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Town of Aurora
Information Report
No. OPS23-010

Subject: Drinking Water Quality Management System - Management Review

Prepared by: Iustina Voinea, Program Coordinator, Water/Wastewater/Stormwater

Department: Operational Services

Date: June 6, 2023

In accordance with the Procedure By-law, any Member of Council may request that this Information Report be placed on an upcoming General Committee or Council meeting agenda for discussion.

Executive Summary

The purpose of this report is to provide updates on the activities performed by the Water Division in 2022 and present the Minutes of the Annual Management Review as required by the Safe Drinking Water Act, 2002 and related regulations. The 2022 audits information and inspections highlights are:

- The operation and management of the water system achieved full compliance for 2022.
- Municipal Drinking Water Licenses expires June 15, 2026.
- The Operational Plan is a document that outlines all 21 elements of the DWQMS.
- Internal Audit, System Audit, Inspections and Management Review are completed annually.

Background

The Town of Aurora is the Owner and the Operating Authority of the municipal drinking water distribution system within the geographical boundaries of the Town. York Region supplies the Town with drinking water, that is a blended combination of surface water and ground water. Water treatment, transmission and storage are the exclusive jurisdiction of the Region. The Town is responsible for the operation and maintenance of the drinking water distribution system, to maintain drinking water quality and ensure water remains safe for human consumption.

The Ontario Government implemented the Municipal Drinking Water Licensing Program in 2007 as recommended by Justice O’Conner, as a result of the Walkerton Inquiry. In response to this recommendation, the Ministry of the Environment, Conservation and Parks developed the Drinking Water Quality Management Standard (DWQMS) that applies to owners and operating authorities for municipal drinking water systems. The DWQMS sets out the framework for the development of a Quality Management System (QMS). The implementation of the DWQMS is mandated by the provincial government through the Safe Drinking Water Act.

The QMS is based on a “Plan”, “Do”, “Check”, “Improve” principle. The Operational Plan provides an understanding of the drinking water system, the roles and responsibilities of the owner (Council) and operational staff and is based on procedures to operate and maintain the drinking water system, and a commitment and endorsement by the owner to provide safe drinking water. In order for the Owner to show their support of the drinking water system and QMS, it is required that they provide their endorsement of the Operational Plan.

Analysis

The operation and management of the water system achieved full compliance for 2022.

Requirements of the QMS outlined in this report are critical components of the Management Framework under which staff and senior management are required to operate.

Staff is pleased to report that based on the results of internal and external audits and Ministry of Environment, Conservation and Parks (MECP) inspections, 2022 was a successful year in fulfilling legislative requirements, resulting in confidence that the Town's water system is safe, and both operated and maintained to a very high standard.

Municipal Drinking Water Licenses expires June 15, 2026.

The Town of Aurora Drinking Water System Operational Plan was prepared to meet legislative requirements and was initially submitted to the Ministry on August 1, 2009. A Municipal Drinking Water Licence (MDWL) and a Municipal Drinking Water Permit (DWMO) were obtained and required to be renewed every five (5) years.

The current licence and permit expire on June 15, 2026.

To obtain a MDWL the Operating Authority must be accredited by a third-party accreditation body. A critical step in the accreditation process is the confirmation of an understanding and acceptance of the plan by Council and Senior Management. The following sections provide a summary of the document purpose and key roles and responsibilities.

Aurora's Drinking Water System had been re-accredited for three (3) years in 2020. After the re-certification audit in 2020, surveillance audits are conducted annually by the accreditation body to support the maintenance of the accreditation for the following two years. 2022 was the last surveillance year in the three (3)-year accreditation cycle. The full re-certification audit was completed in March 2023.

The Operational Plan is a document that outlines all 21 elements of the DWQMS.

