

**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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December 24, 2024

File no. SI-MI-LN-DU-540

The Corporation of the City of London
300 Dufferin Avenue
London, ON
N6A 4L9

Attention: Ashley Rammeloo, Director - Water, Wastewater and Stormwater

Re: City of London Distribution System Inspection Report (DWS# 260004917)
Inspection conducted on November 14, 2024

Dear Ms. Rammeloo,

Enclosed is the 2024-25 inspection report for the City of London Distribution System, corresponding Inspection Rating Report (IRR) and Risk Methodology document.

Section 19 of the Safe Drinking Water Act (Standard of Care) creates 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 system(s) over which they have decision-making authority. These steps could include asking for a copy of this inspection report and a review of its findings. Further information about Section 19 can be found in "Taking Care of Your Drinking Water: A Guide for Members of Municipal Councils" on the Drinking Water Ontario website at <https://www.ontario.ca/environment-and-energy/taking-care-your-drinking-water-guide-members-municipal-councils>.

The IRR is a summarized quantitative measure of the drinking water system's annual inspection and is published in the Ministry's Chief Drinking Water Inspector's Annual Report. The Risk Methodology document describes the risk rating methodology which has been applied to the findings of the Ministry's municipal residential drinking water system inspection results.

If you have any questions or concerns regarding the rating, please contact Mark Smith, Water Compliance Supervisor, at Mark.Smith@ontario.ca or (226)873-5020.

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

Yours truly,

A handwritten signature in cursive script that reads "Andrew Winkler".

Andrew Winkler
Provincial Officer
London District Office


cc. Middlesex London Health Unit
Upper Thames River Conservation Authority
MECP London District



CITY OF LONDON DISTRIBUTION SYSTEM

INSPECTION REPORT

Entity: THE CORPORATION OF THE
CITY OF LONDON
Inspection Start Date: November 07, 2024
Site Inspection Date: November 14, 2024
Inspection End Date: December 13, 2024
Inspected By: Andrew Winkler
Badge #: 1908



(signature)

INTRODUCTION

Purpose

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

Scope

The ministry utilizes a comprehensive, multi-barrier approach in the inspection of water systems that focuses on the source, treatment, and distribution components as well as management and the operation of the system. The inspection of the drinking water system included both the physical inspection of the component parts of the system listed in section 4 "Systems Components" of the report and the review of data and documents associated with the operation of the drinking water system during the review period. This drinking water system is subject to the legislative requirements of the Safe Drinking Water Act, 2002 (SDWA) and regulations made therein, including Ontario Regulation 170/03, "Drinking Water Systems" (O. Reg. 170/03). This inspection has been conducted pursuant to Section 81 of the SDWA. This inspection report does not suggest that all applicable legislation and regulations were evaluated. It remains the responsibility of the owner to ensure compliance with all applicable legislative and regulatory requirements.

Facility Contacts and Dates

The drinking water system is owned and operated by The City of London.

The system serves an estimated population of 423,000 and is categorized as a Large Municipal Residential System. Unless otherwise specified, information reviewed for this inspection covered the period from November 18, 2023 to November 14, 2024.

Systems/Components

The City of London Distribution System only provides secondary disinfection and distribution of water. Primary disinfection is undertaken by other regulated drinking water systems which provides treated water to this drinking water system.

Treated water is received from the Lake Huron Primary Water Supply System (LHPWSS) and Elgin Area Primary Water Supply System (EAPWSS). The City of London Distribution System provides water storage, secondary disinfection boosting, and pressure boosting for the drinking water system.

The LHPWSS and EAPWSS drinking water systems are inspected separately from this drinking

water system.

An outstation is a component of a drinking water system that is not located at either a water treatment plant or a well supply and is generally not associated with primary treatment, for example reservoirs, booster stations, and rechlorination facilities located within the distribution system. Outstations may be visited on a rotational basis as part of a ministry inspection. This inspection included the inspection of the Southeast Reservoir & Pumping Station Rechlorination System (5200 Highbury Ave. S.), Springbank Meterhouse No. 4 Rechlorination System (809 Commissioners Rd. W.), Springbank Reservoirs & Rechlorination System (869 Commissioners Rd. W.), and John Gillies (Arva) Pumping and Station (13966 Medway Road, R.R.1).

