



OUR COMMUNITIES. OUR HOME.

**Municipality of Lakeshore
Drinking Water System
Union DS 2025 Summary Report
January 1st to December 31st, 2025**

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Executive Summary

The Ontario Ministry of Environment Conservation and Parks (MECP) regulates and enforces the production and delivery of safe potable water to consumers under the Safe Drinking Water Act, (SDWA) 2002 and associated regulations. Most notably is the Ontario Drinking Water System Regulation (O. Reg.) 170/03 which outlines treatment and testing parameters.

Each year it is a requirement under O. Reg. 170/03 – Schedule 22 that the owner of a Drinking Water Subsystem produces a summary report. The purpose of this summary report is to keep the Municipality of Lakeshore's Owner and the public informed regarding the quality of their drinking water.

This report is submitted annually for the previous year and is required to contain the following information:

- The council must receive the report no later than March 31st for the previous calendar year.
- List the requirements of the SDWA, the regulations and the system's approval.
- Any order(s) from the MECP that the system failed to meet at any time during the period covered by the report, specify the duration of the failure and describe the measures that were taken to correct the failure.
- Summary of quantities and flow rates of the water supplied during the period covered including monthly averages, maximum daily flows and daily instantaneous peak flow rates.
- A comparison of the summary of quantities and flow rates to the system's approved Permit to Take Water and Municipal Drinking Water License.
- Any additional data or other information that may be useful for the Council.

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List of Acronyms

- AIT - Analog Instrument Transmitter (used for online analyzers)
- AQWI - Adverse Water Quality Incidents
- BET -Backwash Equalization Tank
- CAR - Corrective Action Report
- Cl₂ - Chlorine
- DWWP - Drinking Water Works Permit
- DS - Distribution System
- FAC - Free Available Chlorine
- FIT - Flow Instrument Transmitter
- GAC - Granular Activated Carbon
- HLP - High Lift Pump
- HPCP - High Pressure Concrete Pipe
- IDC - Intake Diversion Chamber
- LIT - Level Instrument Transmitter
- LLP - Low Lift Pump
- LSL - Level Switch Low
- M³ - Cubic Meters
- MDWL - Municipal Drinking Water License
- mJ - Millijoules
- MECP - Ministry of the Environment Conservation and Parks
- MOH - Medical Officer of Health
- NTU - Nephelometric Turbidity Unit
- OFI - Opportunity For Improvement
- PAC - Powder Activated Carbon
- PTTW - Permit To Take Water
- R.R.O - Revised Regulations Ontario (1990)
- SDWA - Safe Drinking Water Act
- UV - Ultraviolet
- VFD - Variable Frequency Drive
- WDS - Water Distribution System
- WTP - Water Treatment Plant

List of Definitions

“Director” - reference to the director appointed under the *Safe Drinking Water Act, 2002*

“Owner” - Municipal drinking water system is often the municipality as a corporate entity. Members of municipal councils and municipal officials who provide oversight to this corporate entity also provide oversight or exercise decision making authority in respect of the drinking water systems it owns. They are responsible for having policies, management tools and processes in place so

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that the municipality meets all its legislative and regulatory requirements under the SDWA.

“Operator or Operating Authority” – Municipal drinking water system is the person or entity that is given responsibility by the owner for the day-to-day operations of the drinking water system, its management, maintenance, or alternation. A municipality may take on this operational role through its own staff or it may choose to contract it out to a third party.

1.0 Introduction

This summary report is for the period from January 1st to December 31st, 2025. This report is available to the public free of charge and a copy can be obtained from the Water Compliance Coordinator upon request at watercompliance@lakeshore.ca

1.1 Union Water Service Area:

This service area distributes water to the area bounded by Manning Road (County Road 19), County Road 8, by Rochester Townline Road and by Kings Highway 401. This system receives treated water from the Union Water Supply System (UWSS). The Operating Authority for Union Water is the Ontario Clean Water Agency (OCWA) and Union Water provides safe, potable water for this system.

1.2 Sample Analysis

The Municipality of Lakeshore’s water distribution operators perform sampling, testing, repairs and monitoring activities in accordance with regulatory and legislative requirements to ensure the safety and quality of drinking water for the consumers. Union Water Completes the regular sampling, testing and monitoring is conducted throughout the entire drinking water systems. Frequency of sampling, testing and monitoring will be based on regulatory and operational requirements.

