

Report 2023-43

Ministry of the Environment,Ministère de l'EnviroConservation and Parksla nature et des ParcDrinking Water and EnvironmentalDivision de la conforrCompliance Division, West Central Regionet d'environnementNiagara District OfficeDirection régionale d9th Floor, Suite 15Bureau du district de301 St. Paul Street9e étage, bureau 15St. Catharines, ON L2R 7R4301, rue St. PaulTel.:905-704-39001-800-263-1035Tél.:905-704-40151-800-263-103

Ministère de l'Environnement de la Protection de la nature et des Parcs Division de la conformité en matière d'eau potable et d'environnement Direction régionale du Centre-Ouest Bureau du district de Niagara 9e étage, bureau 15 301, rue St. Paul St. Catharines, ON L2R 7R4 Tél.: 905-704-3900 1-800-263-1035 Téléc.: 905-704-4015

Wednesday, January 4, 2023

SI NI PC 540 – 2022-23 DWS# 260001643

Cassandra Banting Environmental Compliance Supervisor City of Port Colborne 1 Killaly St W Port Colborne, ON <u>Cassandra.Banting@portcolborne.ca</u>

Re: MECP Inspection - Port Colborne Distribution System (DWS# 260001643)

Dear Mrs. Banting,

Please find the enclosed copy of the inspection report 1-106749545 for the Port Colborne Distribution System completed under the Ministry's focused inspection protocol to assess compliance with Safe Drinking Water legislation. The report is based on conditions encountered at the time of inspection, and subsequent follow-up.

If applicable, any items with found within the section entitled "Non-Compliance/Non-Conformance Items" which have sections under legislative requirements outline noncompliance with regulatory requirements contained within an Act, a Regulation, or site-specific approvals, licenses, permits, orders, or guidelines. Please ensure that the required actions are completed within the prescribed timeframe, if applicable.

The items with "Not Applicable" legislative requirements provide information to the owner or operating authority outlining practices or standards established through existing and emerging industry standards that should be considered in order to advance current efforts. These items do not, in themselves, constitute violations. More recommendations may also be provided within the body of the report.

In order to measure individual inspection results, the Ministry has established an inspection compliance risk framework based on the principles of the Inspection, Investigation & Enforcement (II&E) Secretariat and advice of internal/external risk experts. The Inspection

Summary Rating Record (IRR), included as an Appendix of the inspection report, provides the Ministry, the system owner and the local Public Health Units with a summarized quantitative measure of the drinking water system's annual inspection and regulated water quality testing performance. IRR ratings are published (for the previous inspection year) in the Ministry's Chief Drinking Water Inspectors' Annual Report. Please note, the IRR will be sent separately and prior to any public release (typically within 1-2 month of the completion of the inspection).

Thank you for your time and assistance during the inspection process. If you have any questions or concerns, do not hesitate to contact me or Elizabeth Chee Sing, Water Compliance Supervisor, West Central Region at 519-400-6731 or Elizabeth.cheesing@ontario.ca.

Sincerely,

Jugged.

Sylvain Campbell, P. Eng. Provincial Officer #1278, Water Inspector Niagara District Office - West Central Region Phone: (905) 321-9169 E-mail: sylvain.campbell@ontario.ca

 Cc: Steve Shypowskyj – Director of Public Works - City of Port Colborne Darlene Suddard - Manager of Water/Wastewater - City of Port Colborne Tommy Peazel - ORO - City of Port Colborne
 Glen Hudgin - Niagara Region Public Health Unit
 Peter Jekel - Niagara Region Public Health Unit
 Leilani Lee-Yates - Niagara Peninsula Conservation Authority
 Thomas Proks - Niagara Peninsula Conservation Authority
 Elizabeth Chee Sing – Water Compliance Supervisor - MECP
 MECP Niagara District File





PORT COLBORNE DISTRIBUTION SYSTEM 1 KILLALY ST W, PORT COLBORNE, ON, L3K 6H1 Inspection Report

System Number: 260001643 Entity: CORPORATION OF THE CITY OF PORT COLBORNE Inspection Start Date: 12/13/2022 Inspected By: 01/03/2023 Inspected By: Sylvain Campbell Badge #: 1278 Inspected By: Ivanna Okroukh Badge #: 2048

(signature)

TABLE OF CONTENTS

| Cover Letter | |
|--------------------------------------|---|
| Non-Compliance/Non-Conformance Items | 2 |
| Inspection Details | 5 |
| | |
| APPENDICES | |
| APPENDIX A: Stakeholder Appendix | |

APPENDIX B: Inspection Rating Record (IRR)



NON-COMPLIANCE/NON-CONFORMANCE ITEMS

The following item(s) have been identified as non-compliance/non-conformance, based on a "No" response captured for a legislative or best management practice (BMP) question (s), respectively.

