
For Information

REPORT TITLE: **Water Meter Testing Audit**

FROM: Jennifer Weinman, Interim Director, Enterprise Risk and Audit Services

OBJECTIVE

To inform the Audit and Risk Committee of the results of Water Meter Testing Audit.

REPORT HIGHLIGHTS

- The Water Meter Testing Audit was requested by Regional Council.
 - The audit assessed if the Region's processes for water meter testing adhere to the relevant American Water Works Association standards and industry best practices.
 - Water meter testing procedures and practices at the Region are in accordance with the American Water Works Association standards and there is an active water meter preventive maintenance plan in place.
 - There is an opportunity for enhancement, to periodically re-test a large commercial meter with larger quantities of water to confirm the accuracy of the first test result.
 - Management has taken actions to address the observation noted in the audit.
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DISCUSSION

1. Background

Regional Council requested an audit of the Region of Peel's (Region) water meter system on July 11, 2019, through Council Resolution 2019-696. The audit was requested following a delegation to Regional Council in 2019 in regard to a high water bill. The request relates to ensuring that any high water bills are not a result of the integrity of water meter and reflective of the actual consumption of the customer.

The Meter Operations team within the Operations Support division of Public Works installs, repairs, replaces, tests, and maintains water meters for residential and commercial buildings. Water meters are calibrated by the manufacturer and are installed by Regional staff upon the completion of a building. There are approximately 334,000 water meters across the Region. The Region follows the American Water Works Association standards for installing and managing the water metering system.

The American Water Works Association (Association) is a scientific and educational society for professionals in water industry. The Association develops industry standards for products and processes and best practices that are recognized internationally. The American Water Works Association Manual 6 (Manual 6) is a manual of practices for water utilities on selection, installation, operation and maintenance of water meters.

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Staff from the Meter Operations team perform meter testing at the following points:

- When a new meter is installed;
- When maintenance is performed on a meter; and,
- As part of a routine meter testing process.

The fieldwork of the audit required specific skills and expertise in water metering systems and industry knowledge. To address the need for the specific skills and expertise, Enterprise Audit Services engaged UtiliWorks Consulting, a division of E Source, to assist with the fieldwork, through a competitive selection process.

2. Audit Objective and Scope

The objective of the audit was to assess whether the Region's current processes in water meter testing adhere to the relevant American Water Works Association standards and industry best practices, specifically at the point of:

- Water meter installation testing;
- Water meter routine testing; and,
- Water meter maintenance testing.

The scope of the audit included:

- Review of water meter testing records and documentation against American Water Works Association Manual 6;
- Remote observation of water meter field testing carried out by staff; and,
- Review of water meter preventive maintenance processes, records and documentation from 2019 to 2020.

This audit was conducted in conformance with the *International Standards for Professional Practice of Internal Auditing*.

3. Audit Observation and Management Response

The water meter testing procedures and practices in place at the Region of Peel are in accordance with the related Association standards, and there is an active preventive maintenance plan in place. Specifically,

- Water meter testing standards and testing procedures are consistent with the Manual 6;
- During the remote observation it was noted that staff follow the meter testing procedures, testing was documented properly, and calibrated meters were certified by a certified testing lab. The water meter was installed properly in accordance with Manual 6 for proper distance between the meter and other meter setting components such as valves and tees; and,
- Under the Preventive Maintenance program, large meters (38mm and up) are being tested at a 5-year interval. The 100 meters that have the largest annual consumption and that have a higher degree of risk of wear and exposure to corrosive elements are being tested annually.

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In addition, the consultants have observed the following best practices the Region has adopted for the water meter system:

- Flush tests of small meters are performed as part of meter replacement in residential dwellings to ensure the meter is operational;
- Consistent use of meters from the same manufacturer that meet the design requirements of Association standards and specifications for various types and sizes of meters; and,
- Large commercial meters are being tested by well trained and experienced staff. The Manual 6 identifies properly trained employees as one of the most important aspects of a meter testing program.

There is an opportunity to enhance the meter testing program. Manual 6 recommends the quantities of water to be used in testing various sizes of water meters at three different rates of flow: Maximum Rate, Intermediate Rate and Minimum Rate. It allows for lesser quantities of water to be used during field testing since large quantities of water can create significant issues at the test site. Manual 6 identifies that the accuracy of the test results could be reduced if the quantities of water used in the test are less than the recommended quantities. The water quantities used in the tests at the Region are approximately 30 per cent of the recommended quantities for the “Maximum Rate” test. For this reason, once or twice a year, there should be a re-test of meter with larger quantities of water flow for each rate of flow to provide an assurance that the first test result is accurate.

a. Management Response

The Director, Operations Support will ensure there is an annual re-test of a meter, with larger quantities of water flow for each rate of flow to verify the accuracy of the first test result. The first annual re-test will take place by December 15, 2020 and will be an on-going annual practice. Management has completed the action as outlined and Enterprise Audit Services has verified the implementation.

CONCLUSION

The water meter testing procedures and practices in place at the Region are in accordance with American Water Works Association standards and there is an active preventive maintenance plan in place. There is an opportunity for enhancement to periodically re-test a large commercial meter with larger quantities of water to ensure the first test result is accurate.

Management has taken actions to enhance the meter testing processes. Enterprise Audit Services has reviewed and verified that the first annual re-test has been completed.

For further information regarding this report, please contact Jennifer Weinman, Interim Director, Enterprise Risk and Audit Services, jennifer.weinman@peelregion.ca.

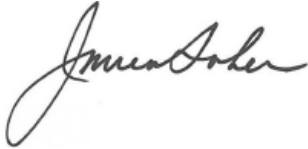
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Reviewed and/or approved in workflow by:

Department Commissioners and Division Directors.

Final approval is by the Chief Administrative Officer.

A handwritten signature in black ink, appearing to read "J. Baker", written in a cursive style.

J. Baker, Chief Administrative Officer