2.0 Legislated Requirements

This summary report is a requirement of the *Drinking Water Systems Regulation*; O. Reg. 170/03 specifically Schedule 22. This report must be submitted no later than March 31st to members of the Municipal Council (Owners). The contents must list the requirements of the *Safe Drinking Water Act, 2002*, the regulations, the system’s approval, drinking water works permit, municipal drinking water license and any orders that the system failed to meet at any time during the reporting period covered along with specifying the duration of the failure and the correct measures taken to correct the failure.

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A summary of the quantities and the flow rates of the water supplied during the reporting period, including monthly averages, maximum daily flows and daily instantaneous peak flows. The summary shall be compared to the rated capacity and flows provided in the Municipal Drinking Water License system (MDWL).

2.1 Acts and Regulations

Systems regulated in Ontario must meet the requirements of the *Safe Drinking Water Act, 2002* and its regulations. Most notably, the *Drinking Water Systems Regulation* which sets out the treatment and testing requirements for all categories of regulated water systems.

In Part Two of the Walkerton Inquiry Report, Justice Dennis O'Connor recommended that the Ontario government enact a *Safe Drinking Water Act, 2002* to deal with matters related to treatment and distribution of drinking water. As expressed by Justice O'Connor, the purpose of the *Safe Drinking Water Act, 2002* is to gather in one place all legislation and regulations relating to the treatment and distribution of drinking water.

As recommended by Justice O'Connor, the government passed the *Safe Drinking Water Act, 2002* which expands on existing policy and practice and introduces new features to protect drinking water in Ontario. The act's purpose is to protect human health through the control and regulation of drinking-water systems and drinking-water testing. The act also provides legislative authority to implement 50 of the 93 recommendations made in Justice O'Connor's Part Two Report.

2.2 Safe Drinking Water Act, 2002

The SDWA states that the people of Ontario are entitled to expect their drinking water to be safe. It provides for the protection of human health and prevents drinking water health hazards through the control and regulation of drinking water systems and drinking water testing.

The SDWA along with its associated regulations specifies the requirements for drinking water systems, testing services and certification of system operators. It also sets out quality standards and mechanisms for compliance and enforcement.

The two sections of the SDWA that are important for Municipal Councilors and Top Managers/Directors are Section 11: Duties of Owners and Operating Authorities and Section 19: Statutory Standard of Care, Municipal Drinking Water Systems.

2.3 Safe Drinking Water Act, 2002 Section 11: Duties of Owners and Operating Authorities

Section 11 of the Act describes the legal responsibilities of the owners and operating authorities of regulated drinking water systems.

Owners and operating authorities are responsible for ensuring their drinking water system:

1. Provides water that meets all the prescribed drinking water quality standards
2. Operate in accordance with the Act, regulations and are kept in a fit state of repair
3. Appropriately staffed and supervised by qualified persons
4. Comply with all sampling, testing, and monitoring requirements
5. Meet all reporting requirements

2.4 Safe Drinking Water Act, 2002 Section 19: Statutory Standard of Care

Section 19 of the Act requires that anyone in a position of oversight to the municipal water system apply a statutory standard of care to their oversight activities. This section extends the legal responsibilities to those who are in the position to oversee the municipal drinking water systems. Specifically, the people with decision making authority over the drinking water system. This section requires them to exercise the level of care, diligence and skill with regard to a municipal drinking water system that a reasonably sensible person would be expected to exercise in a comparable situation and that they exercise this due diligence honestly, competently and with integrity.

Section 19 Standard of Care applies to the owner of the system, where the drinking water system is owned by a municipality, this includes:

- Every person who oversees the accredited operating authority (Union Water Distribution System) for the system.
- Every person who exercises decision making is authority over the system.

This does not require that everyone involved in the oversight be an expert, but they must exercise a level of care, diligence, and skill in respect of the drinking water system. Part of this diligence would include engaging people who would have the expertise to operate a drinking water system.

Failure to comply with the SDWA, Section 19 of the Act or its regulations is an offense and has profound consequences for non-compliance which could result in the prosecution of an individual, corporation, or both. A conviction under Section 19 could result in financial penalties.

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To better meet the responsibilities of the Standard of Care everyone in a position of oversight should become and stay informed. Staying informed is best done by:

- Become acquainted with drinking water legislation and regulations,
- Understanding the roles and responsibilities of councilors, senior management and other officials who exercise decision making authority,
- Becoming familiar with your drinking water system,
- Reading and asking questions about any reports or information,
- Being satisfied that appropriate steps are taken to address any issues and hiring industry experts when required.