Question Group: Operations Manuals

| Question ID | MRDW1060000 | Question Type | Legislative | |
|--|---|---------------------------------|-------------|--|
| Question: | | | | |
| Do the operations and maintenance manuals meet the requirements of the DWWP and MDWL issued under Part V of the SDWA? | | | | |
| Legislative Requirement | islative Requirement SDWA 31 (1); | | | |
| Observation/Corrective Ac | tion(s) | | | |
| The operations and maintenance manuals did not meet the requirements of the Drinking Water Works Permit and Municipal Drinking Water Licence issued under Part V of the SDWA. | | | | |
| Although the operations and maintenance manual content met the requirements of Condition 16.2 of Schedule B of the Licence, some Standard Operating Procedures were over 10 years old and contained information which is no longer valid. The manual did not meet the criteria of Condition 16.1 of Schedule B of the Licence as it was not up-to-date: | | | | |
| 16.1 - An up-to-date operations and maintenance manual or manuals shall be maintained and applicable parts of the manual or manuals shall be made available for reference to all persons responsible for all or part of the operation or maintenance of the drinking water system. | | | | |
| This is a contravention of Item 31 (1) (b) of the Safe Drinking Water Act which stipulates: | | | | |
| was established b except under the | nunicipal drinking water before or after this section authority of and in acco r this Part or municipal of | on comes into force rdance with | ce. | |

By August 31, 2023, the City of Port Colborne shall arrange to submit an updated copy of the Port Colborne DS operations and maintenance manual and a list of personnel who reviewed the updated manual to a Water Inspector of the Ministry's Niagara District Office.



Question Group: Other Inspection Findings

| Question ID | MRDW1115001 | Question Type | Legislative | |
|--|------------------------|---------------------|---------------|--|
| Question: | | | | |
| Were the inspection questions sufficient to address other non-compliance items identified during the inspection period? | | | | |
| Legislative Requirement Not Applicable | | | | |
| Observation/Corrective Ac | tion(s) | | | |
| The following instance(s) of | non-compliance were al | so noted during the | e inspection: | |
| The City is exempt from taking samples in plumbing under Schedule 15.1-5 (9) of O. Reg. 170/03. Although they took the four alkalinity samples during the sampling sessions, the City did not take the required lead samples during the winter 2021-22 sampling session. This was a contravention of item (b) of Schedule 15.1-5 (10) of O. Reg. 170/03. which states: | | | | |
| 15.1-5 (10) When the requirements for taking samples set out in clauses (3) (a) and (b) and subsection (8) cease to apply under subsection (9) to a drinking water system, the owner of the drinking water system and the operating authority for the system shall ensure that samples are taken as described in clause (3) (c), in accordance with subsection 15.1-7 (2), (b) to test for lead during each of the periods described in subsection (5) in every third 12-month period. | | | | |
| The day the sampling was scheduled was an excessive snow event (30cm of snow) and there was also a debriefing from previous eight watermain breaks from the week prior. | | | | |
| The City retrained the operators on the lead sampling requirements. In addition to printing monthly sample schedules, lead sampling requirements were added to an electronic calendar accessible to the operators. No further action was required. | | | | |
| | | | | |
| Question IDMRDW1116001Question TypeBMP | | | | |
| Question: | | | | |
| Were the inspection questions sufficient to address other identified best practice issues? | | | | |
| Legislative Requirement Not Applicable | | | | |
| Observation/Corrective Action(s) | | | | |
| The following issues were also noted during the inspection: | | | | |
| 1- The City used WaterTrax to submit microbiological sample results and FCR entries. | | | | |



There were missing results and conflicting information in the first submission. The City corrected the situation and agreed to submit a plan to prevent reoccurrences by May 31, 2023.

- 2 The City of Port Colborne is required to follow the requirements of the updated Watermain Disinfection Procedure, August 2020. The updated procedure changed the way the categories of breaks are determined. All breaks are now considered Category 2 unless the Operator-In-Charge (OIC) reclassifies them as Category 1 and no issues occur after the reclassification. The City's form is still based on the 2015 procedure in which breaks were classified by the OIC as Category 1 and 2 and re-classified as needed. The City is encouraged to modify the watermain break record form to be more in-line with the 2020 procedure. The City is also encouraged to set up a process to ensure that all documentation required for new watermains (WDP Section 3.1) is easy to review.
- 3 The City experienced eight watermain breaks between January 23 and 24, 2022. The City's personnel may wish to consider discussing with personnel from the Port Colborne Water Treatment Plant to determine if steps could be taken to prevent series of breaks during cold weather in the future.



INSPECTION DETAILS

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

Ministry Program: DRINKING WATER | Regulated Activity:

| Question ID | MRDW1001001 | Question Type | Information | |
|--|--|---------------|-------------|--|
| Question: | | | | |
| What was the scope of this inspection? | | | | |
| Legislative Requirement | Legislative Requirement Not Applicable | | | |
| Observation | | | | |
| The primary focus of this inspection is to confirm compliance with Ministry of the Environment, Conservation and Parks (MECP) legislation as well as evaluating conformance with ministry drinking water policies and guidelines during the inspection period. 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 practices. | | | | |
| 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. | | | | |
| On December 13, 2022, Inspector Sylvain Campbell conducted a remote announced inspection of the Port Colborne Distribution System (DS), DWS # 260001643. The Corporation of the City of Port Colborne is the Owner and Operator of the Port Colborne DS, which serves approximately 16,000 residents. | | | | |
| The inspection period covered November 1, 2021, to November 30, 2022. | | | | |
| The system is a stand-alone Class 1 distribution system and obtains water from the Regional Municipality of Niagara's Port Colborne Drinking Water System, DWS # 220002075. The distribution system is approximately 114 km in length, and the watermains are constructed of approximately 69 km of PVC and 36 km of cast iron, with the remaining 11 km being a combination of ductile iron, asbestos cement, and steel. There are approximately 1827 valves and 638 fire hydrants located throughout the system. | | | | |



