



DEVELOPMENT & INFRASTRUCTURE SERVICES – PUBLIC WORKS SERVICES

TOWN OF NEWMARKET

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March 9, 2016

**DEVELOPMENT & INFRASTRUCTURE SERVICES REPORT
PUBLIC WORKS SERVICES
INFORMATION REPORT 2016-14**

TO: Committee of the Whole

SUBJECT: 2015 Newmarket Water Distribution System Annual Water Quality Summary Report

ORIGIN: Director, Public Works Services

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

PURPOSE

The purpose of this report is to provide the Owner (Mayor, Council, CAO) and Top Management Public Works Services Information Report # PWS 2016-14 dated March 1, 2016. This report is in reference to the 2015 Newmarket Water Distribution System Annual Water Quality Summary Report - for the period of 1 January 2015 to 31 December 2015.

The Newmarket Water Distribution System Annual Water Quality Summary report is available for public viewing on the Town's website, at the Customer Service counter at 395 Mulock Drive, and the Operations Centre at 1275 Maple Hill Court.

COMMENTS

ANNUAL REPORT

The **2015 Newmarket Water Distribution System (WDS) Annual Water Quality Summary Report** is required under Ontario's Drinking Water Systems Regulation 170/03 (O. Reg. 170/03), made under the *Safe Drinking Water Act, 2002* (SDWA) which requires that the owner of a municipal drinking water system prepare an annual report on the operation of the system and the quality of its water.

Schedule 22 of O. Reg. 170/03 also requires that a report be prepared and submitted to the members of Council by March 31st of the following year, for each reporting year. The reporting period covered in this year's report is 1 January 2015 to 31 December 2015.

The report contains an overview of water distribution system, water quality sampling, system maintenance, replacement/repairs, Part III of the General Requirements for the WDS, and the Monthly Water Flows/Daily Consumptions for the Newmarket WDS.

The report was prepared by the Compliance Coordinator – Water/Wastewater in conjunction with the designated Overall Responsible Operator (ORO) for the Newmarket WDS.

The report contains the water quality reports for the dates between 1 January 2015 and 31 December 2015. In 2015, Public Works Services' provincially certified Water Operators collected 1,342 microbiological samples and 16 samples for lead for submission to the York Durham Regional Environmental Laboratory for analysis. Operators also field tested 7,559 Chloramine/Chlorine (disinfectant) residuals in the field. Water quality within the Town of Newmarket's WDS is tested 7 days a week, 365 days per year.

From January 1, 2015 to December 31, 2015, the Town of Newmarket reported 143 Adverse Water Quality Incidents (AWQI's) in the Newmarket WDS. 128 of these were due to disinfectant residuals below the regulated minimum of 0.25mg/L combined chlorine (**and** less than 0.05mg/L **free** chlorine). The AWQI section of the 2015 Annual Water Quality Summary Report (pg. 17): outlines all of the AWQI's for 2015, the corrective actions taken by operators and the corresponding re-sampling results. **All AWQIs were resolved using regulated corrective actions (flushing and resampling). In all cases, AWQIs were resolved without incident.**

In an effort to address the ongoing challenges in the Newmarket WDS in regards to disinfectant residual decay:

- We continue to work collaboratively with local area municipalities (LAMs), and the Region of York. In addition, we continue to employ the services of industry experts and consultants such as Confluence Engineering, LLC, WSP Canada, Inc., and Stantec Consulting to assist with data analysis/system maintenance recommendations, flow monitoring, and modelling water quality trends/scenarios. We have some of the industry's leading experts, cutting edge technologies, and operations staff working together to come up with advanced operational strategies to assist us in our challenges – both short and long term.
- A shared position was created and financed by the Region of York for a Water Quality Project Coordinator
- We intensified our disinfectant residual monitoring program as part of a proactive approach to system monitoring. (We exceeded our minimum *regulated* number of residuals (field samples) by 7,194)
- We enhanced our distribution system maintenance programs (i.e. unidirectional flushing (UDF) and swabbing)
- We contracted Corix Water Services to assist with watermain flushing and swabbing for water quality

Laboratory results of the water samples collected and analyzed in 2015 shows that The Town of Newmarket and its operators have provided safe drinking water to its residents.

The Annual Water Quality Summary Report also highlights major expenses incurred to install, repair, or replace required equipment/infrastructure on the Newmarket WDS in 2015.

The Town maintained the drinking water system in a fit state of repair in 2015 and followed best industry practices during the repair, inspection, and maintenance of the system.

