

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

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

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January 14, 2026

**Sent by email**

Town of Marathon  
4 Hemlo Drive, PO Box "TM"  
Marathon, ON  
P0T 2E0

**Re: Marathon Drinking Water System, DWS No. 220000255  
2025-26 Inspection Report, Report No. 1-1427182023**

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Enclosed is the report on the 2025-26 inspection of the Marathon Drinking Water System and the corresponding Inspection Rating Report (IRR) and Risk Methodology document. This report provides an assessment of compliance and conformance based on observations and information available during the inspection review period only.

Two (2) instances of non-compliance were identified during the inspection. Required corrective actions are summarized in the 'Non-Compliance' section of the report. Please note that corrective actions are linked to incidents of non-compliance with regulatory requirements contained within an Act, a Regulation, or site-specific approvals, orders or instructions. Such violations could result in the issuance of mandatory abatement instruments including orders, tickets, penalties, or referrals to the Ministry's Environmental Investigations and Enforcement Branch.

Several best management practices are also included in the 'Inspection Details' section of the report. Specifically, several recommendations and are provided in the response for Question ID DWMR1117001. Items which appear as recommendations do not, in themselves, constitute violations.

The IRR included as an appendix 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.

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

Should you have any questions regarding the content of the enclosed report, please do not hesitate to contact me.

Sincerely,



Nicholas Kyle  
Water Compliance Officer  
Drinking Water and Environmental Compliance Division  
Ministry of the Environment, Conservation & Parks

ec: Town of Marathon – 4 Hemlo Drive, PO Box "TM", Marathon, ON P0T 2E0

**Attn:** Marc Paris, Works, Operations, Facilities and Parks Manager –  
worksmanager@marathon.ca

**Attn:** Mike Duhaime, Works and Operations Supervisor – supervisor@marathon.ca

Northern Waterworks Inc. – 14 Hwy 105, Red Lake, ON P0V 2M0

**Attn:** Rodger Betts, Operations Manager – rodger.betts@nwi.ca

**Attn:** Jessica Happl, Manager, QMS & Compliance – jessica.happl@ssmpuc.com

Thunder Bay District Health Unit – 999 Balmoral St., Thunder Bay, ON P7B 6E7

**Attn:** Lee Sieswerda, Manager of Environmental Health – lee.sieswerda@tbdhu.com

Ministry of Natural Resources – 5 Wadsworth Drive, PO Box 970 Nipigon, ON P0T 2J0

**Attn:** Chris Magee, District Manager – chris.magee@ontario.ca

Ministry of the Environment, Conservation & Parks

**Attn:** Carolyn Lacroix, Water Compliance Supervisor – carolyn.lacroix@ontario.ca



MARATHON DRINKING WATER SYSTEM  
Physical Address: 41 HOWE ST, MARATHON,  
ON P0T 2E0

## INSPECTION REPORT

System Number: 220000255  
Entity: THE CORPORATION OF THE  
TOWN OF MARATHON  
NORTHERN WATERWORKS  
INC.  
Inspection Start Date: November 07, 2025  
Site Inspection Date: November 17, 2025  
Inspection End Date: December 16, 2025  
Inspected By: Nicholas Kyle  
Badge #: 2104



(signature)

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### **Appendices**

Appendix A – Stakeholder Resources

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## INTRODUCTION

### Purpose

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

### Scope

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

The inspection of the drinking water system included both the physical inspection of component parts of the system and the review of data and documents associated with its operation. 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 Marathon Drinking Water System (DWS) is owned by the Corporation of the Town of Marathon. The treatment subsystem and distribution subsystem outstations are operated by Northern Waterworks Inc. (NWI) and the linear infrastructure associated with the distribution subsystem is operated by the Town of Marathon. The system serves an estimated population of 3,300 and is categorized as a Large Municipal Residential DWS.

Information reviewed for this announced, detailed inspection covered the time period of November 5, 2024, to November 17, 2025. The field portion of the inspection was conducted on November 17 & 18, 2024.

### 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:

- Wells 2, 3, 4, 5 & 6

- Industrial Park booster station
- Penn Lake Heights reservoir and booster station

### **Permissions/Approvals**

This drinking water system was subject to specific conditions contained within the following permissions and/or approvals at the time of the inspection, in addition to the requirements of the SDWA and its regulations:

- Municipal Drinking Water Licence No. 230-101 (Issue No. 3)
- Drinking Water Works Permit No. 230-201 (Issue No. 3)
- Permit to Take Water No. 3061-C5TQNS

**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> DWMR1073001</p> <p>Was an overall responsible operator designated for all subsystems which comprise the drinking water system?</p>	<p>An overall responsible operator was not designated for all subsystems.</p> <p><b>CORRECTIVE ACTION(S):</b></p> <p>The Town of Marathon shall ensure that an overall responsible operator is designated at all times for the linear infrastructure associated with the water distribution subsystem.</p> <p>By January 30, 2026, the Town of Marathon shall establish and implement a method to ensure that an ORO is designated and recorded at all times, including weekends and statutory holidays, for the linear infrastructure associated with the distribution subsystem. Acceptable methods may include completing the logbook daily or making an entry on the last business day of the week identifying the individual who will serve as ORO during weekends and/or statutory holidays. The selected method shall be reported by email to the undersigned Water Compliance Officer by the same date.</p> <p>By April 3, 2026, the Town of Marathon shall submit ORO designation records for February and March 2026, demonstrating continuous ORO coverage. These records shall be provided by email to the undersigned Water Compliance Officer.</p>
NC-2	<p><b>Question ID:</b> DWMR1025001</p> <p>Were all parts of the drinking water</p>	<p>All parts of the drinking water system were not disinfected in accordance with a procedure listed in Schedule B of the Drinking Water Works Permit.</p>

system that came in contact with drinking water disinfected in accordance with a procedure listed in Schedule B of the Drinking Water Works Permit?

**CORRECTIVE ACTION(S):**

The owner and operating authority shall ensure that all components of the drinking water system that come into contact with drinking water are disinfected in accordance with a procedure listed in Schedule B of the Drinking Water Works Permit whenever an activity occurs that could introduce contamination. Disinfection activities shall be appropriately documented.

By February 27, 2026, Northern Waterworks Inc. shall develop a standardized form to record all required information related to the disinfection of drinking water pumps, piping, and appurtenances located within water treatment facilities and distribution outstations. For clarity, this form does not apply to the disinfection of drinking water storage facilities or wells. The form shall be submitted by email to the undersigned Water Compliance Officer for review and approval by the same date. Upon ministry approval, the form shall be implemented.

By February 27, 2026, the Town of Marathon shall develop a standardized form to record all information required under Section 3.1 of the Watermain Disinfection Procedure. This form shall apply to the disinfection of new, temporary, and relined watermains. The completed form shall be submitted by email to the undersigned Water Compliance Officer for review and approval by the same date. Upon ministry approval, the form shall be implemented.

### RECOMMENDATIONS

The following item(s) have been identified as non-conformance, based on a "No" response captured for a best management practice (BMP) 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	Recommendation(s)
R-1	<p><b>Question ID:</b> DWMR1046001</p> <p>Was there a backflow prevention program, policy and/or bylaw in place that addressed cross connections and connections to high hazard facilities?</p>	<p>There was no backflow prevention program, policy and/or bylaw in place.</p> <p><b>BEST PRACTICE RECOMMENDATION:</b></p> <p>The owner should develop and implement a backflow prevention program that includes documented policies, procedures, and/or municipal bylaws.</p>

### INSPECTION DETAILS

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

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

Question ID	DWMR1007001	Question Type	Legislative
<p><b>Legislative Requirement(s):</b> SDWA   O. Reg. 170/03   1-2   (1)1;</p>			
<p><b>Question:</b> Was the owner maintaining the production well(s) in a manner sufficient to prevent entry into the well of surface water and other foreign materials?</p>			
<p><b>Compliance Response(s)/Corrective Action(s)/Observation(s):</b> The owner was maintaining the production well(s) in a manner sufficient to prevent entry into the well of surface water and other foreign materials.</p>			
<p><b>OBSERVATIONS:</b></p> <p>The drinking water for the system is sourced from five drilled wells, identified as Wells 2, 3, 4, 5, and 6. Details for each well are as follows:</p> <ul style="list-style-type: none"> <li>- Well 2: Installed in 1954, this well has a 550 mm diameter outer steel casing set to a depth of 16.5 m, with a 300 mm diameter inner casing extending to 18.65 m. A 300 mm diameter stainless steel screen is installed from 18.65 m to approximately 23 m.</li> <li>- Well 3: Installed in 1963, this well has a 550 mm diameter outer steel casing set to a depth of 13.4 m, with a 300 mm diameter inner casing extending to 22.8 m. A 300 mm diameter stainless steel screen is installed from 22.8 m to approximately 29 m.</li> <li>- Well 4: Installed in 1984, this well has a 600 mm diameter outer steel casing set to a depth of 14.6 m, with a 300 mm diameter inner casing extending to 18.2 m. A 300 mm diameter stainless steel screen is installed from 18.2 m to approximately 24 m.</li> <li>- Well 5: Also installed in 1984, this well has a 600 mm diameter outer steel casing set to a depth of 15.3 m, with a 300 mm diameter inner casing extending to 18.1 m. A 300 mm diameter stainless steel screen is installed from 18.1 m to approximately 25 m.</li> <li>- Well 6: Installed in 1990, the well has a 600 mm diameter outer steel casing set to a depth of 22.2 m, with a 300 mm diameter inner casing extending to 24.6 m. A 300 mm diameter stainless steel screen is installed from 24.6 m to approximately 29 m.</li> </ul> <p>All wells are housed in secure buildings. A physical inspection of the above-ground components confirmed that the wells are being properly maintained to prevent the entry of surface water and foreign materials.</p>			

<b>Question ID</b>	DWMR1009001	<b>Question Type</b>	Legislative
<b>Legislative Requirement(s):</b> SDWA   31   (1);			
<b>Question:</b> Were measures in place to protect the groundwater and/or GUDI source in accordance with the Municipal Drinking Water Licence and Drinking Water Works Permit?			
<b>Compliance Response(s)/Corrective Action(s)/Observation(s):</b> Measures were in place to protect the groundwater and/or GUDI source.  <b>OBSERVATIONS:</b>  The Municipal Drinking Water Licence requires an inspection schedule for all production wells, as well as procedures for inspecting and maintaining the entire structure of each well. Additionally, remedial action plans must be in place for situations where inspections reveal non-compliance with regulatory requirements or pose a risk to water quality. The system owner is required to implement appropriate risk management measures to address potential threats to drinking water resulting from the operation of the system.  Throughout the inspection period, certified operators conducted daily checks of the production wells. No spills or contamination events were reported during the inspection period.  Below-ground components are inspected approximately every 10 years by a licensed well contractor. Wells 3 & 5 were inspected and rehabilitated in 2021, Well 4 was inspected and rehabilitated in 2024, and Well 6 underwent inspection and rehabilitation in 2022. Rehabilitation efforts for all wells included the removal of screen and casing fouling and cleaning of pumping equipment. Post-rehabilitation testing confirmed that all wells were performing adequately.  Well 2 was last inspected in 2013. The inspection indicated satisfactory performance at that time, but recommended rehabilitation to address screen and casing fouling during the next 10-year inspection. The inspection and rehabilitation of Well 2 were delayed due to the need to relocate nearby utilities before work could proceed. The inspection and rehabilitation are now scheduled for 2026. Additionally, a significant structural crack has been observed in the foundation of Well 2. The owner and operating authority are aware of this issue, and repairs have been prioritized for the near future.  Contingency plans are in place to manage potential threats to the groundwater source, such as spills and contamination events. The "Source Water Contamination" contingency plan outlines actions for handling spills, including isolating affected wells, notifying appropriate parties, conducting special monitoring, and initiating containment and cleanup protocols. The risk to water quality is mitigated by the presence of multiple production wells, allowing one or more wells to be isolated in an emergency while still meeting system demand.			