| Question ID | MRDW1000001 | Question Type | Information | |
|---|---|--|---|--|
| Question: | | | | |
| Does this drinking water system provide primary disinfection? | | | | |
| Legislative Requirement Not Applicable | | | | |
| Observation | | | | |
| This Drinking Water System p water. Primary disinfection is which provides treated water | undertaken by another | regulated Drinking | | |
| The Port Colborne DS is a sta the Regional Municipality of N 220002075. The City of Port (treatment plant and outstation requirements of free chlorine | liagara's Port Colborne Colborne does not perf ns sufficiently chlorinate | e Drinking Water Sy form any secondary | /stem, DWS # / disinfection, as the | |
| Question ID | MRDW1020001 | Question Type | Legislative | |
| Is the owner/operating author inspection period. Form 1 doc | • | · · · · · | • | |
| inspection period, Form 1 doc Water Works Permit? | • | · · · · · | 5 | |
| inspection period, Form 1 doc | cuments were prepared | · · · · · | • | |
| inspection period, Form 1 doo Water Works Permit? Legislative Requirement Observation The owner/operating authority documents as required by the | SDWA 31 (1); y was in compliance wi | th the requirement | h their Drinking to prepare Form 1 e inspection period. | |
| inspection period, Form 1 doc Water Works Permit? Legislative Requirement Observation The owner/operating authority | SDWA 31 (1); y was in compliance wi eir Drinking Water Worl proved and commissio itermain on Erie Street | th the requirement ks Permit during the | h their Drinking to prepare Form 1 e inspection period. | |
| inspection period, Form 1 doc Water Works Permit? Legislative Requirement Observation The owner/operating authority documents as required by the Two Form 1 projects were ap - Replacement of 755m of wa | SDWA 31 (1); SDWA 31 (1); was in compliance wi eir Drinking Water Worl proved and commissio termain on Erie Street. Phase 2. Ints of the DWWP. The ghts watermains were in the Erie Street waterma ins in the drawings by I | th the requirement ks Permit during the ned during the insp two mains were co ntegrated in the DS ins were not. The C November 1, 2023 | h their Drinking to prepare Form 1 e inspection period. Dection period: Dection period: Dection period: Dection period in S drawings at the Dity is required to in order to meet the | |



modification, replacement or extension.

| Question ID | MRDW1114001 | Question Type | Legislative | |
|--|-----------------------|----------------------|---------------------|--|
| Question: | | | | |
| Does the owner have evidence that, when required, all legal owners associated with the DWS were notified of the requirements of the Licence & Permit? | | | | |
| Legislative Requirement SDWA 31 (1); | | | | |
| Observation | | | | |
| The owner had evidence that required notifications to all legal owners associated with the Drinking Water System had been made during the inspection period. The City reviews the "Information for Contractors performing work on the Port Colborne Distribution System" and the "Drinking Water Quality Management System - Information and Acknowledgement for Suppliers and Contractors" with Contractors. | | | | |
| Question ID | MRDW1025001 | Question Type | Legislative | |
| Question: | | | | |
| Were all parts of the drinking | water system that cam | e in contact with dr | inking water (added | |

Were all parts of the drinking water system that came in contact with drinking water (added, modified, replaced or extended) disinfected in accordance with a procedure listed in Schedule B of the Drinking Water Works Permit?

| Legislative Requirement | SDWA 31 (1); |
|-------------------------|------------------|
| | |

Observation

All parts of the drinking water system were disinfected in accordance with a procedure listed in Schedule B of the Drinking Water Works Permit.

The City of Port Colborne has SOP# C2.4 (Standard Operating Procedure for Repair of Watermain Breaks) to document procedures on Watermain Repair/Maintenance Reports. All required information was recorded on the documents reviewed for the inspection period.

The City of Port Colborne is now required to follow the requirements of the updated Watermain Disinfection Procedure, August 2020. The updated procedure changed the way the categories of breaks are determined. Now, all breaks are considered Category 2 unless the OIC reclassifies them as Category 1 and no issues occur after the reclassification. The City's form is still based on the 2015 procedure in which breaks were classified by the OIC as Category 1 and 2 and re-classified as needed. The City is encouraged to modify the watermain break record form to be more in-line with the 2020 procedure.



| Question ID | MRDW1033001 | Question Type | Legislative |
|-------------|-------------|---------------|-------------|
|-------------|-------------|---------------|-------------|

Question:

Is the secondary disinfectant residual measured as required for the large municipal residential distribution system?

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

Observation

The secondary disinfectant residual was measured as required for the large municipal residential distribution system.

The City of Port Colborne monitors the free chlorine residual in the distribution system, utilizing the 4/3 option as described in Schedule 7-2(4) of O. Reg. 170/03 (i.e. at least 4 samples taken on one day of the week, at least 3 samples taken on a second day of the week, at least 4 hours apart).