Permissions/Approvals

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

- Municipal Drinking Water Licence (MDWL) #006-101, Issue #6, Dated: September 18, 2020, and
- Drinking Water Works Permit (DWWP) # 006-201, Issue #5, Dated: September 18, 2020.

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>Question ID: DWMR1021001</p> <p>Were Form 2 documents prepared as required?</p>	<p>Form 2 documents were not prepared as required.</p> <p>Requirements Condition 4.0 of the Drinking Water Works Permit requires a Form 2 to be completed for recording minor modifications to the drinking water system.</p> <p>Observations During the inspection on November 14, 2024, it was noted that the chlorine containment vessels identified in Schedule A of the DWWP were removed from the Southeast Reservoir and Pumping Station.</p> <p>Actions Required Before the issuance of this report the system owner provided a completed Form 2 dated November 14, 2024. No further actions required.</p>
NC-2	<p>Question ID: DWMR1019001</p> <p>Were Director Notifications prepared and submitted as required?</p>	<p>Director Notifications were not prepared and submitted as required.</p> <p>Requirements Condition 2.4 of the Drinking Water Works Permit requires the Director be provided written notification within 30 days of the removal of a component described in Schedule A of the DWWP.</p> <p>Observations During the inspection on November 14, 2024, it was noted that the chlorine containment vessels identified in Schedule A of the DWWP were</p>

removed from the Southeast Reservoir and Pumping Station. A written entry in the facility's logbook demonstrates that the vessels were removed on May 25, 2023.

Actions Required

Before the issuance of this report the system owner submitted a completed Director Notification form to the MECP, dated November 27, 2024. No further actions required.

RECOMMENDATIONS

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

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

INSPECTION DETAILS

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

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

Question ID	DWMR1018001	Question Type	Legislative
Legislative Requirement(s): SDWA 31 (1);			
Question: Did the owner ensure that equipment was installed in accordance with Schedule A and Schedule C of the Drinking Water Works Permit?			
Compliance Response(s)/Corrective Action(s)/Observation(s): The owner ensured that equipment was installed as required. Except for the chlorine containment vessels addressed in questions DWMR1021001 and DWMR1019001 of this report.			

Question ID	DWMR1020001	Question Type	Legislative
Legislative Requirement(s): SDWA 31 (1);			
Question: Were Form 1 documents prepared as required?			
Compliance Response(s)/Corrective Action(s)/Observation(s): Form 1 documents were prepared as required. The system owner provided 19 "Form1 – Record of Watermains Authorized as a Future Alteration" records completed during this inspection period.			

Question ID	DWMR1021001	Question Type	Legislative
Legislative Requirement(s): SDWA 31 (1);			
Question: Were Form 2 documents prepared as required?			
Compliance Response(s)/Corrective Action(s)/Observation(s): Form 2 documents were not prepared as required. Requirements Condition 4.0 of the Drinking Water Works Permit requires a Form 2 to be completed for recording minor modifications to the drinking water system.			

Observations

During the inspection on November 14, 2024, it was noted that the chlorine containment vessels identified in Schedule A of the DWWP were removed from the Southeast Reservoir and Pumping Station.

Actions Required

Before the issuance of this report the system owner provided a completed Form 2 dated November 14, 2024. No further actions required.

Question ID	DWMR1019001	Question Type	Legislative
<p>Legislative Requirement(s): SDWA 31 (1);</p>			
<p>Question: Were Director Notifications prepared and submitted as required?</p>			
<p>Compliance Response(s)/Corrective Action(s)/Observation(s): Director Notifications were not prepared and submitted as required.</p>			
<p>Requirements Condition 2.4 of the Drinking Water Works Permit requires the Director be provided written notification within 30 days of the removal of a component described in Schedule A of the DWWP.</p>			
<p>Observations During the inspection on November 14, 2024, it was noted that the chlorine containment vessels identified in Schedule A of the DWWP were removed from the Southeast Reservoir and Pumping Station. A written entry in the facility's logbook demonstrates that the vessels were removed on May 25, 2023.</p>			
<p>Actions Required Before the issuance of this report the system owner submitted a completed Director Notification form to the MECP, dated November 27, 2024. No further actions required.</p>			

Question ID	DWMR1028001	Question Type	Legislative
<p>Legislative Requirement(s): SDWA 31 (1);</p>			
<p>Question: 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?</p>			

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

Plans for the drinking water system were kept up-to-date and made available as required.

