

Drinking Water System Regulation O. Reg. 170/03

Town of Richmond Hill

**Quality Management System - 2018 Annual Report**



## Quality Management System for Richmond Hill Drinking Water Distribution System

The Drinking Water Quality Management Standard (DWQMS) requires the Town of Richmond Hill to establish and maintain a Quality Management System (QMS) that conforms to the standard. The Town owns a stand-alone drinking water distribution system, QMS policies and procedures govern the activities and services performed by the Town. The DWQMS also requires that Members of Council are made aware to the following areas within the QMS, as they are:

- Infrastructure Maintenance, Rehabilitation and Renewal Summary
- Management Review Outcomes
- Third-Party Audit Outcomes and Accreditation Renewal
- Organizational Structure, Roles, Responsibilities and Authorities

1. **Infrastructure Maintenance, Rehabilitation and Renewal Summary** – includes an update on the status of the programs in place to maintain, rehabilitate and renew the infrastructure of the drinking water system.

Infrastructure Type	Program Type	Program Name	Program Description	Accomplished in 2018
Watermains	Maintenance – Planned	Uni-Directional Flushing (UDF)	A preventative program that cleans watermains through high-velocity flushing, increasing pipe efficiency and prolonging lifespan (every 5 years plan).	<i>120.8 Km of watermain in pressure district 7</i>
		Dead End Flushing	Targeted flushing of dead-end watermains to introduce fresh water and discourage degradation of water quality (annual).	<i>3 dead-ends flushed after monitoring Chlorine residual</i>
	Maintenance – Unplanned	Main Breaks	Repair of watermains following pipe breakage.	<i>44 watermain breaks</i>
	Renewal / Rehabilitation	10 Year Capital Forecast	Water system data is analyzed and watermains are identified for renewal and rehabilitation (old pipes are replaced with new ones).	<i>Cedar Avenue 437 m Palmer Avenue 147 m Doncrest Avenue 22 m Elmwood Avenue 841m ----- Total of 1447 m</i>

Infrastructure Type	Program Type	Program Name	Program Description	Accomplished in 2018
Valves	Maintenance – Planned	Valve Cycling & Inspection	A preventative program that exercises all valves in the system to locate and identify inoperable, defective or broken valves as well as to help ensure operability and prolong lifespan of infrastructure (valves to be on a 2 or 5 year cycled program).	<i>1518 valves cycled</i>
	Maintenance – Unplanned	Valve Repair & Replacement	Repair/replacement of inoperable, defective or broken valves	<i>3 valves replaced 49 valves repaired</i>
Hydrants	Maintenance – Planned	Hydrant Inspection and Winterizing	A preventative program to locate and identify inoperable, defective or broken hydrants and maintain operability during winter months (annual).	<i>4773 hydrants Inspected &amp; winterized</i>
		Hydrant Painting	A preventative program to protect hydrants from corrosion, maintain visibility and flow parameter (annual).	<i>74 hydrants painted</i>
	Maintenance – Unplanned	Hydrant Repair & Replacement	Repair/replacement of inoperable, defective or broken hydrants	<i>184 hydrants repaired 4 hydrant replaced</i>
Service Connections	Maintenance – Unplanned	Curb stops Repairs	Repairs of inoperable, defective or broken curb stops.	<i>21 curb stops &amp; 129 water boxes repaired</i>
		Water Service Pipe Repairs	Repairs and/or replacement of broken water service pipes	<i>15 water service pipe repaired 0 lead service replaced</i>
		Frozen Services	Thawing of frozen water service piping	<i>4 frozen services calls</i>

2. **Management Review Outcomes** – Top Management evaluates the continuing suitability, adequacy and effectiveness of the Quality Management System. The outcomes include action items from the most recent Management Review meeting held on December 6, 2018.

**Action Items**

Item	Comment/Recommendation	Action by	Status
Management Review	As the Management Review is held only once a year, all managers should be present during the meeting or a delegate shall attend.	Ilmar	

Item	Comment/Recommendation	Action by	Status
Infrastructure, Maintenance, Rehabilitation and Renewal	<b>Hydraulic Model</b> , discussions to take place with Planning and Regulatory Services (PRS) and Environment and Infrastructure Services (dept.) in regards to having a hydraulic modeller for the Town.	Grant/ Diogo	<b>In progress</b> – EIS Dept. has prepared business case to obtain a Town's hydraulic model.
Incidents of Regulatory Non-compliance	Non-compliance for the use of liquid paper/ white-out on logbooks/records and the ORO was not clearly identified on various dates on the daily activity sheet document.	Diogo/ Julie	<b>In progress</b> – New work instruction WI-DW-4.1 Record Keeping states, " <i>The use of liquid paper and/or correction tape is not permitted under any circumstance. The section to be corrected shall be single line strikethrough and initialed.</i> " <b>Log Book Writing</b> training is schedule for Dec 13 and 14, 2018.
Operational Performance	Historical data must be analyzed for trends. Graphs need to be revised to demonstrate target vs actual.	Julie	
Resources needs to maintain the Quality Management System	Work with IT dept. to run pilot program to see if Maximo could be utilized as QMS Software Tool.	Diogo/ Julie	
Consumer Feedback	Graphs need to be revised to include actuals; further breakdown of the number of calls by call-type including previous years should be presented.	Julie	

