

The Regional Municipality of York

Committee of the Whole
Environmental Services
March 3, 2022

Report of the Commissioner of Environmental Services

2021 Integrated Management System Update Report for Water, Wastewater and Waste Management

1. Recommendation

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

2. Summary

This annual update on the efficacy of Environmental Services' Integrated Management System summarizes key strategies to mitigate service delivery risk, demonstrates operational due diligence, supports Council in meeting statutory standard of care requirements and outlines Drinking Water Quality Management Standard progress under the *Safe Drinking Water Act, 2002*.

Key Points:

- Environmental Services' Integrated Management System is mature, well-established and provides a structured approach to risk mitigation and continual improvement
- In accordance with Public Health guidance, internal audits in 2021 continued to be delivered virtually. Audits performed at water, wastewater and waste management facilities provided valuable insight into delivery of our services and resulted in improved operational performance and regulatory due diligence
- In 2021, Environmental Services participated in multiple external audits, which resulted in only one minor non-conformity and successful re-registration to International Organization for Standardization's Environmental Management Standard (ISO 14001:2015). Details of this minor non-conformity are summarized herein.

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 that 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, diligence, and skill with regard to municipal drinking water system oversight that a reasonably prudent person would be expected to exercise. Councillors are not expected to be experts but are required to be informed and act with a view to ensuring the protection and safety of users of the municipal drinking water system. York Region Council remains informed by reviewing this report and by reviewing drinking water system performance outlined in the 2021 Drinking Water Systems Report (also on this agenda), which includes Ministry of the Environment, Conservation and Parks drinking water inspection results.

The Integrated Management System (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. Council supports the system by providing financial resources and support for continual improvement initiatives.

Table 1 summarizes roles and responsibilities, as defined in the Integrated Management System. Council and the Chief Administrative Officer, identified as Corporate Top Management, are required to provide oversight to ensure suitability and effectiveness of the Integrated Management System. Operational Top Management, which includes the Commissioner, Directors and Managers in Environmental Services, fulfills its role in the system by making strategic and operational decisions and preparing this annual report to Council.

Table 1
Roles and Responsibilities for Environmental Services’
Integrated Management System (IMS)

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"> • Exercise standard of care • Overall direction for Environmental Services’ IMS • Approval of resources and budget
Operational Top Management	
<ul style="list-style-type: none"> • Commissioner • 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 assists Council with meeting standard of care

The Integrated Management System assists Council by providing confidence that water, wastewater and waste management services are delivered in accordance with policies and procedures. Service delivery standards are outlined and confirmed through audits. Audits help identify and mitigate operational risks, deliver feedback for continual improvement, offer transparency and gauge operational resilience. Audit outcomes demonstrate to top

management that the system is achieving intended results and support statutory standard of care obligations.

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 distribution system. York Region’s Integrated Management System continues to evolve through a focused approach of continual improvement to program and service delivery.

Table 2 summarizes standards applied to Environmental Services’ operational areas. 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 2
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

Integrated Management System is a framework to manage risk, protect public health and the environment

The Integrated Management System Policy (Figure 1) is a requirement of our registration and provides the foundation for management system commitments. It sets the framework for water, wastewater and waste management quality and environmental objectives. It is displayed at all registered water, wastewater and waste management facilities.

Figure 1
Integrated Management System Policy



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

An effective audit program is a critical component of the Integrated Management System. Audit programs monitor compliance with regulatory requirements, conformance with internal processes and strengthen system performance by identifying continual improvement opportunities.

Facilities and programs are audited via three main types of audits:

- Internal proactive audits
 - Conducted regularly by trained auditors within Environmental Services to confirm conformance to management system requirements and to evaluate compliance with regulatory requirements

- ISO external audits
 - Completed annually by a third-party registration body (SGS Canada Inc.) to confirm conformance to ISO 9001 and ISO 14001
- Regulatory DWQMS audits
 - Completed annually by a third-party registration body (QMI-SAI Canada Limited) to confirm conformance to the DWQMS, on behalf of the Ministry of the Environment, Conservation and Parks

4. Analysis

Comprehensive audit program continues to evolve and integrate virtual delivery best practices

Environmental Services' audit program drives regulatory compliance and continual improvement through the Integrated Management System. Audits confirm system resiliency and due diligence by ensuring that staff are continually challenging the status quo and looking for opportunities to strengthen program and service delivery. To ensure the health and safety of staff and comply with Public Health measures, internal proactive audits and most external audits were conducted virtually in 2021. The virtual audit process included a thorough document review ahead of facility tours (conducted virtually with on-site staff via mobile video feeds) and in-depth staff interviews. Internal proactive audits are required by DWQMS and ISO standards and delivering audits virtually complies with these requirements.

Audit results confirm high level of compliance and demonstrate system maturity

In 2021, Environmental Services conducted 55 internal proactive audits resulting in 54 findings. Each year, audit findings identify internal process improvements and system enhancements. Table 3 summarizes the number of audit findings by audit type, from 2019 to 2021. Despite a rigorous audit program, a relatively low number of findings over the last 3 years demonstrates system strength and maturity and successful implementation of continual improvement initiatives. Audit results fluctuate based on audit techniques, technology and data management practices, which continue to evolve, allowing for refinement of audit delivery, documentation review and data analysis. Moving forward, it is anticipated that audits will take a hybrid approach, implementing best practices and lessons learned from both virtual and on-site auditing methods.