Some of the key elements include:

- Commitment and Endorsement
- Organizational Structure, Roles, Responsibilities and Authorities
- Risk Assessment
- Emergency Management

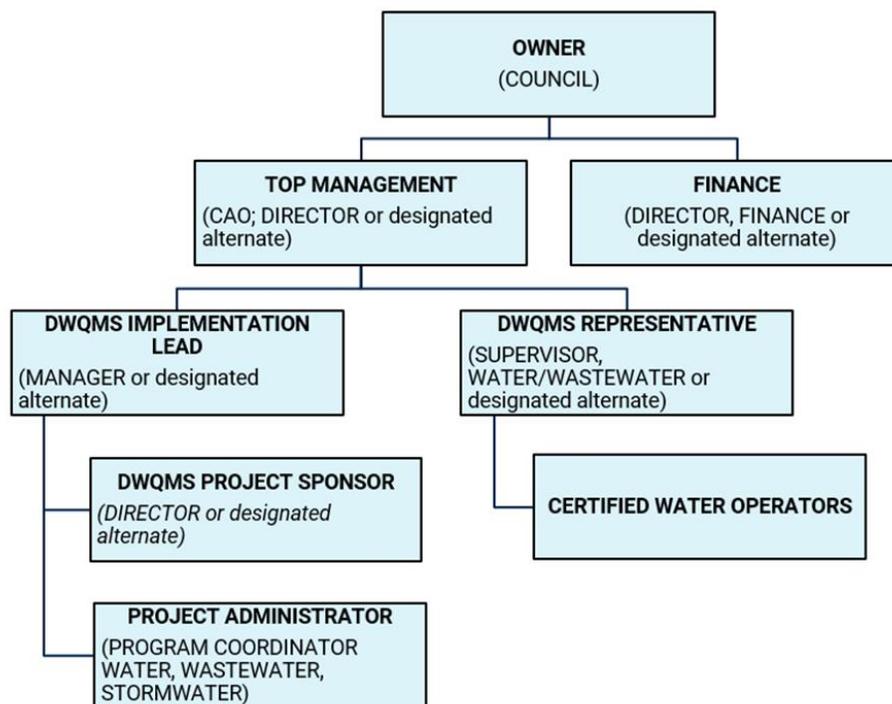
The elements for the commitment, endorsement and organization structure outlining the Corporation's roles and authorities must be endorsed by Council as the owner of Aurora's drinking water system.

DWQMS Management Structure

The legislation requires that proper authorities are established to ensure that the water system has qualified oversight, management support, identified ownership and financial resources.

For the Town of Aurora, this structure is presented in the below organizational chart. An important aspect of this structure is the identification of Council as the Owner, the body with overall responsibility for providing the necessary resources to deliver safe and reliable drinking water to the community.

ORGANIZATIONAL CHART:



Role of Owner – Council:

One (1) critical element of the DWQMS is that the Operational Plan is endorsed in writing by Top Management and the Owner, which in this case, are senior staff and Town Council. This element requires that Top Management demonstrates its commitment to the DWQMS by being aware of the requirements and providing direction and resources as required for provision of safe drinking water.

The element further describes that Top Management and Council shall provide evidence of its commitment to an effective quality management system by:

- Ensuring that a QMS is in place, maintained and meets the requirements of the DWQMS.
- Ensuring that the Operating Authority is aware of all applicable legislation and regulatory requirements.
- Determining, obtaining or providing the resources necessary to maintain and continually improve the QMS.
- Completing accountability for provision of providing safe drinking water.

Council and Top Management's commitment is a crucial part of the successful DWQMS implementation and must clearly be recognized in terms of acknowledgment of ownership and providing resources.

Role of Top Management - CAO and Director:

- Ensure QMS is in place and operational.
- Endorse and lead the development and implementation and maintenance of the QMS.
- Identify and obtain necessary resources to support the QMS and for the complete operation and maintenance of the drinking water system.
- Ensure the system is operating in accordance with all applicable legislation and regulations.
- Management review of the QMS.
- Communicate with Council about the QMS and the water distribution system.
- Communications lead during emergencies.