### **Annual Management Review – 2018 Year-to-date**

a) Incidents of regulatory non-compliance	This incident of regulatory non-compliance was related to logbooks not properly maintained and/or not containing the required information – inaccuracies in Overall Responsible Operator (ORO) designation and the use of liquid paper – this resulted in 98.42% on our Inspection Rating from the MECP.
b) Incidents of adverse drinking-water tests	For 2018 there were 25 adverse drinking water test results: <ul style="list-style-type: none"> <li>• 14 from capital projects and rehabilitation programs.</li> <li>• 10 from weekly sample collection out of 1560 samples required by the Ministry.</li> <li>• 1 from watermain break out of 44 watermain breaks recorded throughout Richmond Hill.</li> </ul> All follow-up samples passed Ontario Drinking Water Quality Standards.
c) Deviations from critical control point limits and response actions	For 2018, there were no incidents of deviations from critical control limits. Our standard procedures sets our critical control point for combined chlorine residual at 0.50mg/L (the Ministry's requirement is at least 0.25mg/L) – thus, upon reaching our critical control point, flushing is performed and samples are taken to ensure disinfection levels are achieved.
d) Effectiveness of the risk assessment process	<ul style="list-style-type: none"> <li>• Full Risk Assessment review was performed on October 11, 2018.</li> <li>• Version 2 of DWQMS, requires for the effects of Climate Change to be considered on municipal drinking water systems, the following have been added to the list of hazardous events: <ul style="list-style-type: none"> <li>○ Extreme Weather – Flooding, Earthquake, Tornado</li> <li>○ Extreme Temperature - Heat Wave</li> </ul> </li> </ul>

	<ul style="list-style-type: none"> <li>o Water Supply Shortfall</li> </ul>	
e) Internal and Third-Party Audit Results	<b>Internal Audit Results</b> <ul style="list-style-type: none"> <li>• Internal Audit was performed August 14 - 16, 2018</li> <li>• Audit findings: <ul style="list-style-type: none"> <li>o 3 non-conformities</li> <li>o 5 opportunities for improvement</li> </ul> </li> </ul>	<b>External Audit Results (Third-party)</b> <ul style="list-style-type: none"> <li>• On-site External Audit was performed on October 29-31, 2018</li> <li>• Audit findings: 2 minor non-conformities (NCRs)</li> <li>• Achieved re-accreditation based on proposed corrective actions proposed to solve the NCRs.</li> </ul>
f) Results of emergency response testing	<b>Corrective Actions:</b> <ul style="list-style-type: none"> <li>• All valves must be manipulated.</li> <li>• Detailed information/notes must be recorded in the work order as the work is being performed.</li> <li>• First operator on-site will be the lead person during the emergency event.</li> <li>• Critical Water Supply Customer list should be available and up-to-date, to advice of water interruptions ahead of time.</li> </ul>	<b>Preventative Actions:</b> <ul style="list-style-type: none"> <li>• Verbal communication must be passed on from operators attending the watermain break up to completion of the work.</li> <li>• After action review should be presented to all operators, for awareness and training purpose.</li> </ul>
g) Operational Performance	We have met and/or exceed all our regulatory requirements.	
h) Raw water supply and drinking water quality trends	The MECP has been keeping a close look at blue-green algae blooms in our mayor lakes and rivers as these are the source for our drinking water. Municipal drinking water is tested for a common blue-green algae toxin called microcystin whenever blue-green algae may be of concerns.	
i) Changes that could affect the Quality Management System	DWQMS version 2.0 requires for changes to the Operational Plan, policies and procedures be implemented prior to the first audit of the system in 2019. Major changes to the Standard are related to: <ul style="list-style-type: none"> <li>• Element 7 &amp; 8 – Risk Assessment</li> <li>• Element 19 – Internal Audits</li> <li>• Element 21 – Continual Improvement</li> </ul>	
j) Resources needed to maintain the Quality Management System	IT Capital Request business case to review new system software tool or to upgrade Intelix.	
k) Consumer Feedback	Residents called the Town with various inquiries: <ul style="list-style-type: none"> <li>• Water quality inquiries: 17</li> <li>• Water pressure complaints: 4 high, 100 low</li> <li>• Particles in water: 3</li> <li>• Pink, grey, brown residue: 7</li> <li>• Taste and odour: 30</li> <li>• Cloudy / milky water : 4</li> </ul> The most common complaint was related to low water pressure; however, upon investigation the main cause for this issue were water softener and/or water filters installed by the homeowner. All other complaints were investigated and no adverse water quality tests were found.	
l) Results of the Infrastructure Review	EP-DW-5 Infrastructure Maintenance, Rehabilitation and Renewal Summary (Table attached).	
m) Operational Plan Currency, content and updates	Current version is 4.3 dated Feb 28, 2017; working on version 5.0. Details of Changes: <ul style="list-style-type: none"> <li>• New Commissioner</li> <li>• New Council – Operational Plan needs to be endorsed by Council</li> <li>• Element 21-Continual Improvement, requires consideration of Best Management Practices</li> </ul>	

