



# IS02-2025 Appendix B- 2025 DWQMS Management Review

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## 2025 DWQMS Management Review

### Preamble

A management review is required each calendar year, to document and summarize the information required by the Drinking Water Quality Management Standard (DWQMS). This review reports to Top Management on the performance of the Drinking Water Quality Management Standard and areas recommended for improvement. This report summarizes the Township of Woolwich's DWQMS activities for the Drinking Water System Owner and Top Management to ensure the continued delivery of safe drinking water.

The Township of Woolwich's 2025 Management Review summarizes DWQMS activities from January 1<sup>st</sup> through December 31<sup>st</sup>, 2024.

Top Management and others attended the Management Review to prepare this document and consider the recommendations for January 17, 2025. Participants in management review are identified in section 9 of the Quality Management System (QMS) Operational Plan

The next Management Review is scheduled for February 2026. The Management Reviews follow a yearly schedule, reviewing the previous year's data.

The Ministry of the Environment, Conservation and Parks (MECP) Inspections cover periods from May 1<sup>st</sup>, 2023, to May 30<sup>th</sup>, 2024.

### *Definitions*

**Drinking Water System Owner:** includes, in respect of a drinking water system, every person who is a legal or beneficial owner of all or part of the system but does not include the Agency or any of its predecessors where the Agency or predecessor is registered on title as the owner of the system. In the Township of Woolwich, the Drinking Water System Owner is the Township Council.

**Top Management:** a person or a group of people at the highest management level within an operating authority that makes decisions respecting the QMS and recommendations to the owner respecting the subject system or subject systems. In the Township of Woolwich, Top Management includes the Director of Infrastructure Services, Manager of Operations, and the Water/Wastewater Supervisor.

### **A. Incidents of Regulatory Non-Compliance**

There was one incident of Regulatory Non-compliance in the 2024-2025 MECP Reporting Year inspections for the four distribution systems. This incident was found in the Breslau Distribution System.

The Township had not increased the number of lead samples tested in the system as the population increase. There are three samples required to be tested every three



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years. The Township, in an effort to do more than the prescribed amount, had been taking two samples twice a year, but had not done three in one season.

The procedures were updated, and the Fall lead program included three samples taken at the Breslau Distribution system.

### B. Incidents of Adverse Drinking Water Quality (AWQI)

**Table 1 - AWQI Summary (January 1 to December 31, 2024)**

#	Adverse Type	Adverse Incident Date	AWQI #	Site Name
1	Total Coliform	June 12, 2024	165198	Temp Main on High St. 1-03 #26, Elmira
2	Total Coliform	June 13, 2024	165212	Temp Main on High St. 1-03 #26, Elmira
3	Total Coliform	June 18, 2024	165240	WOD49-106 Kennedy Rd, Breslau
4	Total Coliform	June 18, 2024	165244	WOD66-260 Townsend, Breslau
5	Total Coliform	June 19, 2024	165258	WOD89-20 Woodberry, Elmira
6	Total Coliform	June 19, 2024	165262	WOD77-86 St. Charles St, Maryhill
7	Total Coliform	June 26, 2024	165376	Temp Main on High St. 1-06 #11, Elmira
8	Total Coliform	July 3, 2024	165428	Temp Main on George St. 1-02 #38, Elmira
9	Total Coliform	July 16, 2024	165631	WOD49 106 Kennedy Rd, Breslau
10	Total Coliform	July 23, 2024	165746	Temp Main on High St. 1-08 #27, Elmira
11	Total Coliform	July 23, 2024	165747	Temp Main on High St. 1-7 #19, Elmira
12	Total Coliform	July 24, 2024	165780	WOD49- 106 Kennedy Rd, Breslau
13	Total Coliform	July 30, 2024	165841	WOD66- 260 Townsend, Breslau
14	Total Coliform	July 31, 2024	165882	WOD89- 20 Woodberry, Elmira
15	Low Chlorine	August 14, 2024	165986	WOD89 – 20 Woodberry, Elmira
16	Low Chlorine	August 27, 2024	166102	WOD89 – 20 Woodberry, Elmira

The Township had sixteen incidents of AWQI that were resolved in 2024. Six of the adverse samples were taken on temporary mains in active construction sites. These



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sites are inherently dusty and can cause contamination during sampling for bacteriological parameters.

A voluntary corrective action that was implemented is the replacement of the water test stations. Public Works aggressively replaced seventeen test stations in 2024, leaving eight for 2025. The new test stations inhibit the infestation of the Earwigs (*Forficula Auricularia*) that had plagued the older models.

