

**Ministry of the Environment,  
Conservation and Parks**

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**Ministère de l'Environnement de la Protection de  
la nature et des Parcs**

Division de la conformité en matière d'eau potable  
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Friday, January 15, 2021

File: SI NI WL A540 – 2020-21  
DWS# 260002876

Steve McGean

Manager of Road Operations, Water & Wastewater –  
Public Works Department Township of West Lincoln,  
6218 London Road, Smithville, Ontario,  
L0R 2A0

Re: Smithville Distribution System Inspection Report

Dear Mr. McGean,

Please find the enclosed copy of the inspection report for the Smithville Distribution System initiated on December 17, 2020.

The items found within the section entitled “Non-compliance with Regulatory Requirements and Actions Required” outline non-compliance 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.

The items found within the section entitled “Summary of Best Practice Issues and Recommendations” 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 are also 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 (IIE) 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. Please note the attached IRR methodology memo describing how the risk rating

model has improved to better reflect the health related and administrative non-compliance found in an inspection report. IRR ratings are published (for the previous inspection year) in the Ministry's Chief Drinking Water Inspectors' Annual Report. If you have any questions or concerns regarding the rating, please contact Zafar Bhatti, Water Compliance Supervisor, at (519) 400-6731.

Thank you for the assistance during the inspection. Please do not hesitate to contact me if you have any questions or concerns about the attached report.

Sincerely,

A handwritten signature in black ink, appearing to read 'Sylvain Campbell'.

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](mailto:sylvain.campbell@ontario.ca)

Cc: Atrayu Benish – Township of West Lincoln  
Glen Hudgin - Niagara Public Health Department  
Darrin MacKenzie - Niagara Peninsula Conservation Authority  
Zafar Bhatti – Ministry of the Environment, Conservation and Parks  
MECP Niagara District File



**Ministry of the Environment, Conservation and Parks**

**SMITHVILLE DISTRIBUTION SYSTEM**  
**Inspection Report**

<b>Site Number:</b>	260002876
<b>Inspection Number:</b>	1-NS39J
<b>Date of Inspection:</b>	Dec 17, 2020
<b>Inspected By:</b>	Sylvain Campbell

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## TABLE OF CONTENTS

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**Cover Letter**

**Owner & Contact Information** 2

**Inspection Details & Drinking Water System Components Description** 2

**Inspection Summary (should include all of the following if applicable)** 4

- Introduction
- Capacity Assessment
- Treatment Processes
- Treatment Process Monitoring
- Distribution System
- Operations Manuals
- Logbooks
- Contingency/Emergency Planning
- Security
- Consumer Relations
- Certification and Training
- Water Quality Monitoring
- Water Quality Assessment
- Reporting & Corrective Actions
- Other Inspection Findings

**Non-Compliance with Regulatory Requirements and Actions Required** 8

**Summary of Best Practice Issues and Recommendations** 9

**Signatures** 10

**APPENDIX A: Stakeholder Appendix**

**APPENDIX B: MOE Audit Sample Results (if applicable)**

**APPENDIX C: Inspection Rating Report**

## OWNER INFORMATION:

<b>Company Name:</b>	WEST LINCOLN, THE CORPORATION OF THE TOWNSHIP OF		
<b>Street Number:</b>	318	<b>Unit Identifier:</b>	
<b>Street Name:</b>	CANBOROUGH St E		
<b>City:</b>	SMITHVILLE		
<b>Province:</b>	ON	<b>Postal Code:</b>	L0R 2A0

## CONTACT INFORMATION

<b>Type:</b>	ORO	<b>Name:</b>	Steve McGean
<b>Phone:</b>	(905) 957-3346 x4692	<b>Fax:</b>	(905) 957-1773
<b>Email:</b>	smcgear@westlincoln.ca		
<b>Title:</b>	Manager Of Operations		

<b>Type:</b>	Niagara Public Health Unit	<b>Name:</b>	Glen Hudgin
<b>Phone:</b>	(905) 688-3762	<b>Fax:</b>	(905) 641-4994
<b>Email:</b>	glen.hudgin@niagararegion.ca		
<b>Title:</b>	Manager, Environmental Health - Niagara Region Public Health Unit		

