



INFORMATION REPORT

TO:	Chair and Members Public Works Committee
COMMITTEE DATE:	March 19, 2018
SUBJECT/REPORT NO:	2017 Annual Drinking Water Report (PW18026) (City Wide)
WARD(S) AFFECTED:	City Wide
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SUBMITTED BY:	Andrew Grice Director Hamilton Water Public Works Department
SIGNATURE:	

Council Direction:

Not Applicable

Information:

Under the *Safe Drinking Water Act*, there are several annual reporting requirements related to the operation and management of the City of Hamilton's five Drinking Water Systems (DWS) (as identified below).

Licence Number	Drinking Water System (DWS)	Expiration
005-101	Hamilton DWS	May 29, 2019
005-102	Freelton DWS	May 30, 2019
005-103	Greensville DWS	May 29, 2019
005-104	Carlisle DWS	May 29, 2019
005-105	Lynden DWS	May 29, 2019

This Information Report provides a summary of these requirements and highlights key information. More detailed information is provided in the attached two Appendices (A & B).

Summary Report for Municipalities (Appendix A):

As per the *Safe Drinking Water Act*, Ontario Regulation, 170/03, Schedule 22, Council must receive an annual drinking water summary report by March 31st of each year. This

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2017 summary report has been prepared in accordance with the requirements as defined in Schedule 22, for each of the City of Hamilton's five DWSs. Specifically provided are lists of major capital upgrades initiated in 2017 as well as those planned for 2018. There were no Provincial Officer's Orders issued. All confirmed Adverse Water Quality Incidents were reported to the Ontario Ministry of Environment and Climate Change's (MOECC) Spills Action Centre (SAC) and Public Health Services (PHS) and are provided in the report. All water taking quantities and flow rates were within approved rated capacities and provincial water taking limits. Data related to the water quantities, flow rates and monthly average and maximum daily flows (in comparison to approved flow rates) for the five DWSs is also provided.

Drinking Water Quality Management System - Summary Report (Appendix B):

The submission of the Drinking Water Quality Management System (DWQMS) Summary Report satisfies requirements of the Drinking Water Quality Management System Standard.

The purpose of the DWQMS Summary Report is to inform Mayor and Council (Owners) of the performance and major milestones achieved in the City's DWQMS. Specifically, the Hamilton Water Division (Operating Authority) is required to inform Top Management (General Manager of Public Works and Director of Hamilton Water Division) and the Owner of the outcomes of the infrastructure, DWQMS audits and management reviews. The DWQMS Summary Report (Appendix B) exceeds these requirements and includes additional information relating to other milestones of the DWQMS.

Corrosion Control Program:

The City of Hamilton conducted its Legislated Community Lead Sampling Program for the Woodward DWS between 2008 and 2009 as required by Schedule 15.1 of Ontario Regulation, 170/03. The results of the sampling program indicated that greater than 10 percent of tap water samples collected from residential and non-residential plumbing systems ("at the tap") exceeded 10 micrograms per litre ($\mu\text{g/L}$) in all four sampling rounds and as such the MOECC required the City of Hamilton to prepare and submit a Corrosion Control Plan (CCP) for the Woodward DWS. A CCP was developed and accepted by the Ministry of the Environment (MOE) on June 7, 2011.

Based on the recommendations of the CCP, a phosphate-based treatment approach was identified as the most optimal solution for corrosion control in the Woodward DWS. In 2012 and 2013, the Operating Authority conducted a Corrosion Control Pilot Study, which was subsequently peer reviewed, to ensure that the most appropriate phosphate-based additive was chosen to address the corrosion issue in Hamilton. The results of this work recommended that the City proceed to full-scale implementation with orthophosphate for corrosion control, using phosphoric acid as the source additive.

The Public Works Committee (15-015) recommended that the Corrosion Control Program (Report 15-79) for the Woodward Drinking Water System be approved by Council. Council adopted the recommendation on November 25, 2015 in Report 15-

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The City of Hamilton updated the MOECC of Council's approval in January 2016 and is moving forward with the implementation of the CCP as outlined in Report 15-015.

The Corrosion Control Building is under construction and operations are to commence in November 2018. As per the implementation plan, the industrial, commercial and institutional customers have been notified of the upcoming changes and the potential impacts on their processes. A complete baseline study of the Hamilton Drinking Water System was completed in June 2017 and the data was analyzed and the results show a stable system with little seasonal variation. The stable conditions of the Drinking Water System will assist when monitoring the Corrosion Control Program once the chemical addition has begun.

Financial Plan:

The need to prepare a Water Infrastructure Financial Plan is, in part, a regulatory compliance issue specific to the water licensing requirements defined within the DWQMS and more specifically detailed under Regulation 453/07 - Financial Plans made under the *Safe Drinking Water Act, 2002*. The required Financial Plan for water systems must address a minimum six-year time-frame and be approved by council prior to submission to the province of Ontario. The resulting plans must also be made freely available to the general public. Water Infrastructure Financial Plans for Hamilton have typically been developed to cover a ten-year period of time in order to reflect consistency with the current rate budget process.

The first Financial Plan was created in 2010. The latest revision was approved by Council on January 29, 2014. This most current plan was sent to the Ministry of Municipal Affairs and Housing on January 31, 2014. The next update of the Water Infrastructure Financial Plan is required this year. The financial plan will lay out a sustainable funding model that captures asset replacement, system enhancements and the value of maintenance programs. Efforts are currently under way to provide a new council report by summer of 2018.