The waste of the earwigs is believed to be a contributor to the increase in AWQIs in the last three years. In 2023, the Township started a monthly test station cleaning.

The year 2023 had seventeen AWQIs and 2022 had twenty-one AWQIs.

AWQIs occur when a specific water sample is outside of the prescribed drinking water standards. When AWQIs are reported, swift action is taken to correct the AWQI sample under the Safe Drinking Water Act. The Township typically resolves the AWQI's quickly by flushing the system, which elevates the chlorine levels to within the prescribed parameters.

AWQIs should not be construed as indicating that the water is unsafe to drink. In addition, there are a minimal number of occurrences of AWQI's compared to the number of samples taken.

### **C. Deviations from Critical Control Points and Response Actions**

There were two deviations from critical control points (CCP). This critical control point is the chlorine residual in the distribution system. These deviations were Adverse samples 15 and 16 (Table 1 above). The chlorine residual was below the regulated limits. The site was flushed, and a bacteriological sample was taken. The samples were negative for coliforms.

The sample site is in a new development area, and the watermain does not yet have the demand for which it was built. As a response, the Township flushes this area weekly during the warmer season to refresh the chlorine in the line.

### **D. The Efficacy of the Risk Assessment Process**

The DWQMS requires a Risk Assessment to be conducted annually, with a line-by-line reassessment of the existing list of hazards every 36 months. This assessment is to identify potential hazards that could affect the safe supply and distribution of the drinking water system.

The yearly risk assessment review was conducted June 4, 2024. The previous yearly Risk Assessment was conducted June 7, 2023, and was the 36-month meeting. The next 36-month meeting will be June 2026.



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In the 2024 Risk Assessment meeting, it was decided to lower the likelihood of two risks: backflow and cyber terrorism. This decision was based on the strengthening of the tools in place to prevent these hazards.

Risks to water systems will never reach zero. When risks are identified, steps are taken to lower the chances of hazardous events occurring.

For additional information, please see Appendix A- Risk Assessment Outcomes Table 2024.

### **E. Internal and Third-party Audit Results**

#### **The Internal Audit**

On December 5-6, 2023, Brigitte Roth of Acclaims Environmental conducted an Internal Audit. This audit focused on the period of November 19, 2023, to December 6, 2024, inclusively. There weren't any non-conformities found in the audit. There was one "Opportunities for Improvement," or OFI that arose from discussion with staff as listed below.

The OFIs are:

(Element 11) Consider, reducing the general on-call when an operator is on-call for water, should be reserved for water operations and only called-in after utilizing the road crew.

This OFI would go against the Collective Agreement and was dismissed.

#### **The External Audit**

An external audit was conducted on April 24-25, 2024, by Rose Johnson of the National Sanitation Foundation (NSF). This audit is conducted to determine the Township's DWQMS conformance to the Standards and assess whether accreditation can be offered. There were no major or minor non-conformities. There were five OFIs noted in the report and two suggestions that were brought up in discussions with the auditor.

The OFIs noted were:

(DWQMS)-01: Operational Plan - Section 9 Roles & Responsibilities:

- clarify QMS back-up role (responsibilities / authorities)
- clarify if Supervisor of Water / Wastewater is considered "Top Management".

(DWQMS)-02: Essential Emergency Supplies & Services Checklist - To remove redundant information (e.g. chlorine test kit verification dates - not recorded on checklist as data is captured elsewhere).

(DWQMS)-03: Operational Plan - Section 16 Sampling, Testing & Monitoring; to clearly distinguish between sampling / testing activities performed by the Region of Waterloo, vs. activities performed by the Township of Woolwich.



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(DWQMS)-04: Management review records- clarify how management review actions are tracked (when applicable).

(DWQMS)-05: New hire orientation/communication process - to formally document DWQMS introduction/overview as part of the new hire orientation process.

The other two suggestions were to formalize the system for determining the population served and to include the date in the QMS Policy on the Website and in the Operational Plan.

OFls are not deficiencies, but potentials to always be improving. The PLAN-DO-REVIEW-IMPROVE framework is the basis for the Township's QMS program.

The five recommendations were adopted into the QMS program.

### **F. Results of Emergency Response Testing**

The DWQMS requires training and testing for emergency preparedness to occur. Emergency Response Training is completed every year. During this reporting period, Training and Testing took place on December 6, 2024. The focus was an extreme water main break when one of the Towers in Elmira is experiencing low level capacity. Emergency Response Training and Testing were conducted as tabletop exercises, led by Brigitte Roth of Acclaims Environmental.

Staff were prepared for the emergency. The next test is scheduled for December 2025.