<b>Type:</b>	Conservation Authority	<b>Name:</b>	Darren MacKenzie
<b>Phone:</b>	(905) 788-3135	<b>Fax:</b>	
<b>Email:</b>	dmackenzie@npca.ca		
<b>Title:</b>	Director of Planning and Regulations		

## INSPECTION DETAILS:

<b>Site Name:</b>	SMITHVILLE DISTRIBUTION SYSTEM
<b>Site Address:</b>	6218 LONDON Road SMITHVILLE ON L0R 2A0
<b>County/District:</b>	WEST LINCOLN
<b>MECP District/Area Office:</b>	Niagara District
<b>Health Unit:</b>	REGIONAL NIAGARA PUBLIC HEALTH DEPARTMENT
<b>Conservation Authority:</b>	Niagara Peninsula Conservation Authority
<b>MNR Office:</b>	Guelph District Office
<b>Category:</b>	Large Municipal Residential
<b>Site Number:</b>	260002876
<b>Inspection Type:</b>	Unannounced
<b>Inspection Number:</b>	1-NS39J
<b>Date of Inspection:</b>	Dec 17, 2020
<b>Date of Previous Inspection:</b>	Jan 24, 2020

## COMPONENTS DESCRIPTION

<b>Site (Name):</b>	SMITHVILLE DISTRIBUTION SYSTEM	
<b>Type:</b>	Other	<b>Sub Type:</b> Other
<b>Comments:</b>		

The Township of West Lincoln (the Township) owns and operates the Smithville Class I stand-alone water distribution system. Secondary disinfected, free chlorine treated water is supplied by the Grimsby Drinking Water System. All

treatment and storage facilities are owned and operated by the Regional Municipality of Niagara and are subject to a separate inspection.

The Smithville Distribution System has approximately 31 km of water mains, serving approximately 5945 residents via approx. 2389 fully metered service connections. The system contains about 236 hydrants and 265 valves.

The Township also owns and operates a bulk fill station with two top filling and two bottom filling lines to serve the rural population as well as a small container fill station. All Township owned services are protected by backflow devices.

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**Site (Name):** MOE DWS Mapping  
**Type:** DWS Mapping Point

**Sub Type:**

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## INSPECTION SUMMARY:

### Introduction

- 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.

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 report is based on an inspection of a "stand alone connected distribution system". This type of system receives treated water from a separately owned "donor" system. This report contains the elements required to assess key compliance and conformance issues associated with a "receiver" system. This report does not contain items associated with the inspection of the donor system, such as source waters, intakes/wells and treatment facilities.

This report is based on a "focused" inspection of the system. Although the inspection involved fewer activities than those normally undertaken in a detailed inspection, it contained critical elements required to assess key compliance issues. This system was chosen for a focused inspection because the system's performance met the ministry's criteria, most importantly that there were no deficiencies as identified in O. Reg. 172/03 over the past 3 years. The undertaking of a focused inspection at this drinking water system does not ensure that a similar type of inspection will be conducted at any point in the future.

**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.**

This focused inspection included a review of operational records for the distribution system (DS) from January 25, 2020 to December 15, 2020. Issues 2 of Drinking Water Works Permit (DWWP) 077-201 and Municipal Drinking Water Licence (MDWL) 077-101 were approved on June 10, 2016.

During the site visits, the Water Inspector met with the Manager of Operations who is the Overall Responsible Operator (ORO) for the system.

### Treatment Processes

- **The owner/operating authority was in compliance with the requirement to prepare Form 1 documents as required by their Drinking Water Works Permit during the inspection period.**

The Form 1 projects which were mentioned in the last inspection report were commissioned and included in the distribution system (DS) drawings.

During this inspection, 5 new Forms 1 were reviewed. They appeared to meet the requirements of Condition 3 of Schedule B of the DWWP. The following list shows the status of each project:

### Treatment Processes

Project Description	Approval Date	Date Commissioned	In DS Drawing?
1 – Old Town Gateway Estate Block 47	Nov. 18, 2019	Feb. 20, 2020	No
2 – Griffin Street between RR20 and Convenient Street	May 12, 2020	May 28, 2020	No
3 – Spring Creek Road	May 12, 2020	July 7, 2020	No
4 – 105 West Street	May 15, 2020	Not yet	N/A
5 – Industrial Park	July 8, 2020	Aug 17, 2020	No

The Township usually sends hand marked changes of its DS drawings to the Region of Niagara who transfers the changes to its GIS system and sends updated drawings. The changes are ready but have not been processed due to the pandemic.

