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Conservation and Parks  
Drinking Water and Environmental  
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March 25, 2025

The Corporation of the City of Cambridge  
Public Works Division  
1310 Bishop Street  
Cambridge, Ontario  
N1R 6V5

Attention: Mr. Chris Whetstone  
Manager of Water

Dear Mr. Whetstone,

**Re: Cambridge Distribution System, DWS No. 260002460  
2024-25 Inspection Report 1-367109666**

Enclosed is the report on the 2024-25 inspection of the Cambridge Distribution System and the corresponding Inspection Rating Report (IRR) and Risk Methodology document.

Section 19 of the Safe Drinking Water Act (Standard of Care) creates a number of obligations for individuals who exercise decision-making authority over municipal drinking water systems. Please be aware that the Ministry has encouraged such individuals, particularly municipal councillors, to take steps to be better informed about the drinking water systems over which they have decision-making authority. These steps could include asking for a copy of this inspection report and a review of its findings. Further information about Section 19 can be found in "Taking Care of Your Drinking Water: A Guide for Members of Municipal Councils" on the Drinking Water Ontario website at <https://www.ontario.ca/environment-and-energy/taking-care-your-drinking-water-guide-members-municipal-councils>.

The IRR is a summarized quantitative measure of the drinking water system's annual inspection and is published in the Ministry's Chief Drinking Water Inspector's Annual Report. The Risk Methodology document describes the risk rating methodology which has been applied to the findings of the Ministry's municipal residential drinking water system inspection results. Please find attached the corresponding Inspection Rating Report (IRR) and Risk Methodology document. If you have any questions or concerns regarding the rating, please contact Lisa Williamson, Water Compliance Supervisor, at 226-979-8468.

I would be pleased to answer any questions or provide additional clarification.

Sincerely,

A handwritten signature in black ink that reads "Karla Everard". The signature is written in a cursive style.

Karla Everard  
Water Inspector  
Guelph District Office  
Drinking Water and Environmental Compliance Division  
Tel: (519) 830-6451  
E-mail: [karla.everard@ontario.ca](mailto:karla.everard@ontario.ca)

cc: Bernadette Moussa, Acting Manager, Health Protection & Investigation, RMOW Health Unit (email)  
Shari Dahmer, M.Sc., Source Protection Program Manager, GRCA (email)  
MECP Guelph District Office File SI WA CA A540



CAMBRIDGE DISTRIBUTION SYSTEM

**INSPECTION REPORT**

System Number: 260002460  
Entity: THE CORPORATION OF THE  
CITY OF CAMBRIDGE  
Inspection Start Date: February 03, 2025  
Site Inspection Date: February 03, 2025  
Inspection End Date: March 19, 2025  
Inspected By: Karla Everard  
Badge #: 911

*Karla Everard*

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(signature)

## INTRODUCTION

### Purpose

This announced, detailed inspection was conducted to confirm compliance with Ministry of the Environment, Conservation and Parks' (MECP) legislation and conformance with ministry drinking water policies and guidelines.

### Scope

The ministry utilizes a comprehensive, multi-barrier approach in the inspection of water systems that focuses on the source, treatment, and distribution components as well as management and the operation of the system.

The inspection of this standalone distribution system included a review of data and documents associated with the operation of the drinking water system during the review period.

This drinking water system is subject to the legislative requirements of the Safe Drinking Water Act, 2002 (SDWA) and regulations made therein, including Ontario Regulation 170/03, "Drinking Water Systems" (O. Reg. 170/03). This inspection has been conducted pursuant to Section 81 of the SDWA.

This inspection report does not suggest that all applicable legislation and regulations were evaluated. It remains the responsibility of the owner to ensure compliance with all applicable legislative and regulatory requirements.

### Facility Contacts and Dates

The Cambridge Distribution System is owned and operated by the City of Cambridge.

The system serves a population of over 138,500 and is categorized as a Large Municipal Residential System. Information reviewed for this inspection covered the time period of February 1, 2024 to January 31, 2025. A site visit occurred on February 3, 2025.

### Systems/Components

The Cambridge Distribution System supplies drinking water to over 42,000 private residences as well as business and industrial users. The City of Cambridge maintains and operates 614 km of watermains within the City's boundaries. The City owns 525 km while 60 km are under Regional Municipality of Waterloo ownership, and 29 km are dual-use mains. The system includes 3,727 hydrants providing fire protection and 6,427 valves (including shared) of various sizes for controlling water flow. The distribution system is divided into six individual pressure zones based on the water supply components and the varying elevations throughout the city.

The system receives treated water from the Regional Municipality of Waterloo's Integrated Urban Drinking Water System. A detailed description of the water source can be found in Drinking Water Works Permit 012-202 and the inspection reports of the various systems that comprise the system.

### **Permissions/Approvals**

This drinking water system was subject to specific conditions contained within the following permissions and/or approvals (please note this list is not exhaustive) at the time of the inspection in addition to the requirements of the SDWA and its regulations:

- Municipal Drinking Water Licence Number 015-101, Issue Number 5, dated July 23, 2024
- Drinking Water Works Permit Number 015-201, Issue Number 6, dated July 23, 2024
- Class 2 Water Distribution Certificate 734, issued July 18, 2005

### **NON-COMPLIANCE**

The following item(s) have been identified as non-compliance, based on a "No" response captured for a legislative question(s). For additional information on each question see the Inspection Details section of the report.

**Ministry Program:** DRINKING WATER | **Regulated Activity:** DW Municipal Residential

Item	Question	Compliance Response/Corrective Action(s)
NC-1	<p><b>Question ID:</b> DWMR1101001</p> <p>For large municipal residential systems, were corrective actions, including any steps directed by the Medical Officer of Health, taken to address adverse conditions?</p>	<p>Corrective actions per Schedule 17 of O. Reg. 170/03, including any other steps that were directed by the Medical Officer of Health, were not taken to address adverse conditions.</p> <p>There was one occasion during the inspection period when notifications were not immediately made nor corrective actions immediately taken to address an adverse condition.</p> <p>On September 4, 2024 an operator had been conducting routine flushing for approximately four hours at a dead-end location. He ceased flushing around 10:45 pm at the end of his shift. At 10:50 pm a combined chlorine residual of 0.08 mg/L was measured which is below the required concentration of 0.25 mg/L. Notifications were not made at this time, nor was flushing conducted to restore disinfection as required by O. Reg. 170/03. Upon recognizing the adverse situation the following morning, the City dispatched an operator to flush the hydrant until disinfection was restored and the incident was reported to the health unit and the Ministry.</p> <p>The City took additional steps to ensure that future adverse conditions are responded to as required by O. Reg. 170/03. The incident was reviewed with water operators and additional training was provided. Also, the frequency of flushing at the hydrant was increased from weekly to twice per week as part of the Dead-end Flushing Program.</p>

## **RECOMMENDATIONS**

This should not be construed as a confirmation of full conformance with all potential applicable BMPs. These inspection findings are limited to the components and/or activities that were assessed, and the legislative framework(s) that were applied. It remains the responsibility of the owner to ensure compliance with all applicable legislative and regulatory requirements.

