

3. 2016 DRINKING WATER QUALITY MANAGEMENT
SYSTEM ANNUAL MANAGEMENT REVIEW REPORT
- RAPPORT D'EXAMEN ANNUEL 2016 DU SYSTÈME
DE GESTION DE LA QUALITÉ DE L'EAU POTABLE.

COMMITTEE RECOMMENDATION AS AMENDED

That Council receive the 2016 Drinking Water Quality Management System Annual Management Review Report, as amended.

RECOMMANDATION DU COMITÉ TELLE QUE MODIFIÉE

Que le Conseil de prene connaissance du Rapport d'examen annuel 2016 du système de gestion de la qualité de l'eau potable, tel que modifié.

DOCUMENTATION/DOCUMENTATION

1. Director's Report, Water Services, Public Works and Environmental Services Department, dated 7 September 2017 (ACS2017-PWE-GEN-0029).

Rapport de la Directrice, Services d'eau, Direction générale des travaux publics et de l'environnement, daté le 7 septembre 2017 (ACS2017-PWE-GEN-0029)

2. Extract of draft Minutes, Environment and Climate Protection Committee, 19 September 2017.

Extrait de l'ébauche du procès-verbal, Comité de l'environnement et de la protection climatique, le 19 septembre 2017.

**Report to
Rapport au:**

**Environment and Climate Protection Committee
Comité de l'environnement et de la protection climatique
19 September 2017 / 19 septembre 2017**

**and Council
et au Conseil
27 September 2017 / 27 septembre 2017**

**Submitted on September 7, 2017
Soumis le 7 septembre 2017**

**Submitted by
Soumis par:**

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Ward: CITY WIDE / À L'ÉCHELLE DE LA VILLE File Number: ACS2017-PWE-GEN-0029

**SUBJECT: 2016 Drinking Water Quality Management System Annual
Management Review Report**

**OBJET: Rapport d'examen annuel 2016 du système de gestion de la qualité
de l'eau potable.**

REPORT RECOMMENDATION

That the Environment and Climate Protection Committee recommend that Council receive the 2016 Drinking Water Quality Management System Annual Management Review Report.

RECOMMANDATION DU RAPPORT

Que le Comité de l'environnement et de la protection climatique recommande au Conseil de prendre connaissance du Rapport d'examen annuel 2016 du système de gestion de la qualité de l'eau potable.

BACKGROUND

In 2002, Justice Dennis O'Connor published Part Two of the Report of the Walkerton Inquiry, which recommended the adoption of a quality management approach for municipal drinking water systems. The report also recommended that a quality management standard, specifically designed for drinking water systems, be developed and implemented in Ontario; thus, leading to the creation of the Drinking Water Quality Management Standard (DWQMS). The requirement to implement the DWQMS is now mandated through the *Safe Drinking Water Act, 2002*.

As the Owner of the municipal drinking water systems, Council has a number of duties and responsibilities under the *Safe Drinking Water Act, 2002*, which are described in sections 11, 13, 16 and 17 of the Act. The duties of the Owner related to the Standard of Care are described under section 19 and came into force on December 31, 2012. In order to ensure that City Councillors were made aware of their duties and responsibilities under the Act, staff organized a Technical Briefing of newly elected City Councillors on October 5, 2015.

In his 2002 report, Justice O'Connor further commented that municipalities who had an accredited Operating Authority would be making a significant step in meeting the owner's due diligence responsibilities and standard of care. One of the primary tools that the Owner has in place to satisfy the Standard of Care under the Act is to have

Municipal Drinking Water Licences for all its drinking water systems. The elements of each Licence include:

- A permit to take water;
- A drinking water works permit;
- An operational plan;
- A financial plan; and
- An accredited operating authority.

The City of Ottawa has valid licences for all seven of its drinking water systems:

- Central System (Britannia and Lemieux water purifications plants and water distribution system);
- Carp Communal Well System;
- Vars Communal Well System;
- Kings Park (Richmond) Communal Well System;
- Munster Hamlet Communal Well System; and
- Shadow Ridge (Greely) Communal Well System¹.

The City of Ottawa received the first phase of DWQMS accreditation effective April 29, 2009 (Limited Scope – Entire DWQMS), with Full Scope accreditation on October 03, 2011, and re-accreditation on September 4, 2014. In August 2016, the third party accreditation body conducted their surveillance audit of the City's Quality Management System (QMS). Results of this audit were provided to the City on September 13, 2016, and demonstrated zero findings of non-conformance.