- **Where an activity has occurred that could introduce contamination, all parts of the drinking water system were disinfected in accordance with Schedule B, Condition 2.3 of the Drinking Water Works Permit.**

The Township's watermain commissioning and watermain repairs documentation met the requirements of the current Ontario Watermain Disinfection Procedure. The Manager of Operations was aware that an updated version of the Watermain Disinfection Procedure was released on August 1, 2020. He was advised to modify the DS watermain repair/commissioning procedures and forms to meet the updated procedure's documentation requirements by the date required in the DS future DWWP.

### Treatment Process Monitoring

- **The secondary disinfectant residual was measured as required for the distribution system.**

Free chlorine residual (FCR) measurements were performed 2 days a week, at least 48 hours apart, during the inspection period. The minimum readout recorded was 0.34 mg/L on October 6, 2020. The Township has an autoflusher near 124 Erie Street, a dead end on the system.

### Operations Manuals

- **The operations and maintenance manuals contained plans, drawings and process descriptions sufficient for the safe and efficient operation of the system.**

The Township has included the operations and maintenance (O&M) manual requirements from the MDWL into its Operations Plan. Although the plan did not contain the DS drawing, a large copy of the drawing was posted at the Public Work's building. The drawing was last updated in January 2020.

- **The operations and maintenance manuals met the requirements of the Drinking Water Works Permit and Municipal Drinking Water Licence issued under Part V of the SDWA.**

### Logbooks

- **Logbooks were properly maintained and contained the required information.**
- **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**



### Logbooks

who suffices the requirements of O. Reg. 170/03 7-5.

### Security

- **The owner had provided security measures to protect components of the drinking water system.**

The bulk fill stations were not visited due to the pandemic. The ORO mentioned that both fill stations were alarmed and had security cameras. The stations were also equipped with backflow prevention devices which are tested on a yearly basis.

### Certification and Training

- **The overall responsible operator had been designated for each subsystem.**

The Smithville DS has received Class 1 Water Distribution Subsystem Certificate #2339 in October 2004. The ORO and his back-up were appropriately licensed for this DS.

- **Operators-in-charge had been designated for all subsystems which comprised the drinking water system.**
- **All operators possessed the required certification.**

One of the operators had to renew his licence during the pandemic. He obtained an extension but his updated licence is expiring soon. The Township has already sent a request for a second extension.

### Water Quality Monitoring

- **All microbiological water quality monitoring requirements for distribution samples were being met.**

The Township is required to take 14 microbiological samples per month, including 1 every week. The Township met the requirements as at least 4 microbiological samples were collected per week during the inspection period. In addition, at least 25% of these samples must also be tested for Heterotrophic Plate Count (HPC). All bacteriological samples were tested for HPC.

- **All haloacetic acid water quality monitoring requirements prescribed by legislation are being conducted within the required frequency and at the required location.**

The running annual average for haloacetic acid (HAA) for 2020 was 6.8 µg/L. The limit for this parameter is 80 µg/L.

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

The running annual average for trihalomethane (THM) for 2020 was 18.4 µg/L. The limit for this parameter is 100 µg/L.

- **Records confirmed that chlorine residual tests were being conducted at the same time and at the same location that microbiological samples were obtained.**

### Water Quality Assessment

- **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).**

During the inspection period, there was one adverse water quality incident (AWQI) reported to the Ministry for a total coliform result of 1 CFU/100 mL. Flushing and resampling resolved the issue.

**Water Quality Assessment****Reporting & Corrective Actions**

- **Corrective actions (as per Schedule 17) had been taken to address adverse conditions, including any other steps that were directed by the Medical Officer of Health.**
- **All required notifications of adverse water quality incidents were immediately provided as per O. Reg. 170/03 16-6.**

**Other Inspection Findings**

- **The following issues were also noted during the inspection:**

The Township qualified for exemption from taking samples in plumbing as per subsection 15.1-5 (9) of Schedule 15.1 of O. Regulation 170/03. Section 15.1-5 (10) requires that, as long as the population served remains in the 3,300 to 9,999 range, 3 distribution samples are to be taken and tested for pH and alkalinity in every lead sampling session. In addition, 3 distribution samples are to be tested for lead during each of the sampling session in every third 12-month period. Three lead samples were obtained during the winter 2017-18 and summer 2018 sampling sessions. The Township is then required to take lead samples during the winter 2020-21 and summer 2021.