### **G. Operational Performance**

The primary concern in a distribution only water system is maintaining the level of disinfectants throughout that system. The chlorine residual tests are to verify the secondary disinfection levels. Regulations require the Township Water/Wastewater operators to check the chlorine residuals in the four distribution systems every Monday and Thursday. In 2024, 2,049 chlorine residual tests were analyzed by Township staff for operational checks.

The Region of Waterloo's Environmental Enforcement and Laboratory Services (EELS) checks chlorine with every bacti sample taken. The Regional staff took 949 chlorine residual tests.

Monthly dead-end flushing is performed at sites where there is the possibility of low chlorine values. This is to refresh the water in the system and to assess levels of chlorine. There were 290 chlorine residuals taken in the monthly dead-end flushing program.

The total number of chlorine tests conducted in all four distribution systems, in 2024, was 3,288.



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The yearly leak detection program has found several problems that would have otherwise gone unnoticed. Repairs of the leaks have undoubtedly improved the integrity of the system and improved water loss.

For additional information, please see Appendix B- 2024 The Infrastructure Review of June 2023 to June 2024.

### **H. Raw Water Supply and Drinking Water Quality Trends**

The raw water is treated and supplied by the Region of Waterloo to the Township's distribution system.

The Region of Waterloo's water quality reports can be found at:

<https://www.regionofwaterloo.ca/en/regional-government/water-and-wastewater.aspx>

The Region of Waterloo's New Water Supply Strategy can be found at:

<https://www.regionofwaterloo.ca/en/living-here/water-supply-strategy.aspx>

The Region of Waterloo changed the source water for Heidelberg. The water is now supplied by the St. Clements well system instead of the Heidelberg well system.

### **I. Follow Up on Action Items from Previous Management Reviews**

The Standard requires a Management Review to be conducted once every calendar year. The previous Management Review took place on February 7, 2024. During this review, the following items were identified, including best management practices.

- 1) Work with EELS to change sampling procedures to use torches instead of alcohol to sterilize the taps before sampling.

After discussions with the Region of Waterloo, the Region updated their procedures (April 3, 2024) to use torches on the test stations instead of alcohol for sterilization.

- 2) To install an auto-flusher at the 80 Covered Bridge test station in West Montrose to refresh the chlorine and minimize the changes of lower residuals.

The auto-flusher was installed on February 27, 2024, at 80 Covered Bridge Road.

- 3) Discuss the adequacy of the data back-up procedure as a method to mitigate the risks of cyberterrorism in the water department.

The back-up of the data using an external drive was included in the June 2024 Risk Assessment meeting. This method proved to be effective. The Risk Assessment team decided to decrease the probability of cyber terrorism on the Risk Assessment Table.



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- 4) From the MECP inspections a Best Management Practice (BMP) suggestion was to formalize a schedule for watermain and unidirectional flushing.

A formal flushing schedule was put in place and GIS software was implemented to record the areas and amounts flushed.

### **J. Status of Management Action Items Identified Between Reviews**

Action items are identified at any point throughout the year, especially with regards to safety and the safe provision of drinking water within the Township. The following action items were brought forward from the Continuous Improvement meeting and completed in 2024.

- Consider listing formal operational training that the Township deems necessary to complete on a regular basis. This was added as a tab to the “Water Wastewater Training Summary Log” excel spreadsheet in November 2024.
- To capture unscheduled, after-hours water work a logbook, the “After Hours On Call Form” was created and implemented in April 2023. After discussion with staff, it was agreed that a Lead Hand’s Journal would be a better method of recording the unscheduled, after-hours work. This was implemented June 2, 2024.

### **K. Changes that Could Affect the Quality Management System**

Recommendations from audits, inspections, and staff are considered and may be implemented. These recommendations and suggestions are expected to refine and improve our QMS.

The Water Department conducts two yearly Continuing Improvement meetings as addressed per the standard operating procedures. At the Continuous Improvement meetings, root causes, and corrective actions are also discussed to prevent future problems or inconsistencies. The changes are recorded, tracked, and reviewed.