Question ID	DWMR1025001	Question Type	Legislative
Legislative Requirement(s): SDWA 31 (1);			
Question: 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?			
Compliance Response(s)/Corrective Action(s)/Observation(s): All parts of the drinking water system were disinfected as required. In addition to typical disinfection procedures followed during this inspection period. The system owner received written approval from the ministry's Director to use an alternative disinfection method for the Springbank Reservoir No. 3 rehabilitation project. The alternative method was included in a proposed draft version of Ontario's "Water Storage Facility Disinfection Procedure".			

Question ID	DWMR1027001	Question Type	Legislative
Legislative Requirement(s): SDWA 31 (1);			
Question: Did the owner have evidence indicating that chemicals and materials that came in contact with water within the drinking water system met all applicable AWWA and ANSI standards in accordance with the Municipal Drinking Water Licence and Drinking Water Works Permit?			
Compliance Response(s)/Corrective Action(s)/Observation(s): The owner had evidence indicating that chemicals and materials that came in contact with water within the drinking water system met the applicable standards.			

Question ID	DWMR1024001	Question Type	Legislative
Legislative Requirement(s): SDWA O. Reg. 170/03 1-2 (2);			
Question: Did records confirm that the water treatment equipment which provides chlorination or chloramination for secondary disinfection was operated as required?			

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

Records confirmed that the water treatment equipment which provides chlorination or chloramination for secondary disinfection was operated as required.

Question ID	DWMR1040001	Question Type	Legislative
Legislative Requirement(s): SDWA O. Reg. 170/03 6-5 (1)1-4; SDWA O. Reg. 170/03 6-5 (1)5-10;			
Question: Were all continuous analysers calibrated, maintained, and operated, in accordance with the manufacturer's instructions or the regulation?			
Compliance Response(s)/Corrective Action(s)/Observation(s): All continuous analysers were calibrated, maintained, and operated as required.			

Question ID	DWMR1108001	Question Type	Legislative
Legislative Requirement(s): SDWA O. Reg. 170/03 6-5 (1)5-10; SDWA O. Reg. 170/03 6-5 (1.1);			
Question: 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.			

Question ID	DWMR1033001	Question Type	Legislative
Legislative Requirement(s): SDWA O. Reg. 170/03 7-2 (3); SDWA O. Reg. 170/03 7-2 (4);			
Question: Was secondary disinfectant residual tested as required for the large municipal residential distribution system?			
Compliance Response(s)/Corrective Action(s)/Observation(s): Secondary disinfectant residual was tested as required. Operators manually collected water samples and performed chlorine residual tests. Further,			

continuous on-line analyzers performed chlorine residual tests at reservoirs and pump stations.

Question ID	DWMR1049001	Question Type	BMP
Legislative Requirement(s): Not Applicable			
Question: Did records confirm that disinfectant residuals were routinely checked at the extremities and dead ends of the distribution system?			
Compliance Response(s)/Corrective Action(s)/Observation(s): Records confirmed that disinfectant residuals were routinely checked at the extremities and dead ends of the distribution system.			

Question ID	DWMR1036001	Question Type	Legislative
Legislative Requirement(s): SDWA O. Reg. 170/03 6-7 (1);			
Question: Where continuous monitoring equipment was not used for chlorine residual analysis, were samples tested using an acceptable portable device?			
Compliance Response(s)/Corrective Action(s)/Observation(s): Samples for chlorine residual analysis were tested using an acceptable portable device.			

Question ID	DWMR1099001	Question Type	Information
Legislative Requirement(s): Not Applicable			
Question: Do records show that water provided by the drinking water system met the Ontario Drinking Water Quality Standards?			
Compliance Response(s)/Corrective Action(s)/Observation(s): Records showed that all water sample results met the Ontario Drinking Water Quality Standards. Six water samples obtained test results that exceeded the Standards for Total Coliform (AWQI # 164179, 164210, 164253, 164891, 165034, & 165630) during this inspection period. In response to these events, the system owner ensured that corrective actions, verbal reporting, and written notification requirements were performed in accordance with Ontario regulation 170/03.			