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

The system's MDWL is expiring on June 9, 2021. The Manager of Operations indicated that the application for renewal has already been sent to the Ministry.

The Niagara Region's Water and Wastewater Masterplan indicates that the Township will be doubling population by 2041. The Manager of Operations indicated that the Township is planning to begin working on three large size subdivisions in 2021.

**NON-COMPLIANCE WITH REGULATORY REQUIREMENTS AND ACTIONS REQUIRED**

This section provides a summary of all non-compliance with regulatory requirements identified during the inspection period, as well as actions required to address these issues. Further details pertaining to these items can be found in the body of the inspection report.

**Not Applicable**

## **SUMMARY OF RECOMMENDATIONS AND BEST PRACTICE ISSUES**

This section provides a summary of all recommendations and best practice issues identified during the inspection period. Details pertaining to these items can be found in the body of the inspection report. In the interest of continuous improvement in the interim, it is recommended that owners and operators develop an awareness of the following issues and consider measures to address them.

**1. The following issues were also noted during the inspection:**

Three distribution samples are to be tested for lead during each of the sampling session in every third 12-month period. Three lead samples were obtained during the winter 2017-18 and summer 2018 sampling sessions.

**Recommendation:**

The Township is reminded that it is required to take lead samples during the winter 2020-21 and summer 2021.

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**SIGNATURES**

Inspected By:

Sylvain Campbell

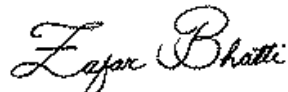
Signature: (Provincial Officer)



Reviewed &amp; Approved By:

Zafar Bhatti

Signature: (Supervisor)



Review &amp; Approval Date:

January 14, 2021

Note: This inspection does not in any way suggest that there is or has been compliance with applicable legislation and regulations as they apply or may apply to this facility. It is, and remains, the responsibility of the owner and/or operating authority to ensure compliance with all applicable legislative and regulatory requirements.

## **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:**

### **Ministry Audit Sample Results (If Applicable)**

## **Appendix C:**

### **Inspection Rating Report**

Ministry of the Environment - Inspection Summary Rating Record (Reporting Year - 2020-2021)

**DWS Name:** SMITHVILLE DISTRIBUTION SYSTEM  
**DWS Number:** 260002876  
**DWS Owner:** West Lincoln, The Corporation Of The Township Of  
**Municipal Location:** West Lincoln

**Regulation:** O.REG 170/03  
**Category:** Large Municipal Residential System  
**Type Of Inspection:** Adhoc  
**Inspection Date:** December 17, 2020  
**Ministry Office:** Niagara District

**Maximum Question Rating:** 216

Inspection Module	Non-Compliance Rating
Treatment Processes	0 / 25
Operations Manuals	0 / 28
Logbooks	0 / 18
Certification and Training	0 / 28
Water Quality Monitoring	0 / 51
Reporting & Corrective Actions	0 / 45
Treatment Process Monitoring	0 / 21
<b>TOTAL</b>	<b>0 / 216</b>

**Inspection Risk Rating** 0.00%

**FINAL INSPECTION RATING:** 100.00%

Ministry of the Environment - Detailed Inspection Rating Record (Reporting Year - 2020-2021)

**DWS Name:** SMITHVILLE DISTRIBUTION SYSTEM  
**DWS Number:** 260002876  
**DWS Owner:** West Lincoln, The Corporation Of The Township Of  
**Municipal Location:** West Lincoln

**Regulation:** O.REG 170/03

**Category:** Large Municipal Residential System

**Type Of Inspection:** Adhoc

**Inspection Date:** December 17, 2020

**Ministry Office:** Niagara District

**Maximum Question Rating:** 216

**Inspection Risk Rating** 0.00%

**FINAL INSPECTION RATING:** 100.00%

# 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:

**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 (4×8) 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
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 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.