If you have any questions related to this inspection, please contact the signed Provincial Officer.

### INSPECTION DETAILS

This section includes all questions that were assessed during the inspection.

**Ministry Program:** DRINKING WATER | **Regulated Activity:** DW Municipal Residential

<b>Question ID</b>	DWMR1020001	<b>Question Type</b>	Legislative
<b>Legislative Requirement(s):</b> SDWA   31   (1);			
<b>Question:</b> Were Form 1 documents prepared as required?			
<b>Compliance Response(s)/Corrective Action(s)/Observation(s):</b> Form 1 documents were prepared as required.			

<b>Question ID</b>	DWMR1025001	<b>Question Type</b>	Legislative
<b>Legislative Requirement(s):</b> SDWA   31   (1);			
<b>Question:</b> Were all parts of the drinking water system that came in contact with drinking water disinfected in accordance with a procedure listed in Schedule B of the Drinking Water Works Permit?			
<b>Compliance Response(s)/Corrective Action(s)/Observation(s):</b> All parts of the drinking water system were disinfected as required.  The City of Cambridge Standard Operating Procedure SOP-WD-02: Watermain Break Repairs and Reporting was last revised October 15, 2021. The City also uses the Ontario Disinfection Procedure for break and repair related work tasks to ensure compliance with assessment, reporting and repairs as well as the Region of Waterloo and Area Municipalities Design Guidelines and Supplemental Specifications for Municipal Services (February 2024) for the commissioning of new watermains.  During the inspection, watermain break repair records and new watermain commissioning records were reviewed. Documentation indicated that disinfection had occurred as required.			

<b>Question ID</b>	DWMR1027001	<b>Question Type</b>	Legislative
<b>Legislative Requirement(s):</b> SDWA   31   (1);			

**Question:**

Did the owner have evidence indicating that chemicals and materials that came in contact with water within the drinking water system met all applicable AWWA and ANSI standards in accordance with the Municipal Drinking Water Licence and Drinking Water Works Permit?

**Compliance Response(s)/Corrective Action(s)/Observation(s):**

The owner had evidence indicating that chemicals and materials that came in contact with water within the drinking water system met the applicable standards.

<b>Question ID</b>	DWMMR1033001	<b>Question Type</b>	Legislative
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**Legislative Requirement(s):**

SDWA | O. Reg. 170/03 | 7-2 | (3); SDWA | O. Reg. 170/03 | 7-2 | (4);

**Question:**

Was secondary disinfectant residual tested as required for the large municipal residential distribution system?

**Compliance Response(s)/Corrective Action(s)/Observation(s):**

Secondary disinfectant residual was tested as required.

O.Reg. 170/03 Schedule 7-2 requires that at least seven distribution samples be taken each week and tested immediately for chlorine residual. At least four of the samples must be taken on one day of the week, at least 48 hours after the last sample was taken in the previous week. At least three of the samples must be taken on a second day of the week, at least 48 hours after the last sample was taken on the first day of the week.

During the inspection period, the City ensured that weekly grab samples were taken and tested for chlorine residual as required.

<b>Question ID</b>	DWMMR1049001	<b>Question Type</b>	BMP
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**Legislative Requirement(s):**

Not Applicable

**Question:**

Did records confirm that disinfectant residuals were routinely checked at the extremities and dead ends of the distribution system?

**Compliance Response(s)/Corrective Action(s)/Observation(s):**

Records confirmed that disinfectant residuals were routinely checked at the extremities and dead ends of the distribution system.

<b>Question ID</b>	DWMMR1036001	<b>Question Type</b>	Legislative
<b>Legislative Requirement(s):</b> SDWA   O. Reg. 170/03   6-7   (1);			
<b>Question:</b> Where continuous monitoring equipment was not used for chlorine residual analysis, were samples tested using an acceptable portable device?			
<b>Compliance Response(s)/Corrective Action(s)/Observation(s):</b> Samples for chlorine residual analysis were tested using an acceptable portable device.			

<b>Question ID</b>	DWMMR1099001	<b>Question Type</b>	Information
<b>Legislative Requirement(s):</b> Not Applicable			
<b>Question:</b> Do records show that water provided by the drinking water system met the Ontario Drinking Water Quality Standards?			
<b>Compliance Response(s)/Corrective Action(s)/Observation(s):</b> Records showed that not all water sample results met the Ontario Drinking Water Quality Standards.  On one occasion a microbiological sample tested positive for total coliforms. Notifications were made and corrective actions were taken as required.			

<b>Question ID</b>	DWMMR1081001	<b>Question Type</b>	Legislative
<b>Legislative Requirement(s):</b> SDWA   O. Reg. 170/03   10-2   (1); SDWA   O. Reg. 170/03   10-2   (2); SDWA   O. Reg. 170/03   10-2   (3);			
<b>Question:</b> Were distribution microbiological sampling requirements prescribed by Schedule 10-2 of O. Reg. 170/03 for large municipal residential systems met?			
<b>Compliance Response(s)/Corrective Action(s)/Observation(s):</b> Distribution microbiological sampling requirements were met.  For a population of 138,500, Schedule 10-2 of O.Reg. 170 requires at least 113 distribution samples be taken every month, with at least three of the samples being taken in each week, and tested for Escherichia coli and total coliforms, and at least 25 percent of the required samples be tested for general bacteria population expressed as colony counts on a heterotrophic plate count.  During the inspection period, the City sampled the distribution system as required.			

<b>Question ID</b>	DWMR1096001	<b>Question Type</b>	Legislative
<b>Legislative Requirement(s):</b> SDWA   O. Reg. 170/03   6-3   (1);			
<b>Question:</b> Did records confirm that chlorine residual tests were conducted at the same time and location as microbiological samples?			
<b>Compliance Response(s)/Corrective Action(s)/Observation(s):</b> Records confirmed that chlorine residual tests were conducted as required.			