The City generally samples more locations than required, rotating sampling locations on a weekly basis in a 6-week rotation. The minimum readout reported was 0.13 mg/L at SS59 - 241 Welland Street, on December 20, 2021.

| Question ID MRDW1099001 | Question Type | Information |
|-------------------------|---------------|-------------|
|-------------------------|---------------|-------------|

Question:

Do records show that all water sample results taken during the inspection review period did not exceed the values of tables 1, 2 and 3 of the Ontario Drinking Water Quality Standards (O. Reg. 169/03)?

| Legislative Requirement |
|-------------------------|
|-------------------------|

Observation

Records did not show that all water sample results taken during the inspection review period did not exceed the values of tables 1, 2 and 3 of the Ontario Drinking Water Quality Standards (O. Reg. 169/03).

The City of Port Colborne reported one AWQI during the inspection review period:, AWQI 158335 on May 5, 2022, Total Coliform = 1 CFU/100 mL at SS 15, FCR = 0.98 mg/L. The adverse was a provisional quality control sample contamination, which was a result of the lab contaminating one of the samples. The City was told by the laboratory to treat the test result as a Total Coliform of 1.

All reporting requirements and corrective actions were completed as required.



| Question ID | MRDW1081001 | Question Type | Legislative |
|-------------|-------------|---------------|-------------|
|-------------|-------------|---------------|-------------|

Question:

For LMR systems, are all microbiological water quality monitoring requirements for distribution samples being met?

| Legislative Requirement | SDWA O. Reg. 170/03 10-2 (1); SDWA O. Reg. 170/03 |
|-------------------------|---|
| | 10-2 (2); SDWA O. Reg. 170/03 10-2 (3); |

Observation

All microbiological water quality monitoring requirements prescribed by legislation for distribution samples in a large municipal residential system were being met.

The City of Port Colborne is required to take at least 26 microbiological samples (testing for Total Coliform bacteria and E. Coli) per month, including at least one sample per week, as per Schedule 10 of O. Reg. 170/03. At least 25% of the samples must also be tested for Heterotrophic Plate Count (HPC).

The City generally takes eight microbiological samples per week (32 samples per month), rotating through sampling locations on a weekly basis in a 6-week rotation.

A review of sampling records indicated that the City has complied with all microbiological sampling requirements.

| Question ID | MRDW1096001 | Question Type | Legislative | |
|---|------------------------------------|-------------------|------------------|--|
| Question: | | | | |
| Do records confirm that chlorine residual tests are being conducted at the same time and at the same location that microbiological samples are obtained? | | | | |
| Legislative Requirement | SDWA O. Reg. 170/03 6-3 (1); | | | |
| Observation | | | | |
| Records confirmed that chlorine residual tests were being conducted at the same time and at the same location that microbiological samples were obtained. | | | | |
| Question ID | MRDW1086001 | Question Type | Legislative | |
| Question: | • | | • | |
| Are all halagestic sold water | audity monitoring regul | romonto progerika | d by logiclation | |

Are all haloacetic acid water quality monitoring requirements prescribed by legislation conducted within the required frequency and at the required location?

| Legislative Requirement | 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) |
|---|
|---|

Observation

All haloacetic acid water quality monitoring requirements prescribed by legislation were conducted within the required frequency and at the required location.

Haloacetic Acid (HAA) samples were collected and tested on a quarterly basis with an annual running average of 7.7 ug/L. Samples were obtained from Fire Hydrant #0251, located on the southwest corner of Shamrock Avenue, the first available sampling point after the Barrick Elevated Tank. The Region also samples for HAAs in its distribution mains. The prescribed limit is 80 ug/L, expressed as an annual running average.

| Question ID | MRDW1087001 | Question Type | Legislative |
|-------------|-------------|---------------|-------------|
|-------------|-------------|---------------|-------------|

Question:

Have all trihalomethane water quality monitoring requirements prescribed by legislation been conducted within the required frequency and at the required location?

| Legislative Requirement | 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); |

Observation

All trihalomethane water quality monitoring requirements prescribed by legislation were conducted within the required frequency and at the required location.

Trihalomethane (THM) samples are collected and tested on a quarterly basis from two locations in the DS. Niagara Region also tests for THMs in its distribution mains. The running annual average is currently 21.0 ug/L. The drinking water standard for THMs is 100 ug/L, expressed as a running annual average.

| Question ID | MRDW1101001 | Question Type | Legislative |
|---|---|---------------|-------------|
| Question: | | | |
| For LMR Systems, have corrective actions (as per Schedule 17 of O. Reg. 170/03) been taken to address adverse conditions, including any other steps as directed by the Medical Officer of Health? | | | |
| Legislative Requirement | 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; |
|---|
|---|

Observation

Corrective actions (as per Schedule 17), including any other steps that were directed by the Medical Officer of Health, had been taken to address adverse conditions.

| Question ID | MRDW1104000 | Question Type | Legislative |
|--|---|---------------|-------------|
| Question: | | | |
| Were all required verbal notifications of adverse water quality incidents immediately provided as per O. Reg. 170/03 16-6? | | | |
| Legislative Requirement | 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); | | |
| Observation | | | |
| All required notifications of adverse water quality incidents were immediately provided as | | | |

per O. Reg. 170/03 16-6.

| Question ID | MRDW1059000 | Question Type | Legislative |
|---|-----------------------------|---------------|-------------|
| Question: | | | |
| Do the operations and maintenance manuals contain plans, drawings and process descriptions sufficient for the safe and efficient operation of the system? | | | |
| Legislative Requirement | SDWA O. Reg. 128/04 28; | | |
| Observation | | | |
| The operations and maintenance manuals contained plans, drawings and process descriptions sufficient for the safe and efficient operation of the system. | | | |

| Question ID | MRDW1060000 | Question Type | Legislative |
|---|-------------|---------------|-------------|
| Question: | | | |
| Do the operations and maintenance manuals meet the requirements of the DWWP and MDWL issued under Part V of the SDWA? | | | |
| Legislative Requirement SDWA 31 (1); | | | |
| Observation | | | |



The operations and maintenance manuals did not meet the requirements of the Drinking Water Works Permit and Municipal Drinking Water Licence issued under Part V of the SDWA.