DWQMS

The MOECC mandates the implementation of an Operational Plan for all Drinking Water Systems in the province of Ontario. This operational plan is a document created by the Town of Newmarket's Public Works Services department to help ensure that safe, reliable drinking water is available to all the citizens, businesses, and visitors of the Town of Newmarket. It serves to provide an understanding of the drinking water system, the responsibilities of the Owner and Operator (Operating Authority) of the water system, and a commitment to the provision of safe drinking water, which in turn allows us to plan, implement, check, and continually improve our system.

Newmarket's Operational Plan was audited both internally (Internal Audit Team) and externally (SAI Global) in 2015.

Our 2015 (External) Surveillance Audit by SAI Global resulted in zero non-conformities.

The Town has met the Quality Management System Requirements as required by the SDWA, and was therefore granted accreditation.

The Drinking Water Quality Management Standard (DWQMS) requires that the relevant aspects of the Standard and its effectiveness be communicated by Top Management to the Owner (Mayor and Council, and CAO) of the drinking water system, along with the results of the Management Review no later than the 31st of March each year.

BUSINESS PLAN AND STRATEGIC PLAN LINKAGES

The Community Strategic Plan for the Town of Newmarket articulates the goals of:

- living well... focusing on health, safety and the environment to promote activity and enrich lives;
- Well-equipped and managed... implement policy and processes that reflect sound and accountable governance for fiscal responsibility, service excellence, and management of assets and services to meet operational demands

CONSULTATION

Consultation is not required for this report.

HUMAN RESOURCE CONSIDERATIONS

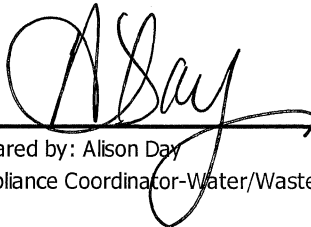
None required for this report.


BUDGET IMPACT (CURRENT AND FUTURE)

The utility rate portion of the operating and capital budget provides the funding required for the regulatory requirements under the SDWA.

CONTACT

For more information on this report, contact; Bill Wilson, Manager of Water/Wastewater, at 905-953-5300, ext. 2553 or email at bwilson@newmarket.ca.

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Compliance Coordinator-Water/Wastewater

X 
Reviewed by: Bill Wilson
Manager of Water/Wastewater Operations

X 
Approved by: Christopher Kalimootoo, B.A., P...
Director, Public Works Services

X 
Approved by: Peter Noehammer
Commissioner, Development & Infrastructure ...

PUBLIC WORKS SERVICES

DWQMS – 2015 Management Review Meeting Summary

8 February 2015 - 10:30-13:30

Operations Centre

Operations Meeting Room

Present: Alison Day (Chair), Bill Wilson, Chris Kalimootoo, Blair Saunders, Pauline Pierce (Minutes)

Meeting commenced at 10.35 am

- **Welcome**
- **PowerPoint Presentation: “2015 DWQMS Management Review”**
- **Review and discussion of the following items:**
 1. Incidents of Regulatory Non-Compliance
 - Our last MOECC audit, conducted 17 June 2015, resulted in a **100% final inspection rating**. In this Inspection Report, the only recommendation made was that the Town of Newmarket develop a cross-connection/backflow prevention by-law, program, or policy.
 - Discussion regarding the necessity for the development of a Backflow Prevention by law. C. Kalimootoo (CK) enquired if it was new establishments or older ones B. Wilson (BW) stated that it was for ICI only and will be backdated. Inspections would be completed once a year by a private company who submits the report to the Town. BW advised that we would have to hire someone who could maintain the program. *Note: BW will be taking a report to Committee of Whole in 2016 with recommendations to implement a Backflow Prevention By-Law*
 2. Incidents of Adverse Drinking Water Quality (AWQIs)
 - **143 AWQI's in 2015** (148 in 2014)
 - There were **13 positive results for the Presence of Total Coliform (TC) in drinking water samples in 2015** (5 in 2014). BW requested that B. Saunders (BS) look more closely at all Total Coliform AWQI locations (also look at the Heterotrophic Plate Counts – HPCs) which may be high in those locations. May dictate the installation of an auto-flusher.
 - Discussion followed regarding plazas with significant private water mains & hydrants. They should be made to maintain their pipes (i.e. exercising/inspecting hydrants 1x/year and to possibly test for disinfectant residual but are only required to do it for fire not for water quality. BW stated that they should provide us with documentation to ensure this is done. Work with fire to see if we can piggyback with this. BW was not sure if fire do follow ups. CK stated that this should be part of backflow bylaw.

