

TO:	CHAIR AND MEMBERS CIVIC WORKS COMMITTEE MEETING OF FEBRUARY 19, 2020
FROM:	KELLY SCHERR, P.ENG., MBA, FEC MANAGING DIRECTOR, ENVIRONMENTAL & ENGINEERING SERVICES AND CITY ENGINEER
SUBJECT:	2019 EXTERNAL AUDIT OF LONDON'S DRINKING WATER QUALITY MANAGEMENT SYSTEM AND 2019 MANAGEMENT REVIEW

RECOMMENDATION

That, on the recommendation of the Managing Director, Environmental & Engineering Services and City Engineer, the following report on the 2019 External Audit of London's Drinking Water Quality Management System, and the subsequent 2019 Management Review meeting, **BE RECEIVED** for information.

PREVIOUS REPORTS PERTINENT TO THIS MATTER

[2017 External Audit of London's Drinking Water Quality Management System and 2017 Management Review, Civic Works Committee, December 4, 2017, Agenda Item #9](#)

[2018 External Audit of London's Drinking Water Quality Management System and 2018 Management Review, Civic Works Committee, February 20, 2019, Agenda Item #2.2](#)

2019 – 2023 STRATEGIC PLAN

The following report supports the 2019 – 2023 Strategic Plan through the strategic focus area of *Leading in Public Service*, by demonstrating leadership and accountability in the management and provision of quality programs and services.

BACKGROUND

Purpose

Ontario's Safe Drinking Water Act, 2002, requires that operators of municipal drinking water systems conduct annual management reviews that evaluate the continuing suitability, adequacy, and effectiveness of their Quality Management System. The results of these reviews are required to be reported to the system owner.

This report satisfies that regulatory requirement and provides a summary of the June, 2019 On-site Verification Audit completed on London's drinking water quality management system.

Context

Quality Management Systems (QMSs) can be defined as sets of interrelated elements (e.g. policies and procedures) that direct and control the way a facility operates with regard to quality. A QMS is a way of formally ensuring that an organization is consistently in control of the quality of the product or services that it supplies.

Following the Walkerton tragedy of May 2000, Justice Dennis O'Connor recommended that Ontario "should initiate the development of a drinking water quality management standard for Ontario." A provincial Drinking Water Quality Management Standard (DWQMS) was therefore developed, which combined elements of existing ISO 9001

and HACCP standards. Through the Municipal Drinking Water Licensing Program, the Ontario government requires that municipal drinking water systems be operated by “accredited Operating Authorities”. Accreditation is achieved by implementing Quality Management Systems that meet the requirements of the DWQMS.

The City of London’s Water Engineering and Water Operations Divisions form the accredited Operating Authority for London’s drinking-water system. Accreditation is maintained through successful external audits, which are performed annually by one of two auditing firms approved by the Province of Ontario. These external audits take the form of On-site Verification Audits, which are performed every three years, and Off-site Surveillance Audits which are performed in the intervening years. In June, 2019, an On-site Verification Audit was conducted on London’s Drinking Water Quality Management System by SAI Global Assurance Services.

Section 19 of the *Safe Drinking Water Act, 2012* imposes a statutory standard of care on the “owner of a municipal drinking water system, and every person who, on behalf of the municipality, oversees the accredited operating authority of the system or exercises decision-making authority over the system”. In recommending the Standard of Care provision, Justice O’Connor stated that “*the fact that a municipality has an accredited operating agency will do much to satisfy the standard of care.*”

DISCUSSION

If auditors find instances where the water system is not being operated according to the approved Operational Plan, these are reported as either major or minor non-conformances. When non-conformances are identified in an audit report, the water system operators are required to submit Non-conformance Reports to the auditor, detailing the root cause of the non-conformance, the action taken to correct the incident and contain the problem, and the systemic (long term) corrective action(s) planned or taken to eliminate the root cause to prevent recurrence.

