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July 4, 2024

The Corporation of the City of Trent Hills  
66 Front St, P.O. Box Delivery 1030,  
Campbellford, ON, K0L 1L0

Attention: Lynn Phillips, Chief Administrative Officer

**RE: Warkworth Drinking Water System (210000498)  
Drinking Water Inspection Report 1-377543479  
File: SI NO TH BA 540 (2024-2025)**

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Please find attached the Ministry of the Environment, Conservation and Parks inspection report for the above facility. The report details the findings of the inspection that began on May 28, 2024.

The Appendix section of the inspection includes the Stakeholder Appendix A with links to key reference and guidance materials available on the Ministry of the Environment, Conservation and Parks (MECP) website.

In the inspection report, any *“Actions Required”* are linked to incidents of non-compliance with regulatory requirements contained within the Act, a regulation, or site-specific approvals, licenses, permits, orders or instructions. Such violations could result in the issuance of mandatory abatement instruments including Orders, tickets, penalties, or referrals to the ministry’s Investigations and Enforcement Branch.

*“Recommended Actions”* convey information that the owner or operating authority should consider implementing in order to advance efforts already in place to address such issues as emergency preparedness, the availability of information to consumers, and conformance with existing and emerging industrial standards. Please note that items which appear as recommended actions do not, in themselves, constitute violations.

If you have any questions or concerns, please contact me at 705-768-8593.

Yours truly,



Neil Hamilton

Provincial Officer Badge # 1359 | Peterborough District | Drinking Water Environmental Compliance Division

Ministry of the Environment, Conservation and Parks

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Please consider the environment before printing

c:

Scott White, General Manager of Infrastructure & PW Admin, Municipality of Trent Hills

Scott Campbell, Water Operations Senior Operator, Municipality of Trent Hills

Dr. Natalie Bocking, Medical Officer of Health, Haliburton Kawartha Pine Ridge HU

Rhonda Bateman, CAO/Treasurer, Lower Trent Conservation Authority

Brittney Wielgos, Water Supervisor, Ministry of Environment, Conservation & Parks, Peterborough



WARWORTH DRINKING WATER SYSTEM  
Physical Address: 140 BANTA RD, , TRENT HILLS,  
ON K0K 3K0

## INSPECTION REPORT

Entity: THE MUNICIPALITY OF TRENT  
HILLS  
Inspection Start Date: May 22, 2024  
Inspection End Date: June 24, 2024  
Inspected By: Neil Hamilton  
Badge #: 1359



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(signature)

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### **Appendix:**

- A. Stakeholders Appendix**
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## INTRODUCTION

### **Purpose**

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

### **Scope**

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

The inspection of the drinking water system included both the physical inspection of the component parts of the system listed in section 4 "Systems Components" of the report and the review of data and documents associated with the operation of the drinking water system during the review period.

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

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

### **Facility Contacts and Dates**

The drinking water system is owned by The Corporation Of The Municipality Of Trent Hills and operated by The Corporation Of The Municipality Of Trent Hills.

The system serves an estimated population of 660 and is categorized as a Large Municipal Residential System. Information reviewed for this inspection covered the time period of August 16, 2023 to May 28, 2024.

The water inspector met with Jody Trottman, Operator In Charge as part of the inspection process.

### **Systems/Components**

All locations associated with primary disinfection were visited as part of this inspection. The

following sites were visited as part of the inspection of the drinking water system:

Warkworth Drinking Water Plant located at 140 Banta Road.

An outstation is a component of a drinking water system that is not located at either a water treatment plant or a well supply and is generally not associated with primary treatment, for example reservoirs, booster stations, and re-chlorination facilities located within the distribution system. Outstations may be visited on a rotational basis as part of a ministry inspection. This inspection included the inspection of the Warkworth Booster Pumping Station located at 24 Old Hastings Road.

### **Permissions/Approvals**

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

- Permit to Take Water Number 2317-9PHKFF (issued October 6, 2014)
- Drinking Water Works Permit Number 150-201, Issue Number 5 (issued June 21, 2021)
- Municipal Drinking Water License Number 150-101, Issue Number 3 (issued June 21, 2021)

**NON-COMPLIANCE**

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

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

Item	Question	Compliance Response/Corrective Action(s)
NC-1	<p><b>Question ID:</b> DWMR1113001</p> <p>Were changes to the system registration information provided to the ministry within ten (10) days of the change?</p>	<p>Changes to the system registration information were not provided within ten (10) days of the change.</p> <p><b>REQUIRED ACTION:</b></p> <p>No later than July 31, 2024 the owner of the Warkworth DWS shall update the system registration information. Once the changes have been updated notice shall be provided electronically via email to the issuing Provincial Officer.</p>

## **RECOMMENDATIONS**

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

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



### INSPECTION DETAILS

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

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

Question ID	DWMR1012001	Question Type	Legislative
<b>Legislative Requirement(s):</b> SDWA   31   (1);			
<b>Question:</b> Did the owner have a harmful algal bloom monitoring plan in place that met the requirements of the Municipal Drinking Water Licence?			
<b>Compliance Response(s)/Corrective Action(s)/Observation(s):</b> The owner had a harmful algal bloom monitoring plan in place which met the requirements.  Condition 6 of Schedule C of the MDWL requires that the owner develops and keeps up to date a Harmful Algal Bloom monitoring, reporting and sampling plan, and implement the plan when a potential harmful algal bloom is suspected or present. The owner must have the plan in place on or before December 14, 2021.  'Warkworth Water Treatment Plant Harmful Algal Bloom Monitoring Plan' was developed by operating authority on May 12, 2021. The plan describes how to identify, monitor, report and sample harmful algal blooms.			