Question ID	DWMR1010001	Question Type	BMP
<b>Legislative Requirement(s):</b> Not Applicable			
<b>Question:</b> Were trends in source water quality monitored?			
<b>Compliance Response(s)/Corrective Action(s)/Observation(s):</b> Trends in source water quality were monitored.  OBSERVATIONS:  Raw water turbidity and pH are measured weekly from each production well. As the system provides only chlorine disinfection, treated water results for various chemical parameters are assumed to approximate raw water concentrations.  A review of the 2025 DWQMS management review meeting minutes confirmed that the operating authority is actively monitoring and evaluating trends in source water quality. The minutes documented consideration of turbidity, pH, microbiological results, and chemical parameters, including nitrate and nitrite concentrations. The review concluded that there were no observable changes or deterioration in groundwater quality.			

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.  OBSERVATIONS:  The MDWL requires continuous measurement and recording of the flow rate and daily volume of treated water flowing from the treatment subsystem to the distribution system, as well as the raw water flow into the treatment subsystem. Since there is no process wastewater stream at any of the wells, the treated water flow rate and daily volume closely reflect the raw water flow rate and daily volume. A negligible volume of water (i.e., <1 m <sup>3</sup> ) is directed to the soak away pit upon each well pump start up.  At each well, a regulatory electromagnetic flow meter is installed on the discharge piping to measure treated water flow. The continuity of treated water flow monitoring during the inspection period was verified by reviewing trends from the SCADA system and videographic chart recorders.			

<b>Question ID</b>	DWMR1015001	<b>Question Type</b>	Legislative
<b>Legislative Requirement(s):</b> SDWA   31   (1);			
<b>Question:</b> Were flow measuring devices calibrated or verified in accordance with the requirements of the Municipal Drinking Water Licence?			
<b>Compliance Response(s)/Corrective Action(s)/Observation(s):</b> Flow measuring devices were calibrated or verified as required.			
OBSERVATIONS:  Regulatory flow measuring devices must be checked and calibrated in accordance with the manufacturer's instructions or, in the absence of manufacturer's instructions, at least once every 12 months. If calibration is conducted every 12 months, then the equipment shall be checked and where necessary calibrated not more than 30 days after the first anniversary of the day the equipment was checked and calibrated in the previous 12-month period.  Because removing operational flow meters for calibration is often impractical, the ministry accepts verification in these cases. If the manufacturer does not provide instructions, verification should involve on-site comparison of the flow meter's readings across the system's flow range with those from a fully calibrated flow meter brought to the site. The flow meter or instruments used for verification must be calibrated to the same standard as a production flow measuring device.  The regulatory flow meters at all production wells were last verified on October 16, 2024, and October 9, 2025, by a third-party instrumentation technician. The verification certificates confirm that all flow meters passed the verification protocol.			

<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.			
OBSERVATIONS:  The rated capacities for the wells are provided in Schedule C, Condition 1.1 of the Municipal Drinking Water Licence. The rated capacity represents the maximum daily volume of water that can be transferred from the treatment subsystem to the distribution subsystem. Currently,			

there are no regulated maximum flow rates (in L/s) or operational capacities (in m<sup>3</sup>/day) specified for any of the wells.

During the inspection period, the highest daily volumes of treated water transferred to the distribution subsystem were as follows:

- Well 2: 10 m<sup>3</sup> on August 12, 2025, which is approximately 0.5% of its rated capacity (1,961.28 m<sup>3</sup>/day).
- Well 3: 1,501 m<sup>3</sup> on December 7, 2024, which is approximately 90% of its rated capacity (1,662.36 m<sup>3</sup>/day).
- Well 4: 1,904 m<sup>3</sup> on August 5, 2025, which is approximately 83% of its rated capacity (2,289.6 m<sup>3</sup>/day).
- Well 5: 1,991 m<sup>3</sup> on April 30, 2025, which is approximately 87% of its rated capacity (2,289.6 m<sup>3</sup>/day).
- Well 6: 18 m<sup>3</sup> on May 13, 2025, which is approximately 0.7% of its rated capacity (2,764.8 m<sup>3</sup>/day).

Note that flow totals are not calculated based on a calendar day but over an approximate 24-hour period. Specifically, operators take flow totalizer readings each morning, at roughly the same time, from each well.

Question ID	DWMR1017001	Question Type	Legislative
<p><b>Legislative Requirement(s):</b> SDWA   31   (1);</p>			
<p><b>Question:</b> Were appropriate records of flows and any capacity exceedances made in accordance with the Municipal Drinking Water Licence?</p>			
<p><b>Compliance Response(s)/Corrective Action(s)/Observation(s):</b> Appropriate records of flows and any capacity exceedances were made as required.</p> <p><b>OBSERVATIONS:</b></p> <p>In accordance with the MDWL, flow rates and daily volumes at the wells must be continuously monitored and recorded. Well flow rates are continuously monitored and recorded using local videographic chart recorders and remotely through the SCADA system historian. Daily volumes for each well are documented in the operator worksheets. There were no rated capacity exceedances during the review period.</p> <p>The owner and operating authority are reminded that the treatment system may be operated temporarily at a maximum daily volume above the rated capacity for the purposes of fighting a</p>			

large fire or for the maintenance of the drinking water system, provided that all other regulatory requirements are met and the exceedance is properly documented in accordance with the MDWL. Documentation must include the difference between the measured amount and the applicable rated capacity, the time and date of measurement, the reason for the exceedance, and the duration of time that lapses between the rated capacity first being exceeded and the next measurement where the rated capacity is no longer exceeded.

<b>Question ID</b>	DWMR1013001	<b>Question Type</b>	Legislative
<b>Legislative Requirement(s):</b> OWRA   34   (3);			
<b>Question:</b> Was the owner in compliance with all conditions of the Permit To Take Water?			
<b>Compliance Response(s)/Corrective Action(s)/Observation(s):</b> The owner was in compliance with all conditions of the Permit To Take Water.			
<p><b>OBSERVATIONS:</b></p> <p>Permit to Take Water No. 3061-C5TQNS, which expires on August 23, 2031, authorizes water takings from the respective wells. As there is no process wastewater stream at any of the wells, the treated water flow rate and daily volume approximate the raw water flow rate and daily volume. Consequently, the maximum allowable daily water takings under the PTTW are the same as the respective rated capacities for the wells provided in the MDWL (refer to Question ID DWMR1016001).</p> <p>The PTTW specifies maximum withdrawal rates for each well in litres per minute (L/min). However, maximum flow rates are originally recorded in litres per second (L/s), and the L/min values have been calculated from this data. It is important to note that these maximum flow rates represent instantaneous measurements and may not have been sustained for a full minute.</p> <p>During the inspection period, the maximum withdrawal rates were as follows:</p> <ul style="list-style-type: none"> <li>- Well 2: 15.2 L/s (912 L/min) on April 2, 2025, which is approximately 67% of its maximum withdrawal rate (1,362 L/min).</li> <li>- Well 3: 19.1 L/s (1,146 L/min) on November 24, 2024, which is approximately 99% of its maximum withdrawal rate (1,155 L/min).</li> <li>- Well 4: 24.5 L/s (1,470 L/min) on November 8, 2025, which is approximately 92% of its maximum withdrawal rate (1,590 L/min).</li> <li>- Well 5: 22.7 L/s (1,362 L/min) on April 16, 2025, which is approximately 86% of its maximum withdrawal rate (1,590 L/min).</li> </ul>			

- Well 6: 29.5 L/s (1,770 L/min) on December 18, 2024, which is approximately 92% of its maximum withdrawal rate (1,920 L/min).

Question ID	DWMR1018001	Question Type	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.  OBSERVATIONS:  The inspection included visits to all production wells and outstations. No significant modifications were observed or reported in the water treatment subsystem during the inspection period. Modifications to the system description that were previously reported to the ministry through the Director Notification process (e.g., the removal of chlorine analyzers at the booster stations) will be included in the DWWP during the next scheduled renewal of the Licence and DWWP in 2025/2026. The owner and operating authority should ensure that draft approvals are thoroughly reviewed during the renewal process.  During the field inspection, the owner indicated plans to remove the diesel pump drive and its associated fuel storage tank located at Well 4. An external generator capable of providing backup power to the entire well will be installed in its place. The removal of the pump drive and fuel storage tank is pre-authorized as a minor modification under newer DWWP conditions and requires completion of a Form 2. Similarly, installing the external generator is pre-authorized as a modification to equipment with air emissions and requires a Form 3.  The owner and operating authority are reminded that a Director Notification Form must also be completed and submitted for any activity that alters the description of equipment listed in Schedule A of the DWWP. This requirement applies to any work that renders the equipment description inaccurate, including activities classified as "minor modifications" or "maintenance and repair."			

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

**OBSERVATIONS:**

One Form 1 document was completed during the inspection period for the replacement of existing 38 mm, 50 mm, and 150 mm watermains with approximately 382 m of PVC watermain. The project scope included replacing sanitary sewers, storm sewers, watermain, and associated appurtenances on Trailer Park Street and on Howe Street from Yawkey Avenue to approximately 110 m south of Trailer Park Street. Short sections of watermain were also replaced at the corresponding intersections. The Form 1 document was reviewed and contained all required information.

<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.			
<b>OBSERVATIONS:</b>  During the inspection period, one (1) Form 2 document was prepared for SCADA system and communications upgrades. These upgrades included replacing the programmable logic controllers at all outstations and implementing a new SCADA system. Cellular modems were also installed at all outstations to communicate data and alarms to the SCADA system at the wastewater treatment plant via the cellular network. This replaced the old radio communications system, which had caused significant operational disruptions. For more information, refer to 2024-25 inspection report.			