<b>Question ID</b>	DWMR1086001	<b>Question Type</b>	Legislative
<b>Legislative Requirement(s):</b> SDWA   O. Reg. 170/03   13-6.1   (1); SDWA   O. Reg. 170/03   13-6.1   (2); SDWA   O. Reg. 170/03   13-6.1   (3); SDWA   O. Reg. 170/03   13-6.1   (4); SDWA   O. Reg. 170/03   13-6.1   (5); SDWA   O. Reg. 170/03   13-6.1   (6);			
<b>Question:</b> Were haloacetic acid sampling requirements prescribed by Schedule 13-6 of O. Reg. 170/03 met?			
<b>Compliance Response(s)/Corrective Action(s)/Observation(s):</b> Haloacetic acid sampling requirements were met.  Schedule 13-6.1 of O. Reg. 170/03 requires at least one distribution sample be taken and tested for haloacetic acids in each calendar quarter. The sample must be taken from a point in the distribution system that is likely to have an elevated potential for the formation of haloacetic acids. Haloacetic acids will generally form at the beginning of the distribution system. Schedule 6-1.1 of O.Reg. 170 indicates that if a sample is required every calendar quarter, the sample shall be taken at least 60 days, and not more than 120 days, after a sample was taken for that purpose in the previous three-month period.  During the inspection period, the City sampled for these parameters as required. The running annual average is 0.00839 mg/L which is less than the Ontario Drinking Water Quality Standard of 0.08 mg/L.			

<b>Question ID</b>	DWMR1087001	<b>Question Type</b>	Legislative
<b>Legislative Requirement(s):</b> SDWA   O. Reg. 170/03   13-6   (1); SDWA   O. Reg. 170/03   13-6   (2); SDWA   O. Reg. 170/03   13-6   (3); SDWA   O. Reg. 170/03   13-6   (4); SDWA   O. Reg. 170/03   13-6   (5); SDWA   O. Reg. 170/03   13-6   (6);			
<b>Question:</b> Were trihalomethane sampling requirements prescribed by Schedule 13-6 of O. Reg. 170/03 met?			

**Compliance Response(s)/Corrective Action(s)/Observation(s):**

Trihalomethane sampling requirements were met.

Schedule 13-6 of O. Reg. 170/03 requires at least one distribution sample be taken and tested for trihalomethanes in each calendar quarter. The sample must be taken from a point in the distribution system that is likely to have an elevated potential for the formation of trihalomethanes. These points generally represent the areas in the distribution system with the longest disinfectant retention time, which are typically at the far end of the distribution system. Schedule 6-1.1 of O.Reg. 170 indicates that if a sample is required every calendar quarter, the sample shall be taken at least 60 days, and not more than 120 days, after a sample was taken for that purpose in the previous three-month period.

During the inspection period, the City sampled for these parameters as required. The running annual average is 0.0274 mg/L which is less than the Ontario Drinking Water Quality Standard of 0.100 mg/L.

Question ID	DWMR1095001	Question Type	Legislative
<p><b>Legislative Requirement(s):</b> SDWA   O. Reg. 170/03   15.1-10; SDWA   O. Reg. 170/03   15.1-4   (1); SDWA   O. Reg. 170/03   15.1-5   (1); SDWA   O. Reg. 170/03   15.1-5   (10); SDWA   O. Reg. 170/03   15.1-5   (11); SDWA   O. Reg. 170/03   15.1-5   (2); SDWA   O. Reg. 170/03   15.1-5   (3); SDWA   O. Reg. 170/03   15.1-5   (4); SDWA   O. Reg. 170/03   15.1-5   (5); SDWA   O. Reg. 170/03   15.1-5   (6); SDWA   O. Reg. 170/03   15.1-5   (7); SDWA   O. Reg. 170/03   15.1-5   (8); SDWA   O. Reg. 170/03   15.1-5   (9); SDWA   O. Reg. 170/03   15.1-7   (1); SDWA   O. Reg. 170/03   15.1-7   (2); SDWA   O. Reg. 170/03   15.1-7   (3); SDWA   O. Reg. 170/03   15.1-7   (4); SDWA   O. Reg. 170/03   15.1-9   (1); SDWA   O. Reg. 170/03   15.1-9   (2); SDWA   O. Reg. 170/03   15.1-9   (3); SDWA   O. Reg. 170/03   15.1-9   (4); SDWA   O. Reg. 170/03   15.1-9   (5); SDWA   O. Reg. 170/03   15.1-9   (6); SDWA   O. Reg. 170/03   15.1-9   (7); SDWA   O. Reg. 170/03   15.1-9   (8); SDWA   O. Reg. 170/03   15.1-9   (9);</p>			
<p><b>Question:</b> Were lead sampling requirements prescribed by Schedule 15.1 of O. Reg. 170/03 met?</p>			
<p><b>Compliance Response(s)/Corrective Action(s)/Observation(s):</b> Lead sampling requirements were met.</p> <p>Prior to this inspection period, the City of Cambridge qualified for reduced lead sampling. They are now required to sample for lead and pH at 50 residential and 5 non-residential locations and lead, pH and alkalinity at 10 distribution locations during each December 15 to April 15 ("winter") and June 15 to October 15 ("summer") period.</p> <p>Sampling was conducted as required during the June 15 to October 15, 2024 period. Sampling was underway during the inspection for the December 15, 2024 to April 15, 2025 period.</p> <p>Three samples at residential locations exceeded the standard for lead during the June 15 to</p>			

October 15, 2024 period. Required notifications were made and the sample results and a lead fact sheet were delivered to each property owner.

Question ID	DWMR1104001	Question Type	Legislative
<b>Legislative Requirement(s):</b> SDWA   O. Reg. 170/03   16-6   (1); SDWA   O. Reg. 170/03   16-6   (2); SDWA   O. Reg. 170/03   16-6   (3); SDWA   O. Reg. 170/03   16-6   (3.1); SDWA   O. Reg. 170/03   16-6   (3.2); SDWA   O. Reg. 170/03   16-6   (4); SDWA   O. Reg. 170/03   16-6   (5); SDWA   O. Reg. 170/03   16-6   (6);			
<b>Question:</b> Were immediate verbal notification requirements for adverse water quality incidents met?			
<b>Compliance Response(s)/Corrective Action(s)/Observation(s):</b> Immediate verbal notification requirements for adverse water quality incidents were met.			

Question ID	DWMR1105001	Question Type	Legislative
<b>Legislative Requirement(s):</b> SDWA   O. Reg. 170/03   16-7   (1); SDWA   O. Reg. 170/03   16-7   (2); SDWA   O. Reg. 170/03   16-7   (3); SDWA   O. Reg. 170/03   16-7   (4); SDWA   O. Reg. 170/03   16-7   (5);			
<b>Question:</b> Were written notice requirements for adverse water quality incidents met?			
<b>Compliance Response(s)/Corrective Action(s)/Observation(s):</b> Written notice requirements for adverse water quality incidents were met.			