In addition to instances of non-conformance, auditors also draw upon their expertise and experience to report Opportunities for Improvement (OFIs), which are suggestions as to how the Operational Plan might be improved.

There was one incident of a major non-conformance identified in the 2019 audit report as follows:

“Best Management Practices have not been reviewed as part of the DWQMS V2 implementation”

In 2017, the Province of Ontario updated its Drinking Water Quality Management Standard (DWQMS V2), and the City of London updated its Operational Plan to the new Standard in November, 2018.

One of the updated elements of DWQMS V2 reads as follows:

“The Operating Authority shall develop a procedure for tracking and measuring continual improvement of its Quality Management System by:
a) reviewing and considering applicable best management practices, including any published by the Ministry of the Environment and Climate Change and available on www.ontario.ca/drinkingwater, at least once every thirty-six months...”

The required procedure was developed as part of the November, 2018 Operational Plan update, seven months prior to the audit. City staff interpreted the requirement to review

best management practices (BMPs) at least once every thirty-six months to mean at least once in the thirty-six month period following implementation of Version 2, and at least once in each subsequent thirty-six month period. However, it was the auditor's interpretation that a BMP review must be completed prior to the first On-Site Verification Audit conducted after implementation of Version 2. Given that a BMP review had not been conducted prior to the audit, the identified non-conformance was the result.

The City of London was therefore required to conduct a BMP review within sixty days and report back to the auditor. The Ministry of the Environment and Climate Change has not yet published any BMPs, so staff performed a search of industry best practices applicable to London's water system. Following the BMP review meeting, the meeting minutes were provided to the auditor, who responded as follows:

“Corrective actions taken to resolve the non-conformance(s) have been reviewed and found to be fully satisfactory in meeting the requirements of DRINKING WATER QUALITY MANAGEMENT STANDARD VERSION 2 - 2017. As a result, your organization will be recommended for (continued) registration.”

In addition to the single non-conformance, six opportunities for improvement were identified as follows:

- 1) QMS-06 Drinking Water System - There is an opportunity to include within the water system description: i) general characteristics of the raw water, ii) common event-driven fluctuations, and iii) any resulting operational challenges and threats.
- 2) QMS-20 Management Review - Consider including the review of the BMPs into QMS Form 20-01 Management Review Agenda & Meeting Minutes
- 3) QMS-21 Continual Improvement - Consider referencing the Tracking Sheet(s) as QMS Form XX-XX within QMS-21.
- 4) QMS-05 - Document and Records Control - i) There is an opportunity to: a) include a revision date and title on all SOP pages, and b) Ensure internal (e.g. monitoring) and external (e.g. Devine PRV Annual Test Reports) records include the year, ii) Consider clarifying the location of nightly and monthly back-up tapes and back-up of GIS (e.g. to server?).
- 5) QMS-13 Essential Supplies and Services - There is an opportunity to ensure SGS Lakefield Certificate of Accreditation is the most recent (expired 31-May-2019).
- 6) QMS 21 Continual Improvement - There is an opportunity to clarify 'Root Cause' within the Tracking Spreadsheet and clarify completion of nonconformity review of effectiveness (e.g. Tracking Spreadsheet, Internal Audit Report, etc.).

On October 21, 2019, the Top Management team for London's water system (the Director - Water and Wastewater, and the Division Managers of Water Engineering and Water Operations) held the annual Management Review for London's Drinking Water Quality Management System. The results of the Management Review are summarized in Appendix 'A'.

CONCLUSIONS

In June, 2019, an On-site Verification Audit was completed for the quality management system of London's drinking water system. This was London's first audit following adoption of Version 2 of Ontario's Drinking Water Quality Management Standard. The audit report contained one incident of non-conformance with the approved Operational Plan for the City of London Water System. City staff rectified the non-conformance to the satisfaction of the auditor, resulting in the City of London's re-accreditation as the

Operating Authority for its water system.

PREPARED BY:	REVIEWED & CONCURRED BY:
JOHN SIMON, P. ENG. DIVISION MANAGER WATER OPERATIONS	SCOTT MATHERS, P. ENG. MPA DIRECTOR, WATER AND WASTEWATER
RECOMMENDED BY:	
KELLY SCHERR, P.ENG., MBA, FEC MANAGING DIRECTOR ENVIRONMENTAL & ENGINEERING SERVICES AND CITY ENGINEER	

Attachment: Appendix 'A' – Report on QMS to Council

CC: Aaron Rozentals – Division Manager, Water Engineering
Dan Huggins – Water Quality Manager

APPENDIX 'A'

Report on QMS to Council

Management Review Meeting of October 21, 2019

RESULTS OF MANAGEMENT REVIEW	
Summary of Management Review	<p>The 2019 Management Review meeting was held between 12:30 pm and 3:00 pm on October 21, 2019. The meeting was attended by Scott Mathers, Director – Water and Wastewater, Aaron Rozentals, Division Manager – Water Engineering, John Simon, Division Manager – Water Operations, and Dan Huggins, Water Quality Manager and QMS Representative. The agenda items discussed were, a) Incidents of regulatory non-compliance, b) Incidents of adverse drinking water tests, c) Deviations from critical control point limits and response actions, d) Efficacy of the risk assessment process, e) Results of audits (internal and external), f) Results of relevant emergency response testing, g) Operational performance, h) Drinking water quality trends, i) Follow-up action items from previous management reviews, j) Status of management action items identified between reviews, k) Changes that could affect the QMS, l) Summary of consumer feedback, m) Resources needed to maintain the QMS, n) Results of the infrastructure review, o) Operational Plan currency, content and updates, p) Summary of staff suggestions, and q) New Business – Review of recommendations made in recent audit of City of Vaughan water system.</p>
Issues Identified	<ol style="list-style-type: none"> 1) The 2018 water system Inspection by the Ministry of the Environment, Conservation and Parks recommended that (1) <i>“the Owner / Operating Authority modify the current vent screens associated with Springbank Reservoir #1 and #2 to conform with the Ten States Standards (2012 Edition) and ensure the size of the vent screen are at least #24 mesh and composed of a non-corrodible material”</i>, and (2) <i>“the Owner / Operating Authority review their documentation as associated with the installation of new watermains and consolidate this information into a form that includes all of the pertinent requirements as presented in the "Watermain Disinfection Procedure, November 2015.”</i> 2) Upgrades have been completed for the rechlorination system at Springbank Meterhouse #4, but full-scale testing remains to be completed. 3) The April, 2019 Internal Audit of the QMS identified two non-conformances and five opportunities for improvement. 4) The June, 2019 On-Site Verification Audit of the QMS identified one non-conformance and six opportunities for improvement.

	<p>5) The need to establish the design Hydraulic Grade Line in the Southeast Pressure Zone through commissioning of the new PRVs and control changes at SERPS was discussed.</p> <p>6) A structured valve maintenance system is to be designed and implemented based on AWWA Best Practices.</p>
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<p>Decisions Made / Action Items</p>	<p>1) Dan Huggins reported that new vent screens have been installed and that the new watermain disinfection form will be completed in Q1, 2020.</p> <p>2) Dan Huggins and Steve Romano to monitor and assess the performance of the upgraded rechlorination system.</p> <p>3) Dan Huggins reported that the internal audit Non-conformances had been corrected and the Opportunities for Improvement were addressed.</p> <p>4) Dan Huggins reported that the external audit Non-conformance had been corrected and the Opportunities for Improvement were in the process of implementation.</p> <p>5) Aaron Rozentals to develop a work plan for full implementation of Southeast Pressure Zone in Fall, 2020.</p> <p>6) Dan Huggins to arrange a meeting with Managers and Supervisors in Water Operations to develop and implement a structured valve maintenance program.</p>
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