
For Information

REPORT TITLE: Water and Wastewater Regulatory Compliance Programs Update

FROM: Andrew Farr, Interim Commissioner of Public Works

OBJECTIVE

To provide Regional Council with an update on performance in 2019 related to the Region's Drinking Water Quality Management System and status of compliance of the wastewater systems.

REPORT HIGHLIGHTS

- Water quality and wastewater operational performance continue to meet legislative requirements.
 - The 2019 Management Review confirms the Region's Quality Management System continues to be effective and conforming to the Ontario Drinking Water Quality Management Standard.
 - Third party accreditation audit recognized well-established culture of continual improvement within the Region's drinking water programs.
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DISCUSSION

1. Background

The made-in-Ontario Drinking Water Quality Management Standard (the Standard) requires that all municipal water systems adopt a Quality Management System (QMS) to ensure a consistent delivery of clean, safe drinking water to the public. A requirement of the Standard is an annual management review of the QMS, which is an internal process that considers several indicators within the QMS that aid with decision making to prompt changes. Through this review, the management stays involved and gains ability to provide direction for continual improvement and through this report, Council remains informed of the Region's progress.

Results of the review must be reported to Council every year, which serves as an instrument to assure Council that, as the Owner of the drinking water systems, it is meeting its duties and responsibilities under the Ontario legislation and the Statutory Standard of Care.

Following long-standing regulatory oversight and rigorous enforcement of drinking water system management and operation, the legislative requirements for wastewater systems are becoming increasingly stringent including directives on transparency of operational effectiveness through annual reporting.

Water and Wastewater Regulatory Compliance Programs Update

The federal and provincial governments have heightened their focus on the quality of the treated wastewater effluent as well as preventing untreated discharges to the natural environment to further reduce threats to human health and aquatic habitat. It is anticipated that the regulatory environment related to wastewater will continue to strengthen, requiring the Region to place additional emphasis in this area.

May 2020 marked the 20th anniversary since the Walkerton tragedy, which shaped the current drinking water legislation in Ontario and influenced wastewater system compliance obligations, raising standards for water quality, treatment, and staff competency. Adoption of a multi-barrier, source-to-tap approach additionally protects drinking water sources, promotes environmental leadership and ensures effective management of municipal systems.

2. Findings

2019 Review of Drinking Water and Wastewater Systems

The Region's drinking water program successes were presented in a report to Council on March 12, 2020, showcasing 2019 drinking water quality results and excellent overall performance verified through the Ministry of the Environment, Conservation and Parks (Ministry) inspection program. These achievements were consolidated and made available to the public through the Region's website at peelregion.ca/pw/water/quality/reports/.

With the Region's QMS fully integrated into daily water operations practices, adopted by staff, encouraged by the leadership team and endorsed by management and Council, continual improvement is achieved through annual management review, which also identifies actions to address deficiencies and allocates resources for program delivery.

Outcomes of the 2019 internal management review (held in May 2020) demonstrated the effectiveness of the Region's QMS and are summarized in detail in Appendix I of this report.

The Region also complied with the requirement to assess and document operational performance of its wastewater systems in 2019, which was measured in relation to:

- conditions of the system-specific Ministry approvals and permits,
- effluent quality and quantity objectives,
- operating issues and corrective action taken,
- preventative maintenance and emergency preparedness,
- equipment calibration, sludge generation, and
- management of odour and noise complaints.

Considering a more rigorous regulatory framework and the impacts of increasing frequency and severity of wet weather events, the Region met the Ministry objectives set for the quality of effluent, which was accomplished through implementation of process-based compliance programs, real-time monitoring, increased measures to reduce inflow and infiltration, and capital improvements as well as other controls presented below.