Question ID	DWMR1106001	Question Type	Legislative
<b>Legislative Requirement(s):</b> SDWA   O. Reg. 170/03   16-9   (1); SDWA   O. Reg. 170/03   16-9   (2);			
<b>Question:</b> Were issue resolution notice requirements for adverse water quality incidents met?			
<b>Compliance Response(s)/Corrective Action(s)/Observation(s):</b> Requirements for written notices of issue resolution for adverse water quality incidents were met.			

Question ID	DWMR1101001	Question Type	Legislative
<b>Legislative Requirement(s):</b> SDWA   O. Reg. 170/03   17-1; SDWA   O. Reg. 170/03   17-10   (1); SDWA   O. Reg. 170/03			

| 17-11; SDWA | O. Reg. 170/03 | 17-12; SDWA | O. Reg. 170/03 | 17-13; SDWA | O. Reg. 170/03 | 17-14; SDWA | O. Reg. 170/03 | 17-2; SDWA | O. Reg. 170/03 | 17-3; SDWA | O. Reg. 170/03 | 17-4; SDWA | O. Reg. 170/03 | 17-5; SDWA | O. Reg. 170/03 | 17-6; SDWA | O. Reg. 170/03 | 17-9;

**Question:**

For large municipal residential systems, were corrective actions, including any steps directed by the Medical Officer of Health, taken to address adverse conditions?

**Compliance Response(s)/Corrective Action(s)/Observation(s):**

Corrective actions per Schedule 17 of O. Reg. 170/03, including any other steps that were directed by the Medical Officer of Health, were not taken to address adverse conditions.

There was one occasion during the inspection period when notifications were not immediately made nor corrective actions immediately taken to address an adverse condition.

On September 4, 2024 an operator had been conducting routine flushing for approximately four hours at a dead-end location. He ceased flushing around 10:45 pm at the end of his shift. At 10:50 pm a combined chlorine residual of 0.08 mg/L was measured which is below the required concentration of 0.25 mg/L. Notifications were not made at this time, nor was flushing conducted to restore disinfection as required by O. Reg. 170/03. Upon recognizing the adverse situation the following morning, the City dispatched an operator to flush the hydrant until disinfection was restored and the incident was reported to the health unit and the Ministry.

The City took additional steps to ensure that future adverse conditions are responded to as required by O. Reg. 170/03. The incident was reviewed with water operators and additional training was provided. Also, the frequency of flushing at the hydrant was increased from weekly to twice per week as part of the Dead-end Flushing Program.

Question ID	DWMR1107001	Question Type	Legislative
<p><b>Legislative Requirement(s):</b> SDWA   O. Reg. 170/03   15.1-9   (1); SDWA   O. Reg. 170/03   15.1-9   (2); SDWA   O. Reg. 170/03   15.1-9   (3); SDWA   O. Reg. 170/03   15.1-9   (4); SDWA   O. Reg. 170/03   15.1-9   (5); SDWA   O. Reg. 170/03   15.1-9   (6); SDWA   O. Reg. 170/03   15.1-9   (7); SDWA   O. Reg. 170/03   15.1-9   (8); SDWA   O. Reg. 170/03   15.1-9   (9);</p>			
<p><b>Question:</b> Were reporting requirements for lead samples taken from plumbing met?</p>			
<p><b>Compliance Response(s)/Corrective Action(s)/Observation(s):</b> Reporting requirements for lead samples taken from plumbing were met.</p>			

<b>Question ID</b>	DWMR1103001	<b>Question Type</b>	Legislative
<b>Legislative Requirement(s):</b> SDWA   O. Reg. 170/03   15.1-10;			
<b>Question:</b> Were corrective actions as directed by the Medical Officer of Health taken by the owner and operating authority to address exceedances of the lead standard in plumbing?			
<b>Compliance Response(s)/Corrective Action(s)/Observation(s):</b> Corrective actions were taken as directed by the Medical Officer of Health.			

<b>Question ID</b>	DWMR1110001	<b>Question Type</b>	Legislative
<b>Legislative Requirement(s):</b> SDWA   O. Reg. 170/03   11   (6);			
<b>Question:</b> Was the annual report prepared by February 28th of the following year and did it contain the required information?			
<b>Compliance Response(s)/Corrective Action(s)/Observation(s):</b> The annual report requirements were met.			

<b>Question ID</b>	DWMR1057001	<b>Question Type</b>	Legislative
<b>Legislative Requirement(s):</b> SDWA   O. Reg. 170/03   11   (2.1);			
<b>Question:</b> Did the owner of this system provide an annual report to the owner(s) of all standalone distribution systems connected to this system?			
<b>Compliance Response(s)/Corrective Action(s)/Observation(s):</b> The owner provided an annual report to the standalone distribution system(s) connected to this system.			

<b>Question ID</b>	DWMR1056001	<b>Question Type</b>	Information
<b>Legislative Requirement(s):</b> Not Applicable			
<b>Question:</b> Did the donor provide an annual report to the owner of this receiver drinking water system?			

**Compliance Response(s)/Corrective Action(s)/Observation(s):**

The donor provided an annual report to the owner of the receiver drinking water system.

<b>Question ID</b>	DWMR1111001	<b>Question Type</b>	Legislative
<b>Legislative Requirement(s):</b> SDWA   O. Reg. 170/03   22-2   (1); SDWA   O. Reg. 170/03   22-2   (2); SDWA   O. Reg. 170/03   22-2   (3); SDWA   O. Reg. 170/03   22-2   (4);			
<b>Question:</b> Did the summary report contain the required information and was it completed and distributed as required?			
<b>Compliance Response(s)/Corrective Action(s)/Observation(s):</b> The summary report requirements were met.			

<b>Question ID</b>	DWMR1098001	<b>Question Type</b>	Legislative
<b>Legislative Requirement(s):</b> SDWA   O. Reg. 170/03   13   (1); SDWA   O. Reg. 170/03   13   (2); SDWA   O. Reg. 170/03   13   (3);			
<b>Question:</b> Were the required records kept for the periods prescribed by section 13 of O. Reg. 170/03?			
<b>Compliance Response(s)/Corrective Action(s)/Observation(s):</b> The required records were kept for the prescribed periods.			

<b>Question ID</b>	DWMR1045001	<b>Question Type</b>	Legislative
<b>Legislative Requirement(s):</b> SDWA   31   (1);			
<b>Question:</b> Did the owner update the document describing the distribution components within 12 months of completion of alterations to the system in accordance with the Drinking Water Works Permit?			
<b>Compliance Response(s)/Corrective Action(s)/Observation(s):</b> The owner had up-to-date documents describing the distribution components.			

<b>Question ID</b>	DWMR1046001	<b>Question Type</b>	BMP
<b>Legislative Requirement(s):</b> Not Applicable			
<b>Question:</b> Was there a backflow prevention program, policy and/or bylaw in place that addressed cross connections and connections to high hazard facilities?			
<b>Compliance Response(s)/Corrective Action(s)/Observation(s):</b> There was a backflow prevention program, policy and/or bylaw in place.  By-law No. 146-03 prohibits unauthorized cross connections within the distribution system. Additionally, it requires the installation of backflow prevention devices at applicable facilities.			