Question ID	DWMR1014001	Question Type	Legislative
<b>Legislative Requirement(s):</b> SDWA   31   (1);			
<b>Question:</b> Was flow monitoring performed as required by the Municipal Drinking Water Licence or Drinking Water Works Permit?			
<b>Compliance Response(s)/Corrective Action(s)/Observation(s):</b> Flow monitoring was performed as required.  As per condition 2.0 of Schedule C of the MDWL the Warkworth DWS is required to have continuous flow measurement of the treated and raw water flows out of and into the plant.  During the inspection it was observed that the Warkworth DWS has two (2) ABB WaterMaster FEX100 electromagnetic flow meters continuously monitoring flow out of and into the plant.			

<b>Question ID</b>	DWMR1016001	<b>Question Type</b>	Legislative
<b>Legislative Requirement(s):</b> SDWA   31   (1);			
<b>Question:</b> Was the owner in compliance with the conditions associated with maximum flow rate or the rated/operational capacity in the Municipal Drinking Water Licence?			
<b>Compliance Response(s)/Corrective Action(s)/Observation(s):</b> The owner was in compliance with the conditions associated with maximum flow rate and/or the rated/operational capacity conditions.  The Warkworth DWS has a rated capacity of 900 m3/day of treated water.  Throughout the inspection period treated water flows were below the required 900 m3/day.  The highest flow rate in 2023 was 361 m3/day in the month of October and the highest flow rate in 2024 was 267 m3/day in the month of April.			

<b>Question ID</b>	DWMR1018001	<b>Question Type</b>	Legislative
<b>Legislative Requirement(s):</b> SDWA   31   (1);			
<b>Question:</b> Did the owner ensure that equipment was installed in accordance with Schedule A and Schedule C of the Drinking Water Works Permit?			
<b>Compliance Response(s)/Corrective Action(s)/Observation(s):</b> The owner ensured that equipment was installed as required.			

<b>Question ID</b>	DWMR1021001	<b>Question Type</b>	Legislative
<b>Legislative Requirement(s):</b> SDWA   31   (1);			
<b>Question:</b> Were Form 2 documents prepared as required?			
<b>Compliance Response(s)/Corrective Action(s)/Observation(s):</b> Form 2 documents were prepared as required.  A Form 2 document was created on November 28, 2023 in regard to replacing the existing Miltronics MultiRanger Plus level indicator with a Siemns MultiRanger 200.			

Question ID	DWMR1022001	Question Type	Legislative
<p><b>Legislative Requirement(s):</b> SDWA   31   (1);</p>			
<p><b>Question:</b> Were Form 3 and associated documents prepared as required?</p>			
<p><b>Compliance Response(s)/Corrective Action(s)/Observation(s):</b> Form 3 and associated documents were prepared as required.</p> <p>A Form 3 document was created on April 16, 2024 in regard to the existing 58 kW diesel engine standby power generator set was replaced with a 100 kW diesel engine standby power generator set with self contained fuel storage.</p> <p>The existing system was located inside the water treatment plant, the new system is located outside of the building.</p> <p>The existing venting equipment was removed as the new system is located outside of the building.</p> <p>Trent Hills staff confirmed through Tandet that the new generator complies with requirements of Condition 5 of the Warkwoth DWS DWWP 150-201.</p>			

Question ID	DWMR1023001	Question Type	Legislative
<p><b>Legislative Requirement(s):</b> SDWA   O. Reg. 170/03   1-2   (2);</p>			
<p><b>Question:</b> Did records indicate that the treatment equipment was operated in a manner that achieved the design capabilities prescribed by O. Reg. 170/03, Drinking Water Works Permit and/or Municipal Drinking Water Licence at all times that water was being supplied to consumers?</p>			
<p><b>Compliance Response(s)/Corrective Action(s)/Observation(s):</b> Records indicated that the treatment equipment was operated in a manner that achieved the design capabilities prescribed.</p> <p>The Warkwoth DWS obtains water from a surface water source (Mill Creek). The treatment system must be capable of achieving an overall performance that provides, at a minimum, 5-log removal or inactivation of viruses, 4-log removal or inactivation of Giardia cysts and 2-log removal or inactivation of Cryptosporidium oocysts.</p> <p>The treatment system at the Warkwoth DWS consists of chemically assisted filtration followed by disinfection using chlorination. The chemically assisted filtration is credited to provide 2-log Cryptosporidium oocysts, 2.5-log Giardia cysts and 2-log viruses removal or inactivation. Chlorine disinfection is required to provide, at a minimum, 1.5-log removal or inactivation of Giardia cysts.</p>			

The primary disinfection free chlorine residual and Giardia cysts log inactivation are continuously measured and recorded on the SCADA system.

The minimum chlorine residual required to achieve primary disinfection at 0oC, 10oC and 20oC, using both chlorine contact chambers (based on pH of 8.61) is 1.17 mg/L, 0.54 mg/L and 0.24 mg/L, respectively, according to the CT calculations included in the Warkworth Operations Manual.

At the time of the inspection, the minimum chlorine residual alarm set at the chlorine analyzer monitoring primary disinfection was 0.6 mg/L. The minimum chlorine alarm will trigger an automatic filter shutdown.

The monthly data summaries were reviewed for the inspection period.

The minimum primary disinfection chlorine residual of 0.9 mg/L was recorded on August 16, 2023.

To claim 2.5 log Giardia cysts removal and 2.0 log Cryptosporidium oocyst removal credit, the chemically assisted filtration process at the Warkworth DWS must meet the monthly performance criterion for filtered water turbidity of less or equal to 0.3 NTU in 95% of the measurements each month.

The continuous filter effluent turbidity readings are recorded on the SCADA system.

The review of the monthly data summaries confirmed that filter effluent turbidities were maintained below 0.3 NTU in 100% of the time during the inspection period.

During the inspection review period, the Warkworth DWS provided the required minimum level of treatment through chemically assisted filtration and chlorine disinfection.

Question ID	DWMR1024001	Question Type	Legislative
<b>Legislative Requirement(s):</b> SDWA   O. Reg. 170/03   1-2   (2);			
<b>Question:</b> Did records confirm that the water treatment equipment which provides chlorination or chloramination for secondary disinfection was operated as required?			
<b>Compliance Response(s)/Corrective Action(s)/Observation(s):</b> Records confirmed that the water treatment equipment which provides chlorination or chloramination for secondary disinfection was operated as required.  Throughout the inspection period secondary disinfection free chlorine residual values ranged from a low of 0.622 mg/L in January of 2024 to a high of 2.37 mg/L in November of 2023.			

<b>Question ID</b>	DWMR1033001	<b>Question Type</b>	Legislative
<b>Legislative Requirement(s):</b> SDWA   O. Reg. 170/03   7-2   (3); SDWA   O. Reg. 170/03   7-2   (4);			
<b>Question:</b> Was secondary disinfectant residual tested as required for the large municipal residential distribution system?			
<b>Compliance Response(s)/Corrective Action(s)/Observation(s):</b> Secondary disinfectant residual was tested as required.  Distribution system free chlorine residual was continuously measured at the Warkworth booster pumping station by an on-line chlorine analyzer. Chlorine residuals were recorded on the SCADA system.  In addition, distribution chlorine residuals were measured during bacteriological sampling using a hand-held colourimetric unit.			

<b>Question ID</b>	DWMR1030001	<b>Question Type</b>	Legislative
<b>Legislative Requirement(s):</b> SDWA   O. Reg. 170/03   7-2   (1); SDWA   O. Reg. 170/03   7-2   (2);			
<b>Question:</b> Was primary disinfection chlorine monitoring being conducted at a location approved by Municipal Drinking Water Licence and/or Drinking Water Works Permit or at/near a location where the intended CT had just been achieved?			
<b>Compliance Response(s)/Corrective Action(s)/Observation(s):</b> Primary disinfection chlorine monitoring was conducted as required.  The primary disinfection free chlorine residual is measured at the discharge from a two-cell chlorine contact tank.			

<b>Question ID</b>	DWMR1032001	<b>Question Type</b>	Legislative
<b>Legislative Requirement(s):</b> SDWA   O. Reg. 170/03   7-3   (2);			
<b>Question:</b> If the drinking water system obtained water from a surface water source and provided filtration, was continuous monitoring of each filter effluent line performed for turbidity?			
<b>Compliance Response(s)/Corrective Action(s)/Observation(s):</b> Continuous monitoring of each filter effluent line was performed for turbidity.  On-line turbidity analyzers are located at the discharge lines from filter #1 and #2. Filter effluent turbidities are continuously measured and recorded on the SCADA system.			

<b>Question ID</b>	DWMR1035001	<b>Question Type</b>	Legislative
<b>Legislative Requirement(s):</b> SDWA   O. Reg. 170/03   6-5   (1)1-4;			
<b>Question:</b> Were operators examining continuous monitoring test results and did they examine the results within 72 hours of the test?			
<b>Compliance Response(s)/Corrective Action(s)/Observation(s):</b> Operators were examining continuous monitoring test results as required.  Operation staff attended the facility each weekday and reviewed the on-line trending of the operational parameters.  The trending review, daily operational parameters and checks, as well as any unusual observations, were documented in the logbook and daily operational report.			

<b>Question ID</b>	DWMR1038001	<b>Question Type</b>	Legislative
<b>Legislative Requirement(s):</b> SDWA   O. Reg. 170/03   6-5   (1)1-4;			
<b>Question:</b> Was continuous monitoring equipment that was being utilized to fulfill O. Reg. 170/03 requirements performing tests for the parameters with at least the minimum frequency and recording data with the prescribed format?			
<b>Compliance Response(s)/Corrective Action(s)/Observation(s):</b> Continuous monitoring equipment that was being utilized to fulfill O. Reg. 170/03 requirements was performing tests for the parameters with at least the minimum frequency and recording data with the prescribed format.			

<b>Question ID</b>	DWMR1037001	<b>Question Type</b>	Legislative
<b>Legislative Requirement(s):</b> SDWA   O. Reg. 170/03   6-5   (1)5-10; SDWA   O. Reg. 170/03   6-5   (1.1);			
<b>Question:</b> Were all continuous monitoring equipment utilized for sampling and testing required by O. Reg. 170/03, or Municipal Drinking Water Licence or Drinking Water Works Permit or order, equipped with alarms or shut-off mechanisms that satisfied the standards described in Schedule 6?			
<b>Compliance Response(s)/Corrective Action(s)/Observation(s):</b> All required continuous monitoring equipment utilized for sampling and testing were equipped with alarms or shut-off mechanisms that satisfied the standards  It was reported during the inspection that the minimum chlorine alarm at the continuous			

chlorine analyzer monitoring primary disinfection is set at 0.6 mg/L. The minimum chlorine alarm will trigger an automatic filtered water production shutdown.

At the time of the inspection, the maximum (high-high) filter effluent turbidity alarm and an automatic filter shutdown system was set at 0.3 NTU.

The alarms will trigger an immediate notification to the operator.

<b>Question ID</b>	DWMR1040001	<b>Question Type</b>	Legislative
<b>Legislative Requirement(s):</b> SDWA   O. Reg. 170/03   6-5   (1)1-4; SDWA   O. Reg. 170/03   6-5   (1)5-10;			
<b>Question:</b> Were all continuous analysers calibrated, maintained, and operated, in accordance with the manufacturer's instructions or the regulation?			
<b>Compliance Response(s)/Corrective Action(s)/Observation(s):</b> All continuous analysers were calibrated, maintained, and operated as required.  All on-line turbidity and chlorine residual analyzers were calibrated by operation staff on a quarterly basis and documented in work order forms.  All hand-held chlorine and turbidity analyzers were calibrated by Nichol Water Services on June 8, 2023.  Additionally all flow meters are calibrated annually and were last calibrated on November 9, 2023 by Tower Electronics Canada Inc			

<b>Question ID</b>	DWMR1099001	<b>Question Type</b>	Information
<b>Legislative Requirement(s):</b> Not Applicable			
<b>Question:</b> Do records show that water provided by the drinking water system met the Ontario Drinking Water Quality Standards?			
<b>Compliance Response(s)/Corrective Action(s)/Observation(s):</b> Records showed that all water sample results met the Ontario Drinking Water Quality Standards.			

<b>Question ID</b>	DWMR1083001	<b>Question Type</b>	Legislative
<b>Legislative Requirement(s):</b> SDWA   O. Reg. 170/03   10-3;			

<p><b>Question:</b> Were treated microbiological sampling requirements prescribed by Schedule 10-3 of O. Reg. 170/03 for large municipal residential systems met?</p>
<p><b>Compliance Response(s)/Corrective Action(s)/Observation(s):</b> Treated microbiological sampling requirements were met.</p> <p>As per schedule 10-3 - The owner of a drinking water system and the operating authority for the system shall ensure that a water sample is taken at least once every week and tested for, Escherichia coli (EC), total coliforms (TC) and general bacteria population expressed as colony counts on a heterotrophic plate count (HPC).</p> <p>Throughout the inspection period samples were collected weekly for EC, TC and HPC.</p>

<b>Question ID</b>	DWMR1081001	<b>Question Type</b>	Legislative
<b>Legislative Requirement(s):</b> SDWA   O. Reg. 170/03   10-2   (1); SDWA   O. Reg. 170/03   10-2   (2); SDWA   O. Reg. 170/03   10-2   (3);			
<b>Question:</b> Were distribution microbiological sampling requirements prescribed by Schedule 10-2 of O. Reg. 170/03 for large municipal residential systems met?			
<b>Compliance Response(s)/Corrective Action(s)/Observation(s):</b> Distribution microbiological sampling requirements were met. <p>As per schedule 10-2 - The owner of a drinking water system and the operating authority for the system shall ensure that, if the system serves 100,000 people or less, at least eight distribution samples are taken every month, with at least one of the samples being taken in each week being tested for TC and EC.</p> <p>Additionally the owner of the drinking water system and the operating authority for the system shall ensure that at least 25 per cent of the samples taken are tested for HPC.</p> <p>Throughout the inspection period microbiological samples were being collected at least eight times per month with at least one of the samples being taken in each week being tested for TC and EC. All samples were tested for HPC at least twenty five per cent of the time and were usually being tested fifty per cent of the time.</p>			

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



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

Records confirmed that chlorine residual tests were conducted as required.

<b>Question ID</b>	DWMR1084001	<b>Question Type</b>	Legislative
<b>Legislative Requirement(s):</b> SDWA   O. Reg. 170/03   13-2;			
<b>Question:</b> Were inorganic parameter sampling requirements prescribed by Schedule 13-2 of O. Reg. 170/03 met?			
<b>Compliance Response(s)/Corrective Action(s)/Observation(s):</b> Inorganic parameter sampling requirements were met.  As per schedule 13-2 - The owner of a large municipal residential system and the operating authority for the system shall ensure that at least one water sample is taken every 12 months, if the system obtains water from a raw water supply that is surface water and that each of the samples taken is tested for every parameter set out in Schedule 23.  Sampling for inorganic parameters was last conducted on January 4, 2024 and previous to that January 3 2024.			

<b>Question ID</b>	DWMR1085001	<b>Question Type</b>	Legislative
<b>Legislative Requirement(s):</b> SDWA   O. Reg. 170/03   13-4   (1); SDWA   O. Reg. 170/03   13-4   (2); SDWA   O. Reg. 170/03   13-4   (3);			
<b>Question:</b> Were organic parameter sampling requirements prescribed by Schedule 13-4 of O. Reg. 170/03 met?			
<b>Compliance Response(s)/Corrective Action(s)/Observation(s):</b> Organic parameter sampling requirements were met.  As per schedule 13-4 - The owner of a large municipal residential system and the operating authority for the system shall ensure that at least one water sample is taken every 12 months, if the system obtains water from a raw water supply that is surface water and that the sample is tested for every parameter set out in Schedule 24.  Sampling for organic parameters was last conducted on January 4, 2024 and previous to this on January 4 2023.			

Question ID	DWMR1086001	Question Type	Legislative
<p><b>Legislative Requirement(s):</b> SDWA   O. Reg. 170/03   13-6.1   (1); SDWA   O. Reg. 170/03   13-6.1   (2); SDWA   O. Reg. 170/03   13-6.1   (3); SDWA   O. Reg. 170/03   13-6.1   (4); SDWA   O. Reg. 170/03   13-6.1   (5); SDWA   O. Reg. 170/03   13-6.1   (6);</p>			
<p><b>Question:</b> Were haloacetic acid sampling requirements prescribed by Schedule 13-6 of O. Reg. 170/03 met?</p>			
<p><b>Compliance Response(s)/Corrective Action(s)/Observation(s):</b> Haloacetic acid sampling requirements were met.</p> <p>As per schedule 13-6.1 - the owner of a drinking water system that provides chlorination or chloramination and the operating authority for the system shall ensure that at least one distribution sample is taken in each calendar quarter, from a point in the drinking water system's distribution system, or plumbing that is connected to the drinking water system, that is likely to have an elevated potential for the formation of haloacetic acids and have that sample tested for haloacetic acids (HAAs).</p> <p>Throughout the inspection period HAAs were collected on August 21, 2023, November 21, 2023, February 13, 2024, May 13, 2024.</p> <p>Respectively, results were 61.6 ug/L, 19.9 ug/L, 16 ug/L and 51.7 ug/L with the current running average at 37.3 ug/L.</p>			

Question ID	DWMR1087001	Question Type	Legislative
<p><b>Legislative Requirement(s):</b> SDWA   O. Reg. 170/03   13-6   (1); SDWA   O. Reg. 170/03   13-6   (2); SDWA   O. Reg. 170/03   13-6   (3); SDWA   O. Reg. 170/03   13-6   (4); SDWA   O. Reg. 170/03   13-6   (5); SDWA   O. Reg. 170/03   13-6   (6);</p>			
<p><b>Question:</b> Were trihalomethane sampling requirements prescribed by Schedule 13-6 of O. Reg. 170/03 met?</p>			
<p><b>Compliance Response(s)/Corrective Action(s)/Observation(s):</b> Trihalomethane sampling requirements were met.</p> <p>As per schedule 13-6 - The owner of a drinking water system that provides chlorination or chloramination and the operating authority for the system shall ensure that at least one distribution sample is taken in each calendar quarter, from a point in the drinking water system's distribution system, or plumbing that is connected to the drinking water system, that is likely to have an elevated potential for the formation of trihalomethanes (THMS).</p> <p>Throughout the inspection period THMS were collected on August 21, 2023, November 21, 2023, February 13, 2024, May 13, 2024.</p>			

Respectively, results were 120 ug/L, 45 ug/L, 32 ug/L and 69 ug/L with the current running average at 66.5 ug/L.

<b>Question ID</b>	DWMR1088001	<b>Question Type</b>	Legislative
<b>Legislative Requirement(s):</b> SDWA   O. Reg. 170/03   13-7;			
<b>Question:</b> Were nitrate/nitrite sampling requirements prescribed by Schedule 13-7 of O. Reg. 170/03 met?			
<b>Compliance Response(s)/Corrective Action(s)/Observation(s):</b> Nitrate/nitrite sampling requirements were met.  As per schedule 13-7 - The owner of a drinking water system and the operating authority for the system shall ensure that at least one water sample is taken every three months and tested for nitrate and nitrite.  Throughout the inspection period Nitrate/Nitrite were collected on August 21, 2023, November 21, 2023, February 13, 2024, May 13, 2024.  Respectively, results were 0.227 mg/L, 0.448 mg/L, 0.412 mg/L and 0.184 mg/L.			

<b>Question ID</b>	DWMR1089001	<b>Question Type</b>	Legislative
<b>Legislative Requirement(s):</b> SDWA   O. Reg. 170/03   13-8;			
<b>Question:</b> Were sodium sampling requirements prescribed by Schedule 13-8 of O. Reg. 170/03 met?			
<b>Compliance Response(s)/Corrective Action(s)/Observation(s):</b> Sodium sampling requirements were met.  As per schedule 13-8. The owner of a drinking water system and the operating authority for the system shall ensure that at least one water sample is taken every 60 months and tested for sodium.  Sodium was last sampled and tested on January 4, 2024 with a result of 8.81 mg/L. Previous to this sodium was sampled and tested on January 4, 2023 with a result of 9.04 mg/L.			

<b>Question ID</b>	DWMR1090001	<b>Question Type</b>	Legislative
<b>Legislative Requirement(s):</b> SDWA   O. Reg. 170/03   13-9;			
<b>Question:</b> Where fluoridation is not practiced, were fluoride sampling requirements prescribed by			

Schedule 13-9 of O. Reg. 170/03 met?

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

Fluoride sampling requirements were met.

As per schedule 13-9. If a drinking water system does not provide fluoridation, the owner of the system and the operating authority for the system shall ensure that a water sample is taken at least once every 60 months and tested for fluoride.

Fluoride was last sampled and tested on January 4, 2024 with a result of 0.06 mg/L. Previous to this sodium was sampled and tested on January 4, 2023 with a result of 0.06 mg/L.

<b>Question ID</b>	DWMR1094001	<b>Question Type</b>	Legislative
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**Legislative Requirement(s):**

SDWA | 31 | (1);

**Question:**

Were water quality sampling requirements imposed by the Municipal Drinking Water Licence and Drinking Water Works Permit met?

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

Water quality sampling requirements were met.

Section 5.2 of the Schedule C of the Municipal Drinking Water License requires collection of a monthly manual composite sample for total suspended solids (TSS) analysis and a monthly grab sample for total chlorine residual analysis in the wastewater supernatant discharged to the Mill Creek. The MDW sets the annual running average limits for TSS at 25 mg/L, and a limit of 0.02 mg/L for total chlorine residual.

A document review throughout the inspection period confirmed that wastewater samples were collected monthly and analyzed for total suspended solids and total chlorine residual.

The annual average concentration for total suspended solids was 18 mg/L with a limit of 25 mg/L.

The annual average concentration for total chlorine residual was 0.01 mg/L with a limit of 0.02 mg/L.

<b>Question ID</b>	DWMR1113001	<b>Question Type</b>	Legislative
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**Legislative Requirement(s):**

SDWA | O. Reg. 170/03 | 10.1 | (3);

**Question:**

Were changes to the system registration information provided to the ministry within ten (10) days of the change?

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

Changes to the system registration information were not provided within ten (10) days of the change.

**REQUIRED ACTION:**

No later than July 31, 2024 the owner of the Warkworth DWS shall update the system registration information. Once the changes have been updated notice shall be provided electronically via email to the issuing Provincial Officer.

Scott White who was the General Manager of Infrastructure Renewal and listed on the Drinking Water System Profile as the DWS Operational 24/7 Contact, DWS Owner Alternate Contact and the DWS Operating Authority Alternate Contact has retired on February 29, 2024 and has since been retained under contract by the municipality until the municipality hires a new manager.

As such the contact information on the system registration is required to be updated to reflect contact changes for Scott White.

Question ID	DWMR1114001	Question Type	Legislative
<p><b>Legislative Requirement(s):</b> SDWA   31   (1);</p>			
<p><b>Question:</b> Did the owner have evidence that, when required, all legal owners associated with the drinking water system were notified of the requirements of the Municipal Drinking Water Licence and Drinking Water Works Permit?</p>			
<p><b>Compliance Response(s)/Corrective Action(s)/Observation(s):</b> The owner had evidence that the required notifications were made.  The municipality of Trent Hills advised that their planning department has been provided with an information package for developers which includes copies of the DWWP and MDWL for each of our systems.</p>			

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

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

<b>Question ID</b>	DWMR1071001	<b>Question Type</b>	BMP
<b>Legislative Requirement(s):</b> Not Applicable			
<b>Question:</b> Did the owner provide security measures to protect components of the drinking water system?			
<b>Compliance Response(s)/Corrective Action(s)/Observation(s):</b> The owner provided security measures to protect components of the drinking water system.  The property around the Warkworth water treatment facility is fenced. The building's access door is locked and equipped with Trent security alarm system.  The Warkworth Off Site Reservoir is secured with a chain link fence topped with barbed wire with a secure lock on the gate of the fence.  Lastly the Warkworth Booster Pumping Station has a locked access door and is also equipped with Trent security alarm system.			