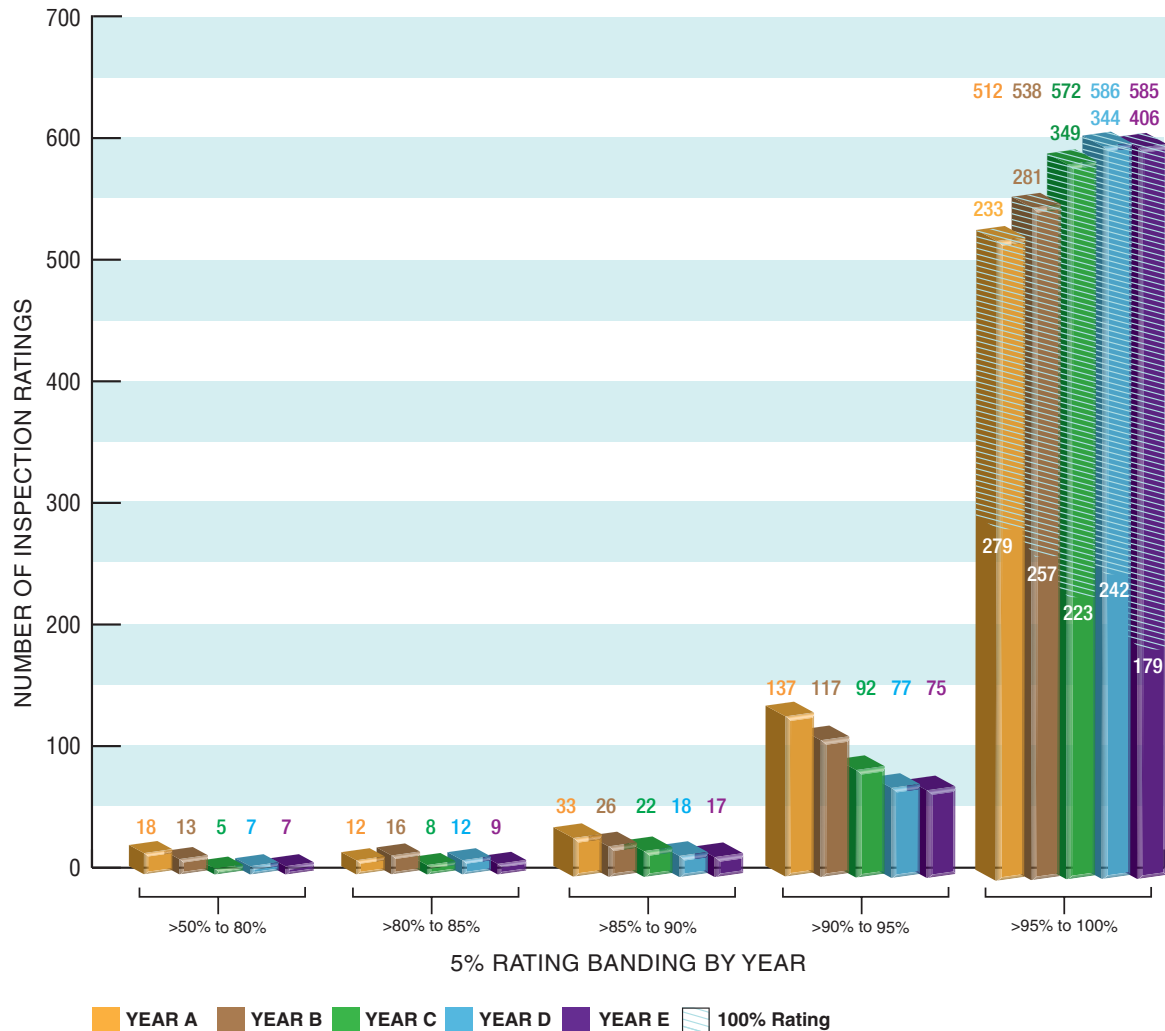


# Application of the Methodology for Public Reporting

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

2. Permit to Take Water

3. Capacity Assessment

4. Treatment Processes
5. Treatment Process Monitoring

6. Process Wastewater

7. Distribution System

8. Operations Manuals
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](http://www.ontario.ca/drinkingwater)