Quality Assurance & Control Measures



Sampling Data

- Licensed operators perform in-house testing of multiple parameters for process control
- Primary treatment efficiency sampling program
- Samples are analyzed by an accredited laboratory
- All process data is captured electronically
- SCADA real-time data capture & monitoring, data historian, and reporting tools for the collection and analysis of data



Operational Control

- Operational facility sheets capture data that can be used to determine trend and diagnose problems
- Dissolved oxygen profiling to ensure completion of CBOD removal and complete nitrification
- Calibration of critical equipment is performed with required frequency
- Equipment redundancy to increase equipment availability and effective response to failures and unplanned emergencies
- Ability to co-thicken waste activated sludge in primaries or centrifuge increases operational flexibility
- Multiple SCADA stations throughout the facility ensures operators have ready access to real-time conditions and control of plant equipment
- Internal Standard Operating Procedures complement Operations and Maintenance Manuals
- Document control system for proper and effective record-keeping
- *Wastewater Contingency Plan* to address emergency situations in the interest of meeting final effluent limits and prevent impacts to the environment



Preventative Maintenance

- Reliability Centered Maintenance program reduces emergency repairs, shifting toward proactive controls
- Inventory of equipment is captured in a Computerized Maintenance Management System, improving the ability to manage assets
- A major maintenance program focuses on replacing or refurbishing aging assets



Competent Staff

- Operator licences (issued under O. Reg. 129/04) are verified monthly
- Comprehensive operator training includes classroom and hands on training
- Overall Responsible Operator readily available to provide direction during operational challenges and emergency situation
- Compliance and Process staff for system oversight
- Process and Energy Optimization staff for managing cost efficiency, energy savings and environmental stewardship



Management Oversight

- Regular process and compliance meetings between the owner and the operating authority
- Monthly operations staff meetings provide training and discussion on topics including health and safety, compliance, and operational and maintenance activities



Additionally, ongoing capital improvements to the wastewater plants and pumping stations continue to improve efficiency and help the Region achieve sustainability. This work optimized the operation of the existing system, implemented tools and processes that demonstrate regulatory compliance, and supported the Region's commitment to protect the environment, ultimately helping the Region to strengthen public confidence and meet customer expectations.

2019 performance reports for the operation and management of the Region's wastewater systems have been made available to the public through the Region's website and can be viewed at peelregion.ca/wastewater/#reports.

Water and Wastewater Regulatory Compliance Programs Update

In 2019, the Region actively focused on the development of the Wastewater Integrated Management System, by effectively integrating environmental and quality awareness to create an administrative approach responsible towards pollution prevention and implementation of quality work principles. Wastewater Integrated Management System will promote and facilitate improvement across various facets of wastewater system operations with application of a consistent management process. It will emulate the QMS for drinking water in the program structure and constancy, and therefore reduce randomness and potential risks of non-compliance.

Successful implementation of Wastewater Integrated Management System will be validated through a formal third-party audit in pursue of International Organization for Standardization certification to quality and environmental management standards, which is anticipated in 2021.

CONCLUSION

The Region of Peel's water and wastewater systems' performance has been maintained throughout 2019 and collaborative efforts are reflected in the comprehensive Quality Management System management review and the annual reports.

The Region's Quality Management System has been designed for continual improvement and has proven to be effective in supporting the Region's regulatory compliance responsibilities while continuing to deliver on the Region's commitment to protect public health. To replicate the value and benefits of Quality Management System, the development and implementation of Wastewater Integrated Management System currently underway will present an opportunity for process consistency, improved regulatory compliance, increased operational efficiency and heightened environmental stewardship whereby leading to enhanced public trust and confidence in the Region's wastewater operations and management.

APPENDICES

Appendix I – Drinking Water Quality Management Standard Management Review 2019

For further information regarding this report, please contact Justyna Burkiewicz, Manager, Water and Wastewater Regulatory Compliance, Ext. 4494, justyna.burkiewicz@peelregion.ca.

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Reviewed and/or approved in workflow by:

Department Commissioner, Division Director and Financial Support Unit.

Final approval is by the Chief Administrative Officer.



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