A requirement of the DWQMS is to conduct an annual management review of the QMS and to ensure that the results of this review are communicated to the Owner (Council) by Top Management. Top Management is a term defined in the DWQMS as, "A person, persons or a group of people at the highest management level within an operating authority that makes decisions respecting the QMS and recommendations to the owner respecting the subject system or subject systems." Thus, Top Management at the City

¹ It should be noted that Shadow Ridge is not owned by the City, but the City of Ottawa is the Operating Authority.

of Ottawa includes the General Manager of Public Works and Environmental Services (PWES) Department, the Director of Water Services and other select Managers within PWESD and Water Services. Top Management is responsible to make recommendations to the Owner regarding the drinking water systems and the QMS.

The main purpose of this report is to provide Council, as the Owner of the municipal drinking water systems, with an update on the implementation and the performance of the QMS in 2016.

DISCUSSION

The DWQMS is the key tool that supports and assures Council, as the Owner of the drinking water systems, that it is meeting its duties and responsibilities under the *Safe Drinking Water Act 2002* and the Statutory Standard of Care (section 19).

As a requirement of the Operational Plan, a comprehensive review of the QMS must be undertaken annually by Top Management. This requirement is completed as part of the Management Review, which entails a series of meetings attended by Top Management where specific items are reviewed for the past year. This review and any recommendations for improvement are included within the Management Review reports prepared each year.

Overall, the City of Ottawa has implemented its Operational Plan successfully. Some examples that demonstrate this achievement in 2016, as documented in the Management Review report, include:

- The most recent Ministry of Environment and Climate Change (MOECC) inspections for municipally-owned drinking water systems have rated all drinking water systems at 100 per cent for the seventh year.
- Each year, a third-party accreditation body conducts an external audit of the Operational Plan and associated documents. This year's audit is the fifth consecutive external audit where the City has been in 100 per cent full conformance with its QMS.
- Through the DWQMS risk assessment process, nine critical control points (CCPs) are identified within Water Production and five CCPs identified for Water Distribution. There has been a 75 per cent reduction in annual "deviations from critical control

point limits” set by the Water Production Unit between 2008 and 2016. These limits are set well within the regulatory standards for safe drinking water. These deviations indicate opportunities for making improvements to the water treatment process and for improving the monitoring of safe drinking water. As a cycle of continuous improvement is the foundation of the DWQMS, a total of 93 Priority 1 action items have been identified and 91 items of these items (98 per cent) have been completed since 2008.

- Over the past five years, watermain breaks have averaged 8.4 breaks per 100 km. In 2016, the break per 100 km rate decreased to 6.5. In 2016, there were 51 less breaks than the five-year average of 250 breaks. 2016 was a relatively mild winter; as a result, the frost did not penetrate close to the watermain levels.
- The average time customers were out of water service during a watermain break decreased from 7.2 to 6.4 hours as a result of new procedures, which allowed us to maintain water flow to customers for a longer period of time before starting repairs.

All of these efforts reinforce the fact that the City of Ottawa produces and delivers some of the best quality and safest drinking water in the world.

There are a total of 16 topics that must be considered in the annual management review (Table 1). This report provides an update to only those items that require attention. All other items not discussed in this report have either been reported to Council previously or the items have been reviewed and determined to be in compliance with all regulations or in conformance with the Operational Plan. A full list of recommended action items as a result of the 2016 Management Review can be found in Document 1.

Table 1: List of Items for Annual Review that will be Discussed in this Report

QMS Topic	Summary provided in this report
Incidents of regulatory non-compliance	Not required this year (refer to ACS2017-PWE-GEN-0006)
Incidents of adverse drinking water tests	Not required this year (refer to ACS2017-PWE-GEN-0006)

QMS Topic	Summary provided in this report
Deviations from critical control point limits and response actions	Not required this year
Efficacy of the risk assessment process	Not required this year
Results of audits (internal and external)	Not required this year
Results of relevant emergency response testing	Not required this year
Operational performance	Not required this year
Raw water supply and drinking water quality trends	Yes, see below
Follow-up action items from previous management reviews	Yes, see below
Status of management action items identified between reviews	Not required this year
Changes that could affect the QMS	Not required this year
Summary of consumer feedback	Not required this year
Resources needed to maintain the QMS	Not required this year
Results of the infrastructure review	Yes, see below
Operational plan currency, content and updates	No issues
Summary of staff suggestions	No issues