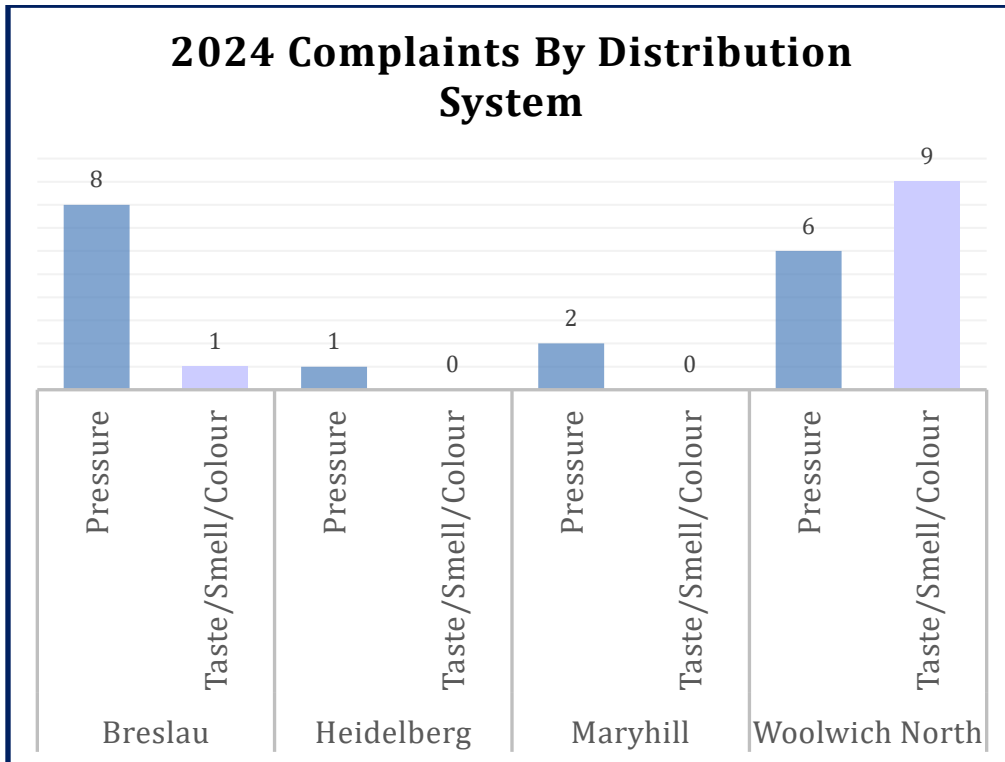
### **L. Consumer Feedback**

Feedback, concerns, and complaints are logged and tracked in the online CityWide Work Order System. All inquiries are triaged and prioritized for follow-up by operators, lead hand or supervisor. Water related customer complaints are addressed in the standard operating procedures in Operations and Maintenance (O & M) manual, and resolutions are logged in the Citywide asset management system.

The majority of the seventeen pressure concerns were internal plumbing problems.



**Table 2 - Woolwich Consumer Complaints 2024**



**M. Resources Needed to Maintain the Quality Management System**

Council and management support is needed for the staffing and funding required to maintain the QMS. Providing potable drinking water to the residents of the Township of Woolwich must continue to be the priority in the Water/Wastewater section of the Infrastructure Services Department.

Staff, at all levels, have to remain diligent to protect the Township’s Distribution Systems and strive to keep that level of service to the public. Training is key to impress upon staff the importance of working carefully while recording data accurately with integrity.

Yearly inspections and audits are required to ensure compliance and provide opportunity for improvement.

**N. Results of the Infrastructure Review**

The Standard requires that an Infrastructure Review be conducted annually. The purpose of this Review is to evaluate the adequacy of the infrastructure, potential impacts of risk assessment and financial budgeting necessary to operate and maintain the water distribution system.



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The most recent Infrastructure Review took place on June 7, 2024, and included top management, water, and engineering staff.

### **Summary of action items:**

- Continue to replace suspected lead (Woolwich North), cast watermain and services.
- Consider replacing the cast watermain, in Breslau (Kennedy Road and Cooper Crescent).
- Work closely with the Development Services Department in the installation and oversight regarding the commissioning of new infrastructure.
- Consider replacing the unrated poly services within the Huhn subdivision in Heidelberg.

### **O. Operational Plans: Currency, Content and Updates**

The Operational Plan was endorsed by Woolwich Council on June 27, 2023.

The Master Operational Plan and the O & M Manual are held at the Operations building at 69 Union, Elmira. Both documents can be found on the shared Department drive. Hard copies are available to the public at the Administrative building at 24 Church St. West, Elmira.

The Operational Plan and associated procedures are reviewed and updated annually, for applicability and relevance. The operation plan remains an active and living document.

### **P. Changes Made to DWQMS Material**

#### **Forms created include:**

- Lead Hand Journal – this document was created to replace the On Call After Hours form
- Essential Training – tab added to the “Water Wastewater Training Summary Log” excel spreadsheet in November 2024.