<b>Question ID</b>	DWMR1053001	<b>Question Type</b>	BMP
<b>Legislative Requirement(s):</b> Not Applicable			
<b>Question:</b> Was the owner able to maintain proper pressures in the distribution system and was pressure monitored to alert the operator of conditions of loss of pressure below the value under which the system was designed to operate?			
<b>Compliance Response(s)/Corrective Action(s)/Observation(s):</b> The owner was able to maintain proper pressures in the distribution system and pressure was monitored to alert the operator of conditions which may lead to loss of pressure below the value under which the system is designed to operate.			

<b>Question ID</b>	DWMR1048001	<b>Question Type</b>	BMP
<b>Legislative Requirement(s):</b> Not Applicable			
<b>Question:</b> Had the owner implemented a program for the flushing of watermains as per industry standards?			
<b>Compliance Response(s)/Corrective Action(s)/Observation(s):</b> The owner had implemented a program for the flushing of watermains.			

<b>Question ID</b>	DWMR1050001	<b>Question Type</b>	BMP
<b>Legislative Requirement(s):</b> Not Applicable			

<b>Question:</b> Was there a program in place for inspecting and exercising valves?
<b>Compliance Response(s)/Corrective Action(s)/Observation(s):</b> There was a program in place for inspecting and exercising valves.

<b>Question ID</b>	DWMR1051001	<b>Question Type</b>	BMP
<b>Legislative Requirement(s):</b> Not Applicable			
<b>Question:</b> Was there a program in place for inspecting and operating hydrants?			
<b>Compliance Response(s)/Corrective Action(s)/Observation(s):</b> There was a program in place for inspecting and operating hydrants.			

<b>Question ID</b>	DWMR1052001	<b>Question Type</b>	BMP
<b>Legislative Requirement(s):</b> Not Applicable			
<b>Question:</b> Was there a bylaw or policy in place limiting access to hydrants?			
<b>Compliance Response(s)/Corrective Action(s)/Observation(s):</b> There was a bylaw or policy in place limiting access to hydrants.  By-law No. 146-03 restricts access to hydrants.			

<b>Question ID</b>	DWMR1058001	<b>Question Type</b>	Legislative
<b>Legislative Requirement(s):</b> SDWA   O. Reg. 128/04   28;			
<b>Question:</b> Did operators and maintenance personnel have ready access to operations and maintenance manuals?			
<b>Compliance Response(s)/Corrective Action(s)/Observation(s):</b> Operators and maintenance personnel had ready access to operations and maintenance manuals.			

<b>Question ID</b>	DWMR1059001	<b>Question Type</b>	Legislative
<b>Legislative Requirement(s):</b> SDWA   O. Reg. 128/04   28;			
<b>Question:</b> Did the operations and maintenance manuals contain plans, drawings, and process descriptions sufficient for the safe and efficient operation of the system?			
<b>Compliance Response(s)/Corrective Action(s)/Observation(s):</b> The operations and maintenance manuals contained plans, drawings, and process descriptions sufficient for the safe and efficient operation of the system.			

<b>Question ID</b>	DWMR1060001	<b>Question Type</b>	Legislative
<b>Legislative Requirement(s):</b> SDWA   31   (1);			
<b>Question:</b> Did the operations and maintenance manual(s) meet the requirements of the Municipal Drinking Water Licence?			
<b>Compliance Response(s)/Corrective Action(s)/Observation(s):</b> The operations and maintenance manual(s) met the requirements of the Municipal Drinking Water Licence.			

<b>Question ID</b>	DWMR1062001	<b>Question Type</b>	Legislative
<b>Legislative Requirement(s):</b> SDWA   O. Reg. 170/03   7-5;			
<b>Question:</b> Did records or other record keeping mechanisms confirm that operational testing not performed by continuous monitoring equipment was done by a certified operator, water quality analyst, or person who met the requirements of Schedule 7-5 of O. Reg. 170/03?			
<b>Compliance Response(s)/Corrective Action(s)/Observation(s):</b> Records or other record keeping mechanisms confirmed that operational testing not performed by continuous monitoring equipment was done by a certified operator, water quality analyst, or person who met the requirements of Schedule 7-5 of O. Reg. 170/03.			

<b>Question ID</b>	DWMR1063001	<b>Question Type</b>	Legislative
<b>Legislative Requirement(s):</b> SDWA   O. Reg. 170/03   6-10   (1);			

<p><b>Question:</b> For every required operational test and sample, was a record made of the date, time, location, results, and name of the person conducting the test?</p>
<p><b>Compliance Response(s)/Corrective Action(s)/Observation(s):</b> For every required operational test and sample, a record was made as required.</p>

<b>Question ID</b>	DWMR1061001	<b>Question Type</b>	Legislative
<p><b>Legislative Requirement(s):</b> SDWA   O. Reg. 128/04   27   (1); SDWA   O. Reg. 128/04   27   (2); SDWA   O. Reg. 128/04   27   (3); SDWA   O. Reg. 128/04   27   (4); SDWA   O. Reg. 128/04   27   (5); SDWA   O. Reg. 128/04   27   (6); SDWA   O. Reg. 128/04   27   (7);</p>			
<p><b>Question:</b> Were logbooks properly maintained and did they contain the required information?</p>			
<p><b>Compliance Response(s)/Corrective Action(s)/Observation(s):</b> Logbooks were properly maintained and contained the required information.</p>			

<b>Question ID</b>	DWMR1065001	<b>Question Type</b>	Legislative
<p><b>Legislative Requirement(s):</b> SDWA   O. Reg. 128/04   27   (6);</p>			
<p><b>Question:</b> Were logs and other record keeping mechanisms available for at least five (5) years?</p>			
<p><b>Compliance Response(s)/Corrective Action(s)/Observation(s):</b> Logs or other record keeping mechanisms were available for at least five (5) years.</p>			

<b>Question ID</b>	DWMR1071001	<b>Question Type</b>	BMP
<p><b>Legislative Requirement(s):</b> Not Applicable</p>			
<p><b>Question:</b> Did the owner provide security measures to protect components of the drinking water system?</p>			
<p><b>Compliance Response(s)/Corrective Action(s)/Observation(s):</b> The owner provided security measures to protect components of the drinking water system.  Only authorized personnel have access to computer software associated with the system and</p>			

the City utilizes best management practices to ensure all staff are trained with respect to cyber-attacks

Additionally, the hydrant use bylaw restricts access to hydrants.

<b>Question ID</b>	DWMR1072001	<b>Question Type</b>	BMP
<b>Legislative Requirement(s):</b> Not Applicable			
<b>Question:</b> Had the owner and/or operating authority undertaken efforts to promote water conservation and reduce water losses in the drinking water system?			
<b>Compliance Response(s)/Corrective Action(s)/Observation(s):</b> The owner and/or operating authority undertook efforts to promote water conservation and reduce water losses in their system.			

<b>Question ID</b>	DWMR1073001	<b>Question Type</b>	Legislative
<b>Legislative Requirement(s):</b> SDWA   O. Reg. 128/04   23   (1);			
<b>Question:</b> Was an overall responsible operator designated for all subsystems which comprise the drinking water system?			
<b>Compliance Response(s)/Corrective Action(s)/Observation(s):</b> An overall responsible operator was designated for all subsystem.			

<b>Question ID</b>	DWMR1078001	<b>Question Type</b>	Legislative
<b>Legislative Requirement(s):</b> SDWA   O. Reg. 128/04   23   (1); SDWA   O. Reg. 128/04   23   (2); SDWA   O. Reg. 128/04   23   (4); SDWA   O. Reg. 128/04   23   (6); SDWA   O. Reg. 128/04   23   (7);			
<b>Question:</b> When the overall responsible operator was unable to act, was a properly certified operator designated to act in their place?			
<b>Compliance Response(s)/Corrective Action(s)/Observation(s):</b> A properly certified operator was designated to act in place of the overall responsible operator.			

<b>Question ID</b>	DWMR1074001	<b>Question Type</b>	Legislative
<b>Legislative Requirement(s):</b> SDWA   O. Reg. 128/04   25   (1);			
<b>Question:</b> Were operators-in-charge designated for all subsystems which comprise the drinking water system?			
<b>Compliance Response(s)/Corrective Action(s)/Observation(s):</b> Operators-in-charge were designated for all subsystems.			

<b>Question ID</b>	DWMR1075001	<b>Question Type</b>	Legislative
<b>Legislative Requirement(s):</b> SDWA   O. Reg. 128/04   22;			
<b>Question:</b> Were all operators certified as required?			
<b>Compliance Response(s)/Corrective Action(s)/Observation(s):</b> All operators were certified as required.			

# **APPENDIX A**

## **STAKEHOLDER APPENDIX**

# Key Reference and Guidance Material for Municipal Residential Drinking Water Systems

Many useful materials are available to help you operate your drinking water system. Below is a list of key materials owners and operators of municipal residential drinking water systems frequently use.

To access these materials online click on their titles in the table below or use your web browser to search for their titles. Contact the Ministry if you need assistance or have questions at 1-866-793-2588 or [waterforms@ontario.ca](mailto:waterforms@ontario.ca).

For more information on Ontario's drinking water visit [www.ontario.ca/drinkingwater](http://www.ontario.ca/drinkingwater)



PUBLICATION TITLE	PUBLICATION NUMBER
<b>FORMS:</b> Drinking Water System Profile Information Laboratory Services Notification Adverse Test Result Notification	012-2149E 012-2148E 012-4444E
Taking Care of Your Drinking Water: A Guide for Members of Municipal Councils	Website
Procedure for Disinfection of Drinking Water in Ontario	Website
Strategies for Minimizing the Disinfection Products Trihalomethanes and Haloacetic Acids	Website
Filtration Processes Technical Bulletin	Website
Ultraviolet Disinfection Technical Bulletin	Website
Guide for Applying for Drinking Water Works Permit Amendments, & License Amendments	Website
Certification Guide for Operators and Water Quality Analysts	Website
Guide to Drinking Water Operator Training Requirements	9802E
Community Sampling and Testing for Lead: Standard and Reduced Sampling and Eligibility for Exemption	Website
Drinking Water System Contact List	7128E01
Ontario's Drinking Water Quality Management Standard - Pocket Guide	Website
Watermain Disinfection Procedure	Website
List of Licensed Laboratories	Website

# Principaux guides et documents de référence sur les réseaux résidentiels municipaux d'eau potable

De nombreux documents utiles peuvent vous aider à exploiter votre réseau d'eau potable. Vous trouverez ci-après une liste de documents que les propriétaires et exploitants de réseaux résidentiels municipaux d'eau potable utilisent fréquemment. Pour accéder à ces documents en ligne, cliquez sur leur titre dans le tableau ci-dessous ou faites une recherche à l'aide de votre navigateur Web. Communiquez avec le ministère au 1-866-793-2588, ou encore à [waterforms@ontario.ca](mailto:waterforms@ontario.ca) si vous avez des questions ou besoin d'aide.



Pour plus de renseignements sur l'eau potable en Ontario, consultez le site [www.ontario.ca/eaupotable](http://www.ontario.ca/eaupotable)

TITRE DE LA PUBLICATION	NUMÉRO DE PUBLICATION
Renseignements sur le profil du réseau d'eau potable	012-2149F
Avis de demande de services de laboratoire	012-2148F
Avis de résultats d'analyse insatisfaisants et de règlement des problèmes	012-4444F
Prendre soin de votre eau potable - Un guide destiné aux membres des conseils municipaux	Site Web
Marche à suivre pour désinfecter l'eau potable en Ontario	Site Web
Stratégies pour minimiser les trihalométhanes et les acides haloacétiques de sous-produits de désinfection	Site Web
Filtration Processes Technical Bulletin (en anglais seulement)	Site Web
Ultraviolet Disinfection Technical Bulletin (en anglais seulement)	Site Web
Guide de présentation d'une demande de modification du permis d'aménagement de station de production d'eau potable	Site Web
Guide sur l'accréditation des exploitants de réseaux d'eau potable et des analystes de la qualité de l'eau de réseaux d'eau potable	Site Web
Guide sur les exigences relatives à la formation des exploitants de réseaux d'eau potable	9802F
Échantillonnage et analyse du plomb dans les collectivités : échantillonnage normalisé ou réduit et admissibilité à l'exemption	Site Web
Liste des personnes-ressources du réseau d'eau potable	Site Web
L'eau potable en Ontario - Norme de gestion de la qualité - Guide de poche	Site Web
Procédure de désinfection des conduites principales	Site Web
Laboratoires autorisés	Site Web

# **APPENDIX B**

## **INSPECTION RATING REPORT**

Ministry of the Environment, Conservation and Parks - Inspection Summary Rating Record (Reporting Year - 2024-25)

<b>DWS Name:</b>	CAMBRIDGE DISTRIBUTION SYSTEM
<b>DWS Number:</b>	260002460
<b>DWS Owner:</b>	THE CORPORATION OF THE CITY OF CAMBRIDGE
<b>Municipal Location:</b>	CAMBRIDGE
<b>Regulation:</b>	O.REG. 170/03
<b>DWS Category:</b>	DW Municipal Residential
<b>Type of Inspection:</b>	Detailed
<b>Compliance Assessment Start Date:</b>	Feb-3-2025
<b>Ministry Office:</b>	Guelph District Office