Question ID	DWMR1081001	Question Type	Legislative
Legislative Requirement(s): SDWA O. Reg. 170/03 10-2 (1); SDWA O. Reg. 170/03 10-2 (2); SDWA O. Reg. 170/03 10-2 (3);			
Question: Were distribution microbiological sampling requirements prescribed by Schedule 10-2 of O. Reg. 170/03 for large municipal residential systems met?			
Compliance Response(s)/Corrective Action(s)/Observation(s): Distribution microbiological sampling requirements were met. Section 10-2. of O. Reg. 170/03 stipulates that if the system serves more than 100,000 people, at least 100 distribution samples, plus one additional distribution sample for every 10,000 people served by the system, are taken every month, with at least three of the samples being taken in each week. Each sample shall be tested for E.coli and total coliforms, with at least 25% of required samples tested for general bacteria expressed as Heterotrophic Plate Count (HPC). Records provided to the ministry indicate that an approximate population of 423,000 was serviced by the drinking water system. For the purpose of section 10-2. of O. Reg. 170/03, a minimum of 142 distribution samples shall be taken each month, with at least three (3) samples taken each week.			

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

Question ID	DWMR1086001	Question Type	Legislative
Legislative Requirement(s): 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);			
Question: Were haloacetic acid sampling requirements prescribed by Schedule 13-6 of O. Reg. 170/03 met?			

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

Haloacetic acid sampling requirements were met.

Section 13-6.1 (1) & (2) of O. Reg. 170/03 required at least one distribution sample collected from a point in the distribution system or plumbing connected to the drinking water system, that is likely to have an elevated potential for the formation of haloacetic acids. Sample(s) shall be collected every three months or in each calendar quarter and tested for haloacetic acids.

Question ID	DWMR1087001	Question Type	Legislative
Legislative Requirement(s): 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);			
Question: Were trihalomethane sampling requirements prescribed by Schedule 13-6 of O. Reg. 170/03 met?			
Compliance Response(s)/Corrective Action(s)/Observation(s): Trihalomethane sampling requirements were met. Section 13-6 (1) & (2) of O. Reg. 170/03 required at least one distribution sample collected from a point in the distribution system or plumbing connected to the drinking water system, that is likely to have an elevated potential for the formation of trihalomethanes. Sample(s) shall be collected every three months or in each calendar quarter and tested for trihalomethanes.			

Question ID	DWMR1092001	Question Type	Legislative
Legislative Requirement(s): SDWA O. Reg. 170/03 6-2;			
Question: 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	DWMR1094001	Question Type	Legislative
Legislative Requirement(s): SDWA 31 (1);			
Question: Were water quality sampling requirements imposed by the Municipal Drinking Water Licence			

and Drinking Water Works Permit met?

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

Water quality sampling requirements were met.

Generally stated, condition 2.0 of Schedule C of the Municipal Drinking Water Licence (MDWL) requires the system owner to:

- implement the City of London Corrosion Control Plan (dated October 15, 2009, amended April 2014),
- collect water samples for testing in accordance with Table 1 of the MDWL,
- provide sampling data to the ministry's Director by January 31st each year, and
- provide the ministry's director with Corrosion Control Evaluation Reports to assess the effectiveness of the corrosion control measures & lead service line replacements by March 31st each year .

Records reviewed as part of this inspection demonstrate that the requirements in condition 2.0 of the MDWL have been met.

Question ID	DWMR1104001	Question Type	Legislative
<p>Legislative Requirement(s): SDWA O. Reg. 170/03 16-6 (1); SDWA O. Reg. 170/03 16-6 (2); SDWA O. Reg. 170/03 16-6 (3); SDWA O. Reg. 170/03 16-6 (3.1); SDWA O. Reg. 170/03 16-6 (3.2); SDWA O. Reg. 170/03 16-6 (4); SDWA O. Reg. 170/03 16-6 (5); SDWA O. Reg. 170/03 16-6 (6);</p>			
<p>Question: Were immediate verbal notification requirements for adverse water quality incidents met?</p>			
<p>Compliance Response(s)/Corrective Action(s)/Observation(s): Immediate verbal notification requirements for adverse water quality incidents were met.</p> <p>During this inspection review period, six adverse water quality incidents (AWQI) were reported to the Ministry's Spills Action Centre & Middlesex-London Health Unit:</p> <ol style="list-style-type: none"> 1. AWQI # 164179 – Total Coliform = 4 CFU/100 mL (Sample collected December 7, 2023) 2. AWQI # 164210 – Total Coliform = 1 CFU/100 mL (Sample collected December 14, 2023) 3. AWQI # 164253 – Total Coliform = 1 CFU/100 mL (Sample collected December 21, 2023) 4. AWQI # 164891 – Total Coliform = 1 CFU/100 mL (Sample collected April 25, 2024) 5. AWQI # 165034 – Total Coliform = 17 CFU/100 mL (Sample collected May 24, 2024) 6. AWQI # 165630 – Total Coliform = 6 CFU/100 mL (Sample collected July 15, 2024) <p>Appropriate corrective actions and written notifications were completed for each incident.</p>			