#### **Forms that were updated:**

- Essential Supplies Checklist – redundant material removed
- QMS Policy – date and reference number were added
- Section 9 (Roles and Responsibilities) – clarified the duties and QMS back-up
- Calibration Schedule – dataloggers were added
- New Operator Training Checklist – updated

#### **Forms updated due to personnel changes:**

- 2024 General Combined and Super Standby List Formatted to Print - this form is updated with personnel changes



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- Chlorine Quarterly Meter Verification – this form is updated with personnel changes
- Certified Drinking Water Operator Signatures/Initials

### **Forms deleted:**

Debrief Sheet- topic always included in meetings after incidents

The Operational Plan and O & M were updated to include recommended OFIs and BMPs. Significant changes are recorded in the Continuous Improvement Report.

### **Q. Staff Suggestions**

- Change the conditional formatting on the Chlorine Spreadsheet. The free comes up red (like an adverse) if it is less than 0.05 on the chloraminated samples.

This change was made.

- Delete the hard copy "On Call- After Hours" form. The information is captured on the CityWide, Time sheets (Daily Activity Sheets) and the Lead Hand's Journal.

This change was made, and the procedures updated

- Staff would like faster internet and better electronics.

IT is looking into the internet speed. The staff is unlikely to receive different laptops and phones in the immediate future.

- During the internal audit staff suggested that on-call personnel not be a part of the General On call.

These changes are not possible under the current Collective Agreement with the Union.

### **Summary**

The Township of Woolwich has completed all the requirements to maintain its accreditation under the DWQMS for 2024. As the owner of the system, Council will receive periodic reports on the performance of the Township's water distribution systems.

All action Items are identified on the Continuous Improvement Report tracking form. All records are maintained and stored in the Township's online record management system and/or the archive room.



## Township of Woolwich Risk Assessment Outcomes (For All Distribution Systems)

Last updated: June 5, 2024    Annual Review : June 4, 2023

Process Step	Aspect of Process Step	Hazardous Event	Causes		Hazard/Hazardous Event										Risk				Critical Control Point (CCP)	Control Measures																				
			Poor Water Quality	Insufficient Water Quantity	Long-Term Impacts of Climate Change	Source Water Supply Shortfall	Extreme Weather Events (e.g. tornado, ice storm)	Sustained Extreme Temperatures (e.g., heat wave, deep freeze)	Chemical Spill Impacting Source Water	Sustained pressure loss	Backflow/Cross connection	Terrorism	Vandalism Actions	Cybersecurity	Loss or contamination of treated water supply	Likelihood (L)	Consequence (C)	Capability (Cap)		Risk = L + C + Cap	Physical				Operational						Management									
																					Specs, Design, Redundancy	Reconstruction & Replacement	New Construction	Security & Automation	Sampling/Monitoring/Testing	Operational Control	Calibration & Verification	Infrastructure Inspection	Watermain & Service Impr.	Appurtenance Maintenance	Flushing & Swabbing	Backflow Prevention	Source Protection (incl. Sait)	Water Conservation	Cust. Service (calls, visits)	Risk & Emergency Mgmt	HR Education / Training / Cert.	Communications (owner, public)		
1. Distribution	a. watermain breaks	i. Distribution (Residential) Watermain break /Service repair	x	x			x	x	x		x	x	x	3	2	2	7	x	x					x	x	x	x			x	x	x	x							
		ii. Transmission (Impacting ICI and Residential Customers) Watermain break	x	x			x	x	x	x	x	x	x	2	4	1	7	x	x							x	x			x	x	x	x							
		iii. Dual use main break	x	x			x	x	x	x	x	x	x	2	4	1	7	x	x							x	x			x	x	x	x							
	b. Cross connections/Backflow	i. From buildings: backflow resulting in nonpotable water coming into system.	x	x					x	x	x	x	x	2	5	3	10	*	x						x	x			x	x	x	x								
		ii. Back siphonage resulting in nonpotable water coming into system.	x	x					x	x	x	x	x	1	5	1	7	*	x					x	x			x	x	x	x									
	c. Parameters not complying with legal limits	Parameters exceeding or out of range	x	x			x		x	x	x	x	x	4	3	3	10	*																						
	d. Connecting new services, watermains	Contamination at time of connection due to poor handling; time lapse or mechanical failure.	x									x	x	2	2	2	6	*	x	x	x		x				x						x	x						
	e. Water algae/biofilm/stale water/low chlorine residual	Deterioration of secondary disinfection.	x		x	x								5	2	2	9	*	x	x	x	x	x	x	x	x						x	x	x	x					
f. Service connections	Failure of infrastructure (frozen, leaking, etc.).	x	x	x	x	x							3	1	2	6		x	x	x	x								x	x	x	x								
g. Valve/ hydrant/PRV (appurtenance)	Failure of infrastructure (e.g. inoperable).	x	x	x	x	x					x		4	2	1	7		x	x	x									x	x	x	x								
h. Flushing & swabbing	Negative customer impacts due to flushing and swabbing	x	x					x					1	2	2	5		x					x							x	x	x	x							
2. Security	a. Vandalism to distribution system	External infrastructure damage.	x	x					x	x	x	x	x	4	2	2	8				x																			
	b. Terrorism	Contamination of water or infrastructure damage.	x	x					x	x	x	x	x	1	5	3	9		x		x	x										x	x	x						
	c. Cyberattack	Loss of data, ransom, loss of supply from the Region	x	x									x	2	5	3	10		x			x										x	x	x						
3. Monitoring & Reporting	a. Inadequate staffing (pandemic, strike)	Failure to be able meet regulatory requirements and/or response to emergency events	x				x						2	4	3	9		x			x	x											x	x	x					
	b. Staff/contractor errors	Damaged infrastructure, poor installation practices	x	x								x	2	3	2	7		x			x	x												x	x	x				
	c. Calibration of distribution monitoring equipment	Monitoring equipment not calibrated or out of range	x									x	x	3	2	2	7		x															x	x	x				
4. Power	a. Local loss of power	i. Potential disruption to regular operations for < 1 day.	x	x			x	x				x	x	3	2	2	7		x			x	x										x	x	x					
		ii. Significant impacts to regular operations for > 1 day.	x	x	x		x	x				x	x	2	2	2	6		x			x	x											x	x	x				
	b. Widespread loss of power	i. Potential disruption to regular operations for < 1 day.	x	x	x	x	x					x	x	2	2	2	6		x			x	x													x	x	x		
		ii. Significant impacts to regular operations for > 1 day.	x	x	x	x	x	x				x	x	1	4	3	8		x			x	x														x	x	x	