<b>Question ID</b>	DWMR1028001	<b>Question Type</b>	Legislative
<b>Legislative Requirement(s):</b> SDWA   31   (1);			
<b>Question:</b> Were up-to-date plans for the drinking water system made available in such a manner that they could be readily viewed by all persons responsible for all or part of the operation of the drinking water system, in accordance with the Drinking Water Works Permit and Municipal Drinking Water Licence?			
<b>Compliance Response(s)/Corrective Action(s)/Observation(s):</b> Plans for the drinking water system were kept up-to-date and made available as required.			
<b>OBSERVATIONS:</b>  Process and instrumentation diagrams are currently maintained in hard copy at the			

wastewater treatment plant and are accessible to operators. During the field inspection, it was noted that these diagrams will be digitized in the future. Plans and drawings are also available at the relevant wells and outstations.

Question ID	DWMR1025001	Question Type	Legislative
<p><b>Legislative Requirement(s):</b> SDWA   31   (1);</p>			
<p><b>Question:</b> Were all parts of the drinking water system that came in contact with drinking water disinfected in accordance with a procedure listed in Schedule B of the Drinking Water Works Permit?</p>			
<p><b>Compliance Response(s)/Corrective Action(s)/Observation(s):</b> All parts of the drinking water system were not disinfected in accordance with a procedure listed in Schedule B of the Drinking Water Works Permit.</p> <p><b>CORRECTIVE ACTION(S):</b></p> <p>The owner and operating authority shall ensure that all components of the drinking water system that come into contact with drinking water are disinfected in accordance with a procedure listed in Schedule B of the Drinking Water Works Permit whenever an activity occurs that could introduce contamination. Disinfection activities shall be appropriately documented.</p> <p>By February 27, 2026, Northern Waterworks Inc. shall develop a standardized form to record all required information related to the disinfection of drinking water pumps, piping, and appurtenances located within water treatment facilities and distribution outstations. For clarity, this form does not apply to the disinfection of drinking water storage facilities or wells. The form shall be submitted by email to the undersigned Water Compliance Officer for review and approval by the same date. Upon ministry approval, the form shall be implemented.</p> <p>By February 27, 2026, the Town of Marathon shall develop a standardized form to record all information required under Section 3.1 of the Watermain Disinfection Procedure. This form shall apply to the disinfection of new, temporary, and relined watermains. The completed form shall be submitted by email to the undersigned Water Compliance Officer for review and approval by the same date. Upon ministry approval, the form shall be implemented.</p> <p><b>OBSERVATIONS:</b></p> <p>Adherence to a disinfection protocol is required for all parts of the drinking water system in contact with drinking water that are added, modified, replaced or extended. Adherence to a disinfection protocol is also required where an activity has occurred that could introduce contamination, including but not limited to repair, maintenance, or inspection.</p> <p>During the inspection period, the replacement of a pump between December 16 and 18,</p>			

2024, at the Penn Lake Reservoir and Booster Station required adherence to a disinfection protocol. No details about disinfection were recorded in the facility logbook or any other records. Following the field inspection, the certified operator providing contractor oversight reported that the pump, pipe sections and tools were disinfected with 12% sodium hypochlorite. The scheduled inspections of the reservoir and Well 2 will also require disinfection and documentation in accordance with the applicable procedures.

In the distribution subsystem, work requiring adherence to a disinfection protocol included new and temporary watermain installations, emergency watermain repairs, and planned maintenance of appurtenances and fittings.

New and temporary watermains must be disinfected in accordance with the Watermain Disinfection Procedure (WDP). During the inspection period, two temporary watermain sections and two new watermain sections were installed as part of the Trailer Court and Howe Street reconstruction project. The corresponding disinfection records did not consistently include all information required under Section 3.1 of the WDP. Specifically, several records lacked the exact start and end times of disinfection, and the percentage loss following disinfection was not consistently documented. Additionally, issues with record legibility were noted. Other required information was present, including details on the use and testing of a backflow preventer, flushing activities, and microbiological sample results. In all cases, the continuous feed method of super-chlorination was used.

A review of all associated "Watermain Maintenance and Repair Forms" and distribution subsystem logbooks confirmed that appropriate disinfection procedures were followed for emergency watermain repairs (in accordance with Section 2 of the WDP), planned maintenance of appurtenances and fittings such as valve replacements (in accordance with Section 1.4 of the WDP), and for connecting new watermains to the existing system (in accordance with Section 1.1.4 of the WDP). There were six emergency repairs during the inspection period, all categorized as Category 1 repairs. Valve replacements and the final connections associated with the Trailer Court and Howe Street reconstruction project also adhered to the disinfection protocol for Category 1 repairs.

Question ID	DWMR1023001	Question Type	Legislative
<b>Legislative Requirement(s):</b> SDWA   O. Reg. 170/03   1-2   (2);			
<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?			
<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.			
<b>OBSERVATIONS:</b>			

For a secure groundwater source and in accordance with Schedule E of the Municipal Drinking Water Licence, primary disinfection must be capable of achieving 99% removal or inactivation of viruses. Both primary and secondary disinfection at the system is achieved using sodium hypochlorite. The following criteria must be met at each well to achieve effective pathogen inactivation:

1. Sampling and testing for free chlorine residual shall be carried out by continuous monitoring equipment in the treatment process at or near a location where the intended contact time has just been completed in accordance with the Ministry's Procedure for Disinfection of Drinking Water in Ontario; and,
2. At all times, CT provided shall be greater than or equal to the CT required to achieve the log removal credits assigned.

Concerning item 1, refer to Question ID DWMR1030001 and Question ID DWMR1038001. Note that monitoring for the free chlorine residual at each well is not conducted in real-time. Refer to Question ID DWMR1117001 for more information.

Concerning item 2, a review of continuous treated water chlorine data, the water treatment subsystem worksheet, and the water treatment subsystem logbooks confirmed that, throughout the inspection period, the CT provided was greater than or equal to the CT required to achieve the assigned pathogen inactivation when water was being directed to users. Refer to Question ID DWMR1108001 for more information about low chlorine alarm events that occurred during the inspection period.

Question ID	DWMR1027001	Question Type	Legislative
<p><b>Legislative Requirement(s):</b> SDWA   31   (1);</p>			
<p><b>Question:</b> Did the owner have evidence indicating that chemicals and materials that came in contact with water within the drinking water system met all applicable AWWA and ANSI standards in accordance with the Municipal Drinking Water Licence and Drinking Water Works Permit?</p>			
<p><b>Compliance Response(s)/Corrective Action(s)/Observation(s):</b> The owner had evidence indicating that chemicals and materials that came in contact with water within the drinking water system met the applicable standards.</p> <p><b>OBSERVATIONS:</b></p> <p>Sodium hypochlorite is used for disinfection at all five production wells, and no other treatment chemicals that come into direct contact with drinking water were utilized during the inspection period. The "Hypochlor 12" sodium hypochlorite applied throughout the system is properly certified to the NSF/ANSI 60 standard (Drinking Water System Chemicals – Health Effects). This same disinfectant was used for disinfection activities related to new and temporary watermains, as well as emergency repairs.</p>			

<b>Question ID</b>	DWMR1024001	<b>Question Type</b>	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.			
<b>OBSERVATIONS:</b>  The drinking water system does not include any rechlorination facilities, and secondary disinfection is achieved through chlorine addition at each production well.  The lowest recorded free chlorine residual taken in the distribution system during the inspection period was 0.96 mg/L, collected at the Industrial Park Booster Station on November 22, 2024.  Overall, free chlorine residuals across the distribution system remained stable with minimal variation, and there are no known low chlorine areas. During the field inspection, operators demonstrated an understanding of the adverse reporting threshold for free chlorine residuals in the distribution system (i.e., less than 0.05 mg/L in a grab sample).			

<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.			
<b>OBSERVATIONS:</b>  For a large municipal residential system, and if continuous monitoring equipment is not used, sampling must be conducted daily or on two different days of the week (in accordance with several other requirements). All distribution residual measurement locations and sampling dates/times must be documented.  To comply with secondary disinfectant residual testing requirements, the operating authority has chosen to collect samples daily, ensuring at least one distribution sample is taken each day. During the inspection period, operators consistently tested the free chlorine residual at			

three distribution points daily: the wastewater treatment plant, the Industrial Park Booster Station, and the Penn Lake Heights Reservoir and Booster Station. These sampling locations are positioned at different extremities of the water distribution system. All required information was recorded in the treatment subsystem worksheet.

<b>Question ID</b>	DWMR1049001	<b>Question Type</b>	BMP
<b>Legislative Requirement(s):</b> Not Applicable			
<b>Question:</b> Did records confirm that disinfectant residuals were routinely checked at the extremities and dead ends of the distribution system?			
<b>Compliance Response(s)/Corrective Action(s)/Observation(s):</b> Records confirmed that disinfectant residuals were routinely checked at the extremities and dead ends of the distribution system.			
OBSERVATIONS:  This best management practice is now included in the Ministry's "Drinking Water System Best Management Practices" document. Refer to Question ID DWMR1117001 for more information.			

<b>Question ID</b>	DWMR1036001	<b>Question Type</b>	Legislative
<b>Legislative Requirement(s):</b> SDWA   O. Reg. 170/03   6-7   (1);			
<b>Question:</b> Where continuous monitoring equipment was not used for chlorine residual analysis, were samples tested using an acceptable portable device?			
<b>Compliance Response(s)/Corrective Action(s)/Observation(s):</b> Samples for chlorine residual analysis were tested using an acceptable portable device.			
OBSERVATIONS:  Chlorine monitoring that is not conducted by continuous monitoring equipment must be performed using an electronic direct read-out colorimetric or amperometric chlorine analyzer. Visual color comparator kits are not acceptable for measuring chlorine residuals.  A handheld Hach Pocket Chlorine Colorimeter II and a Hach DR900 Multiparameter Portable Colorimeter are used for regulatory chlorine monitoring in the treatment subsystem and distribution outstations. These instruments are used for monitoring secondary disinfection, verifying and calibrating both regulatory and process continuous chlorine analyzers, and conducting chlorine testing associated with microbiological sample collection.  Additionally, a handheld Hach Pocket Colorimeter II is used by the Town of Marathon for			

regulatory chlorine monitoring within the distribution subsystem. This instrument is used for chlorine testing required under disinfection protocols, including emergency watermain repairs.

All devices are electronic, direct read-out colorimetric instruments.