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

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

Question ID	DWMR1101001	Question Type	Legislative
Legislative Requirement(s): SDWA O. Reg. 170/03 17-1; SDWA O. Reg. 170/03 17-10 (1); SDWA O. Reg. 170/03 17-11; SDWA O. Reg. 170/03 17-12; SDWA O. Reg. 170/03 17-13; SDWA O. Reg. 170/03 17-14; SDWA O. Reg. 170/03 17-2; SDWA O. Reg. 170/03 17-3; SDWA O. Reg. 170/03 17-4; SDWA O. Reg. 170/03 17-5; SDWA O. Reg. 170/03 17-6; SDWA O. Reg. 170/03 17-9;			
Question: For large municipal residential systems, were corrective actions, including any steps directed by the Medical Officer of Health, taken to address adverse conditions?			
Compliance Response(s)/Corrective Action(s)/Observation(s): Corrective actions were taken to address adverse conditions.			

Question ID	DWMR1107001	Question Type	Legislative
Legislative Requirement(s): 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);

Question:

Were reporting requirements for lead samples taken from plumbing met?

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

Reporting requirements for lead samples taken from plumbing were met.

The ministry received three lead exceedance notifications (ref: #164476, #164451, & #164417) for water samples collected from private plumbing connected to the municipal drinking water system. Records demonstrate that the ministry, health unit, and property occupant were notified of each respective event.

Question ID	DWMR1103001	Question Type	Legislative
Legislative Requirement(s): SDWA O. Reg. 170/03 15.1-10;			
Question: Were corrective actions as directed by the Medical Officer of Health taken by the owner and operating authority to address exceedances of the lead standard in plumbing?			
Compliance Response(s)/Corrective Action(s)/Observation(s): Corrective actions were taken as directed by the Medical Officer of Health. Occupants of private properties identified in question DWMR1107001 of this report, were provided educational material developed by the Middlesex-London Health Unit - "Lead Health Messages from the Middlesex-London Health Unit".			

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

Question ID	DWMR1056001	Question Type	Information
Legislative Requirement(s): Not Applicable			

<p>Question: Did the donor provide an annual report to the owner of this receiver drinking water system?</p>
<p>Compliance Response(s)/Corrective Action(s)/Observation(s): The donor provided an annual report to the owner of the receiver drinking water system. The City of London received annual reports from the Lake Huron Primary Water Supply System and Elgin Area Primary Water Supply System.</p>

Question ID	DWMR1111001	Question Type	Legislative
Legislative Requirement(s): 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);			
Question: Did the summary report contain the required information and was it completed and distributed as required?			
Compliance Response(s)/Corrective Action(s)/Observation(s): The summary report requirements were met.			

Question ID	DWMR1113001	Question Type	Legislative
Legislative Requirement(s): SDWA O. Reg. 170/03 10.1 (3);			
Question: Were changes to the system registration information provided to the ministry within ten (10) days of the change?			
Compliance Response(s)/Corrective Action(s)/Observation(s): Changes to the system registration information were provided as required.			

Question ID	DWMR1114001	Question Type	Legislative
Legislative Requirement(s): SDWA 31 (1);			
Question: Did the owner have evidence that, when required, all legal owners associated with the drinking water system were notified of the requirements of the Municipal Drinking Water Licence and Drinking Water Works Permit?			
Compliance Response(s)/Corrective Action(s)/Observation(s): The owner had evidence that the required notifications were made.			