# 2024 DWQMS Infrastructure Review June 1, 2023, to May 31, 2024



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# 2024 DWQMS Infrastructure Review June 1, 2023, to May 31, 2024



## Preamble

The Township of Woolwich’s 2024 DWQMS Infrastructure Review covers activities from June 1<sup>st</sup>, 2024, to May 31<sup>st</sup>, 2025.

The next Infrastructure Review is scheduled for June 2025. Infrastructure reviews are scheduled yearly, following the risk assessment, and reviewing the previous year’s data.

Work Orders are created and managed in the “PSD CityWide Asset Management” Database. This data is reviewed to determine the adequacy of the infrastructure necessary to operate and maintain the four distribution systems.

The Risk Assessment outcomes are attached to consider scenarios and how best to prevent them in the future.

## 1. Infrastructure Totals

Type of Infrastructure	Woolwich				
	Breslau	Heidelberg	Maryhill	North	
Valves	396	45	38	891	<b>1237</b>
Hydrants	156	5	5	561	<b>724</b>
Population Served (2021)	3800	722	528	15106	<b>20156</b>
Services	1581	220	160	5088	<b>6998</b>
Length of Watermain (km)	26.21	5.3	5.2	106.8	<b>143.51</b>
	<b>5772.21</b>	<b>997.3</b>	<b>736.2</b>	<b>21752.8</b>	

## 2. Water Quality Sampling (Lead, Bacti/Cl<sub>2</sub> and AWQIs)

### Lead Testing

Lead sampling takes place twice a year- in the spring and fall. Breslau, Heidelberg, and Maryhill are under reduced lead sampling. These systems are required to have two distribution samples tested twice a year.

Woolwich North is required to sample six residential plumbing, two non-residential plumbing and three distribution samples twice a year. One of the samples for lead, in Fall 2023, had a value

## 2024 DWQMS Infrastructure Review June 1, 2023, to May 31, 2024



of 12.6 ppb or ug/L. The sample taken immediately prior was 0.860. It was re-tested and was 3.73 and 1.14. This is a sample site that is regularly tested twice a year without any previous exceedance. It is possible that this is a laboratory error. The samples taken in Spring 2025 were below the O. Reg 169/03 limits. It is expected that the remaining lead mains will be replaced by 2035, depending on the Council and budget constraints.

### Bacti and Cl<sub>2</sub> Testing

We meet the Regulatory Requirements for chlorine residuals by sampling all our distribution systems throughout the Township two days a week, at least 48 hours apart, Mondays and Thursdays. Seven chlorine residuals are taken from Breslau, Heidelberg, and Maryhill, each. Weekly, eighteen chlorine residuals are taken from Woolwich North.

