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| TO: | CHAIR AND MEMBERS CIVIC WORKS COMMITTEE MEETING ON NOVEMBER 1, 2016 |
| FROM: | JOHN LUCAS, P.ENG. DIRECTOR - WATER AND WASTEWATER |
| SUBJECT: | 2016 EXTERNAL AUDIT OF LONDON’S DRINKING WATER QUALITY MANAGEMENT SYSTEM AND 2016 MANAGEMENT REVIEW |

RECOMMENDATION

That, on the recommendation of the Director - Water and Wastewater, the following report on the 2016 external audit of London’s Drinking Water Quality Management System, and the subsequent 2016 Management Review meeting, **BE RECEIVED** for information.

PREVIOUS REPORTS PERTINENT TO THIS MATTER

[2014 External Audit of London’s Drinking Water Quality Management System and 2014 Management Review](#)

[2015 External Audit of London’s Drinking Water Quality Management System and 2015 Management Review](#)

BACKGROUND

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 developed, which combined elements of existing ISO 9001 and HAACP standards. Through the Municipal Drinking Water Licensing Program, the Ontario government mandated that municipal drinking water systems develop and implement Quality Management Systems that met the requirements of the DWQMS. An Operational Plan was therefore developed for London’s drinking-water system based on the 21 Elements of the DWQMS.

In June, 2013, the City of London’s Drinking Water Quality Management System received its first On-Site Verification Audit by third-party auditors SAI Global Assurance Services. As a result, the City of London became fully accredited as the operating authority for London’s drinking-water system under Ontario’s Municipal Drinking Water Licensing Program.

On-Site Verification Audits are performed every 3 years, with 12-month Off-Site Surveillance Audits being performed in the intervening years. In June, 2016, SAI Global conducted the second On-Site Verification Audit of London’s Drinking Water Quality Management System.

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DISCUSSION

The first phase of the audit process occurred in May, 2016, during which the auditor reviewed the Operational Plan for the City of London Drinking-Water System to ensure that it conformed to Ontario’s Drinking Water Quality Management Standard (DWQMS).

In the second phase, the auditor spent June 13-14, 2016 interviewing London Water Operations and Water Engineering staff, and reviewing records to ensure that London’s water system was being operated in conformance with the approved Operational Plan.

If auditors find instances where the water system is not being operated according to the Operational Plan, then these are reported as either Major or Minor Non-conformities. When Non-conformities 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-conformity, 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-conformity, 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.

The City of London received two (2) Audit Reports from SAI Global, one for each phase of the audit. Both reports stated that *“The overall effectiveness of The Corporation of the City of London’s Quality Management System is considered effective.”*

There were no Non-conformities identified in either report, and a total of five (5) Opportunities for Improvement were identified.

On September 19, 2016, the Top Management team of the accredited operating authority 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’.

SUMMARY

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.”*

In June, 2016, an On-Site Verification Audit was completed for the Quality Management System of London’s drinking water system. The auditor reported that *“The overall effectiveness of the Corporation of the City of London’s Quality Management System is considered effective”*. There were no Non-conformities identified by the auditor.

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As a result of the audit findings, the City of London has maintained its accreditation as the operating authority for London’s drinking-water system under Ontario’s Municipal Drinking Water Licensing Program.

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

CC:

Art Zuidema – City Manager
Dan Huggins - Water Quality Manager

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APPENDIX ‘A’

Report on QMS to Council

Management Review Meeting of September 19, 2016

| RESULTS OF MANAGEMENT REVIEW | |
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| Summary of Management Review | <p>The 2016 Management Review meeting was held between 12:30 pm and 3:30 pm on September 19, 2016. The meeting was attended by John Lucas, Director – Water and Wastewater, Roland Welker, 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 - Other issues that impact on the quality management system.</p> |
| Issues Identified | <p>1) During the 2015 Management Review, it was determined that it would be beneficial for the administrators of London’s Backflow Prevention Program to implement elements of a Quality Management System for the program. This proposal was discussed with the City of London Building Division (the program administrators), and Dan Huggins agreed to investigate whether and how other Ontario municipalities incorporate Backflow Prevention within their QMS. Mr. Huggins reported that it is not a common practice, but the City of Guelph does connect its Backflow Prevention Program to the QMS in an effective manner.</p> <p>2) The 2016 On-Site Verification Audit of the QMS identified five (5) opportunities for improvement. The April, 2016 Internal Audit of the QMS also identified five (5) opportunities for improvement.</p> <p>3) New chlorination equipment was installed in April, 2016 at the Springbank reservoirs. The new equipment has resolved many issues that were previously identified, but minor control issues are occurring during certain pump-</p> |

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| | <p>change scenarios involving Arva Pump 5 and the Elgin-Middlesex Pumping Station (EMPS).</p> <p>4) The effectiveness of London’s program for recording consumer feedback was discussed and possible deficiencies were identified.</p> |
| Decisions Made / Action Items | <p>1) Dan Huggins to work with London’s Backflow Prevention Program administrators to incorporate elements of the program within the Operational Plan for London’s Drinking-Water System.</p> <p>2) Dan Huggins to address the Opportunities for Improvement that were identified through the audits and update the Operational Plan accordingly.</p> <p>3) Water Engineering will recommend changes to the startup program for Arva Pump 5, which should address some of the chlorination control issues that have been identified. Water Operations will coordinate the implementation of the proposed changes. Commissioning of 2 new pumps is ongoing at EMPS. Once the new EMPS pumps are operating, the chlorination control issues will be re-assessed.</p> <p>4) Implementation of a Computerized Maintenance Management System (CMMS) is underway, which should provide an improved mechanism for recording consumer feedback. John Simon to review whether Customer Relationship Management software (CRM) could be beneficial.</p> |