Raw Water Supply and Drinking Water Quality Trends

As previously reported in the 2015 DWQMS Annual Report (ACS2016-COS-ESD-0021), there is evidence of an increasing trend in nitrate concentration in the ground water wells in Shadow Ridge Well System. The long-term trend for nitrate increase has

been 0.30 – 0.40 mg/L every year. If the trend continues at that same rate, the wells would reach the drinking water maximum acceptable concentration (MAC) of 10 mg/L in **12 to 15 years. Nitrate concentrations have shown a gradual but steady increase from 1.5 mg/L in 2008 to 4.5mg/L in 2016 at the Shadow Ridge Well System.*** Nitrate levels at all of the other municipal well systems are essentially non-detect. The City's Planning, Infrastructure and Economic Development (PIED) Department has developed a risk mitigation plan to address this issue and is exploring options to proceed with wells drilled to a deeper aquifer.

(*as amended by Motion N^o ECPC 16/03, ECPC Meeting of 19 September 2017)

Follow-up Action Items from Previous Management Reviews

An outstanding Priority 1 action item relates to the adoption by Council of a Backflow Prevention Program and by-law. On June 28, 2017, Council approved the Implementation Plan for the Backflow Prevention program (ACS2017-PWE-GEN-0007), along with the necessary Water By-law amendments; thus, this outstanding action item has since been closed.

Results of the Infrastructure Review

The City has continued to move forward with the large-diameter condition assessment program. The main benefit of this program is the ability to proactively assess and identify deficiencies that can be corrected in a planned and controlled manner. There are approximately 237 km of large-diameter watermains (greater than or equal to 610 mm in diameter) in the City.

In 2016, the program exceeded the 5 km target by completing 11.4 km of inspections. Each inspection provides unique information upon which repair, rehabilitation and replacement decisions are made. Completion of a comprehensive condition assessment often takes multiple years to complete. PWES will collaborate with PIED to provide a status report documenting the program's results to date and to identify issues and considerations for the large-diameter condition assessment program as part of the Comprehensive Asset Management (CAM) program update to be tabled with the Rate Long Range Financial Plan in September 2017.

RURAL IMPLICATIONS

There is evidence of an increasing trend in nitrate concentration in the ground water wells in Shadow Ridge. While nitrate levels are still well-below the MAC for Ontario Drinking Water Standards, the City's PIED has developed a risk mitigation plan to address this issue and is exploring options to proceed with wells drilled to a deeper aquifer.

CONSULTATION

Public consultation or notification is not required as this report is administrative in nature.

COMMENTS BY THE WARD COUNCILLOR(S)

This is a City-wide report.

ADVISORY COMMITTEE(S) COMMENTS

This section is not applicable.

LEGAL IMPLICATIONS

There are no legal impediments to receiving the report for information.

RISK MANAGEMENT IMPLICATIONS

There are risk implications. These risks have been identified and explained in the report and are being managed by the appropriate staff.

ASSET MANAGEMENT IMPLICATIONS

The recommendations documented in this report are consistent with the City's Comprehensive Asset Management (CAM) Program ([City of Ottawa Comprehensive Asset Management Program](#)) objectives.

The Drinking Water Quality Management System is an example of best practice asset management system elements that help inform decision-making processes necessary to protect Ottawa's drinking water system and reduce public health risks.

FINANCIAL IMPLICATIONS

This report has no financial implications.

ACCESSIBILITY IMPACTS

There are no accessibility impacts associated with this report.

ENVIRONMENTAL IMPLICATIONS

The development of the QMS is provincially legislated under the *Safe Drinking Water Act, 2002*. The QMS has been reviewed by a third-party accreditation body and the City of Ottawa has obtained its Operating Authority Accreditation. This report also fulfills the legislative requirement to report on the Annual Management Review of the QMS to the Owner.

TECHNOLOGY IMPLICATIONS

There are no direct technical implications associated with this report.

TERM OF COUNCIL PRIORITIES

The implementation of the Operational Plan supports the city's overall vision of Service Excellence by focusing on our people as a main strategic priority. The Operational Plan ensures the commitment to provide a reliable supply of safe drinking water to the consumer; meet or exceed applicable legislation and regulations; implement, maintain and continually improve the QMS, infrastructure and technology; and deliver excellent customer service through responsiveness, accountability and innovation.

SUPPORTING DOCUMENTATION

Document 1: 2016 Management Review Action Items (*Previously distributed to all members of Council and held on file with the City Clerk*)

DISPOSITION

Staff will continue to work to provide safe drinking water, following all legislation. Staff will implement any direction received as a result of this report.