The Region of Waterloo takes bacteriological samples weekly to meet or exceed our monthly requirement based on population. The monthly bacteriological totals that the Region takes are: twenty from Breslau, eight from Heidelberg, ten from Maryhill and thirty from Woolwich North. The Region of Waterloo samples for Total Halomethanes (THMs) and Haloacetic Acid (HAAs) quarterly in each distribution system.

### AWQI (Adverse Water Quality Incidents) and Water Quality Complaints

When the results of the lead, chlorines or Bacti/Chem samples are out of the acceptable limits, they are adverse and reported to the MECP and Public health.

If we have an adverse condition, we work with the MECP, the Regional Health Unit and the Region of Waterloo to rectify the problem. In our systems, we try to surpass the MECP Regulation and remain in compliance.

The year 2023 had more than the average number of adverse samples. The year 2023 had seventeen adverse samples. This is less than 2022, which had twenty-one. It is believed that this may be due to the increased number of earwigs in the test stations. Historically, we have 8-12 adverse samples per year.

The Township has started a program of replacing the sample station with yard hydrants. These sample stations have less problems with insects, bird feces, and low chlorine values. They are unlikely to freeze at normal winter temperatures.

The Township has negotiated a change in the Region of Waterloo's sampling procedure. They will be using a torch, where possible, instead of alcohol for sterilization. It is hoped that these changes, upgrades, and the monthly cleaning/inspection program, will decrease the number of adverse water quality samples.

The list of adverse water quality samples is attached, in the 2024 MECP Summary Reports for each distribution system. All AWQIs were resolved before they escalated into boil water

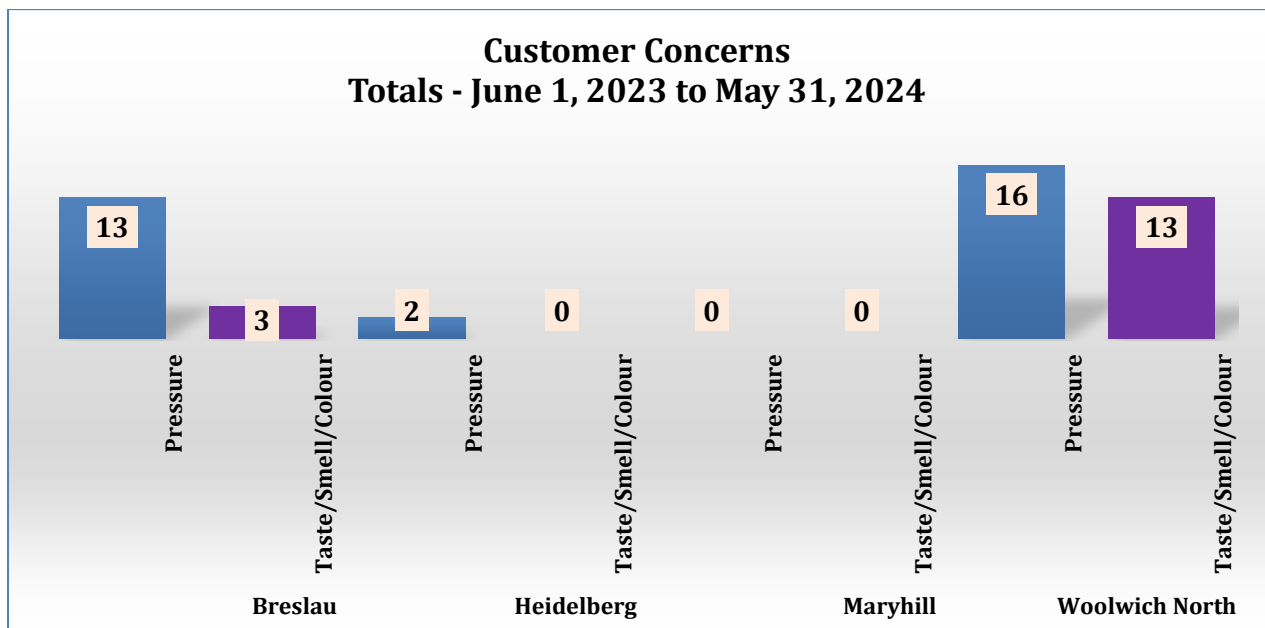
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advisories. All resamples from adverse bacti sampling came back negative with no need for a boil water advisory.