Role of Finance - Director of Financial Services:

- Ensure appropriate funding is available for the QMS to deliver safe drinking water.
- Incorporate water delivery components of the budget within the overall budget presentation.
- Conduct financial audits on the QMS and the water delivery program.

Role of Project Sponsor – Director:

- Communicate with Mayor and Council about the QMS and Aurora's drinking water distribution system.
- Ensure adequate funds are available.
- Help orchestrate project team direction.
- Assure the systematic progression through the programs action and implementation plans.

- Is authorized to designate Water Wastewater Crew Leaders as Overall Responsible Operator required in the absence of the Water Wastewater Supervisors through council report # PW-06-003.
- Management review of the QMS.

Role of DWQMS Implementation Lead – Manager:

- Carry-out the activities and manage programs related to the water distribution system as outlined by approval policies, procedures and legislative requirements.
- Ensure adequate staffing is always available.
- Report on Water and Wastewater Division and the QMS to Top Management and the CAO through Management review meeting, on an annual basis, to evaluate the continuing suitability, adequacy, effectiveness, and compliance of the DWQMS.
- Acts as the system Overall Responsible Operator and QMS Representative when W/WW Supervisor is away.
- Management review of the QMS.
- Approves QMS Policies and Procedures.
- Recommends water and wastewater capital projects and purchases.
- Participates in MECP inspections, third party and internal audits.
- Reviews and approves commissioning of new mains/plans and connections to Town's DW system when ORO is away.
- Acts as the contact person for MECP.
- Participates in infrastructure rehabilitation meetings.
- Participates in Risk assessment.

Role of DWQMS Representative – Supervisor of Water/Wastewater:

- Carries out the activities and manages programs related to the water distribution system as outlined by approval policies, procedures and legislative requirements.
- Assists with developing procedures and processes for assuring water quality.
- Approves QMS Policies and Procedures.
- Communication/liaison for the Water Treatment Plants run by the York Region.
- Acts on and reports incidents of non-compliance.
- Assessment of operator's personnel performance (annual).
- Reporting of distribution system performance to the Manager.
- Maintains regulatory compliance.
- Acts as the systems Overall Responsible Operator.
- Schedules work assignments.
- Monitors water quality and demand.
- Supervises operations and maintenance staff.
- Maintains provincial operator licensing at system's certification level.

- Organizes work-safety program.
- Assists in the development of the department budget.
- Maintains and updates QMS as required.
- Identifies, co-ordinates and communicates staff training programs to comply with appropriate legislation.
- Recommends system improvements.
- Emergency response planning, training.
- Reports on water, wastewater and the QMS to Top Management and the CAO through Management review meeting, on an annual basis, to evaluate the continuing suitability, adequacy, effectiveness and compliance of the DWQMS.
- Management review of the QMS.
- Participates in MECP inspections, third party and internal audits.
- Reviews and approves commissioning of new mains/plans and connections to Town's DW system.
- Participates in infrastructure rehabilitation meetings.
- Participates in Risk assessment.

Certified Operators:

- Monitors, maintains and operates the distribution system in accordance with established standard operating procedures.
- Documents all operating activities in accordance with provincial legislation and established operating procedures and files records.
- Reports on and acts on incidents of non-compliance.
- Reports any abnormal conditions to the Supervisor.
- Carry's out duties and tasks as assigned by the Supervisor and as per established water distribution policies and procedures.
- Acts as the designated Operator-in-Charge (operator Class1 and Class 2)
- Attends training.
- Receives and communicates external complaints.
- Regularly communicates to the DWQMS Representative.
- Maintains operator's license.

Project Administrator:

- Compiles and builds an electronic program structure in a centralized file.
- Develops, maintains and updates QMS policies and procedures as required.
- Identifies, co-ordinates and communicates staff training programs to comply with appropriate legislation requirements.