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

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

An overall responsible operator was designated for all subsystem.

The Warkworth DWS is classified as a Class 3 Water Treatment Subsystem and a Class 2 Water Distribution Subsystem. During the inspection period, Scott Campbell, the Senior Operator, was designated as the Overall Responsible Operator (ORO). Mr. Campbell holds valid Class 3 Water Treatment Subsystem and Class 2 Water Distribution and Supply Subsystem certificates.

In his absence, Scott White, would assume the role of the ORO. Mr. White holds valid Class 3 Water Treatment Subsystem and Class 2 Water Distribution and Supply Subsystem certificates

<b>Question ID</b>	DWMR1074001	<b>Question Type</b>	Legislative
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**Legislative Requirement(s):**  
SDWA | O. Reg. 128/04 | 25 | (1);

**Question:**

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

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

Operators-in-charge were designated for all subsystems.

The following operators were designated as OIC and were credited OIC experience for every working hour:

- Gerry Brownson (WTS Class 2, WDS Class 2)
- Paul Kelly (WTS Class 3, WD&SS Class 2)
- Todd Kerr (WTS Class 2, WD&SS Class 2)
- Jody Trottman (WTS Class 3, WDS Class 2)

<b>Question ID</b>	DWMR1075001	<b>Question Type</b>	Legislative
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**Legislative Requirement(s):**  
SDWA | O. Reg. 128/04 | 22;

**Question:**

Were all operators certified as required?

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

All operators were certified as required.

Question ID	DWMR1076001	Question Type	Legislative
<b>Legislative Requirement(s):</b> SDWA   O. Reg. 170/03   1-2   (2);			
<b>Question:</b> Were adjustments to the treatment equipment only made by certified operators?			
<b>Compliance Response(s)/Corrective Action(s)/Observation(s):</b> Adjustments to the treatment equipment were only made by certified operators.			





**APPENDIX A**  
**STAKEHOLDER APPENDIX**

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

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

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

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



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

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

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



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

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



**APPENDIX B**  
**INSPECTION RATING RECORD**

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

<b>DWS Name:</b> WARKWORTH DRINKING WATER SYSTEM
<b>DWS Number:</b> 210000498
<b>DWS Owner:</b> THE MUNICIPALITY OF TRENT HILLS
<b>Municipal Location:</b> TRENT HILLS
<b>Regulation:</b> O.REG. 170/03
<b>DWS Category:</b> DW Municipal Residential
<b>Type of Inspection:</b> Focused
<b>Compliance Assessment Start Date:</b> May-22-2024
<b>Ministry Office:</b> Peterborough District Office

Maximum Risk Rating: 417

Inspection Module	Non Compliance Risk (X out of Y)
Capacity Assessment	0/30
Certification and Training	0/42
Logbooks	0/14
Operations Manuals	0/14
Reporting & Corrective Actions	4/8
Source	0/0
Treatment Processes	0/197
Water Quality Monitoring	0/112
<b>Overall - Calculated</b>	<b>4/417</b>

<b>Inspection Risk Rating:</b>	<b>0.96%</b>
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<b>Final Inspection Rating:</b>	<b>99.04%</b>
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Ministry of the Environment, Conservation and Parks - Detailed Inspection Rating Record (Reporting Year - 2024-25)

**DWS Name:** WARKWORTH DRINKING WATER SYSTEM  
**DWS Number:** 210000498  
**DWS Owner Name:** THE MUNICIPALITY OF TRENT HILLS  
**Municipal Location:** TRENT HILLS

**Regulation:** O.REG. 170/03  
**DWS Category:** DW Municipal Residential  
**Type of Inspection:** Focused  
**Compliance Assessment Start Date:** May-22-2024  
**Ministry Office:** Peterborough District Office

Non-Compliance Question(s)	Non Compliance Risk
<b>Reporting &amp; Corrective Actions</b>	
Were changes to the system registration information provided to the ministry within ten (10) days of the change?	4
<b>Overall - Total</b>	<b>4</b>

Maximum Question Rating: 417

**Inspection Risk Rating: 0.96%**

**FINAL INSPECTION RATING: 99.04%**

# 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 up to 14 inspection modules and consists of approximately 120 regulatory questions. Those protocol questions are also linked to definitive guidance that ministry inspectors use when conducting MRDWS inspections. The questions address a wide range of regulatory issues, from administrative procedures

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

to drinking water quality monitoring. Additionally, the inspection protocol contains a number of non-regulatory questions.

