works' Integrated Management System provides benefits to local municipalities as it supports a structured approach to mitigating full-system risks and environmental impacts. Local municipalities benefit from an integrated systems view, which drives continual improvement and risk mitigation, meeting regulatory requirements in the shared service delivery model for water, wastewater, and waste management operations. Throughout 2024, York Region will continue to explore opportunities to further collaborate with municipal partners during emergency testing activities.

All local municipalities maintain a quality management system to meet requirements of the DWQMS. York Region staff meets regularly with municipal and provincial partners to address challenges, share best practices, evaluate operating procedures, and establish common approaches for efficient and effective service delivery.

7. Conclusion

Providing a summary of York Region's Integrated Management System performance supports Council in meeting standard of care requirements under the *Safe Drinking Water Act, 2002*. Work delivered through the Integrated Management System demonstrates York Region's commitment to effective program delivery, continual improvement, and risk mitigation.

Successful external audits in 2023, including re-registration to ISO 9001, confirm the Integrated Management System is well-established, mature, and systematically reduces operational risk. Through various checks and balances that occur throughout the year, management confirms effectiveness of the Integrated Management System to strengthen delivery of York Region's water, wastewater, and waste management services.

For more information on this report, please contact David Szeptycki, Director, Sustainability, Communications, and Innovation at 1-877-464-9675 ext. 75723. Accessible formats or communication supports are available upon request.

Recommended by:



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Commissioner of Public Works



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Appendix A - Integrated Management System - Roles and Responsibilities for Water,
Wastewater and Waste Management
Appendix B – Integrated Management System Policy

Integrated Management System Roles and Responsibilities for Water, Wastewater and Waste Management

Who	Roles and Responsibilities for IMS
Corporate Top Management <ul style="list-style-type: none"> • Council • Chief Administrative Officer 	<ul style="list-style-type: none"> • System Owner • Exercise standard of care • Overall direction for IMS • Approval of resources and budget
Operational Top Management <ul style="list-style-type: none"> • Commissioner (Owner Representative) • General Managers • Directors • Managers 	<ul style="list-style-type: none"> • Strategic direction for IMS • High-level operational decision-making • Assign Drinking Water Quality Management Standard representative to oversee standard implementation
Water, Wastewater and Waste Management Operations <ul style="list-style-type: none"> • Water and Wastewater Operators • Waste Management Coordinators • Technical Support Staff • IMS Coordinators 	<ul style="list-style-type: none"> • Front line operations • Water and wastewater quality sampling • Maintenance, inspections, and asset management • Documentation, data capture and validation • Internal audits and regulatory reporting • Operational training requirements

Integrated Management System Policy

Our innovative people leverage technology and data to provide water, wastewater and waste management services that protect public health and the environment, meeting the needs of our thriving communities.

We are committed to the following objectives:

