

# Drinking Water Quality Management in Peel



## Drinking Water Quality Management System – Summary of Management Review – 2019 Operational Performance

The Management Review of the 2019 operational performance of the Region of Peel’s drinking water systems has been summarized for Council information, as mandated through Element 20 [items a) through p)] of the **Drinking Water Quality Management Standard (DWQMS)**.

Requirement of Element 20 - Management Review	Achieved?	Conforms to DWQMS?
Ensure that a Management Review is conducted at least once every calendar year. <b>Review of 2019 operational performance was completed on May 5 and May 27, 2020 with top management and the Owner representative.</b>		
Consider the results of the Management Review and identify deficiencies and action items to address the deficiencies. <b>Complete. See the Management Review Summary below.</b>		
Provide a record of decisions and action items related to the Management Review including the personnel responsible for delivering the action items related and the proposed timelines for their implementation. <b>Outcomes of discussions and direction have been captured through record of meeting minutes. Progress of action items is tracked during monthly program meetings and through the processes of internal and external auditing.</b>		
Report the results of the Management Review, the identified deficiencies, decisions and action items to the Owner (Regional Council) <b>Completed through this report, submitted for information September 24, 2020.</b>		

### Management Review Summary

#### a) Incidents of regulatory non-compliance

The statement of compliance, included in the 2019 Summary Report, was presented to Council at the March 12, 2019 meeting. The report focused on the Region’s compliance obligations and the safety of drinking water, with a listing of operational and administrative events of non-compliance, identifying opportunities and measures to control and prevent reoccurrence.

# Drinking Water Quality Management in Peel



2019 Events of Non-Compliance Drinking Water Legislation	Region of Peel Operated Systems	OCWA Operated Systems*
Municipal Drinking Water Licence	3	2
O. Reg. 170/03	1	1
O. Reg. 128/04	0	1
Drinking Water Works Permit	0	0
Permit to Take Water	1	0
Watermain Disinfection Procedure	0	1
<b>Total</b>	<b>5</b>	<b>5</b>

\* owned by the Region of Peel, operated by Ontario Clean Water Agency (OCWA)

## b) Incidents of adverse drinking water tests

Indicators of adverse water quality are immediately reported to Peel Public Health and the Ministry of the Environment, Conservation and Parks (the Ministry), and the appropriate corrective action taken. An adverse water quality event does not necessarily mean that the water safety is at risk but rather that a potential problem has been identified and immediate actions must be taken to investigate and resolve the problem. In 2019, there were a total of 17 incidents of adverse water quality reported for Peel-operated water systems with 3 reported for systems operated by OCWA. None of these events resulted in compromised integrity and/or safety of the municipal drinking water supply.

The 2019 Water Quality Report prepared for each of the drinking water systems provides detailed information on water quality monitoring, sampling and range of test results for parameters mandated by provincial standards.

## c) Deviations from critical control point limits and response actions

Critical control limits have been established for the operation of water systems based on known critical control points identified through outcomes of regular assessment of risks. As such, deviations from the set limits do not generally occur since alarms are in place, where applicable, to trigger the shutdown of a process before a negative impact could occur. Operational challenges are periodically reviewed by Water Operations and the Water and Wastewater Regulatory Compliance staff with an objective to mitigate risk and to implement effective solutions.

In 2019, three deviations were reported for secondary disinfection, with low levels of free chlorine in the South Peel Distribution System that was detected through regular flushing program activities and, in all cases, quality of water directed to users was not impacted and chlorine residuals were immediately restored. Flushing involves manual operational efforts and alarms cannot be used to signal deviation.

# Drinking Water Quality Management in Peel



**d) The effectiveness of the risk assessment process**

Assessment of risks to public health and the water systems is conducted at regular intervals as well as in response to predetermined triggers. A system wide risk assessment review was conducted on June 24, 2019. Critical control points remained unchanged and the updated risk assessments were approved by Top Management.

**e) Internal and third-party audit results**

In 2019, the Region’s drinking water systems were operated in accordance with the approvals framework under the Safe Drinking Water Act and successfully maintained accreditation to the DWQMS, as demonstrated via third party verification audits conducted annually by SAI Global. Through this accreditation, it is recognized that the Region’s Drinking Water Quality Management System conforms to the provincial standard and that the culture of continual improvement is fostered effectively.



To promote efficiency during internal audits, the service of a lead auditor was procured. The 2019 internal audit was steered by Acclains Environmental Inc. with support from three Region staff, qualified to perform in-house audits. This approach was successful and offered new insights and perspectives into auditing. It is planned to continue with this audit delivery method in future years.

2019 Internal and Third-party Audit Results		
Performance Indicator	Internal Audit	Third-party Audit
Non-conformities identified	1	0
Corrective actions open	1	0
Opportunities for improvement	8	1
Staff suggestions	13	N/A (out of scope)
Positive observations	14	N/A (out of scope)
Interviewees	19	N/A (desk top review)
Auditors	4	1

# Drinking Water Quality Management in Peel



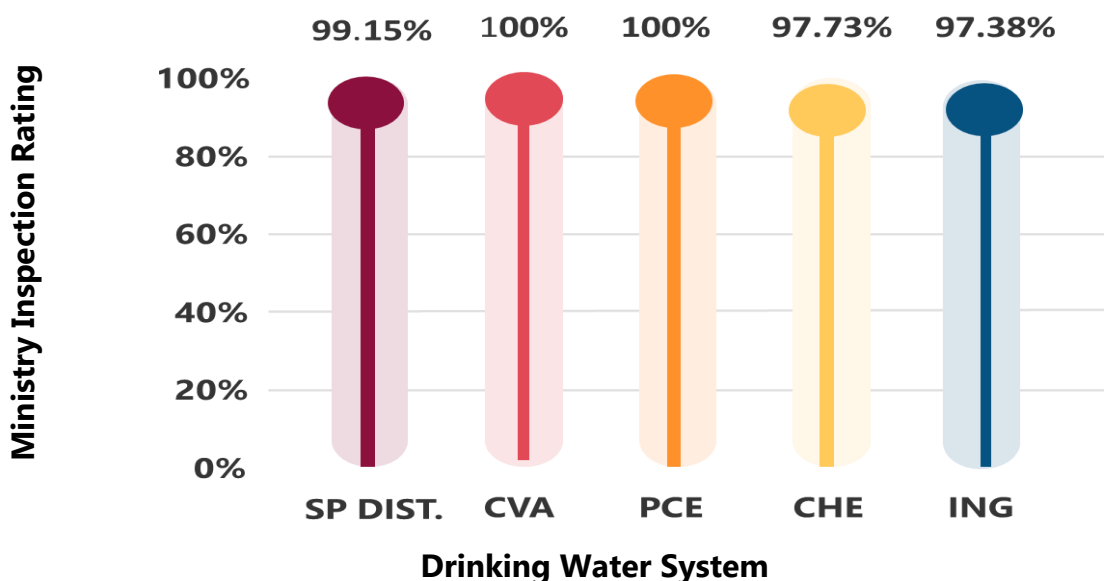
## f) Results of emergency response testing

Testing of preparedness and response to emergencies is critical and a requirement of the DWQMS. In 2019, two actual events were evaluated through “After Action Review” workshops. Both events provided unique discussion opportunities, reflecting upon operational responses to uncommon emergencies that can sometimes take place. Findings included practical recommendations that can help us better anticipate and respond to similar events in the future.

## g) Operational performance

The Ministry ratings from annual inspections help verify that system performance extends beyond the minimum requirements of the applicable legislation and regulations. Operational performance can be impacted by varying circumstances that influence the inspection outcome.

Shown in the figure below, in 2019, Caledon Village-Alton (CVA) and Palgrave-Caledon East (PCE) drinking water systems scored 100%, with South Peel distribution (SP DIST.), Cheltenham (CHE) and Inglewood (ING) systems very close behind. In systems where 100% rating was not achieved, minor administrative oversight was observed; however, no impact to drinking water quality was detected.



Arthur P. Kennedy and Lorne Park water treatment plants, operated by OCWA, are monitored and managed under OCWA’s quality management system. Inspection ratings for these plants were 95.69% and 95.72% respectively.

Inspection ratings under 100% do not indicate that the water supply is unsafe, but rather determine opportunities for improvement within the drinking water systems. In response to

# Drinking Water Quality Management in Peel



findings of non-compliance, the Region takes immediate action to review and assess the events to find suitable solutions and to implement changes that prevent reoccurrence.

## h) Raw water supply and drinking water quality trends

Raw water supply and drinking water quality trends from the 2019 monitoring program align with test results in previous years. Water quality for bacteriological and chemical parameters were consistent and well within the Ontario Drinking Water Quality Standards.

## i) Follow-up on actions items from previous management reviews

The 2019 Management Review resulted in 13 action items, which were reviewed for consideration. These actions resulted in minor administrative adjustments and subsequently closed. They were not deemed deficiencies of the Quality Management System (QMS).

## j) Status of management action items identified between reviews

A total of 104 action items were documented through monthly QMS top management meetings. All were addressed and closed in 2019 with an exception of 10 long-term items considered active at the close of the year and carried over to 2020 for completion.

In addition, over 200 procedural documents were reviewed and approved by the top management team and published for use or reference. This included newly created documents, modified existing documents, and documents that were scheduled for predetermined review.

2019 QMS Meetings Action Items		
Status	Quantity	%**
Total	104	-
Active	10*	10
On Hold	3	3
Completed	87	84
Cancelled	4	4

\* carried to the 2020 calendar year for completion

\*\*rounded off numbers

## k) Changes that could affect the Quality Management System

Upcoming changes to the drinking water system for the next operational year were evaluated and impacts to the QMS reviewed. Anticipated changes were presented through three distinctive streams, identified below:

# Drinking Water Quality Management in Peel



## ADMINISTRATION

- Ongoing implementation of extended program scope to include processes of SCADA, Development Engineering, Capital Facilities, Capital Linear, Infrastructure Planning, Environmental Control
- Update risk assessment methodology and integrate into capital planning stages
- Address findings of internal and external audits
- Records Management Strategy - consistent filing structure
- Integration of tasks with Wastewater Management System
- Launch of integrated Continual Improvement Process
- COVID-10 pandemic response review - lessons learned
- Implementation of e-Learning and virtual learning tool
- Water and Wastewater Operations Functions Review



## OPERATIONS

- Release of MECP procedure for watermain disinfection
- Contract negotiations
- Water and Wastewater Operations Functions Review
- Staffing changes
- COVID-10 pandemic response review - lessons learned



## COMMUNICATIONS (INFORMATION/DATA/SECURITY)

- Enhance procurement documentation to include QMS Policy and commitment statement
- Procurement of a quality and process management system software for ultimate program control and administration
- Ongoing feedback towards improved records management process
- Transition to SharePoint and adoption of new technology (MS Teams, virtual platforms)
- COVID-10 pandemic response review - lessons learned

### I) Consumer feedback

Consumer feedback is one of the primary measures of effective operation of drinking water systems. Feedback helps identify and address any potential issues, and thorough assessment of concerns and effective solutions help us ensure consumer confidence in the drinking water supply. The Region strives to deliver service excellence with timely and appropriate response to requests and enquiries following established protocols and attentive practices. In 2019, a total of 1,583 water quality enquiries were logged, 41% of which were associated with low water pressure at the tap experienced during unexpected watermain breaks, during system repairs and maintenance, or associated with in-house plumbing issues.

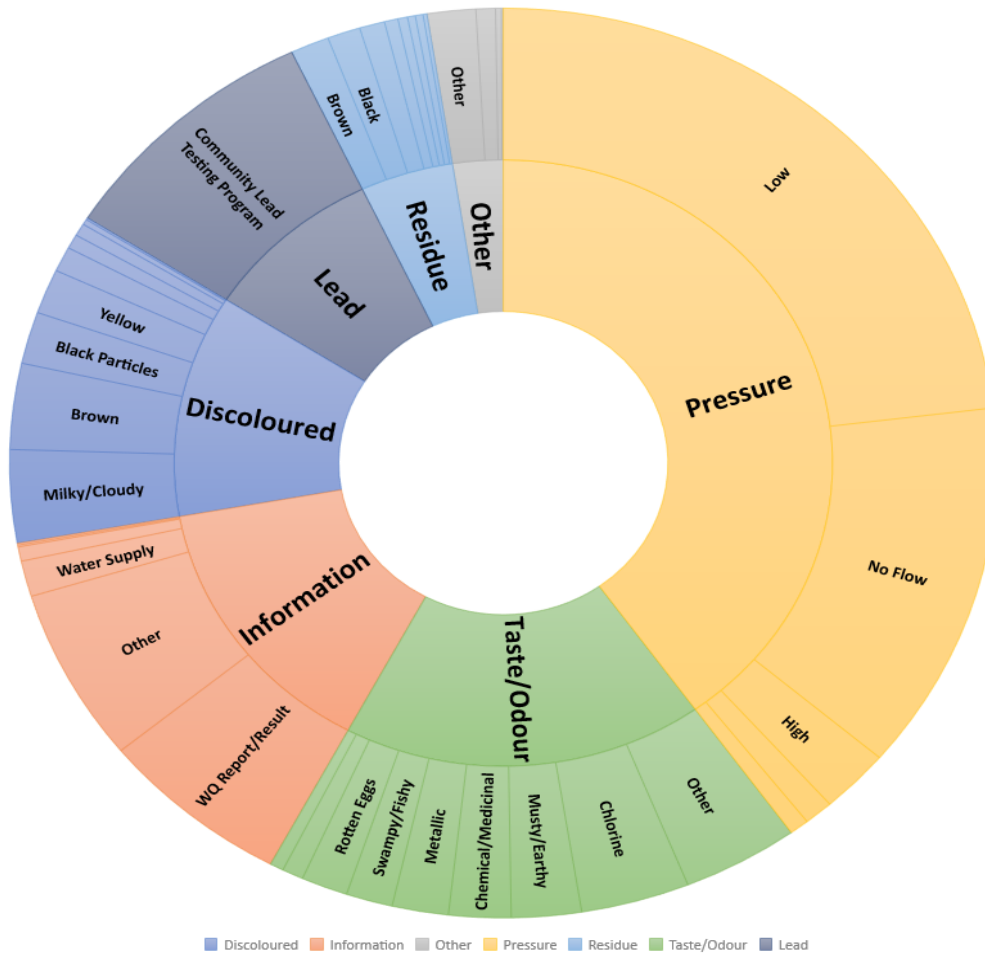
# Drinking Water Quality Management in Peel



Water Systems	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Caledon Village - Alton	1	1	3	2	1	1	1	2	0	0	0	1	13
Cheltenham	1	0	0	0	2	0	0	0	0	0	1	1	5
Inglewood	3	0	0	0	1	0	0	0	0	0	0	0	4
Miscellaneous	12	3	11	10	12	10	12	6	14	7	15	10	122
Palgrave - Caledon East	4	5	4	4	1	0	2	5	6	0	4	2	37
South Peel	130	87	102	98	96	100	124	131	92	105	120	68	1,253
<b>Grand Total</b>	<b>151</b>	<b>96</b>	<b>120</b>	<b>114</b>	<b>113</b>	<b>111</b>	<b>139</b>	<b>144</b>	<b>112</b>	<b>112</b>	<b>140</b>	<b>82</b>	<b>1434**</b>

\*\*An additional 149 enquiries were made that did not fall within Region of Peel boundaries

Water Quality Customer Enquiries 2019



Note: Low water pressure calls are usually related to watermain breaks, system work or internal plumbing issues

# Drinking Water Quality Management in Peel



## m) Resources needed to maintain the Quality Management System

The Region's QMS has contributed to the positive overall operational performance of its water systems. That said, the progress of improvement initiatives is sometimes hindered when access to suitable resources and technology for the efficient management of the program is not readily available.

In the Management Review, four principal resource items were highlighted for discussion and future implementation.

<b>QMS Champions</b>	Elect water operations staff to promote and maintain consistency in practices amongst all water yards and offices, and to liaise with the QMS team to ensure collaborative progress, procedural support and implementation of best management and industry-focused practices.
<b>Quality and Process Management Software</b>	Continue exploration for a quality and process management technology to introduce efficiency and precision whereby reducing the risk of non-conformance and helping maintain administrative compliance. Replace extensive manual effort associated with multiple layers of documentation and process controls to lessen organizational pressure points and increase accuracy and service level.
<b>On-line Training Builder Vendor</b>	Retain services of a vendor for the development of on-line course modules and instructional videos to inspire staff engagement, create program orientation for new employees, and to test knowledge and level of staff competency. This method will also promote convenience and capability of training on-the-go, utilizing the recent roll-out of mobile computer equipment.
<b>Qualified Lead Auditor</b>	Expand the scope of contracted lead auditor service by 2022 to integrate internal audit program for water and wastewater management systems, resulting in combined audit and reduced cost and staff time investment.