Internal Audit, System Audit, Inspections and Management Review are conducted annually.

As part of the supervising responsibilities, the Management Team is required to ensure that internal program audits, external third-party system audits as well as an annual management review are conducted.

In 2022, Aurora's annual internal audit was performed by Acclaims Environmental on November 9, 2022. All 21 Elements of Aurora's Operational Plan were audited to ensure "we do what we say".

The external accreditation audit is required to be performed annually by a MECP - approved registrars. NSF conducted a surveillance system audit on June 26, 2022.

The Ministry of the Environment inspected the Drinking Water System on January 5, 2022. The Town obtained a 100% rating for the inspection. The primary focus of any inspection is to confirm compliance with the Ministry of the Environment, Conservation and Parks' legislation, as well as evaluate conformance with Ministry drinking water policies and guidelines during the inspection period.

The DWQMS also requires that a Management Review meeting be held annually to review the drinking water system performance and identify necessary actions to ensure compliance with the regulations. The Management Review meeting for year 2022 was held on April 13, 2023, in which the audit and inspection results were reviewed. During the meeting, it was discussed incidents of adverse drinking water testing, operational performance, changes that could affect the QMS, resources needed to maintain the QMS and results of the infrastructure review. The Management Review Meeting minutes are attached, Attachment "1".

Advisory Committee Review

Not applicable.

Legal Considerations

Council and Town staff referenced in this report have a duty to exercise the level of care, diligence and skill of a reasonably prudent person and a duty to act honestly, competently and with integrity to ensure the protection and safety of the users of the drinking water system. Failure to do so is an offence under the Act, which may be punishable, by way of a fine and/or imprisonment. The Town provides insurance for Members of Council and Staff for damages related to unintentional acts or omissions.

Financial Implications

A budget of \$38,400 is requested annually through the Water Operating Budget to support the DWQMS, external audit costs and training and development costs for staff. This amount will be carried into future budgets as a requirement for demonstrating financial support to the ongoing maintenance of the DWQMS and will be adjusted as required to ensure adequate funding is in place.

Communications Considerations

The Town will inform residents about the information contained in this report by posting the report to the Town's website. Moreover, results of water testing are shared with residents through various communications channels, including News and Notices on the website, social media and Council Highlights.

Climate Change Considerations

"The recommendations from this report does not impact greenhouse gas emissions or impact climate change adaptation".

Link to Strategic Plan

The Drinking Water Quality Management Review supports the Strategic Plan goal of Supporting an Exceptional Quality of Life for All through its accomplishment in satisfying requirements in the following key objective within this goal statement:

Invest in sustainable infrastructure. Maintain and expand infrastructure to support forecasted population growth through technology, waste management, roads, emergency services and accessibility.

Alternative(s) to the Recommendation

1. There are no alternatives to the recommendations presented in this report.

Conclusions

The Town continues to provide high quality, safe drinking water to its residents. Results of water testing are shared with the Town via News and Notices on the website, social media and Council Highlights.

Attachments

Attachment #1 - Minutes of Management Review Meeting (April 13, 2023)

Previous Reports

OPS23-003 2022 Summary Drinking Water Report, February 21, 2023

Pre-submission Review

Agenda Management Team review on May 18, 2023

Approvals

Approved by Sara Tienkamp, Director, Operational Services

Approved by Doug Nadorozny, Chief Administrative Officer



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Town of Aurora
**DWQMS Management Review -
Meeting Minutes**
Operational Services

Attachment 1

JOC, Pearson Meeting Room Prepared by: Iustina Voinea

Meeting Date: April 13, 2023

Reviewer: Lindsay Hayworth, Luigi Colangelo

Time: 2:00 pm – 3:30 pm

Attendees:

Doug Nadorozny: CAO / Top Management

Luigi Colangelo: Acting Director of Operations / DWQMS Project Sponsor and Manager,
Public Works/ DWQMS Implementation Lead

Lindsay Hayworth: Water/Waste Supervisor / DWQMS Representative

Iustina Voinea: Program Coordinator Water/Wastewater/Stormwater/ DWQMS Project
Administrator

Introduction to DWQMS Management Review

Top Management reviewed all DWQMS data presented as summarized below. All deficiencies identified by Top Management have been documented on the NCR/OFI tracking form.