Maximum Risk Rating: 321

Inspection Module	Non Compliance Risk (X out of Y)
Certification and Training	0/35
Distribution System	0/8
Logbooks	0/26
Operations Manuals	0/42
Reporting & Corrective Actions	24/85
Treatment Processes	0/62
Water Quality Monitoring	0/63
<b>Overall - Calculated</b>	<b>24/321</b>

<b>Inspection Risk Rating:</b>	<b>7.48%</b>
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<b>Final Inspection Rating:</b>	<b>92.52%</b>
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Ministry of the Environment, Conservation and Parks - Detailed Inspection Rating Record (Reporting Year - 2024-25)

<b>DWS Name:</b> CAMBRIDGE DISTRIBUTION SYSTEM
<b>DWS Number:</b> 260002460
<b>DWS Owner Name:</b> THE CORPORATION OF THE CITY OF CAMBRIDGE
<b>Municipal Location:</b> CAMBRIDGE
<b>Regulation:</b> O.REG. 170/03
<b>DWS Category:</b> DW Municipal Residential
<b>Type of Inspection:</b> Detailed
<b>Compliance Assessment Start Date:</b> Feb-3-2025
<b>Ministry Office:</b> Guelph District Office

Non-Compliance Question(s)	Non Compliance Risk
<b>Reporting &amp; Corrective Actions</b>	
For large municipal residential systems, were corrective actions, including any steps directed by the Medical Officer of Health, taken to address adverse conditions?	24
<b>Overall - Total</b>	<b>24</b>

Maximum Question Rating: 321

<b>Inspection Risk Rating:</b>	<b>7.48%</b>
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<b>FINAL INSPECTION RATING:</b>	<b>92.52%</b>
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# APPLICATION OF THE RISK METHODOLOGY USED FOR MEASURING MUNICIPAL RESIDENTIAL DRINKING WATER SYSTEM INSPECTION RESULTS



The Ministry of the Environment (MOE) has a rigorous and comprehensive inspection program for municipal residential drinking water systems (MRDWS). Its objective is to determine the compliance of MRDWS with requirements under the Safe Drinking Water Act and associated regulations. It is the responsibility of the municipal residential drinking water system owner to ensure their drinking water systems are in compliance with all applicable legal requirements.

This document describes the risk rating methodology, which has been applied to the findings of the Ministry's MRDWS inspection

results since fiscal year 2008-09. The primary goals of this assessment are to encourage ongoing improvement of these systems and to establish a way to measure this progress.

MOE reviews the risk rating methodology every three years.

The Ministry's Municipal Residential Drinking Water Inspection Protocol contains 15 inspection modules consisting of approximately 100 regulatory questions. Those protocol questions are also linked to definitive guidance that ministry inspectors use when conducting MRDWS inspections.

[ontario.ca/drinkingwater](http://ontario.ca/drinkingwater)

The questions address a wide range of regulatory issues, from administrative procedures to drinking water quality monitoring. The inspection protocol also contains a number of non-regulatory questions.

A team of drinking water specialists in the ministry assessed each of the inspection protocol regulatory questions to determine the risk (not complying with the regulation) to the delivery of safe drinking water. This assessment was based on established provincial risk assessment principles, with each question receiving a risk rating referred to as the Question Risk Rating. Based on the number of areas where a system is deemed to be non-compliant during the inspection, and the significance of these areas to administrative, environmental, and health consequences, a risk-based inspection rating is calculated by the ministry for each drinking water system.

It is important to be aware that an inspection rating less than 100 per cent does not mean the drinking water from the system is unsafe. It shows areas where a system's operation can improve. The ministry works with owners and operators of systems to make sure they know what they need to do to achieve full compliance.

The inspection rating reflects the inspection results of the specific drinking water system for the reporting year. Since the methodology is applied consistently over a period of years, it serves as a comparative measure both provincially and in relation to the individual system. Both the drinking water system and the public are able to track the performance over time, which encourages continuous improvement and allows systems to identify specific areas requiring attention.

The ministry's annual inspection program is an important aspect of our drinking water safety net. The ministry and its partners share a common commitment to excellence and we continue to work toward the goal of 100 per cent regulatory compliance.

## Determining Potential to Compromise the Delivery of Safe Water

The risk management approach used for MRDWS is aligned with the Government of Ontario's Risk Management Framework. Risk management is a systematic approach to identifying potential hazards, understanding the likelihood and consequences of the hazards, and taking steps to reduce their risk if necessary and as appropriate.

The Risk Management Framework provides a formula to be used in the determination of risk:

$$\text{RISK} = \text{LIKELIHOOD} \times \text{CONSEQUENCE}$$

(of the consequence)

Every regulatory question in the inspection protocol possesses a likelihood value (L) for an assigned consequence value (C) as described in **Table 1** and **Table 2**.

TABLE 1:	
Likelihood of Consequence Occurring	Likelihood Value
0% - 0.99% (Possible but Highly Unlikely)	L = 0
1 - 10% (Unlikely)	L = 1
11 - 49% (Possible)	L = 2
50 - 89% (Likely)	L = 3
90 - 100% (Almost Certain)	L = 4

TABLE 2:	
Consequence	Consequence Value
Medium Administrative Consequence	C = 1
Major Administrative Consequence	C = 2
Minor Environmental Consequence	C = 3
Minor Health Consequence	C = 4
Medium Environmental Consequence	C = 5
Major Environmental Consequence	C = 6
Medium Health Consequence	C = 7
Major Health Consequence	C = 8

The consequence values (0 through 8) are selected to align with other risk-based programs and projects currently under development or in use within the ministry as outlined in **Table 2**.

The Question Risk Rating for each regulatory inspection question is derived from an evaluation of every identified consequence and its corresponding likelihood of occurrence:

- All levels of consequence are evaluated for their potential to occur
- Greatest of all the combinations is selected.

The Question Risk Rating quantifies the risk of non-compliance of each question relative to the others. Questions with higher values are those with a potentially more significant impact on drinking water safety and a higher likelihood of occurrence. The highest possible value would be 32 (4×8) and the lowest would be 0 (0×1).