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

Question ID	DWMR1045001	Question Type	Legislative
Legislative Requirement(s): SDWA 31 (1);			
Question: 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?			
Compliance Response(s)/Corrective Action(s)/Observation(s): The owner had up-to-date documents describing the distribution components. The system owner's GIS database includes an updated map of municipal watermains.			

Question ID	DWMR1046001	Question Type	BMP
Legislative Requirement(s): 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 a backflow prevention program, policy and/or bylaw in place. Part 8 of Water By-law W-8 addresses cross connections and backflow prevention.			

Question ID	DWMR1053001	Question Type	BMP
Legislative Requirement(s): Not Applicable			

Question:

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?

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

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.

Question ID	DWMR1047001	Question Type	BMP
Legislative Requirement(s): Not Applicable			
Question: 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?			
Compliance Response(s)/Corrective Action(s)/Observation(s): 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. Reservoirs are scheduled to be inspected every five years, or more frequently due to alteration or maintenance activities.			

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

Question ID	DWMR1050001	Question Type	BMP
Legislative Requirement(s): Not Applicable			
Question: Was there a program in place for inspecting and exercising valves?			

Compliance Response(s)/Corrective Action(s)/Observation(s):
There was a program in place for inspecting and exercising valves.

Question ID	DWMR1051001	Question Type	BMP
Legislative Requirement(s): Not Applicable			
Question: Was there a program in place for inspecting and operating hydrants?			
Compliance Response(s)/Corrective Action(s)/Observation(s): There was a program in place for inspecting and operating hydrants. Hydrants are inspected, maintained, and flushed annually. Additional inspections and maintenance activities occur to prevent ice buildup within the hydrants.			

Question ID	DWMR1052001	Question Type	BMP
Legislative Requirement(s): Not Applicable			
Question: 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. Water By-law No. W-8 limits access to hydrants.			

Question ID	DWMR1058001	Question Type	Legislative
Legislative Requirement(s): SDWA O. Reg. 128/04 28;			
Question: Did operators and maintenance personnel have ready access to operations and maintenance manuals?			
Compliance Response(s)/Corrective Action(s)/Observation(s): Operators and maintenance personnel had ready access to operations and maintenance manuals. Electronic copies of manuals are available in the City Hub software on the system owner's SharePoint database.			

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

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

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

Question ID	DWMR1062001	Question Type	Legislative
Legislative Requirement(s): SDWA O. Reg. 170/03 7-5;			
Question: 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?

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

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.

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

Question ID	DWMR1061001	Question Type	Legislative
Legislative Requirement(s): 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);			
Question: Were logbooks properly maintained and did they contain the required information?			
Compliance Response(s)/Corrective Action(s)/Observation(s): Logbooks were properly maintained and contained the required information.			

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

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

Question ID	DWMR1067001	Question Type	BMP
Legislative Requirement(s): Not Applicable			
Question: Were equipment and materials in place for the clean up of spills?			
Compliance Response(s)/Corrective Action(s)/Observation(s): Equipment and materials were in place for the clean up of spills.			

Question ID	DWMR1068001	Question Type	BMP
Legislative Requirement(s): Not Applicable			
Question: If available, were standby power generators tested under normal load conditions?			
Compliance Response(s)/Corrective Action(s)/Observation(s): Standby power generators were tested under normal load conditions.			

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

During previous annual inspections (2022 & 2023), standing water was observed in hatch covers over the reservoir located at 5200 Highbury Avenue South. The covers appeared to be designed with drain holes that directed rainwater and snow melt through the cement wall portion of the cover, directly underground. These drain holes appeared to be clogged and not functioning as designed. Increasing the risk of untreated water entering the reservoir.

To permit increased drainage and easier maintenance. An additional drain hole was drilled through the side cement wall of the hatch structures in December 2023.

No standing water was noted in reservoir hatch covers during the 2024 inspection.

Question ID	DWMR1070001	Question Type	BMP
Legislative Requirement(s): Not Applicable			
Question: Were air vents and overflows associated with reservoirs and elevated storage structures equipped with screens?			
Compliance Response(s)/Corrective Action(s)/Observation(s): Air vents and overflows associated with reservoirs and elevated storage structures were equipped with screens. During the site inspection, reservoir air vents and overflows were equipped with a screen or duckbill style check valve.			