Question ID	DWMR1030001	Question Type	Legislative
<p><b>Legislative Requirement(s):</b> SDWA   O. Reg. 170/03   7-2   (1); SDWA   O. Reg. 170/03   7-2   (2);</p>			
<p><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?</p>			
<p><b>Compliance Response(s)/Corrective Action(s)/Observation(s):</b> Primary disinfection chlorine monitoring was conducted as required.</p> <p><b>OBSERVATIONS:</b></p> <p>Groundwater pumped from each well is injected with sodium hypochlorite before being directed to a chlorine contact loop. At each well, the loop has been designed to provide a minimum of 15 minutes of chlorine contact at peak flow rates. Primary disinfection is achieved at the end of each chlorine contact loop, from where water enters the distribution system. According to the "Disinfection Summary" document, actual hydraulic detention times at peak flow rates range from a minimum of 12.7 minutes at Well 6 to a maximum of 15.8 minutes at Wells 4 and 5.</p> <p>At each well, primary disinfection is continuously monitored at the end of a sample line that extends from the end of the contact loop back to the well building. Due to the length of the sample lines, there is a slight delay between the actual and measured chlorine concentrations (i.e., chlorine is not monitored in real-time). Specifically, the chlorine concentration at the end of the contact loop is only measured by the analyzer after the water has passed through the sample line. These delays typically range from 30 seconds to 2 minutes and are determined by the sample line's dimensions and the flow rate through it. The flow rate through the sample line is routinely monitored by operators at Wells 3, 4 and 5, as the measurement delay may have implications for adverse incident reporting. Additionally, conservative low-chlorine alarm set points are in place at all wells to mitigate any potential risks associated with the delay. Refer to Question ID DWMR1117001 for more information about the chlorine monitoring delay.</p> <p>During the field inspection, it was confirmed that there had been no changes to the contact loops, sample lines and chlorine measurement.</p>			

Question ID	DWMR1031001	Question Type	BMP
<b>Legislative Requirement(s):</b> Not Applicable			
<b>Question:</b> Were operators aware of the operational criteria necessary to achieve primary disinfection within the drinking water system?			
<b>Compliance Response(s)/Corrective Action(s)/Observation(s):</b> Operators were aware of the operational criteria necessary to achieve primary disinfection within the drinking water system.  <b>OBSERVATIONS:</b>  Operators are knowledgeable about the CT disinfection concept and are proficient at completing CT calculations. Operators also have access to standard operating procedures which include information on the criteria necessary to achieve primary disinfection. Operators are generally expected to explain the pathogen inactivation requirements for their system and identify all operational criteria necessary to achieve primary disinfection.  Owners and operating authorities should consider implementing recurring (e.g., annual) training focused on the operational criteria for achieving primary disinfection, as outlined in Schedule E: Pathogen Log Removal/Inactivation Credits of the Municipal Drinking Water Licence. This training should include a comprehensive review of all criteria related to pathogen inactivation credits for the chlorination process, as well as worst-case CT calculations and relevant system-specific standard operating procedures or contingency plans associated with primary disinfection.			

Question ID	DWMR1035001	Question Type	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.  <b>OBSERVATIONS:</b>  Certified operators conducted daily reviews of test results from continuous monitoring equipment throughout the inspection period. Using the SCADA system historian, operators examined data from the previous calendar day and documented their findings in the treatment subsystem worksheet. Parameters reviewed included free chlorine residuals for primary disinfection and flow rates.			

During each review, operators recorded the minimum chlorine levels and maximum flow rates in the designated fields of the treatment subsystem worksheet. The worksheet also provides space to note any unusual or abnormal conditions observed. When abnormal trends were identified, operators provided detailed descriptions in the logbook.

On several occasions during the inspection period, gaps were identified in the SCADA system historian data. In such cases, certified operators verified information using the videographic chart recorders at the affected sites and typically attached a photo of the data logger HMI to the logbook for the relevant time period. A best management practice for addressing SCADA historian data gaps is outlined in Question ID DWMR1117001.

Question ID	DWMR1038001	Question Type	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>OBSERVATIONS:</b>  Continuous monitoring equipment is required to measure and record, at a minimum, the free chlorine residual associated with primary disinfection every five minutes. Chlorine residual must be monitored and recorded whenever water is being supplied to users.  At each well, the free chlorine residual for primary disinfection is monitored and recorded every second, with results logged in the SCADA system's historian. The recent replacement of radio communications with cellular communications between the wells, outstations, and the SCADA system at the wastewater treatment plant has significantly improved data integrity within the historian. During the field inspection, the continuity of chlorine data for all wells was reviewed.  When data are not recorded in the SCADA system, continuous monitoring results are captured on a videographic chart recorder at each well. There continue to be problems with exporting and viewing chart recorder data. Issues also remain with videographic chart recorder scaling. Best management practices pertaining to the videographic chart recorders are provided in Question ID DWMR111700.			

Question ID	DWMR1037001	Question Type	Legislative
<p><b>Legislative Requirement(s):</b> SDWA   O. Reg. 170/03   6-5   (1)5-10; SDWA   O. Reg. 170/03   6-5   (1.1);</p>			
<p><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?</p>			
<p><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</p> <p><b>OBSERVATIONS:</b></p> <p>Alarm configurations, shut-off mechanisms and methods of alarm transmission were verified during the field inspection.</p> <p>All wells are equipped with both automatic shut-off mechanisms and alarms for primary disinfection chlorine monitoring. If the chlorine concentration drops below a set threshold, a remote alarm is immediately transmitted, and the well pump automatically shuts off to stop water production. In addition, a backflush process is initiated, causing water to flow from the distribution system back through the contact loop and into a soak-away pit. This backflush can only be manually stopped by operators and typically lasts between 6 and 24 hours, depending on the well.</p> <p>Notably, Well 6 was operated manually with a certified operator on site throughout the inspection period, and the well discharge valve was manually closed after each run-up. As a result, the low-chlorine automatic shut-off feature was deactivated during the field inspection. However, low-chlorine alarms continued to be transmitted immediately from the well.</p> <p>At the time of the field inspection, the low chlorine alarm and automatic shut-off setpoint was 0.7 mg/L at all wells (i.e., chlorine concentrations below this value result in the transmission of an alarm and automatic shutdown). This value is greater than the minimum alarm standards for the wells, which range from 0.28 mg/L to 0.37 mg/L under worst-case operating conditions. In accordance with Schedule 6 subsection 6-5.(2), the regulatory alarm standard must be 0.1 mg/L less than the concentration of free chlorine that is required to achieve primary disinfection. Importantly, the next renewal of the Municipal Drinking Water Licence may require that the regulatory alarm standard be 0.1 mg/L greater than the concentration of free chlorine that is required to achieve primary disinfection. In either case, the current regulatory alarm set point of 0.7 mg/L would be sufficient for worst-case operating conditions.</p> <p>A review of the treatment subsystem worksheet, continuous monitoring data and the treatment subsystem logbook confirmed that all low chlorine events (i.e., a treated water free chlorine residual less than 0.7 mg/L while a well was in production) during the inspection period resulted in the automatic shutdown and/or the transmission of an alarm.</p>			

Where CT has not been achieved and the automatic shut-off feature fails to engage, a low chlorine event is a reportable adverse water quality incident. Where CT has not been achieved but the automatic shut-off feature has engaged and a backflush initiated, a low chlorine event is reportable if improperly disinfected water may have been directed to users. These and other scenarios are described in the "Low or Adverse Chlorine Residual" contingency plan.

<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.			
OBSERVATIONS:  Regulatory water quality continuous analysers include the free chlorine residual analyzers installed at each well. Certified operators verified the accuracy of the chlorine analyzers daily by conducting a comparative test using a handheld colorimeter. Both the analyzer readings and the comparative test results are documented in the water treatment subsystem worksheet. If the results fall outside the regulatory margin of error, a reactive calibration is performed. A review of the data confirmed that the chlorine analyzers were consistently maintained within the required margin of error.  Throughout the inspection period, all chlorine analyzers were calibrated monthly, regardless of whether the results fell outside the regulatory margin of error. All reactive and scheduled calibrations are documented on the "Instrument Calibration & Maintenance Records" worksheet, which also includes fields for logging other maintenance activities.  During the field inspection, a water sample was collected from each well and distribution outstation and tested for free chlorine using both a ministry unit and the on-site colorimeter. All results obtained were comparable between the colorimeters and analyzer, where applicable.			

<b>Question ID</b>	DWMR1108001	<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> Where continuous monitoring equipment used for the monitoring of free chlorine residual, total chlorine residual, combined chlorine residual or turbidity, required by O. Reg. 170/03, Municipal Drinking Water Licence, Drinking Water Works Permit, or order triggered an alarm			

or an automatic shut-off, did a qualified person respond as required and take appropriate actions?

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

A qualified person responded as required and took appropriate actions.

**OBSERVATIONS:**

During the inspection period, there were approximately 18 instances where a low chlorine residual triggered an alarm and automatic shut-off. Low chlorine events occurred at wells 3, 4 & 5. On each occasion, a certified operator responded promptly and took appropriate actions.

Logbook entries for these low chlorine events consistently included details such as the time the alarm was received, when the operator arrived on site and/or took action, the cause of the event, confirmation of the well shutdown, initiation of backflushing, and any corrective measures taken. Additionally, the logbook entries consistently included multiple event-driven CT calculations to verify whether primary disinfection was achieved. Operators are encouraged to continue making the logbook entries as they have been for low chlorine events.

Question ID	DWMR1099001	Question Type	Information
<p><b>Legislative Requirement(s):</b> Not Applicable</p>			
<p><b>Question:</b> Do records show that water provided by the drinking water system met the Ontario Drinking Water Quality Standards?</p>			
<p><b>Compliance Response(s)/Corrective Action(s)/Observation(s):</b> Records showed that all water sample results met the Ontario Drinking Water Quality Standards.</p> <p><b>OBSERVATIONS:</b></p> <p>Since there is no treatment for contaminant removal at any of the wells, it can be assumed that the concentrations of a chemical parameter are identical in both raw and treated water samples.</p> <p>The owner and operating authority are reminded that where additional water quality monitoring is conducted to assess the impacts of suspected or confirmed contamination of the water supply for any well, it is recommended that treated water samples be collected. The collection of treated water samples will better protect public health by ensuring that any exceedance of a chemical water quality standard will be appropriately managed as an adverse water quality incident. Collecting treated water samples will also ensure that any exceedances of half the standard will initiate increased sampling frequency as per Schedule 13-5. Finally, the collection of treated water samples would be consistent with the operating</p>			

authority's "Source Water Contamination" contingency plan.