Although the operations and maintenance manual content met the requirements of Condition 16.2 of Schedule B of the Licence, some Standard Operating Procedures were over 10 years old and contained information which is no longer valid. The manual did not meet the criteria of Condition 16.1 of Schedule B of the Licence as it was not up-to-date:

16.1 - An up-to-date operations and maintenance manual or manuals shall be maintained and applicable parts of the manual or manuals shall be made available for reference to all persons responsible for all or part of the operation or maintenance of the drinking water system.

This is a contravention of Item 31 (1) (b) of the Safe Drinking Water Act which stipulates:

- 31 (1) No person shall,
 - (b) use or operate a municipal drinking water system that was established before or after this section comes into force except under the authority of and in accordance with an approval under this Part or municipal drinking water licence.

By August 31, 2023, the City of Port Colborne shall arrange to submit an updated copy of the Port Colborne DS operations and maintenance manual and a list of personnel who reviewed the updated manual to a Water Inspector of the Ministry's Niagara District Office.

| Question ID | MRDW1061001 | Question Type | Legislative |
|---|---|---------------|-------------|
| Question: | | | |
| Are logbooks properly maintained and contain the required information? | | | |
| Legislative Requirement | 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); | | |
| Observation | | | |
| Logbooks were properly maintained and contained the required information. | | | |

| Question ID | MRDW1062001 | Question Type | Legislative |
|-------------|-------------|---------------|-------------|
| Question: | | | |

Do records or other record keeping mechanisms confirm that operational testing not performed by continuous monitoring equipment is being done by a certified operator, water



| quality analyst, or person who meets the requirements of O. Reg. 170/03 7-5? | | | | |
|--|-----------------------------------|--------------------|------------------|--|
| Legislative Requirement | SDWA O. Reg. 170/03 7-5; | | | |
| Observation | Observation | | | |
| Records or other record keeping mechanisms confirmed that operational testing not performed by continuous monitoring equipment was being done by a certified operator, water quality analyst, or person who suffices the requirements of O. Reg. 170/03 7-5. | | | | |
| Question ID | MRDW1071000 | Question Type | BMP | |
| Question: Has the owner provided secu system? | · . | t components of th | e drinking water | |
| Legislative Requirement | Not Applicable | | | |
| Observation | | | | |
| The owner had provided security measures to protect components of the drinking water system. As this was a remote inspection, the inspector did not visit the truck filling stations. The ORO confirmed that backflow prevention devices and/or air gaps are in place at the City's two bulk water filling stations. Access is restricted to holders of a security pass card. | | | | |
| Question ID | MRDW1073001 | Question Type | | |
| | WRDW1073001 | Question Type | Legislative | |
| Question: Has the overall responsible operator been designated for all subsystems which comprise the drinking water system? | | | | |
| Legislative Requirement | SDWA O. Reg. 128/04 23 (1); | | | |
| Observation | | | | |
| The overall responsible operator had been designated for each subsystem. The Port Colborne Distribution System is classified as a Class 1 Distribution Subsystem. The designated ORO is Tommy Peazel, who holds a valid Class 2 license, expiring July 31, 2025. His back-up is Rocco Arillotta who also holds a valid Class 2 license, expiring July 31, 2024. | | | | |
| Question ID | MRDW1074001 | Question Type | Legislative | |



Question:

Have operators-in-charge been designated for all subsystems for which comprise the drinking water system?

| Legislative Requirement | SDWA O. Reg. 128/04 25 (1); |
|-------------------------|-----------------------------------|
|-------------------------|-----------------------------------|

Observation

Operators-in-charge had been designated for all subsystems which comprise the drinking water system.

| Question ID | MRDW1075001 | Question Type | Legislative |
|---|-----------------------------|---------------|-------------|
| Question: | | | |
| Do all operators possess the | required certification? | | |
| Legislative Requirement | SDWA O. Reg. 128/04 22; | | |
| Observation | | | |
| All operators possessed the required certification. | | | |

| Question ID | MRDW1115001 | Question Type | Legislative |
|--|----------------------------|---------------------|---------------------|
| Question: | Question: | | |
| Were the inspection questions during the inspection period? | s sufficient to address of | other non-complian | ce items identified |
| Legislative Requirement | Not Applicable | | |
| Observation | | | |
| The following instance(s) of n | on-compliance were al | so noted during the | inspection: |
| The City is exempt from taking samples in plumbing under Schedule 15.1-5 (9) of O. Reg. 170/03. Although they took the four alkalinity samples during the sampling sessions, the City did not take the required lead samples during the winter 2021-22 sampling session. This was a contravention of item (b) of Schedule 15.1-5 (10) of O. Reg. 170/03. which states: | | | |
| 15.1-5 (10) When the requirements for taking samples set out in clauses (3) (a) and (b) and subsection (8) cease to apply under subsection (9) to a drinking water system, the owner of the drinking water system and the operating authority for the system shall ensure that samples are taken as described in clause (3) (c), in accordance with subsection 15.1-7 (2), (b) to test for lead during each of the periods described in subsection (5) in every third 12-month period. | | | |



The day the sampling was scheduled was an excessive snow event (30cm of snow) and there was also a debriefing from previous eight watermain breaks from the week prior.