**Table 3** presents a sample question showing the risk rating determination process.

TABLE 3:							
Does the Operator in Charge ensure that the equipment and processes are monitored, inspected and evaluated?							
Risk = Likelihood × Consequence							
C=1	C=2	C=3	C=4	C=5	C=6	C=7	C=8
<b>Medium</b> Administrative Consequence	<b>Major</b> Administrative Consequence	<b>Minor</b> Environmental Consequence	<b>Minor</b> Health Consequence	<b>Medium</b> Environmental Consequence	<b>Major</b> Environmental Consequence	<b>Medium</b> Health Consequence	<b>Major</b> Health Consequence
L=4 (Almost Certain)	L=1 (Unlikely)	L=2 (Possible)	L=3 (Likely)	L=3 (Likely)	L=1 (Unlikely)	L=3 (Likely)	L=2 (Possible)
<b>R=4</b>	<b>R=2</b>	<b>R=6</b>	<b>R=12</b>	<b>R=15</b>	<b>R=6</b>	<b>R=21</b>	<b>R=16</b>

## Application of the Methodology to Inspection Results

Based on the results of a MRDWS inspection, an overall inspection risk rating is calculated. During an inspection, inspectors answer the questions related to regulatory compliance and input their “yes”, “no” or “not applicable” responses into the Ministry’s Laboratory and Waterworks Inspection System (LWIS) database. A “no” response indicates non-compliance. The maximum number of regulatory questions asked by an inspector varies by: system (i.e., distribution, stand-alone); type of inspection (i.e., focused, detailed); and source type (i.e., groundwater, surface water).

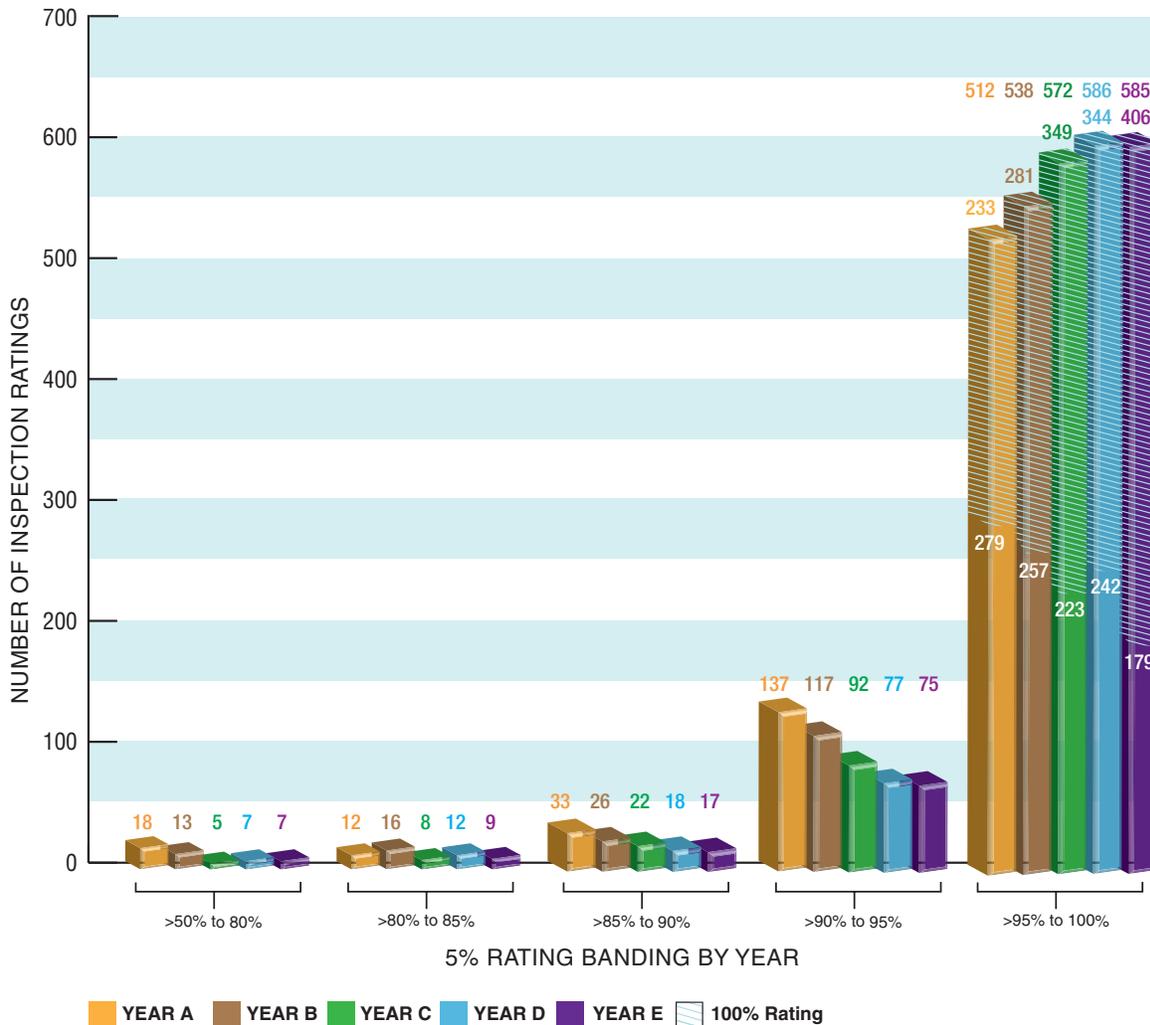
The risk ratings of all non-compliant answers are summed and divided by the sum of the risk ratings of all questions asked (maximum question rating). The resulting inspection risk rating (as a percentage) is subtracted from 100 per cent to arrive at the final inspection rating.

## Application of the Methodology for Public Reporting

The individual MRDWS Total Inspection Ratings are published with the ministry's Chief Drinking Water Inspector's Annual Report.

**Figure 1** presents the distribution of MRDWS ratings for a sample of annual inspections. Individual drinking water systems can compare against all the other inspected facilities over a period of inspection years.

**Figure 1: Year Over Year Distribution of MRDWS Ratings**



## Reporting Results to MRDWS Owners/Operators

A summary of inspection findings for each system is generated in the form of an Inspection Rating Record (IRR). The findings are grouped into the 15 possible modules of the inspection protocol,

which would provide the system owner/operator with information on the areas where they need to improve. The 15 modules are:

- |                         |                                 |  |  |
|-------------------------|---------------------------------|--|--|
| 1. Source               | 5. Treatment Process Monitoring | 9. Logbooks                            | 13. Water Quality Monitoring                       |
| 2. Permit to Take Water | 6. Process Wastewater           | 10. Contingency and Emergency Planning | 14. Reporting, Notification and Corrective Actions |
| 3. Capacity Assessment  | 7. Distribution System          | 11. Consumer Relations                 | 15. Other Inspection Findings                      |
| 4. Treatment Processes  | 8. Operations Manuals           | 12. Certification and Training         |  |

For further information, please visit [www.ontario.ca/drinkingwater](http://www.ontario.ca/drinkingwater)