Question ID	DWMR1079001	Question Type	Legislative
<p><b>Legislative Requirement(s):</b> SDWA   O. Reg. 170/03   10-4   (1); SDWA   O. Reg. 170/03   10-4   (2); SDWA   O. Reg. 170/03   10-4   (3);</p>			
<p><b>Question:</b> Were raw water microbiological sampling requirements prescribed by Schedule 10-4 of O. Reg. 170/03 for large municipal residential systems met?</p>			
<p><b>Compliance Response(s)/Corrective Action(s)/Observation(s):</b> Raw water microbiological sampling requirements were met.</p> <p>OBSERVATIONS:</p> <p>A raw water sample must be collected from each well and tested for E. coli and total coliforms every week and within 5 to 10 days after the sample was taken in the previous week. The sample must be collected at a point before any treatment is applied to the water.</p> <p>During the inspection period, raw water samples were collected from all wells at the required frequency and location. All samples tested negative for E. coli and total coliforms.</p>			

Question ID	DWMR1083001	Question Type	Legislative
<p><b>Legislative Requirement(s):</b> SDWA   O. Reg. 170/03   10-3;</p>			
<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>OBSERVATIONS:</p> <p>A treated sample must be collected from each well and tested for E. coli, total coliforms and HPC every week and within 5 to 10 days after the sample was taken in the previous week. The sample must be taken prior to treated water entering the distribution system.</p> <p>During the inspection period, treated water samples were collected from all wells at the required frequency and location. All samples tested negative for E. coli and total coliforms. HPC results varied from 0 to 15 CFU/1mL.</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.			
OBSERVATIONS:  Systems that serve 100,000 people or fewer must collect a minimum of 8 distribution microbiological samples every month, plus 1 sample for every 1,000 population served. At least one of the samples must be collected each week. All samples must be tested for E. coli and total coliform bacteria and at least 25% of the required samples must be tested for general bacteria populations using heterotrophic plate counts (HPC).  Given the population served by the DWS (approximately 3,300), at least 11 distribution samples must be collected every month. Between 12 and 15 routine distribution samples were collected in every month during the inspection period, with at least 1 sample collected each week. All samples tested absent for E. coli and total coliform parameters. HPC tests were conducted on 33% of required samples in the calendar months covered by the inspection period. HPC results ranged from 0 to 5 CFU/1mL.			

<b>Question ID</b>	DWMR1096001	<b>Question Type</b>	Legislative
<b>Legislative Requirement(s):</b> SDWA   O. Reg. 170/03   6-3   (1);			
<b>Question:</b> Did records confirm that chlorine residual tests were conducted at the same time and location as microbiological samples?			
<b>Compliance Response(s)/Corrective Action(s)/Observation(s):</b> Records confirmed that chlorine residual tests were conducted as required.			
OBSERVATIONS:  The purpose of collecting chlorine residual samples alongside microbiological samples for both treated and distribution water is to provide disinfection data in the event of a positive bacteriological result. A review of the logbooks, operator worksheets, and selected chains of custody verified that chlorine residual tests were conducted at the same time and location as the microbiological samples.			

<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.			
<b>OBSERVATIONS:</b>  At least one treated water sample must be collected and tested for inorganic parameters every 36 months and within 60 days before or after the third anniversary of the day the previous sample was taken.  Treated water samples were most recently collected from each well for inorganic parameter analysis on March 18, 2025. All required parameters were analyzed and all test results were below the respective maximum acceptable concentrations. Treated water samples were previously collected for inorganic parameter analysis between March 23 and March 31, 2022.			

<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.			
<b>OBSERVATIONS:</b>  At least one treated water sample must be collected and tested for organic parameters every 36 months and within 60 days before or after the third anniversary of the day the previous sample was taken.  Treated water samples were most recently collected from each well for organic parameter analysis on March 18, 2025. All required parameters were analyzed and all test results were below the respective maximum acceptable concentrations. Treated water samples were previously collected for organic parameter analysis between March 23 and March 31, 2022.			

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>OBSERVATIONS:</p> <p>A sample must be collected and tested for total haloacetic acids (HAAs) every calendar quarter and within 60 to 120 days after the sample was collected in the previous calendar quarter. Samples must be collected from the distribution system or plumbing that is connected to the system that is likely to have an elevated potential for the formation of HAAs.</p> <p>Quarterly samples were most recently collected for total HAA analysis on August 14, 2024, November 19, 2024, February 19, 2025, May 15, 2025, and August 19, 2025. All samples were collected at the far end of the distribution system and all results were below the lower analytical detection limit of 5.0 µg/L. The running annual average at the time of the inspection was 5.0 µg/L, which is below the Ontario Drinking Water Quality Standard of 80 µg/L (expressed as a running annual average).</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>OBSERVATIONS:</p> <p>A sample must be collected and tested for total trihalomethanes (TTHMs) every calendar quarter and within 60 to 120 days after the sample was collected in the previous calendar quarter. Samples must be collected from the distribution system or plumbing that is connected to the system that is likely to have an elevated potential for the formation of TTHMs.</p>			

Quarterly samples were most recently collected for TTHM analysis on August 14, 2024, November 19, 2024, February 19, 2025, May 15, 2025, and August 19, 2025. All samples were collected at the far end of the distribution system. The running annual average at the time of the inspection was 6.5 µg/L, which is below the Ontario Drinking Water Quality Standard of 100 µg/L (expressed as a running annual average).

Question ID	DWMR1088001	Question Type	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.			
OBSERVATIONS:  A treated water sample must be collected and tested for nitrate and nitrite every 3 months and within 60 to 120 days after the previous sample was collected.  Quarterly treated water samples were most recently collected from each well for nitrate and nitrite analysis on August 14, 2024, November 19, 2024, February 19, 2025, May 15, 2025, and August 19, 2025. All test results were below the respective maximum acceptable concentrations for nitrate and nitrite.			

Question ID	DWMR1089001	Question Type	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.			
OBSERVATIONS:  At least one treated water sample must be collected and tested for sodium every 60 months and within 90 days before or after the fifth anniversary of the day the previous sample was taken.  The most recent routine treated water samples for sodium analysis were collected on February 20, 2024. Samples were taken from each well, with results ranging from 16.4 mg/L to 23.0 mg/L. Samples were previously collected for sodium analysis on February 12 and			

February 19, 2019. Reporting and corrective actions are required if the sodium concentration exceeds 20 mg/L.

Concerning the samples collected on February 20, 2024, the sodium concentration exceeded 20 mg/L in treated water samples in 4 of the 5 wells. Resample sets collected on March 5 and March 19, 2024, confirmed that the sodium concentration exceeded 20 mg/L in water samples collected from multiple wells and from a location in the distribution system. On March 11, 2024, following the first resample results, the Thunder Bay District Health Unit issued a 'Drinking Water Advisory Notice' for individuals on sodium-restricted diets. This advisory remains in effect.

At the time of the inspection, no information regarding the sodium advisory was readily available on the Town of Marathon website. The previous inspection report recommended that the owner and operating authority collaborate with the Thunder Bay District Health Unit to determine an appropriate frequency for renotification. The status of sodium health advisory renotification will be reviewed during the next inspection.

<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?			
<b>Compliance Response(s)/Corrective Action(s)/Observation(s):</b> Fluoride sampling requirements were met.			
<b>OBSERVATIONS:</b>  Where fluoridation is not practiced, at least one treated water sample must be collected and tested for fluoride every 60 months and within 90 days before or after the fifth anniversary of the day the previous sample was taken.  The most recent treated water samples were collected for fluoride analysis on February 20, 2024. Samples were collected from each well, and all results were below the maximum acceptable concentration for fluoride (1.5 mg/L). Samples were previously collected for fluoride analysis on February 12, 2019.			

<b>Question ID</b>	DWMR1092001	<b>Question Type</b>	Legislative
<b>Legislative Requirement(s):</b> SDWA   O. Reg. 170/03   6-2;			
<b>Question:</b> Were water samples taken at the prescribed location?			

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

Water samples were taken at the prescribed location.

Question ID	DWMR1095001	Question Type	Legislative
<p><b>Legislative Requirement(s):</b> SDWA   O. Reg. 170/03   15.1-10; SDWA   O. Reg. 170/03   15.1-4   (1); SDWA   O. Reg. 170/03   15.1-5   (1); SDWA   O. Reg. 170/03   15.1-5   (10); SDWA   O. Reg. 170/03   15.1-5   (11); SDWA   O. Reg. 170/03   15.1-5   (2); SDWA   O. Reg. 170/03   15.1-5   (3); SDWA   O. Reg. 170/03   15.1-5   (4); SDWA   O. Reg. 170/03   15.1-5   (5); SDWA   O. Reg. 170/03   15.1-5   (6); SDWA   O. Reg. 170/03   15.1-5   (7); SDWA   O. Reg. 170/03   15.1-5   (8); SDWA   O. Reg. 170/03   15.1-5   (9); SDWA   O. Reg. 170/03   15.1-7   (1); SDWA   O. Reg. 170/03   15.1-7   (2); SDWA   O. Reg. 170/03   15.1-7   (3); SDWA   O. Reg. 170/03   15.1-7   (4); SDWA   O. Reg. 170/03   15.1-9   (1); SDWA   O. Reg. 170/03   15.1-9   (2); SDWA   O. Reg. 170/03   15.1-9   (3); SDWA   O. Reg. 170/03   15.1-9   (4); SDWA   O. Reg. 170/03   15.1-9   (5); SDWA   O. Reg. 170/03   15.1-9   (6); SDWA   O. Reg. 170/03   15.1-9   (7); SDWA   O. Reg. 170/03   15.1-9   (8); SDWA   O. Reg. 170/03   15.1-9   (9);</p>			
<p><b>Question:</b> Were lead sampling requirements prescribed by Schedule 15.1 of O. Reg. 170/03 met?</p>			
<p><b>Compliance Response(s)/Corrective Action(s)/Observation(s):</b> Lead sampling requirements were met.</p> <p><b>OBSERVATIONS:</b></p> <p>The Marathon Drinking Water System remains on the reduced lead sampling schedule with an exemption from collecting plumbing samples. Three (3) distribution samples must be collected and tested for pH and alkalinity in each of the summer (June 15 to October 15) and winter (December 15 to April 15) sampling periods. The distribution samples must also be tested for lead in every third 12-month period for consecutive sampling periods.</p> <p>Three distribution samples were collected on March 19, 2025, corresponding to the Winter 2024/2025 sampling period, and again on July 23, 2025, corresponding to the Summer 2025 sampling period. All samples were analyzed for pH and alkalinity; lead was not tested in distribution samples during the inspection period. Lead was most recently tested in distribution samples collected on February 6, 2024, and July 23, 2024. With the exception of one sample collected on September 18, 2008, and another on March 26, 2009, lead results for all distribution samples collected since 2008 have been below the water quality standard of 10 µg/L.</p>			

Question ID	DWMR1097001	Question Type	Legislative
<p><b>Legislative Requirement(s):</b> SDWA   O. Reg. 170/03   7-3   (1.1);</p>			

<p><b>Question:</b> If the drinking water system obtained water from a ground water source, was turbidity tested at least once every month from each well that supplied water to the system?</p>
<p><b>Compliance Response(s)/Corrective Action(s)/Observation(s):</b> Turbidity was tested as required.</p> <p>OBSERVATIONS:  Certified operators performed weekly raw water turbidity testing at each well throughout the inspection period. Results were recorded on the treatment subsystem worksheet.</p>

Question ID	DWMR1110001	Question Type	Legislative
<b>Legislative Requirement(s):</b> SDWA   O. Reg. 170/03   11   (6);			
<b>Question:</b> Was the annual report prepared by February 28th of the following year and did it contain the required information?			
<b>Compliance Response(s)/Corrective Action(s)/Observation(s):</b> The annual report requirements were met.			
OBSERVATIONS:  Section 11 annual reports are intended to communicate important information about water quality and system operation to users of the system. Annual reports must also describe any corrective actions taken under Schedule 17 during the period covered by the report (i.e., corrective actions taken to resolve adverse water quality incidents). The reports must cover the period from January 1 to December 31 in a year and must be prepared not later than February 28 of the following year.  Northern Waterworks Inc., on behalf of the system owner, consolidates the section 11 annual report and Schedule 22 summary report into a single annual report. The 2024 annual report was prepared before February 28, 2025.			