The City retrained the operators on the lead sampling requirements. In addition to printing monthly sample schedules, lead sampling requirements were added to an electronic calendar accessible to the operators. No further action was required.

| Question ID | MRDW1116001 | Question Type | BMP | |
|---|-------------------------|----------------------|--------------------|--|
| Question: | Question: | | | |
| Were the inspection questions | s sufficient to address | other identified bes | t practice issues? | |
| Legislative Requirement | Not Applicable | | | |
| Observation | | | | |
| The following issues were als | o noted during the insp | pection: | | |
| The City used WaterTrax to submit microbiological sample results and FCR entries. There were missing results and conflicting information in the first submission. The City corrected the situation and agreed to submit a plan to prevent reoccurrences by May 31, 2023. | | | | |
| 2 - The City of Port Colborne is required to follow the requirements of the updated Watermain Disinfection Procedure, August 2020. The updated procedure changed the way the categories of breaks are determined. All breaks are now considered Category 2 unless the Operator-In-Charge (OIC) reclassifies them as Category 1 and no issues occur after the reclassification. The City's form is still based on the 2015 procedure in which breaks were classified by the OIC as Category 1 and 2 and re-classified as needed. The City is encouraged to modify the watermain break record form to be more in-line with the 2020 procedure. The City is also encouraged to set up a process to ensure that all documentation required for new watermains (WDP Section 3.1) is easy to review. | | | | |
| 3 - The City experienced eight watermain breaks between January 23 and 24, 2022. The City's personnel may wish to consider discussing with personnel from the Port Colborne Water Treatment Plant to determine if steps could be taken to prevent series of breaks during cold weather in the future. | | | | |
| Question ID | MRDW1117001 | Question Type | Information | |
| Question: | | | | |

| Are there any other DWS rela | ted items that should be recognized in this report? |
|------------------------------|---|
| | |

| Legislative Requirement | Not Applicable |
|-------------------------|----------------|
|-------------------------|----------------|



Observation

The following items are noted as being relevant to the Drinking Water System:

The City will be installing three smart hydrants in 2023. These hydrants allow monitoring system pressure and water temperature to help detect watermain breaks more rapidly.



<u>Appendix A</u>

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 Public Information Centre if you need assistance or have questions at 1-800-565-4923/416-325-4000 or **picemail.moe@ontario.ca**.

For more information on Ontario's drinking water visit **www.ontario.ca/drinkingwater** and email **drinking.water@ontario.ca** to subscribe to drinking water news.



| PUBLICATION TITLE | PUBLICATION NUMBER |
|---|---------------------|
| Taking Care of Your Drinking Water: A Guide for Members of Municipal Councils | 7889e01 |
| FORMS: Drinking Water System Profile Information, Laboratory Services Notification, Adverse Test Result Notification Form | 7419e, 5387e, 4444e |
| Procedure for Disinfection of Drinking Water in Ontario | 4448e01 |
| Strategies for Minimizing the Disinfection Products Trihalomethanes and Haloacetic Acids | 7152e |
| Total Trihalomethane (TTHM) Reporting Requirements Technical Bulletin (February 2011) | 8215e |
| Filtration Processes Technical Bulletin | 7467 |
| Ultraviolet Disinfection Technical Bulletin | 7685 |
| Guide for Applying for Drinking Water Works Permit Amendments, Licence Amendments, Licence Renewals and New System Applications | 7014e01 |
| Certification Guide for Operators and Water Quality Analysts | |
| Guide to Drinking Water Operator Training Requirements | 9802e |
| Taking Samples for the Community Lead Testing Program | 6560e01 |
| Community Sampling and Testing for Lead: Standard and Reduced Sampling and Eligibility for Exemption | 7423e |
| Guide: Requesting Regulatory Relief from Lead Sampling Requirements | 6610 |
| Drinking Water System Contact List | 7128e |
| Technical Support Document for Ontario Drinking Water Quality Standards | 4449e01 |

ontario.ca/drinkingwater



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 Centre d'information au public au 1 800 565-4923 ou au 416 325-4000, ou encore à **picemail.moe@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 ou envoyez un courriel à drinking.water@ontario.ca pour suivre l'information sur l'eau potable.