Agenda Items Reviewed

(Please do not delete any headings and document each item discussed. Include timeline for Action Items)

1. Review of action items from previous meeting.

- i. Town's water bylaw to be updated to further develop the water meter section to support enforcement.

This process is led by Finance, Operations will support if required.

Discussion Item:

The current by-law does not fully support enforcement, residents refusing to give Town's staff access to the water meter. Luigi Colangelo talked about Newmarket's new by-law that has stronger language for enforcement.

Action Item: The CAO will further discuss with the new Director of Operational Services. Timeline 2023 Q4.

- ii. Town is working on developing a program for water meter bypass removal.

By-passes are not installed for new meters. When an existing large meter is changed the by-pass will be removed.

- iii. To confirm if the new construction at Machell Ave. is related to YR iron and manganese water treatment project.

Yes, the new construction at Machell Ave. is York Region's.

- iv. Do we have to use Town's policy template for DWQMS documents? AD will look into who leads on the format of the Town's policy.

It was confirmed with records management that the documents used for DWQMS are not Policies, therefore we do not need to use the Town's Policy template.

Action Item: No Action Items.

2. Raw water supply

The Aurora water supply is a blended combination of ground water and surface water.

Water treatment, transmission and storage are the exclusive jurisdiction of the Regional Municipality of York.

York Region owns and operates seven production wells in the Town.

City of Toronto supplies potable water to York Region, transmitted via a regionally own interconnecting watermain which run north along Bathurst Street, east on Bloomington Side Road between Richmond Hill and Aurora, then north on Yonge Street where it enters the Ridge Road Reservoir.

Region of Peel supplies potable water that is received by York Region at a Reservoir located on Bathurst Street, North of Bloomington Road.

Action Item: No Action Items.

3. Incidents of Adverse Drinking Water Tests

There were eight (8) adverse drinking water tests results in 2022. The adverse results are compiled in the Annual Drinking Water Report, as per legislative requirements.

There were a couple of adverse water sample tests at one sampling station, while the water samples taken from upstream and downstream hydrants passed. This indicates

good quality water in the distribution and that issues at the sampling station. All samples collected had passing test results.

The chlorine residual values were good in all instances. The adverse results were reported to Ministry of the Environment, Conservation and Parks (MECP) and the York Region Medical of Health as per legislative requirements.

Action Item: No Action Items.

4. Incidents of Regulatory Non-Compliance

There were no incidents of regulatory non-compliance in 2022.

The Ministry of the Environment inspected the Drinking Water System on January 5, 2022. The inspection was very successful. The Town obtained a 100% score.

Action Item: No Action Items.

5. The Efficiency of the Risk assessment, Deviations from Critical Control Points_Limits and Response Actions

As part of Element 7 & 8, Risk Assessment and Risk Assessment Outcomes, the currency of the information and the validity of the information used are verified once a year. The risk assessment is redone every three years at a minimum.

The annual risk assessment review was conducted on November 17, 2022. Major changes to the risk assessment:

- i. Adverse water quality samples – Detectability increased from 1 to 3. Total risk score of 10.
- ii. New risk - Cyber-attacks and internet and phone networks down - Total risk score of 4.

There were eight control point deviations reported – the Town had eight AWQI in 2022. Also, there were no recommended pressure district changes.

Discussion: Some content of Element 8, Risk Assessment and Risk Assessment Outcomes was discussed including the rating criteria.

Action Item: No Action Items.