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

**OBSERVATIONS:**

The intent of the annual summary report is to provide detailed information about system failures and non-compliances to municipal representatives, including those representatives with decision-making authority over the system. The summary report also provides flow monitoring results for the purpose of assessing the capability of the system to meet existing and planned uses. The annual summary report must be provided to the members of municipal council no later than March 31 of the year following the reporting period.

Northern Waterworks Inc. prepared a consolidated annual report that meets the requirements of both section 11 and Schedule 22 of O. Reg. 170/03. The consolidated 2024 annual report was accepted through a motion passed at a regular meeting of council on March 10, 2025.

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

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

<b>Question ID</b>	DWMR1046001	<b>Question Type</b>	BMP
<b>Legislative Requirement(s):</b> Not Applicable			

**Question:**

Was there a backflow prevention program, policy and/or bylaw in place that addressed cross connections and connections to high hazard facilities?

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

There was no backflow prevention program, policy and/or bylaw in place.

**BEST PRACTICE RECOMMENDATION:**

The owner should develop and implement a backflow prevention program that includes documented policies, procedures, and/or municipal bylaws.

**OBSERVATIONS:**

There are currently no documented policies or municipal bylaws that extend or enforce the backflow prevention requirements outlined in the Ontario Building Code (OBC). However, the Chief Building Official for the Town of Marathon confirms that all new construction complies with the OBC, including its backflow prevention provisions. Certain industrial, commercial and institutional facilities within the community also have backflow prevention devices installed.

A comprehensive backflow prevention program may include the development and implementation of practices, policies, and bylaws to ensure that backflow preventers are installed at all existing and new high-hazard facilities. A notable gap in the current approach is the absence of criteria for maintenance, testing, and reporting of devices already installed at industrial, commercial, and institutional facilities. Another potential gap is the lack of proactive measures to identify cross-connections between the distribution system and non-potable water sources.

Additional guidance about backflow prevention is available in the ministry's "Guide for Drinking Water System Owners Seeking to Undertake a Backflow Prevention Program". This best management practice is now included in the Ministry's "Drinking Water System Best Management Practices" document. Refer to Question ID DWMR1117001 for more information.

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

**OBSERVATIONS:**

The 4,950 m<sup>3</sup> capacity in-ground storage reservoir at the Penn Lake Heights Reservoir & Booster Station ensures adequate distribution system pressure throughout most of the community. Booster pumps at the facility are used to supply water to and maintain system pressure in the Penn Lake Heights subdivision. The Industrial Park Booster Station, located on Peninsula Road, uses booster pumps to supply water to the Industrial Park.

To ensure adequate system pressure, water levels at the reservoir are continuously monitored and alarmed. Pressure is also monitored and alarmed at both booster stations. No sustained low-pressure events occurred during the inspection period. In previous years, low-pressure events originating at the Penn Lake Heights Booster Station were relatively common and resulted in complete loss of pressure in the subdivision. The replacement of booster pumps and the installation of a dry contact for pump 3 motor control have proven effective in preventing these low-pressure events.

Question ID	DWMR1047001	Question Type	BMP
<b>Legislative Requirement(s):</b> Not Applicable			
<b>Question:</b> Did the owner have a program or maintain a schedule for routine cleanout, inspection and maintenance of reservoirs and elevated storage tanks within the distribution system?			
<b>Compliance Response(s)/Corrective Action(s)/Observation(s):</b> The owner had a program or maintained a schedule for routine cleanout, inspection and maintenance of reservoirs and elevated storage tanks within the distribution system.			
<b>OBSERVATIONS:</b>  There is no documented program in place for the routine cleanout, inspection, and maintenance of the Penn Lake reservoir. Historically, the reservoir has been inspected and cleaned approximately every 5 to 10 years, with the most recent work completed in 2017. During the field inspection, it was noted that the next inspection and cleaning is planned for 2026 and will likely utilize an underwater remotely operated vehicle.			

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

**OBSERVATIONS:**

For planned maintenance, the water distribution system is divided into three sections. Over a three-year cycle, each section undergoes watermain flushing, hydrant inspection and operation checks, and valve exercising, with one section completed each year. Associated maintenance records are maintained by the Town of Marathon.

This best management practice is now included in the Ministry's "Drinking Water System Best Management Practices" document. Refer to Question ID DWMR1117001 for more information.

Question ID	DWMR1050001	Question Type	BMP
<b>Legislative Requirement(s):</b> Not Applicable			
<b>Question:</b> Was there a program in place for inspecting and exercising valves?			
<b>Compliance Response(s)/Corrective Action(s)/Observation(s):</b> There was a program in place for inspecting and exercising valves.			
<b>OBSERVATIONS:</b>  Refer to Question ID DWMR1048001.			

Question ID	DWMR1051000	Question Type	BMP
<b>Legislative Requirement(s):</b> Not Applicable			
<b>Question:</b> Is there a program in place for inspecting and operating hydrants?			
<b>Compliance Response(s)/Corrective Action(s)/Observation(s):</b> There was a program in place for inspecting and operating hydrants.			
<b>OBSERVATIONS:</b>  Refer to Question ID DWMR1048001.			

Question ID	DWMR1052001	Question Type	BMP
<b>Legislative Requirement(s):</b> Not Applicable			
<b>Question:</b> Was there a bylaw or policy in place limiting access to hydrants?			

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

There was a bylaw or policy in place limiting access to hydrants.

**OBSERVATIONS:**

Subsection 6. d) of by-law 1560 ("Waterworks By-law") pertains to limiting access to hydrants. Other rules governing access to and usage of hydrants are provided in the "Fire Hydrant Usage Report Form" maintained by the Town of Marathon.

This best management practice is now included in the Ministry's "Drinking Water System Best Management Practices" document. Refer to Question ID DWMR1117001 for more information.

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

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

<b>Question ID</b>	DWMR1060001	<b>Question Type</b>	Legislative
<b>Legislative Requirement(s):</b> SDWA   31   (1);			
<b>Question:</b> Did the operations and maintenance manual(s) meet the requirements of the Municipal			

Drinking Water Licence?
<b>Compliance Response(s)/Corrective Action(s)/Observation(s):</b> The operations and maintenance manual(s) met the requirements of the Municipal Drinking Water Licence.

<b>Question ID</b>	DWMR1064001	<b>Question Type</b>	Legislative
<b>Legislative Requirement(s):</b> SDWA   O. Reg. 128/04   26   (2);			
<b>Question:</b> Did an operator-in-charge ensure that records were maintained of all adjustments to the processes within their responsibility?			
<b>Compliance Response(s)/Corrective Action(s)/Observation(s):</b> The operator-in-charge ensured that records were maintained of all adjustments to the processes within their responsibility.			

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

<b>Question ID</b>	DWMR1063001	<b>Question Type</b>	Legislative
<b>Legislative Requirement(s):</b> SDWA   O. Reg. 170/03   6-10   (1);			
<b>Question:</b> For every required operational test and sample, was a record made of the date, time, location, results, and name of the person conducting the test?			

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

For every required operational test and sample, a record was made as required.

<b>Question ID</b>	DWMR1061001	<b>Question Type</b>	Legislative
<b>Legislative Requirement(s):</b> SDWA   O. Reg. 128/04   27   (1); SDWA   O. Reg. 128/04   27   (2); SDWA   O. Reg. 128/04   27   (3); SDWA   O. Reg. 128/04   27   (4); SDWA   O. Reg. 128/04   27   (5); SDWA   O. Reg. 128/04   27   (6); SDWA   O. Reg. 128/04   27   (7);			
<b>Question:</b> Were logbooks properly maintained and did they contain the required information?			
<b>Compliance Response(s)/Corrective Action(s)/Observation(s):</b> Logbooks were properly maintained and contained the required information.			
OBSERVATIONS:  The electronic logbooks for the treatment subsystem and distribution outstations were reviewed for the inspection period. The hardcopy logbook pertaining to all other linear infrastructure in the water distribution system was also reviewed.			

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

<b>Question ID</b>	DWMR1066001	<b>Question Type</b>	BMP
<b>Legislative Requirement(s):</b> Not Applicable			
<b>Question:</b> Was spill containment provided for process chemicals and standby power generator fuel?			
<b>Compliance Response(s)/Corrective Action(s)/Observation(s):</b> Spill containment was provided for process chemicals and/or standby power generator fuel.			
OBSERVATIONS:			

Sodium hypochlorite pails stored at the wastewater treatment plant and individual wells were placed on spill containment pallets. At the wells, sodium hypochlorite solution tanks were either positioned on spill containment pallets or within larger chemical-resistant containment tanks.

The emergency generator at Well 6, housed in an outdoor enclosure, includes an 1,800 L double-walled diesel storage tank located beneath the generator. A local alarm is triggered if the tank level drops, which could indicate a leak.

At the Penn Lake Heights Reservoir & Booster Station, the 1,136 L above-ground diesel storage tank is double-walled and situated within a berm. Neither the generator nor the diesel tank is located above the reservoir.

The 455 L above-ground diesel storage tank for the pump drive is located inside Well 4 building. This tank is double-walled, and the site is inspected daily. The owner and operating authority acknowledge that the location of the diesel tank inside the well building poses a risk and plan to remove the tank and associated pump drive in the near future. Operation of the diesel pump drive also has significant regulatory implications; however, it has not been used in practice for at least the past decade.

This best management practice is now included in the Ministry's "Drinking Water System Best Management Practices" document. Refer to Question ID DWMR1117001 for more information.