Question ID	DWMR1071001	Question Type	BMP
Legislative Requirement(s): Not Applicable			
Question: Did the owner provide security measures to protect components of the drinking water system?			
Compliance Response(s)/Corrective Action(s)/Observation(s): The owner provided security measures to protect components of the drinking water system. Physical and electrical security measures were noted during the inspection.			

Question ID	DWMR1072001	Question Type	BMP
Legislative Requirement(s): Not Applicable			
Question: Had the owner and/or operating authority undertaken efforts to promote water conservation and reduce water losses in the drinking water system?			

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

The owner and/or operating authority undertook efforts to promote water conservation and reduce water losses in their system.

The City of London website promotes water conservation and provides water saving tips.

The City of London has an active leak monitoring program with technology that instantly transmits detected leaks to a central processor. The city has also implemented watermain replacement and watermain relining programs to eliminate leaks on older watermains.

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

Question ID	DWMR1078001	Question Type	Legislative
Legislative Requirement(s): SDWA O. Reg. 128/04 23 (1); SDWA O. Reg. 128/04 23 (2); SDWA O. Reg. 128/04 23 (4); SDWA O. Reg. 128/04 23 (6); SDWA O. Reg. 128/04 23 (7);			
Question: When the overall responsible operator was unable to act, was a properly certified operator designated to act in their place?			
Compliance Response(s)/Corrective Action(s)/Observation(s): A properly certified operator was designated to act in place of the overall responsible operator. Two qualified staff are designated to act as the overall responsible operator. Staff collaborate to ensure continuous coverage.			

Question ID	DWMR1074001	Question Type	Legislative
Legislative Requirement(s): SDWA O. Reg. 128/04 25 (1);			
Question: Were operators-in-charge designated for all subsystems which comprise the drinking water system?			

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

Operators-in-charge were designated for all subsystems.

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

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



Key Reference and Guidance Material for Drinking Water Systems

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.

For more information on Ontario's drinking water visit 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](#)

Ontario



**Ministry of the Environment, Conservation and Parks
Drinking Water System Inspection Report
Appendix B**

Risk Methodology and Inspection Summary Rating Record

APPLICATION OF THE RISK METHODOLOGY USED FOR MEASURING MUNICIPAL RESIDENTIAL DRINKING WATER SYSTEM INSPECTION RESULTS



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

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

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

MOE reviews the risk rating methodology every three years.

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

ontario.ca/drinkingwater

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

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

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

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

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

Determining Potential to Compromise the Delivery of Safe Water

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

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

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

(of the consequence)