6. Internal and Third Party Audit Results and: System Audits, Internal Audit and MECP Inspection.

- The Internal Audit was conducted on November 9, 2022 by Acclaims Environmental, an external accredited auditor. Two opportunities for improvement were identified during the audit.

Internal Audit – NCR and OFI

ELEMENT #	NCR/OFI Details	Action Details
E 11 - Personnel Coverage	Consider describing in OP s.11 Personnel Coverage the latest provisions and Ministry requirements in the use of “emergency substitute operators” as now more fully described in O. Reg. 128/04 and O. Reg. 129/04 (the links provided are to the Environmental Registry decision notices).	A new procedure was developed, approved and communicated to staff. QMS-PRO-030 Emergency Staffing Procedure V1 February 17, 2023
E 14 - Review and Provision of Infrastructure	Consider reviewing Town of Aurora Construction Specifications and establishing an Aurora-specific new watermain commissioning form to ensure the requirements of MECP’s 2020 Watermain Disinfection Procedure’s section s.3.0 Documentation are consistently met.	The Commissioning Submission Check List was developed to be used during Commissioning process.

- NSF an external Accreditation Body conducted the DWQM System third party audit on June 26, 2022. There was one Opportunity for Improvement (OFI) identified during the audit.

ELEMENT #	NCR/OFI Details	Action Details
E 20 - Management Review	<p>Reviewed the record of Management Review held on March 28, 2022, to be in general conformance. It was noted that improvements were required of this record:</p> <p>1 - raw water supply not addressed. Although raw water isn't applicable to Aurora, the DWQMS requirement still need to be recognized.</p> <p>2 - timeliness were not always identified for action items, for example, for item 1, 10 and 17.</p>	<p>1. Raw water supply was included as a discussion item in the Agenda.</p> <p>2. Timelines will be identified during this meeting</p>

The Ministry of the Environment inspected the Drinking Water System on January 5, 2022. The Town obtained a 100% rating for the inspection.

Action Item: No Action Items.

7. Status of management action items identified between reviews

No items were identified between management reviews.

Action Item: No action items.

8. Results of Emergency Response Testing

- The Emergency Preparedness Training – Table Top Exercise was conducted on November 8, 2022.
The emergency preparedness training was provided by Acclains Environmental.
Items presented:
 - Review of Drinking Water Quality Standard
 - Five pillars of emergency management
 - Scenario – cyber-attack
- There were no action items identified during this meeting.

- Town staff has conformed to the requirements of Element # 18 of the Ontario Ministry of the Environment, Conservation and Parks' Drinking Water Quality Management Standard (DWQMS).

Action Item: No Action Items.

9. Operational Plan Currency, Content and Updates

- As part of the DWQMS, Policies and Procedures are reviewed annually to reflect current practices. Some Operational Plan Policies and Procedures were reviewed and updated as part of responding to non-conformances and OFIs from audits.
- Staff is trained on all updates via tailgate meetings or by getting the electronic version to read.
- All Operational Plan policies and procedures are available to staff online only.

Action Item: No Action Items.

10. Review of the Quality Management System Policy, Element # 2

- Management Team reviewed Element # 2. The Quality Management System Policy statement was re-affirmed.

Action Item: The policy and the top management endorsement are signed by the Director of Operational Services and the CAO. The Town is in process of hiring a Director of Operational Services. It was decided that we will wait to update the policy until a new Director of Operational Services is hired. Timeline – 2023 Q3.

11. Drinking Water Quality Trends

- York Region provides a blend of surface and ground water. Surface to groundwater average split remains the same. Aurora's water consist of 80% surface water and 20% underground aquifer water. A desk water audit is conducted annually to gain information on water loss. The 2021 Water Audit was completed and validated by York Region's consultant Black&Veatch.

Discussion: The Team looked at 2021 Water Audit results.

Action Item: No Action Items.