Question ID	DWMR1067001	Question Type	BMP
<b>Legislative Requirement(s):</b> Not Applicable			
<b>Question:</b> Were equipment and materials in place for the clean up of spills?			
<b>Compliance Response(s)/Corrective Action(s)/Observation(s):</b> Equipment and materials were in place for the clean up of spills.  OBSERVATIONS:  Spill clean up material was confirmed to be available at the reservoir.  This best management practice is now included in the Ministry's "Drinking Water System Best Management Practices" document. Refer to Question ID DWMR1117001 for more information.			

Question ID	DWMR1068001	Question Type	BMP
<b>Legislative Requirement(s):</b> Not Applicable			

<p><b>Question:</b> If available, were standby power generators tested under normal load conditions?</p>
<p><b>Compliance Response(s)/Corrective Action(s)/Observation(s):</b> Standby power generators were tested under normal load conditions.</p> <p><b>OBSERVATIONS:</b></p> <p>Standby generators at Well 6, the Penn Lake Heights Reservoir &amp; Booster Station, and the Industrial Park Booster Station are typically tested monthly under normal load conditions, with results documented in the planned maintenance worksheets.</p> <p>This best management practice is now included in the Ministry's "Drinking Water System Best Management Practices" document. Refer to Question ID DWMR1117001 for more information.</p>

<b>Question ID</b>	DWMR1069001	<b>Question Type</b>	BMP
<b>Legislative Requirement(s):</b> Not Applicable			
<b>Question:</b> Were all storage facilities completely covered and secure?			
<b>Compliance Response(s)/Corrective Action(s)/Observation(s):</b> Storage facilities were completely covered and secure.			

<b>Question ID</b>	DWMR1070001	<b>Question Type</b>	BMP
<b>Legislative Requirement(s):</b> Not Applicable			
<b>Question:</b> Were air vents and overflows associated with reservoirs and elevated storage structures equipped with screens?			
<b>Compliance Response(s)/Corrective Action(s)/Observation(s):</b> Air vents and overflows associated with reservoirs and elevated storage structures were equipped with screens.			
<b>OBSERVATIONS:</b>			
The Penn Lake reservoir is equipped with two overflow structures, each screened with non-corrodible ABS plastic. However, the mesh openings are significantly larger than recommended, creating a potential pathway for insect intrusion. Potential gaps were also observed around the mounting edges of the overflow screens. It was noted that the previous screening, which utilized a finer mesh size, was reportedly dislodged during fire pump testing.			

For ground-level storage reservoirs, overflow structures should be fitted with a non-corrodible screen of #24 mesh (0.70 mm). Where fire pump testing occurs infrequently, the screen may be temporarily removed, inspected, and reinstalled following the test. The primary purpose of screening is to minimize the risk of contamination from insects, birds, and mammals, rather than to accommodate infrequent maintenance activities.

Question ID	DWMR1071001	Question Type	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.  <b>OBSERVATIONS:</b>  The drinking water system includes five well buildings, one pumping station, and one reservoir and pumping station. The SCADA system's computer terminal is located at the wastewater treatment facility. Appropriate signage with emergency contact information is posted at all facilities.  All buildings are secured with locks, and both the wastewater treatment facility and Well 5 are fenced. Security measures include surveillance cameras and intrusion alarms at all facilities. It was noted during the field inspection that the surveillance cameras are scheduled to be upgraded in the near future.  Operators conduct daily physical inspections of all outstations, and no signs of unauthorized access or vandalism were noted during the field inspection.			

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

water losses, flow data from before and during the inspection period indicate that current water conservation measures may not be effective at reducing consumption on a consistent or long-term basis. Elevated flow rates that are double, triple, or quadruple expected values may carry significant cost implications for energy consumption, chemical usage, and equipment longevity.

Concerning implemented water conservation measures, Bylaw No. 1560 governs external water use during summer months and includes additional water use restrictions. Certified operators for the Town of Marathon also employ leak detection on a proactive basis; notably, a leak detected and repaired in late October 2025 resulted in a significant reduction in system flows. The community does not have universal metering in place.

For reference, total per capita water use includes residential, industrial, commercial, and other uses supplied by the public utility. Assuming a population of 3,300, average daily flows would be expected to range from approximately 1,106 m<sup>3</sup>/day to 1,323 m<sup>3</sup>/day if Marathon's per capita water use aligned with averages reported for Ontario (335 L/person/day) or Canada (401 L/person/day), based on 2021 Statistics Canada data. In contrast, the annual average daily flow in 2024 was 1,958 m<sup>3</sup>/day (612 L/person/day), and the average for the first 10 months of 2025 was 3,085 m<sup>3</sup>/day, with flows regularly exceeding 3,000 m<sup>3</sup>/day and occasionally reaching 4,000 m<sup>3</sup>/day—three to four times the expected values.

Ultimately, water conservation measures should continue to be effectively implemented to ensure that per capita water usage in Marathon better aligns with regional, provincial and national values. A more comprehensive approach to water conservation may consider the following water efficiency measures:

- 1) expanding the scope of external water use restrictions;
- 2) encouraging the installation/subsidizing the costs of water efficient fixtures;
- 3) public education programs;
- 4) water use and loss audits;
- 5) leak detection programs; and,
- 6) metering for all users.

Question ID	DWMR1073001	Question Type	Legislative
<b>Legislative Requirement(s):</b> SDWA   O. Reg. 128/04   23   (1);			
<b>Question:</b> Was an overall responsible operator designated for all subsystems which comprise the drinking water system?			
<b>Compliance Response(s)/Corrective Action(s)/Observation(s):</b> An overall responsible operator was not designated for all subsystems.			
CORRECTIVE ACTION(S):			

The Town of Marathon shall ensure that an overall responsible operator is designated at all times for the linear infrastructure associated with the water distribution subsystem.

By January 30, 2026, the Town of Marathon shall establish and implement a method to ensure that an ORO is designated and recorded at all times, including weekends and statutory holidays, for the linear infrastructure associated with the distribution subsystem. Acceptable methods may include completing the logbook daily or making an entry on the last business day of the week identifying the individual who will serve as ORO during weekends and/or statutory holidays. The selected method shall be reported by email to the undersigned Water Compliance Officer by the same date.

By April 3, 2026, the Town of Marathon shall submit ORO designation records for February and March 2026, demonstrating continuous ORO coverage. These records shall be provided by email to the undersigned Water Compliance Officer.

#### OBSERVATIONS:

The Marathon water treatment subsystem is a Class I subsystem and the distribution subsystem is a Class II subsystem. NWI provides overall responsible operator (ORO) coverage for the treatment subsystem and distribution outstations, while the Town of Marathon provides ORO coverage for all other linear infrastructure in the water distribution subsystem.

During the inspection period, two appropriately certified operators were designated as the ORO for the water treatment subsystem and associated distribution outstations.

One appropriately certified operator was designated as the ORO for all other linear infrastructure within the water distribution subsystem on weekdays only. No ORO designation was recorded for weekends or statutory holidays. Following the inspection, the system owner confirmed that the operator designated for weekdays also fulfilled ORO responsibilities during weekends and statutory holidays. ORO designations were documented in the respective subsystem logbooks.

The owner and operating authority are reminded that the purpose of the ORO position is to ensure that a knowledgeable and experienced person is available at all times both to direct other operators on system operations and to respond immediately and effectively to emergencies. OROs must therefore be in close proximity to the site and able to attend in person to effectively address an emergency; an ORO is not permitted to be accessible only by electronic means. Recordkeeping mechanisms must also demonstrate who is designated as ORO at any given time (e.g., per shift, per 24-hour period, etc.), including on those days when no operating and maintenance activities are completed (e.g., weekends, statutory holidays, etc.).

The owner and operating authority should also assess the practicality of designating a single individual as the ORO for an uninterrupted 12-month period or longer. Such an arrangement will necessarily mean that the ORO has not taken vacation, sick leave, or other statutory time off.

<b>Question ID</b>	DWMR1074001	<b>Question Type</b>	Legislative
<b>Legislative Requirement(s):</b> SDWA   O. Reg. 128/04   25   (1);			
<b>Question:</b> Were operators-in-charge designated for all subsystems which comprise the drinking water system?			
<b>Compliance Response(s)/Corrective Action(s)/Observation(s):</b> Operators-in-charge were designated for all subsystems.			
OBSERVATIONS:  NWI provides operator-in-charge (OIC) coverage for the treatment subsystem and distribution system outstations, while the Town of Marathon provides OIC coverage all other linear infrastructure in the water distribution subsystem.  During the inspection period, two (2) appropriately certified operators were designated as the OIC for the water treatment subsystem and distribution outstations. Operators designated as OIC were recorded in the electronic logbook.  During the inspection period, four (4) appropriately certified operators were designated as OIC for all other linear infrastructure in the water distribution subsystem. OIC designations were recorded in the hardcopy logbook.			

<b>Question ID</b>	DWMR1075001	<b>Question Type</b>	Legislative
<b>Legislative Requirement(s):</b> SDWA   O. Reg. 128/04   22;			
<b>Question:</b> Were all operators certified as required?			
<b>Compliance Response(s)/Corrective Action(s)/Observation(s):</b> All operators were certified as required.			
OBSERVATIONS:  Throughout the inspection period, three (3) certified operators performed work and/or provided oversight for the treatment subsystem and distribution outstations. This group included one operator holding an Operator-in-Training (OIT) certificate. In addition, seven (7) certified operators oversaw and/or worked on all other linear infrastructure within the water distribution system, including three operators holding OIT certificates.			

<b>Question ID</b>	DWMR1076001	<b>Question Type</b>	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.			
OBSERVATIONS:  All adjustments made to treatment equipment in the treatment subsystem were made by certified operators. Process adjustments were recorded in the facility logbooks. Examples of such process adjustments included, but were not limited to, starting and stopping water production at the wells, chlorine analyzer calibrations and maintenance, and changing alarm set points. Where process adjustments were completed by an OIT during the inspection period, records demonstrated that the OIT received either prior or real-time OIC instruction.			

<b>Question ID</b>	DWMR1117001	<b>Question Type</b>	Information
<b>Legislative Requirement(s):</b> Not Applicable			
<b>Question:</b> Were there any other items related to the drinking water system that should be recognized in the report?			
<b>Compliance Response(s)/Corrective Action(s)/Observation(s):</b> The following items were noted as being relevant to the drinking water system:			
INFORMATION - DRINKING WATER SYSTEM BEST MANAGEMENT PRACTICES  The owner and operating authority are reminded that many best management practices identified in this report are now included in the Ministry's "Drinking Water System Best Management Practices" document. This document includes best management practices that operators of municipal drinking water systems in Ontario are required to consider under Element 21 of the Drinking Water Quality Management Standard. The document can be found at the following address: <a href="https://www.ontario.ca/page/drinking-water-system-best-management-practices#section-3">https://www.ontario.ca/page/drinking-water-system-best-management-practices#section-3</a>			
BEST PRACTICE RECOMMENDATION - VIDEOGRAPHIC CHART RECORDER SCALING PROBLEMS  Videographic chart recorders are installed at all wells to provide a backup system for continuously monitored data, including chlorine and flows. However, the current scale on all chart recorders is inadequate, making it difficult for operators to interpret the data effectively. The scale causes data to appear flattened, hindering trend analysis and meaningful			

interpretation. During the field inspection, it was reported that no progress has been achieved and the scaling problem still needs to be reviewed and adjusted to improve data clarity and accuracy.