n) Staff Suggestions	Operators will like to have more hands-on training and tours of water treatment facilities.
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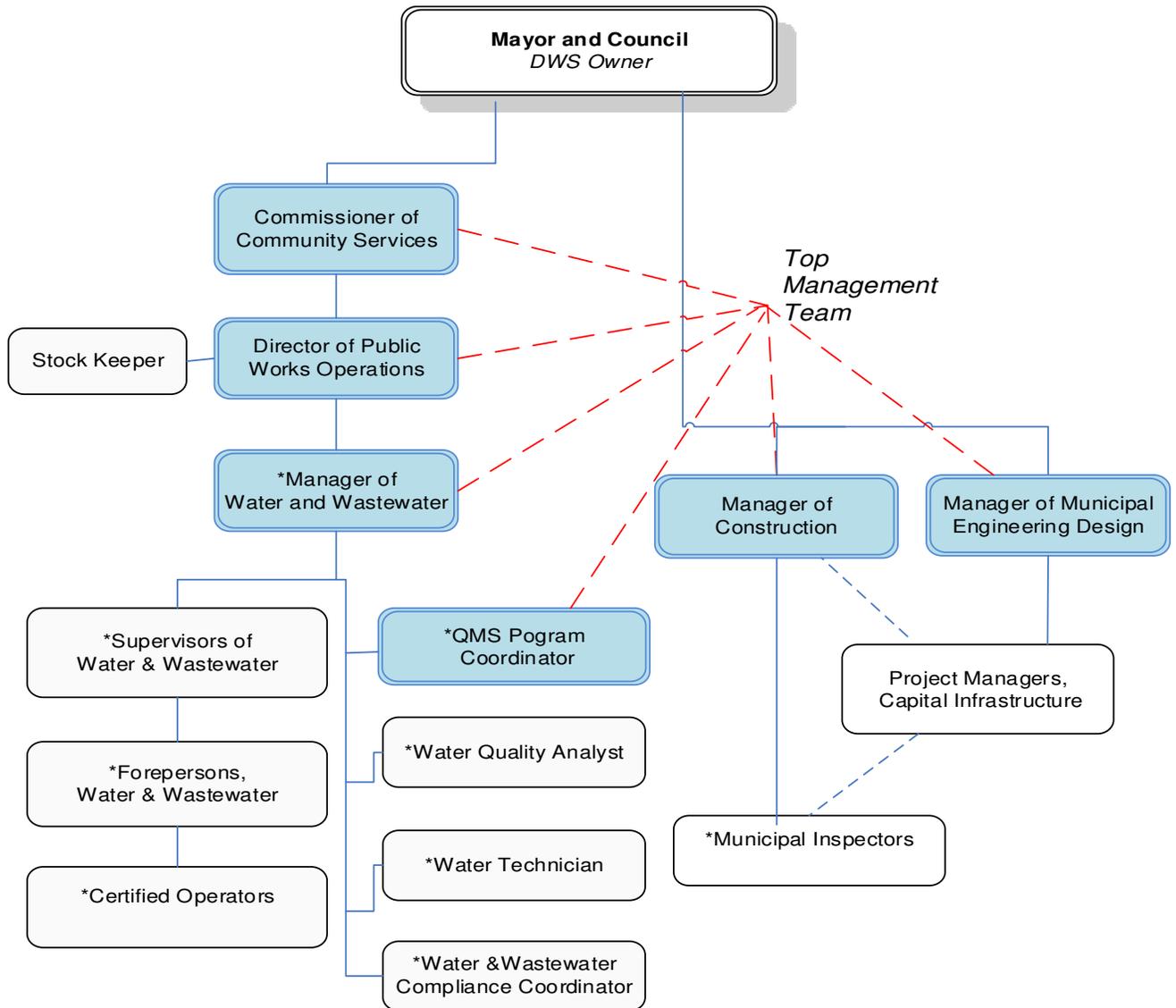
**3. Third-Party Audit Outcomes and Accreditation Renewal**

Every three years the Town’s drinking water quality management system undergoes a thorough on-site audit, all 21 elements of the DWQMS are audited. The results of the third-party recertification audit was 2 minor non-conformances; once the Corrective Action Plan was in place the Town received its reaccreditation certificate, valid to November 30, 2021.



4. **Organizational Structure, Roles, Responsibilities and Authorities**

Members of Council as the “Owner” of the drinking water distribution system are responsible for ensuring their drinking water system meets all prescribed drinking water quality standards, operate in accordance with the act and its regulations, keep a fit state of repair, comply with all sampling, testing and monitoring requirements and meet all reporting requirements.



Note: For Roles, Responsibilities and Authorities please see Table of Roles and Responsibilities in Appendix 4—Operational Plan.