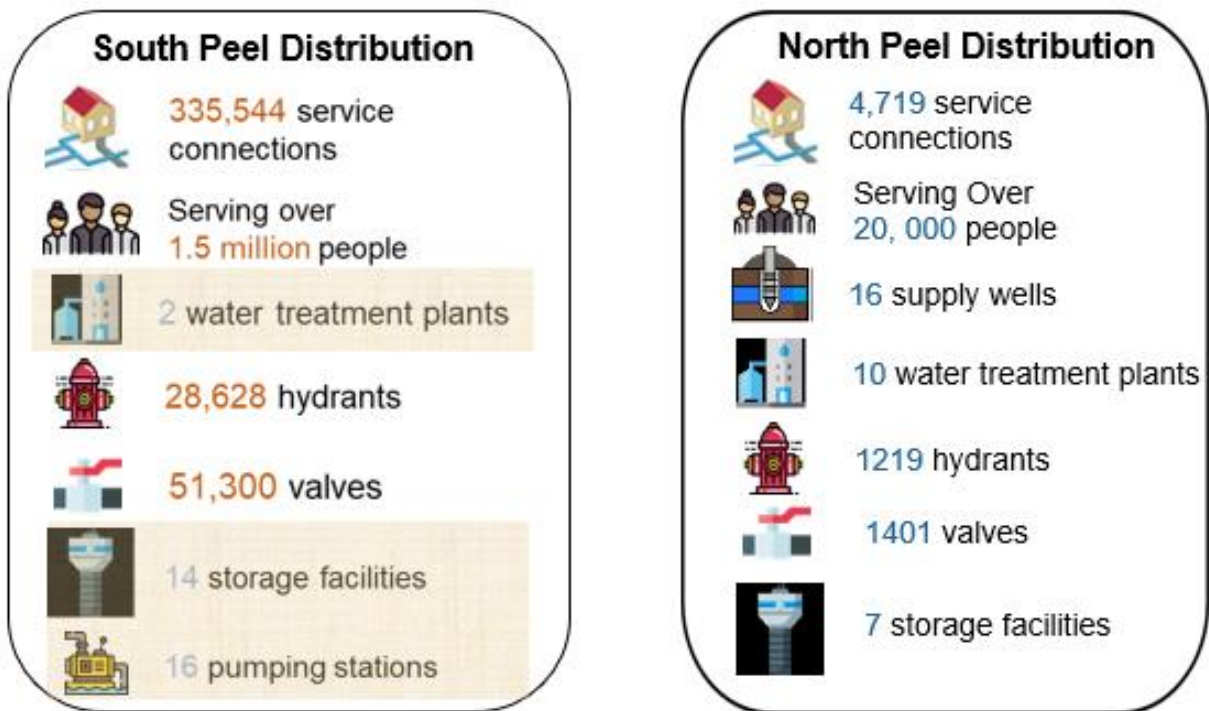
## n) Results of the infrastructure review process

Physical condition of water infrastructure is regularly evaluated to maintain state of good repair and optimal performance of the drinking water systems. Asset management and reliability ensures regulatory compliance and financial sustainability to meet current and future demands. Highlights of the 2019 operational year are outlined below.

- Operated and maintained close to 4400 km of watermain
- 2.17 km of new watermain was added to the North Peel distribution system network
- 34.5 km of new watermain was added to the South Peel distribution system network



# Drinking Water Quality Management in Peel



Note: Shaded assets in the South Peel Distribution are operated by OCWA

## o) Operational Plan currency, content and updates

In 2019, the risk assessment and outcomes process was updated to require consideration of specific mandatory hazards and to include guidance on consistent approach to risk evaluation. The Operational Plan is recurrently reviewed and evaluated when program changes are made. The Region's QMS has been updated to reflect the new requirements of the Standard.

## p) Staff suggestions

The QMS staff suggestion process consists of a guiding flow chart, electronic submission form and accompanying protocol. To encourage more feedback and sharing of ideas, the process was further improved and reintroduced in August and September of 2019. Throughout 2019, a total of 27 staff suggestions were collected through the established process with 13 more received during the internal audit. All suggestions have been considered and approved, with some pending implementation. Staff feedback offers great opportunities to regularly improve documented practices that prescribe how the Region operates and manages its drinking water systems.

## Conclusion

The Management Review serves as an important resource for the management team. It is an all-encompassing summary of the entire operational year that helps to review the past, forecast for the future and fortify awareness of the current state of the drinking water systems for sound decision-making.

# Drinking Water Quality Management in Peel



All required milestones of the QMS have been reached for 2019, with the program being effectively maintained and the principle of continual improvement fostered throughout the Water and Wastewater divisions.

These outcomes continue to demonstrate a strong commitment to program success through innovative and collaborative leadership, staff engagement and ongoing evaluation, ensuring consistent and effective performance to technical, regulatory and quality system standards. It is through these outcomes that Council, as the Owner of the municipal drinking water systems, can be confident that their duties and responsibilities of the Standard of Care under the Safe Drinking Water Act are being met.