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

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

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

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

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

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

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

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

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

Application of the Methodology to Inspection Results

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

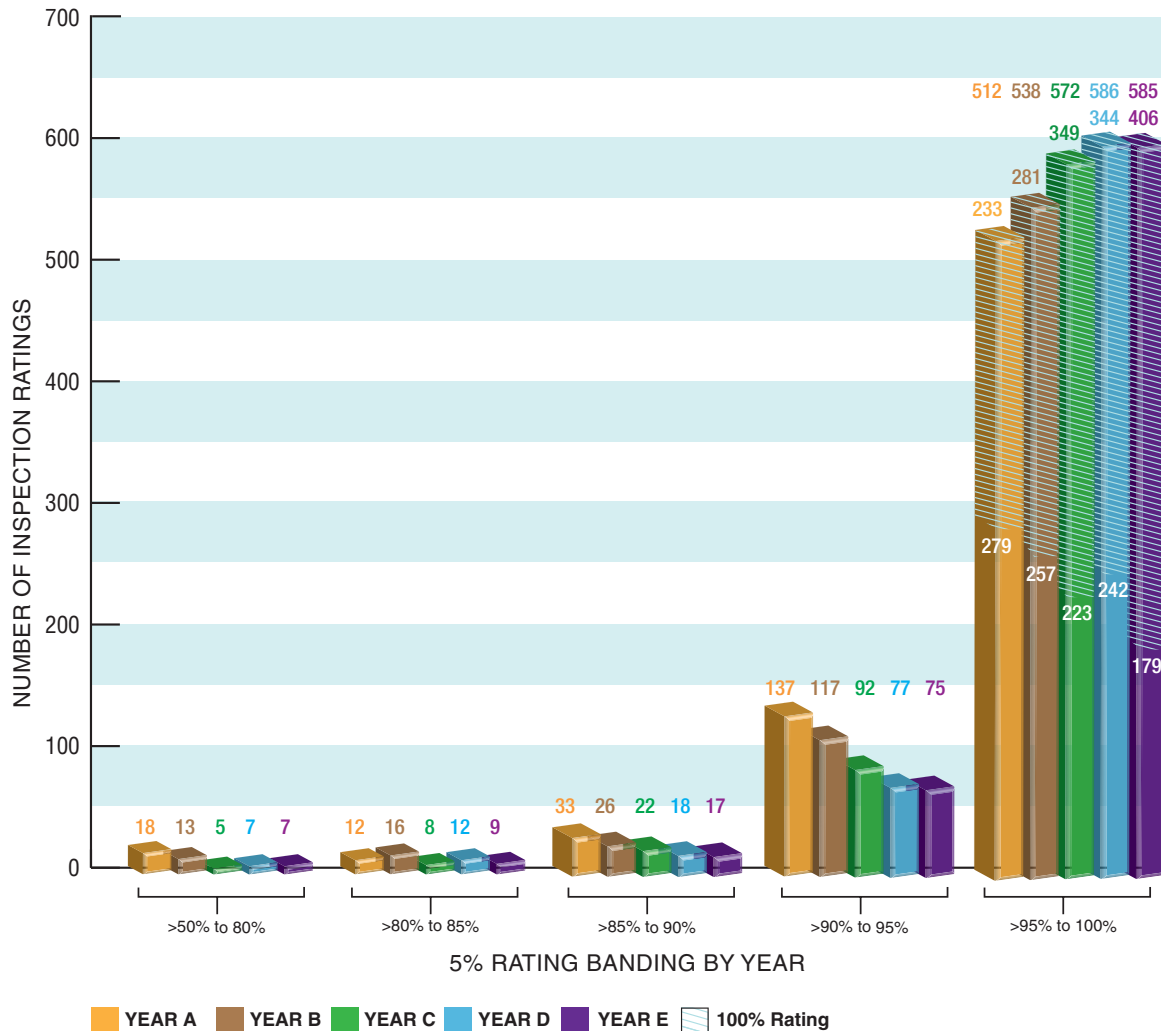
The risk ratings of all non-compliant answers are summed and divided by the sum of the risk ratings of all questions asked (maximum question rating). The resulting inspection risk rating (as a percentage) is subtracted from 100 per cent to arrive at the final inspection rating.

Application of the Methodology for Public Reporting

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

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

Figure 1: Year Over Year Distribution of MRDWS Ratings



Reporting Results to MRDWS Owners/Operators

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

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

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

For further information, please visit www.ontario.ca/drinkingwater

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

DWS Name:	CITY OF LONDON DISTRIBUTION SYSTEM
DWS Number:	260004917
DWS Owner:	THE CORPORATION OF THE CITY OF LONDON
Municipal Location:	LONDON
Regulation:	O.REG. 170/03
DWS Category:	DW Municipal Residential
Type of Inspection:	Detailed
Compliance Assessment Start Date:	Nov-7-2024
Ministry Office:	London District Office

Maximum Risk Rating: 425

Inspection Module	Non Compliance Risk (X out of Y)
Certification and Training	0/49
Distribution System	0/4
Logbooks	0/30
Operations Manuals	0/42
Reporting & Corrective Actions	0/114
Treatment Processes	8/123
Water Quality Monitoring	0/63
Overall - Calculated	8/425

Inspection Risk Rating:	1.88%
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Final Inspection Rating:	98.12%
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Ministry of the Environment, Conservation and Parks - Detailed Inspection Rating Record (Reporting Year - 2024-25)

DWS Name: CITY OF LONDON DISTRIBUTION SYSTEM
DWS Number: 260004917
DWS Owner Name: THE CORPORATION OF THE CITY OF LONDON
Municipal Location: LONDON

Regulation: O.REG. 170/03
DWS Category: DW Municipal Residential
Type of Inspection: Detailed
Compliance Assessment Start Date: Nov-7-2024
Ministry Office: London District Office

Non-Compliance Question(s)	Non Compliance Risk
Treatment Processes	
Were Form 2 documents prepared as required?	4
Were Director Notifications prepared and submitted as required?	4
Overall - Total	8

Maximum Question Rating: 425

Inspection Risk Rating: 1.88%

FINAL INSPECTION RATING: 98.12%