3. Deviations from Critical Control Point (CCP) Limits and Response Actions

- Loss of chlorine residual - 143 AWQI(s). All were documented & resolved.
- Supply interruption:
 - 15 Watermain breaks. All repaired in a timely manner and according to SOPs.
 - 20+ Frozen water services
 - 1 loss of system pressure – large air pocket in Central NE PZ. Caused by 3rd party connection overnight on Leslie St. Residents called complaining of “no water. Reported to MOECC as AWQI. Operators flushed area hydrants until air was completely relieved.
 - Theft of utility (water) - ongoing challenge. We usually find out through notification from third parties, and respond accordingly (call by-laws if party is still on-site, give company a ticket or warning). By-laws have also been more involved with spotting these infractions in 2015. BW stated that contractors have to drive to Maple Hill court to fill up and there are always a lot of other contractors waiting.
 - Inaccurate testing equipment: pH testers are calibrated internally at a frequency of monthly (or sooner if results start to drift). If a tester does not accept calibration, we take the unit out of service. In 2015, we took 5 pH testers out of service and disposed of. In January of 2016, we ordered new pH testers as the old were reaching their life expectancy and were beginning to fail more frequently. We switched to a different model – which we have used before, and staff found more reliable.
 - Staffing shortages: There were several occasions throughout the year in which we had staffing shortages due to extended illness and/or medical leave. These were addressed through temporary secondments and TSAs with internal staff.

4. The Effectiveness of the Risk Assessment Process

- BW asked if the Risk Assessment Group were working on contingency plans. AD advised that we spoke to it with the group. We were meeting bi-weekly (much more frequently than required), but meetings were being cancelled as it was too difficult for staff to attend (staffing challenges due to workload in the field).
- BS has updated some procedures. They have been forwarded to J. Ellis (JE) and AD for review, and then brought forward to staff as a group for their input.
- BW asked if BW & AD could look at the SOPs for chlorination of water mains as there are new regulations coming effective May (New Ontario Watermain Disinfection Procedure). We can still follow current SOPs for now. AD advised that scheduling training (half-day – “*Protecting Water in the Distribution System*”) on the new updates to the procedures. BW agreed that procedure

review/update can wait until after this training. **(ACTION ITEM)** - AD & BS will update our current our current SOPs after this training.

5. Internal and Third Party Audit Results

- This year's **Internal Audit**, conducted 7 October 2015, resulted in:
 - 11 major non-conformances
 - 9 minor non-conformances
 - 7 best practice requests/opportunities for improvement (OFI)
- All of these findings have either been addressed/corrected, or scheduled for completion & assigned to designated persons. These will all be re-addressed at the next Internal Audit, which is scheduled for 1 August 2016.
- This years' External Audit was conducted by SAI Global (Auditor – James Pang) as a surveillance audit (offsite) on the 12th of January, 2016. There were zero non-identified during this audit.

6. Results of Emergency Response Testing

- Desk top training was done this year (23 December 2015 – cross connection exercise). Resulting new SOP will be completed by 1 April 2016.

7. Operational Performances

- RE: AWQIs - CK stated that it should be noted {number of} adverse before; during, and after free chlorine conversion. **(Action Item AD – Before the conversion to free chlorine in February of 2015, there were 5 AWQIs. During the Free Chlorine Conversion (February 8-May 26 2015), there were 7 AWQIs – not including adverse for air pocket in the system. AFTER the Free Chlorine Conversion was over, we had 130 AWQIs (ad))**

8. Drinking Water Quality Trends

- Chlorine residual decay – Recurring trend which is proving to worsen each year (in 2015, we were able to somewhat control the geographical area in which the AWQIs were recurring, however, daily AWQIs persisted well into the end of the year, and continue in 2016. In 2014, AWQIs tapered off by the middle of December)
- Free chlorine conversion (2nd week of February until the end of May 2015). Very successful.