Risk Assessment Review:

The DWQMS Standard requires that the Risk Assessment be reviewed on an annual basis to verify that the information is current and valid and that the risk assessment process and outcomes be re-evaluated every three years. A re-evaluation of the Risk Assessment scope, criteria, data fields and update of risk assessment data was conducted in 2017 as it was the three-year "redo" milestone for the Risk Assessment. The DWQMS Summary Report summarizes the outcomes of the 2017 risk assessment process.

Infrastructure Review:

Hamilton Water must ensure and verify, on an annual basis, the adequacy of water related infrastructure. In order to satisfy the requirements of the DWQMS Standard, the Operating Authority conducted a formal annual review of its vertical (wells, water

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treatment, storage and pumping) and horizontal (watermains) infrastructure. The scope of the review also considered the operation, maintenance and replacement of existing infrastructure assets as well as new infrastructure planned for the immediate and long-term future.

The evaluation of programs indicates that appropriate processes are in place to identify infrastructure needs. Based on the results of the 2017 infrastructure review, it can be concluded that vertical and horizontal infrastructure is generally found to be available, when needed, and maintained and improved, when necessary. There was significant discussion about ensuring that sufficient capital funds were available for long-term infrastructure upgrades and maintenance. The DWQMS Summary Report includes the major recommendations from the 2017 Infrastructure Review.

Scenic Dr. Replacement:

As of August 23, 2017, all homes on Scenic Dr. that were previously connected to the private rear yard watermain are connected and receiving water from the 200mm City watermain on Scenic Dr. The onsite process began in March 2017 and took a considerable amount of coordination to bring the new water services into the houses on Scenic Dr. The work included:

- Geotechnical Investigation
- Obtaining legal agreements
- Procuring a contractor to install the water services for 12 homes
- Facilitating plumbing contractors at the properties to do internal plumbing upgrades in order to accommodate the new service coming into the front of the home
- Restoration and landscaping - over 600 square meters of sod was placed at both the front and rear of these properties.

Audit Program:

The DWQMS accreditation process requires both 3rd Party Accreditation Audits and annual internal audits by the Operating Authority.

Hamilton Water utilizes the services of QMI-SAI Global as the Accreditation Body for the DWQMS. In 2017, QMI-SAI Global conducted an off-site documentation surveillance audit. There were no non-conformances or Opportunities for Improvement found.

Corporate Audit Services conducted an audit of Hamilton Water with regards to water supply compliance and conformance in Q1 2015. The Final Report was adopted by Council on June 24, 2015. It was noted in the report, that given the large volume of audit and inspection reports that were reviewed, there was a very low volume of non-compliance/non-conformance items detected. Hamilton Water provided evidence to Corporate Audit Services in November 2016 for final closure. Corporate Audit Services verified in 2017 that all compliance requirements were met.

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The Hamilton Water Internal Audit Team conducted a full internal audit of the DWQMS from September 12 to October 31, 2017. The audit assessed the implementation of all 21 elements on the new release of the DWQMS Standard V2.0 and preparation for the 2018 DWQMS Re-Accreditation audit. The results of the annual DWQMS Internal Audit demonstrated that the City of Hamilton's DWQMS is a maturing system and that opportunities to improve the DWQMS continue to be identified to ensure that the system is relevant and appropriate for Hamilton Water. The Hamilton Water DWQMS contains the required procedures and records to illustrate the establishment and continual improvement of the management system.

Hamilton Water's Compliance & Regulations staff will be developing an Audit Plan for the 2018 DWQMS internal audit.

Management Review:

The DWQMS Standard requires that Top Management participate in a management review of the DWQMS at least once per year. The Management Review is a formal presentation of compliance, operational, water quality, communication and infrastructure data. In 2017, the DWQMS Top Management Review was held on November 30th. Overall, meeting participants concluded that the DWQMS is suitable, adequate and effective. Continual improvement actions were identified and target dates for completion were determined. The DWQMS Summary Report (Appendix B) provides an overview of the results, a record of decisions and action items from the 2017 Management Review.

Standard of Care Training:

Standard of Care requirements for Owners and Managers of municipal DWSs came into effect as of January 1, 2013. Standard of Care is a statutory due diligence requirement identified in Section 19 of the *Safe Drinking Water Act*. All Owners (Mayor and Council) received Standard of Care training. Training has also been provided to the Public Works General Manager and Hamilton Water Directors and Managers.

Budget:

In 2016, there was significant discussion at the Infrastructure Meetings about ensuring that sufficient capital funds were available for long-term upgrades and maintenance of the five Drinking Water Systems. It was acknowledged that life-cycle replacement funds were being used for emergency or short-term work. This results in a budget shortfall for long-term replacement and maintenance activities. An Action Plan was implemented in 2017 to confirm that current and projected spending allocations are adequate for drinking water. Rules and procedures are being developed to limit how allocated funds can be spent (i.e. funds allocated for water capital projects should not be spent on emergency maintenance or special projects). Work is ongoing in 2018 to ensure that funds are available as needed and that the revised Financial Plan to be approved by Council in 2018 accurately represents life-cycle costs. This is in line with the provincial government "*The Infrastructure for Jobs and Prosperity Act, 2015*" and "O. Reg. 588/17: Asset Management Planning for Municipal Infrastructure" which will ensure that a long-

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term view is taken on investment in Ontario's infrastructure, while being mindful of demographic and economic trends of the future.

Update and Going Forward:

The outcomes from the Management Review and internal and external DWQMS audits concluded that the DWQMS is adequate, suitable and effective and conforms to the requirements of the DWQMS Standard. Corrective action plans from audits and action items from the Management Review will be implemented to ensure continual improvement of the DWQMS. Major next steps related to the maintenance of the DWQMS in 2018 are included in Appendix B.

APENDICES AND SCHEDULE ATTACHED

Appendix A - Summary Report for Municipalities

Appendix B - Drinking Water Quality Management System