A team of drinking water specialists in the ministry have 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 that is less than 100 per cent does not mean that the drinking water from the system is unsafe. It shows areas where a system's operation can improve. To that end, the ministry works with owners and operators of systems to make sure they know what they need to do to achieve full compliance.

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

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

## Determining Potential to Compromise the Delivery of Safe Water

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

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

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

(of the consequence)

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

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

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



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

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

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

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

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

TABLE 3:							
Does the Operator in Charge ensure that the equipment and processes are monitored, inspected and evaluated?							
Risk = Likelihood × Consequence							
C=1	C=2	C=3	C=4	C=5	C=6	C=7	C=8
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 that relate to regulatory compliance and input their responses as “yes”, “no” or “not applicable” 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).

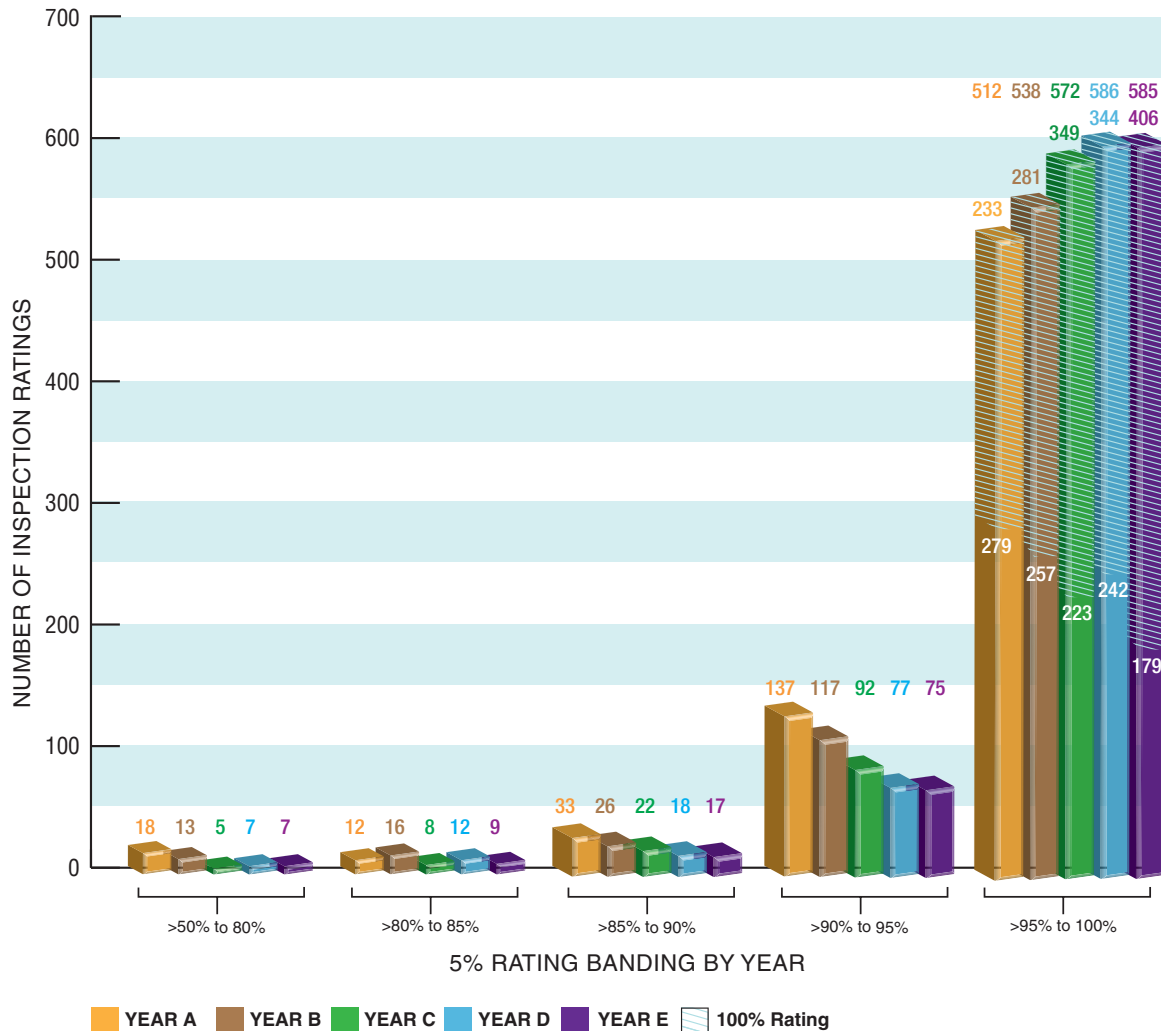
The risk ratings of all non-compliant answers are summed and divided by the sum of the risk ratings of all questions asked (maximum question rating). The resulting inspection risk rating (as a percentage) is subtracted from 100 per cent to arrive at the final inspection rating.

## 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 14 possible modules of the inspection protocol,

which would provide the system owner/operator with information on the areas where they need to improve. The 14 modules are:

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

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