By April 24, 2026, the owner and operating authority are requested to submit a report confirming that the scaling issue has been corrected on all videographic chart recorders. The report should include photographs and be provided by email to the undersigned Water Compliance Officer.

#### BEST PRACTICE RECOMMENDATION – EXPORTING VIDEOGRAPHIC CHART RECORDER DATA

Data stored on the videographic chart recorders cannot currently be exported and viewed by operators because the required software has not yet been installed on existing computer terminals. Following the field inspection, it was reported that installation is scheduled for January 2026. The owner and operating authority are reminded that when gaps occur in the SCADA historian, operators must consult the values recorded by the videographic chart recorder when reviewing continuous monitoring test results.

By February 20, 2026, the owner and operating authority are requested to provide a report confirming that the necessary software has been installed. The software should be installed on multiple computer terminals. The report should include a sample of exported data and be submitted by email to the undersigned Water Compliance Officer.

It is also recommended that, when gaps exist in the primary SCADA historian, exported data from the relevant videographic chart recorder be uploaded to the electronic logbook for the corresponding time period.

#### INFORMATION - SYSTEM OPERATING GUIDELINES

As per previously established operating guidelines, wells 2 and 6 were only operated locally for short periods (10 to 20 minutes) on a weekly basis throughout the inspection period, and only when a certified operator was on site. These weekly run ups coincided with the collection of microbiological water samples and water quality testing.

All wells continue to be operated manually to maintain reservoir levels. That is, the automated control system to initiate water production based on reservoir level set points is not in use.

#### INFORMATION - CHLORINE CONCENTRATION MEASUREMENT DELAYS AND IMPACTS

The chlorine level at each well is not measured in real time while the well is in production due to the time it takes for water to travel through the sample line extending from the end of the contact loop to the analyzer. These measurement delays have implications for shut-off mechanisms, event-driven CT calculations, and adverse incident reporting. Refer to the 2024-25 inspection report for more information.



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**Stakeholder Resources**

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# 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 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/page/drinking-water](http://www.ontario.ca/page/drinking-water)



## Click on the publication below to access it

- [Drinking Water System Profile Information Form - 012-2149E](#)
- [Laboratory Services Notification Form – 012-2148E](#)
- [Adverse Test Result Notification Form – 012-4444E](#)
- [Taking Care of Your Drinking Water: A Guide for Members of Municipal Councils](#)
- [Procedure for Disinfection of Drinking Water in Ontario](#)
- [Strategies for Minimizing the Disinfection Products Trihalomethanes and Haloacetic Acids](#)
- [Filtration Processes Technical Bulletin](#)
- [Ultraviolet Disinfection Technical Bulletin](#)
- [Guide for Applying for Drinking Water Works Permit Amendments, & License Amendments](#)
- [Certification Guide for Operators and Water Quality Analysts](#)
- [Training Requirements for Drinking Water Operator](#)
- [Community Sampling and Testing for Lead: Standard and Reduced Sampling and Eligibility for Exemption](#)
- [Drinking Water System Contact List – 7128E01](#)
- [Ontario's Drinking Water Quality Management Standard - Pocket Guide](#)
- [2020 Watermain Disinfection Procedure](#)
- [List of Licensed Laboratories](#)



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**Inspection Summary Rating Record & Risk Methodology**

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Ministry of the Environment, Conservation and Parks - Inspection Summary Rating Record (Reporting Year - 2025-26)

<b>DWS Name:</b>	MARATHON DRINKING WATER SYSTEM
<b>DWS Number:</b>	220000255
<b>DWS Owner:</b>	THE CORPORATION OF THE TOWN OF MARATHON
<b>Municipal Location:</b>	MARATHON
<b>Regulation:</b>	O.REG. 170/03
<b>DWS Category:</b>	DW Municipal Residential
<b>Type of Inspection:</b>	Detailed
<b>Compliance Assessment Start Date:</b>	Nov-7-2025
<b>Ministry Office:</b>	Thunder Bay District Office

**Maximum Risk Rating:** 576

Inspection Module	Non Compliance Risk (X out of Y)
Capacity Assessment	0/42
Certification and Training	7/42
Distribution System	0/4
Logbooks	0/30
Operations Manuals	0/42
Reporting & Corrective Actions	0/29
Source	0/26
Treatment Processes	21/217
Water Quality Monitoring	0/144
<b>Overall - Calculated</b>	<b>28/576</b>

<b>Inspection Risk Rating:</b>	<b>4.86%</b>
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<b>Final Inspection Rating:</b>	<b>95.14%</b>
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Ministry of the Environment, Conservation and Parks - Detailed Inspection Rating Record (Reporting Year - 2025-26)

<b>DWS Name:</b> MARATHON DRINKING WATER SYSTEM
<b>DWS Number:</b> 220000255
<b>DWS Owner Name:</b> THE CORPORATION OF THE TOWN OF MARATHON
<b>Municipal Location:</b> MARATHON
<b>Regulation:</b> O.REG. 170/03
<b>DWS Category:</b> DW Municipal Residential
<b>Type of Inspection:</b> Detailed
<b>Compliance Assessment Start Date:</b> Nov-7-2025
<b>Ministry Office:</b> Thunder Bay District Office

Non-Compliance Question(s)	Non Compliance Risk
<b>Certification and Training</b>	
Was an overall responsible operator designated for all subsystems which comprise the drinking water system?	7
<b>Treatment Processes</b>	
Were all parts of the drinking water system that came in contact with drinking water disinfected in accordance with a procedure listed in Schedule B of the Drinking Water Works Permit?	21
<b>Overall - Total</b>	<b>28</b>

Maximum Question Rating: 576

**Inspection Risk Rating: 4.86%**

**FINAL INSPECTION RATING: 95.14%**

# 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 to account for legislative and societal changes that affect acceptable risk levels. As a result of the most recent review, the methodology has been modified to present an improved metric for the evaluation of the risk/safety of MRDWS operations.

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

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

ministry inspectors use when conducting MRDWS inspections. The questions address a wide range of regulatory issues, from administrative procedures 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).

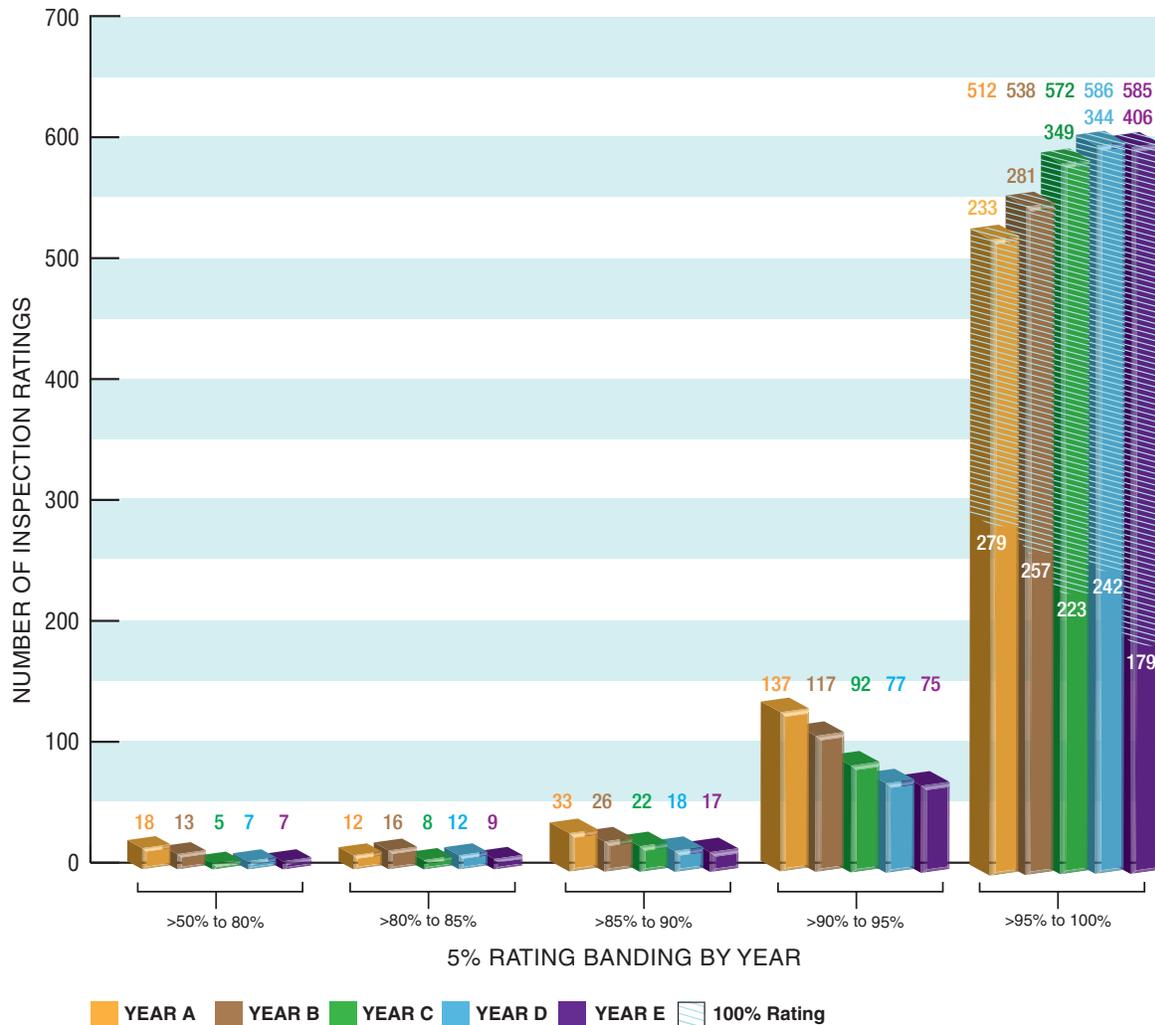
The risk ratings of all non-compliant answers are summed and divided by the sum of the risk ratings of all questions asked (maximum question rating). The resulting inspection risk rating (as a percentage) is subtracted from 100 per cent to arrive at the final inspection rating.

## 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)