Table 3
Number of Audit Findings for Water, Wastewater and Waste Management

Audit Type	2019	2020	2021
Internal Proactive Audit	60	48	54
ISO External Audit	0	1	1
Regulatory DWQMS Audit	0	0	0

Audit findings highlight key priorities and continual improvement initiatives

Key areas of focus for 2021 included assessing chemical management practices for water and wastewater operations, reviewing equipment calibration processes and evaluating consistent implementation of new operational practices (e.g. electronic logbooks, sample process automation). Table 4 identifies internal audit findings by category. Compared to 2020, audit findings per category remained relatively unchanged. Corrective actions are put in place to address each audit finding. Actions include updating guidance documents to reflect process changes, implementing process enhancements to drive efficiencies, monitoring staff training requirements and improving data capture in work orders and daily inspections. Audit findings and corrective actions have informed key areas of focus for 2022 audits. Our systematic approach to addressing audit findings over the past 20 years minimizes risk to the Region and ensures public safety.

Table 4
Number of Internal Audit Findings by Category

Category	2020	2021
Documentation	19	23
Process Improvements	13	14
Asset Tracking and Calibration	9	6
Training	5	5
Miscellaneous	2	6

Third-party audits resulted in only one minor non-conformity and successful re-registration to ISO 14001 Standard

Third-party audits are intended to confirm the Integrated Management System complies with requirements of DWQMS and ISO standards. Audits are completed by certified external auditors who stringently review internal system processes. In 2021, three external audits were conducted over 22 audit days. Third-party audits resulted in one minor non-conformity related to storage of a small quantity of used batteries at a maintenance facility, which did not have any environmental impacts or affect drinking water quality or safety. A corrective action plan was developed, approved and implemented to address the root cause of the issue. Audit results and feedback received during 2021 external audits indicate that our operations are performing well and the Integrated Management System is effectively mitigating risks. External audits demonstrate the Region's ability to sustain services that are compliant with applicable regulations and York Region service level targets.

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

Annual management review meetings are required by all three management standards to review system performance and verify implementation of continual improvement initiatives. Operational Top Management use this opportunity to assess efficacy of the Integrated Management System. The review focuses on system and regulatory performance, audit results, resources, legal changes, customer feedback and operational risks and opportunities. A collaborative review is critical and helps identify opportunities to improve efficiency and drive results. Through discussion, management identifies systemic risks and establishes priorities for the upcoming year. Operational Top Management met in Q1 2022 to review system performance from 2021 and confirm the adequacy, suitability and effectiveness of the Integrated Management System.

Risk mitigation is a key component of the Integrated Management System

The Integrated Management System provides a multiprong 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 associated mitigation projects. In 2021, a full re-assessment of drinking water system risks was conducted, as required by the Drinking Water Quality Management Standard every 36 months. As required by ISO 14001, an annual review of environmental risks was completed for wastewater and waste management operations. These robust processes monitor and mitigate system risks and identify continual improvement projects.

Continual improvement initiatives drive efficiencies in performance

Within the Integrated Management System, staff completed several process enhancements in 2021 to drive efficiencies in water, wastewater and waste management service delivery, including:

- Conducted 11 debriefs and root cause analysis workshops reviewing incidents such as watermain breaks, minor spills and software challenges. 60 actions were identified to capture lessons learned and prevent incident recurrence
- Shifted to service-specific emergency tests to provide water, wastewater and waste management staff with specialized learning opportunities and service-specific improvements to processes and procedures
- Supported digital initiatives and data transparency for internal stakeholders through enhancements to communications data and incident tracking
- Streamlined compliance tracking and risk management through improvements to a legal registry database and risk assessment process updates
- Finalized endorsement of the Integrated Management System Policy Manual to effectively capture process changes and updates

Together, these improvement initiatives support system efficiency and performance, cost savings and risk mitigation, which strengthen service delivery in water, wastewater and waste management operations.

Emergency preparedness tools in the Integrated Management System supported COVID-19 response

Throughout the pandemic, Environmental Services provided and continues to provide York Region residents with essential services including water, wastewater and waste management. The Integrated Management System supports service delivery and operations in several areas, including emergency response. The system has a strong foundation in emergency preparedness, through emergency procedures, training and testing, which supports corporate and departmental emergency management. Beyond virtual audits, there were no major changes to delivery of Integrated Management System support functions and work continues to be virtual to support Public Health guidelines and frontline operations.

5. Financial

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

Total actual program costs to operate the Integrated Management System in 2021 were \$692,649, representing less than 1% of Environmental Services' 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 Integrated Management System generates a value-added return on investment and helps sustain our reputation as environmental stewards. Environmental Services' high scores during regulator inspections are in part attributed to the activities and rigour of the Integrated Management 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 assists Council in meeting standard of care obligations prescribed in the *Safe Drinking Water Act, 2002*.

6. Local Impact

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

Environmental Services' Integrated Management System provides benefits to local municipalities as it supports a systematic approach to mitigating full-system risks and environmental impacts. Local municipalities benefit from a systems approach, which drives continual improvement and risk mitigation, that meets regulatory requirements in the shared service delivery model for water, wastewater and waste management operations.

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

7. Conclusion

Providing a summary of Environmental Services' performance and enhancements in the context of the Integrated Management System supports Council with 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 ongoing improvement and resiliency of programs and services. Continual improvement initiatives support system efficiencies and accomplish improved risk mitigation.

Successful external audits in 2021, including re-certification to ISO 14001, confirm the Integrated Management System is well-established, mature, and systematically reduces operational risk. Through various check and balances that occur throughout the year, management confirms adequacy and effectiveness of the Integrated Management System to strengthen the delivery of York Region's water, wastewater, and waste management services.

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



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