12. Changes That Could Affect the QMS

- The Town applied for and obtained regulatory relief for lead sampling in 2021. The relief covers the period December 15, 2021- to October 15, 2024, with two sampling periods each year. During each sampling period the Town is required to take eight (8) samples from the distribution system for lead testing.

- In December 2022, the MECP added a new Drinking Water Health Related Parameter, Nitroso-dimethylamine (NDMA), to the list of required tests to be conducted by the town. First sample was taken in January 2023, the result is below the detection limit.
- DWS licence was renewed in June 2021. New licence expires on June 15, 2026

Top management changes Existing and proposed Health Canada Guidelines for contaminants impacting drinking water:

Parameter/ Year	Health Canada	Drinking water standard in Ontario	Operational Guideline
	Maximum Acceptable Concentration (mg/L)	Maximum Acceptable Concentration (mg/L)	mg/L
Polyfluoroalkyl Substances PFAS (January 2023)	PFOA 0.0002 PFOS 0.0006	-	-
Dimethoate (P) (September 2022)	0.02	0.02	-
2,4 Dichlorophenoxy acetic acid (H) (2,4D)	0.1	0.1	-
Bromoxynil (H) (March 2022)	0.03	0.005	-
Malathion (I) (January 2023)	0.29	0.19	-

Action Item: No Action Items.

13. The Resources Needed to Maintain the QMS

- The requested budget to maintain is QMS, \$21,200.00.
- 2022 Annual water quality report was completed, presented to Council on February 16 as an attachment to the Summary Drinking Water Report. The Annual Drinking Water Report was posted on Town's website before Feb 28, 2023, as per legislative requirements.

- Backflow prevention program
 - Overall, 57% of businesses completed the survey;
 - Working on bringing the 175 businesses classified as high hazards into compliance. 82 (47%) are fully compliant.
 - Turning off the water has a significant positive impact on obtaining compliance.
 - Challenges: some managed properties stop communicating with the Town after completing one location or partial steps of the program.
 - Most Town's facilities and parks are not in compliance, however our staff works with these departments to achieve compliance.

Action Item: Staff to prepare a map plan for Backflow prevention program implementation for Parks Division and Town's facilities. Timeline 2023 Q2/Q3.

14. The Results of the Infrastructure Review

Action items from the Infrastructure Review Meeting, September 19, 2022:

Part of Best Management Practices the town will implement the Region Wide Standards for new watermain commissioning. The letter New Watermain Commissioning / Microbiological Acceptance Criteria was approved by the Director of Operational Services, and communicate to Engineering – Completed.

Action Item: No Action Items.

15. Operational Performance

- It was reported– 11 watermain breaks from which
 - zero - due to roads re-construction
 - zero - on private side
- 478 out of 2100 valves were exercised, that represent 22.8%, slightly below the target of 25%.
- 1 frozen service.
- The fire hydrants maintenance work is contracted out. All 1600 hydrants were inspected, 67 hydrants were serviced or repaired
- 57 water boxes were repaired last year.
- 10 water sample stations repaired.
- 5 water valves replaced last year, 18 valve sleeves repaired.

Action Item: No Action Items.

16. Review of Best Management Practices

Activities undertaken by staff:

- Water Quality Committee meetings (York Region and 9 Municipalities)

- Municipal Water / Wastewater Regulatory Committee discussion forum
- Regularly checking MECP website
- York Region and the 9 LM developed a [region wide testing criteria](#) limits for new watermain commissioning.

Action Item: No Action Items.

17. Consumer Feedback

- Complaints are received by Access Aurora, most of them are resolved by phone by their staff and/or water division staff.
- Water quality records are kept for instances where it can not be confirmed that the issue is due to internal plumbing.
- There were no calls re to low water pressure due to operations of the drinking water system.

Action Item: No action items.

18. Staff Suggestions

Action Item: No Action Items.

Summary

All action Items are identified on the NCR/OFI tracking form. All records are maintained and stored electronically in the Town's record management system filing location.

Next Meeting TBD