9. Follow-up on Action Items Identified Between Reviews (#9 & 10)

- Booking management reviews - done
- Auto flusher for 18100 Yonge St. – used periodically to assist with water quality at this location
- CK asked if there was a PRV valve installed at Leslie Valley Drive and if this is something that needs to be followed up. BW advised that it was installed in 2014

- Essential suppliers and services – CK advised to ensure that all emergency suppliers are with Procurement and PWS.
- CK asked BW if there are any changes to SOP's after their consultation with Confluence in Seattle. BW responded that the workshops are not yet completed, but that there will be some changes to procedures
- CK advised that any meetings with York Region or any other third party could also change procedures. AD to add this to QMS. **(ACTION ITEM – AD)**

11. Changes that Could Affect the QMS

- CK asked if the new water meters could affect QMS and advised that maybe there could be a comment/note added in. AD stated this could possibly be covered under risk assessment outcomes. AD stated it could be under offering discounted water as a response for low chlorine residuals procedure. CK stated that it belongs here at number 11 and other areas. BW advised that right now it is just in here to note it for someone to investigate until we get consultant in. CK commented that it should be in the backflow prevention by law and AD advised that it will be in risk assessment.
- BW advised that the Region is holding a public education program next month for Canada Water Week (March 22) and the Town has been asked to participate. We are interested in participating. We can work with communications on public information /education.
- CK stated to note that Region programs are also available in Newmarket.

12. Level of Customer Satisfaction & Consumer Feedback

- Overall, customers are satisfied with level of customer service they receive from our department (prompt response, thorough). In our last public survey, customer service in our department ranked at 79%. This was the highest of all departments
- Most concerns that we receive pertain to:
- Free Chlorine (taste/odour/skin irritation)
- General taste/odour complaints under chloramine disinfection (musty, metallic, sulphurous/"rotten egg")
- Amount of water being flushed – appears to be a waste (generally satisfied once we explain why we are doing it) – but we still feel that there is a need to look at working with Communications to come up with a public education strategy
- CK asked if there was any feedback from residents about the frozen services, and how we reacted. BW stated it will be in the annual report. The Town did fix a couple in 2015; however, there was not much feedback from residents.

13. Resources Needed to Maintain the QMS

- More staff involved in the maintenance of QMS now than ever. This has greatly helped to improve our efficiencies and thoroughness.

- We need to continue taking advantage of this support and also motivate staff to continually provide feedback and recommendations. The more our staff are actively involved, the better!

14. Provision of Adequate Human and Financial Resources

- AD suggested that the Town hire licenced (OITs) summer staff contract to do the flushing. CK stated that it was a great idea. BW to speak to Lisa Ellis to see if he can shift money and see what options there are. **(ACTION ITEM - BW)**
- CK advised that engineering is hiring student for asset management for a 4 month contract and PWS are paying for a portion of it
- 25% of the new IT staff member will be charged WWW and we could possibly do it with HR. BS asked if it could be done with communications also.

15. Results of Infrastructure Review

- Five year replacement plan. BW to check the minutes from September as he was only cc'd on it. **(ACTION ITEM - BW)**
- BW advised that he sat down with reps from engineering and discussed the five year plan and all the upcoming projects.
- BW gave a brief overview of the 5 year plan

16. Operational Plan

- Commissioner of PWS needs his title changed **(ACTION ITEM - AD DONE)**

17. Currency of Operational Plan, Content, and Updates

- AD suggested putting the procedures at back of the Operational Plan. CK suggested having a second binder with procedures.
- Up to date and complete. Will be distributed shortly. We have reduced the number of copies that are out this time. Copies will be at the following locations:
 - Office of the Compliance Coordinator/QMR (Master Copy – CONTROLLED)
 - Office of the Manager of Water/Wastewater
 - Commissioner, Development & Infrastructure Services
 - Operations Centre Map Room

18. List of Staff Suggestions

- BW enquired if the Operational Plan referenced tailboards.
- For the Capital Projects we requested staff suggestions and we purchased a guillotine saw and additional lights (portable). Those are list of things from staff that would help in the SOP's; staff had input into capital projects. The locators for GPS unit approved

- Staff have said they would like more regularly scheduled training in regards to QMS, so we have scheduled it weekly now (short sessions after the morning tailboard)
- Staff are always encouraged to offer comments/recommendations for the QMS

19. Recommendations of Management Review:

- CK stated that the report to council next month can include this. Water Quality Report has to be posted on web by end of the month.
- CK stated that there is a possibility another position for next year. CK will put it in as a recommendation for council to realize this might come forward.

20. Additional Items

- None

21. Next Meeting

- Scheduled for December 8th, 2016.
- CK stated that he was possibly looking at having a mock water issue being part of the next emergency management; but this is not under his control and he or Peter Noehammer send an email. **(ACTION ITEM - CK)**