| TITRE DE LA PUBLICATION | NUMÉRO DE PUBLICATION |
|--|-----------------------|
| Prendre soin de votre eau potable – Un guide destiné aux membres des conseils municipaux | 7889f01 |
| Renseignements sur le profil du réseau d'eau potable, Avis de demande de services de laboratoire, Formulaire de communication de résultats d'analyse insatisfaisants et du règlement des problèmes | 7419f, 5387f, 4444f |
| Marche à suivre pour désinfecter l'eau potable en Ontario | 4448f01 |
| Strategies for Minimizing the Disinfection Products Thrihalomethanes and Haloacetic Acids (en anglais seulement) | 7152e |
| Total Trihalomethane (TTHM) Reporting Requirements: Technical Bulletin (février 2011) (en anglais seulement) | 8215e |
| Filtration Processes Technical Bulletin (en anglais seulement) | 7467 |
| Ultraviolet Disinfection Technical Bulletin (en anglais seulement) | 7685 |
| Guide de présentation d'une demande de modification du permis d'aménagement de station de production d'eau potable, de modification du permis de réseau municipal d'eau potable, de renouvellement du permis de réseau municipal d'eau potable et de permis pour un nouveau réseau | 7014f01 |
| 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 | |
| Guide sur les exigences relatives à la formation des exploitants de réseaux d'eau potable | 9802f |
| Prélèvement d'échantillons dans le cadre du programme d'analyse de la teneur en plomb de l'eau dans les collectivités | 6560f01 |
| Échantillonnage et analyse du plomb dans les collectivités : échantillonnage normalisé ou réduit et admissibilité à l'exemption | 7423f |
| Guide: Requesting Regulatory Relief from Lead Sampling Requirements (en anglais seulement) | 6610 |
| Liste des personnes-ressources du réseau d'eau potable | 7128f |
| Document d'aide technique pour les normes, directives et objectifs associés à la qualité de l'eau potable en Ontario | 4449f01 |

ontario.ca/eaupotable





<u>Appendix B</u>

Inspection Rating Record (IRR)



NOTE:

IRR SCORE TO FOLLOW IN A SEPARATE EMAIL

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

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 riskbased 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:

RISK = LIKELIHOOD × 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 $32 (4 \times 8)$ and the lowest would be $0 (0 \times 1)$.

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 |
| Medium Administrative Consequence | Major Administrative Consequence | Minor Environmental Consequence | Minor Health Consequence | Medium Environmental Consequence | Major Environmental Consequence | Medium Health Consequence | Major 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) |
| R=4 | R=2 | R=6 | R=12 | R=15 | R=6 | R=21 | R=16 |

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 noncompliance. 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.

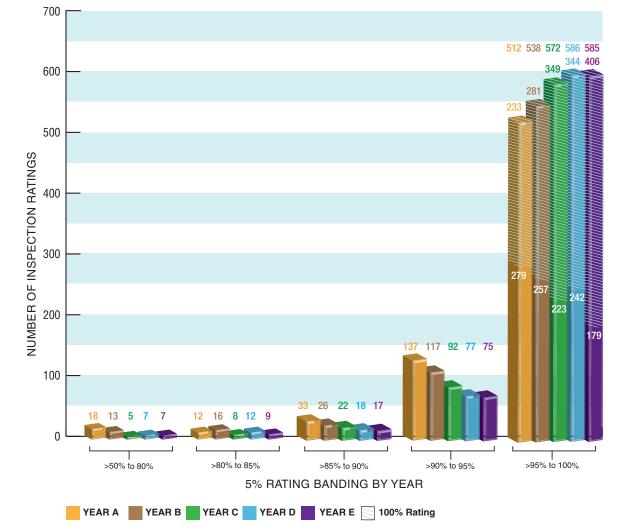


Figure 1: Year Over Year Distribution of MRDWS Ratings

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,

- 1. Source
- 2. Permit to Take Water
- 3. Capacity Assessment
- 4. Treatment Processes
- 5. Treatment Process Monitoring
- 6. Process Wastewater
- 7. Distribution System
 8. Operations Manuals
- which would provide the system owner/operator with information on the areas where they need to improve. The 15 modules are:
- 9. Logbooks
- 10. Contingency and Emergency Planning
- 11. Consumer Relations
- 12. Certification and Training
- 13. Water Quality Monitoring
- 14. Reporting, Notification and Corrective Actions
- 15. Other Inspection Findings
- For further information, please visit www.ontario.ca/drinkingwater



Ministry of the Environment,Ministère de l'EnviroConservation and Parksla nature et des ParcDrinking Water and EnvironmentalDivision de la conforrCompliance Division, West Central Regionet d'environnementNiagara District OfficeDirection régionale de9th Floor, Suite 15Bureau du district de301 St. Paul Street9e étage, bureau 15St. Catharines, ON L2R 7R4301, rue St. PaulTel.:905-704-39001-800-263-1035Tél.:905-704-40151-800-263-103

Ministère de l'Environnement de la Protection de la nature et des Parcs Division de la conformité en matière d'eau potable et d'environnement Direction régionale du Centre-Ouest Bureau du district de Niagara 9e étage, bureau 15 301, rue St. Paul St. Catharines, ON L2R 7R4 Tél.: 905-704-3900 1-800-263-1035 Téléc:: 905-704-4015

Friday, February 3, 2023

SI NI PC 540 – 2022-23 DWS# 260001643

Cassandra Banting Environmental Compliance Supervisor City of Port Colborne 1 Killaly St W Port Colborne, ON <u>Cassandra.Banting@portcolborne.ca</u>

Re: MECP Inspection - Port Colborne Distribution System (DWS# 260001643)

Good Morning,

As follow-up to the distribution of the inspection report for the Port Colborne Distribution System (DWS# 260001643) (below), please find attached the corresponding Inspection Rating Report (IRR) and <u>Risk Methodology</u> document.