Residential complaints of poor water quality are recorded in the City-Wide Access Management system and investigated. Most complaints are related to pressure. The township monitors pressure at 11 locations. Investigations typically reveal that a large percentage of these complaints are due to internal plumbing issues.

2024								
Distribution System	Breslau		Heidelberg		Maryhill		Woolwich North	
	Pressure	Taste Smell Colour	Pressure	Taste Smell Colour	Pressure	Taste Smell Colour	Pressure	Taste Smell Colour
Totals	0	0	0	0	0	0	0	0
2025 Year to Date								
Distribution System	Breslau		Heidelberg		Maryhill		Woolwich North	
	Pressure	Taste Smell Colour	Pressure	Taste Smell Colour	Pressure	Taste Smell Colour	Pressure	Taste Smell Colour
Totals	0	0	0	0	0	0	0	0





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## 3. Water Programs

### Water Programs

Ongoing water infrastructure maintenance programs include:

- Valve inspection and preventative maintenance
- Leak detection
- Water meter troubleshooting
- Backflow program
- Watermain and dead-end flushing with hydrants inspection
- Test sample station cleaning and inspections

### Valve Inspections and Preventative Maintenance

This program tracks the dates and the locations of work completed. Child Work Orders are created from the inspections. This has led to an increase in Valve Work Orders this year. In 2024, we will coordinate GPS with all our valve turning using an automatic valve turning trailer.

### Leak Detection

A third party has been contracted in 2023 and 2024, to detect leaks in the metallic mains in the distribution systems. One minor break was detected because of the 2023 Leak Detection program.

### Water Meter Troubleshooting

The KTI remote water meter and radio installation is complete. There are several readings that are inconsistent with past water use. Trouble shooting appointments are being completed to find and rectify the problems. This program is driven by the water billing department. Initially there were many work orders created, but as meters or radios are repaired and/or replaced, the number of Work Orders is declining.

### Backflow Program

Second mailings went out, to non-complying facilities, requesting cross-connection surveys. There are only 23 of the 132 that have yet to respond. Backflow Solutions Inc. (BSI) continues to handle the administrative portion of the annual backflow device testing.

### Watermain and Dead-End Flushing

The flush/unidirectional program schedule started the spring of 2024. St. Jacobs is completed and the flush/unidirectional has started in Elmira. The dead-end flushing will continue monthly throughout the year. Both programs are instrumental in the maintenance of the infrastructure and refreshing of stale water. The dead-ends that need flushing were determined and a monthly schedule has been set up, and managed.

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## Sample Station Cleaning, Inspection and Replacement

The minor drop in the number of AWQIs may have been the result of the cleaning/inspection program’s implementation. The adverse samples occur primarily in the summer months, so the program is only employed in the warmer seasons.

The Eclipse 88 sample stations (green ones) replacement has started. Four of these test stations have been replaced with sturdier, better protected NSF/61 hydrant style stations. We have prioritized the replacement of the troublesome Eclipse 88 sample stations. The replacements are reflected in the numbers below.

## Inspections & Preventative Maintenance

Breslau   Heidelberg   Maryhill   Woolwich North

### Type of Infrastructure

Valve & Valve Box Repairs	2	1	1	16
CSV Inspections	2	0	0	7
Water Service Calls	0	0	0	0
Hydrant Calls	2	1	1	16
Test Stations	4	4	4	4

0

## 4. Reactive Maintenance and Repairs

### Reactive Maintenance

Concerns about infrastructure come from Township residents and staff. These concerns are recorded into the City-Wide Asset Management program. Work orders are generated from this system. The data from these work orders is tabulated below.

## Calls for Repairs

Breslau   Heidelberg   Maryhill   Woolwich North

### Type of call/repair

Valve & Valve Box Repairs	46	0	0	114
CSV Repairs	8	0	4	50
Water Service Calls	0	0	0	
Water Main Calls (not breaks)	0	0	0	

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Water Main Breaks	1	0	0	2
Frozen Water Services	0	0	0	0
Hydrant Calls	4	1	0	17
Meter Work	38	2	10	101
Repair/Replacement	6	2	2	8
Test Stations				

## 5. Recommendations

1. Continuing with suspected lead (Woolwich North), cast watermain and service replacement project.
2. The problem area of cast watermain, in Breslau (Kennedy and Cooper), should be on the replacement list or relined as this watermain was installed in 1968.
3. Work closely with the Development department in the installation and overseeing the commissioning of new infrastructure.
4. Work with engineering to develop process flows and/or RACI matrix to ensure consistency and conformity with legislated requirements.
5. Unrated poly services within the subdivision are failing. Whenever possible, replace the entire service with parts compliant with the DGSSMS.