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 let me know if you have any questions.

Sincerely,

uggial.

Sylvain Campbell, P. Eng. Provincial Officer #1278, Water Inspector Niagara District Office - West Central Region Phone: (905) 321-9169 E-mail: sylvain.campbell@ontario.ca

 Cc: Steve Shypowskyj – Director of Public Works - City of Port Colborne Darlene Suddard - Manager of Water/Wastewater - City of Port Colborne Tommy Peazel - ORO - City of Port Colborne
 Glen Hudgin - Niagara Region Public Health Unit
 Peter Jekel - Niagara Region Public Health Unit
 Leilani Lee-Yates - Niagara Peninsula Conservation Authority
 Thomas Proks - Niagara Peninsula Conservation Authority
 Elizabeth Chee Sing – Water Compliance Supervisor - MECP
 MECP Niagara District File

| DWS Name: | PORT COLBORNE DISTRIBUTION SYSTEM | | | |
|---------------------|--|--|--|--|
| DWS Number: | 260001643 | | | |
| DWS Owner: | CORPORATION OF THE CITY OF PORT COLBORNE | | | |
| Municipal Location: | PORT COLBORNE | | | |
| Regulation: | O.REG. 170/03 | | | |
| DWS Category: | DW Municipal Residential | | | |
| Type of Inspection: | Focused | | | |
| Inspection Date: | Dec-13-2022 | | | |
| Ministry Office: | Niagara District Office | | | |

Maximum Risk Rating: 220

| Inspection Module | Non Compliance Rating |
|--------------------------------|-----------------------|
| Operations Manuals | 14 / 28 |
| Reporting & Corrective Actions | 0/21 |
| Other Inspection Findings | 0/171 |
| Overall - Calculated | 14 / 220 |

Inspection Risk Rating: 6.36%

Final Inspection Rating: 93.64%

| DWS Name: | PORT COLBORNE DISTRIBUTION SYSTEM | | | | |
|----------------------------|--|--|--|--|--|
| DWS Number: | 260001643 | | | | |
| DWS Owner Name: | CORPORATION OF THE CITY OF PORT COLBORNE | | | | |
| Municipal Location: | PORT COLBORNE | | | | |
| Regulation: | O.REG. 170/03 | | | | |
| DWS Category: | DW Municipal Residential | | | | |
| Type of Inspection: | Focused | | | | |
| Inspection Date: | Dec-13-2022 | | | | |
| Ministry Office: | Niagara District Office | | | | |

| Non-Compliant Question(s) | | |
|---|----|--|
| Operations Manuals | | |
| Do the operations and maintenance manuals meet the requirements of the DWWP and MDWL issued under Part V of the SDWA? | 14 | |
| Other Inspection Findings | | |
| Were the inspection questions sufficient to address other non-compliance items identified during the inspection period? | 0 | |
| Overall - Total | 14 | |

Maximum Question Rating: 220

| | 6.36% | |
|-------|--------|--|
| | | |
| FINAL | 93.64% | |

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

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 riskbased 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:

RISK = LIKELIHOOD × 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 $32 (4 \times 8)$ and the lowest would be $0 (0 \times 1)$.

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 |
| Medium Administrative Consequence | Major Administrative Consequence | Minor Environmental Consequence | Minor Health Consequence | Medium Environmental Consequence | Major Environmental Consequence | Medium Health Consequence | Major 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) |
| R=4 | R=2 | R=6 | R=12 | R=15 | R=6 | R=21 | R=16 |

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 noncompliance. 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.

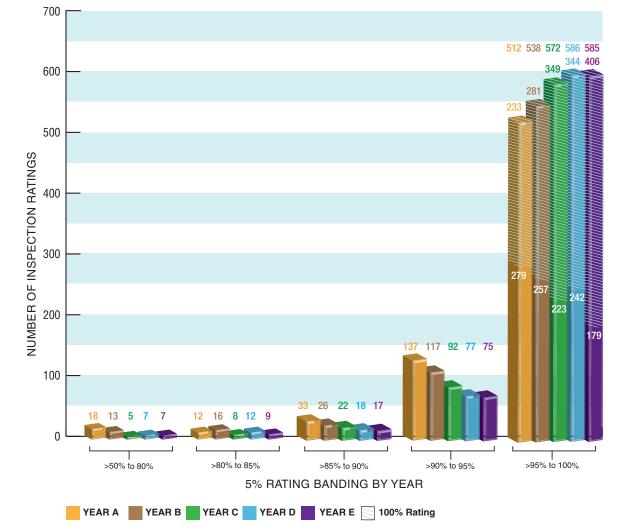


Figure 1: Year Over Year Distribution of MRDWS Ratings

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,

- 1. Source
- 2. Permit to Take Water
- 3. Capacity Assessment
- 4. Treatment Processes
- 5. Treatment Process Monitoring
- 6. Process Wastewater
- 7. Distribution System
 8. Operations Manuals
- which would provide the system owner/operator with information on the areas where they need to improve. The 15 modules are:
- 9. Logbooks
- 10. Contingency and Emergency Planning
- 11. Consumer Relations
- 12. Certification and Training
- 13. Water Quality Monitoring
- 14. Reporting, Notification and Corrective Actions
- 15. Other Inspection Findings
- For further information, please visit www.ontario.ca/drinkingwater