2.5 Summary of Provincial Drinking Water Legislation

Acts and Associated Regulations

- **Water Opportunities Act, 2010**
- **Clean Water Act, 2006**
 - Source Protection Areas and Regions (O. Reg. 284/07)
 - Source Protection Committee (O. Reg. 288/07)
 - General (O. Reg. 287/07)
 - Service of Documents (O. Reg. 231/07)
- **Safe Drinking Water Act, 2002**
 - Municipal Residential Drinking Water Systems in Source (O. Reg. 205/18)
 - Protection Areas (O. Reg. 453/07)
 - Financial Plans (O. Reg. 243/07)
 - Schools, private schools, and day nurseries (O. Reg. 229/07)
 - Service of Documents (O. Reg. 188/07)
 - Licensing of Municipal Drinking Water Systems (O. Reg. 242/05)
 - Compliance and Enforcement (O. Reg. 128/04)
 - Certification of Drinking Water System Operators and Water Quality Analysts (O. Reg. 248/03)
 - Drinking Water Testing Services (O. Reg. 172/03)
 - Definitions of Deficiency and Municipal Drinking Water Systems (O. Reg. 171/03)
 - Definitions of Words and Expressions Used in the Act (O. Reg. 170/03)
 - Drinking Water Systems (O. Reg. 169/03)
 - Ontario Drinking Water Quality Standards
- **Ontario Water Resources Act, 1990**
 - Revocation of Water Taking Permits (O. Reg. 103/20)
 - Charges For Taking Ground Water to Produce Bottled Water (O. Reg. 176/17)
 - Experimental Lakes Area (Water Resources) (O. Reg. 61/14)

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- Exemption – City of Detroit (O. Reg. 128/09)
- Charges for Industrial and Commercial Water Users (O. Reg. 450/07)
- Service of Documents (O. Reg. 226/07)
- Environmental Penalties (O. Reg. 223/07)
- Water Taking and Transfer (O. Reg. 387/04)
- Licensing of Sewage Works Operators (O. Reg. 129/04)
- Secured Creditors, Receivers, Trustees in Bankruptcy (O. Reg. 299/02)
- Approval Exemptions (O. Reg. 525/98)
- Transitional Provisions Relating to the Repeal of Part VIII of the Environmental Protection Act (O. Reg. 155/98)
- Additional Charges (O. Reg. 157/93)
- Wells (R.R.O. 1990, Reg. 903)
- **Environmental Protection Act, 1990 Along with 81 supporting regulations**
 - Applications for Environmental Compliance Approvals (O. Reg. 255/11)
 - Environmental Compliance Approvals – Exemptions from Section 9 of the Act (O. Reg. 524/98)

Municipal Drinking Water License, Drinking Water Works Permit, can be found in **Appendix A**.

3.0 Non-Compliance

This section outlines any non-compliance issues that were noted in the annual Drinking Water System (DWS) Ministry of the Environment Conservation and Parks (MECP) inspection report. The last Inspection for the Union System was conducted on March 3rd, 2025.

The inspection rating for the last four inspections is noted below.

Inspection Year	Inspection Date	Inspection rating (%)
2025-2026	February 10, 2026	N/A
2024-2025	March 3, 2025	100
2023-2024	October 18, 2023	100
2022-2023	February 1, 2023	100
2021-2022	Sept 7 th , 2021	100

Adverse Water Quality Incidents Per Year

- 2025 – 0 AWQI
- 2024 – 1 AWQI
- 2023 – 0 AWQI
- 2022 – 0 AWQI
- 2021 – 0 AWQI

4.0 Summary of Flows and Quantities

The total amount of water supplied to the Union distribution system in 2025 was **510,094m³**.

The Municipality of Lakeshore is a partial owner of the Union Water System and has representation on the Union WSS Board.

Summary of quantities and flow rates can be found in **Appendix B**.

Supplied Water from Union Water

Year	Total Flow m³	Difference
2025	510,094m ³	-92,503m ³
2024	602,597m ³	-67,636m ³
2023	714,121m ³	48,305m ³
2022	715,650m ³	-1,529m ³
2021	667,345m ³	-111,524m ³

*Note: Under differences red (negative number) indicates water saved per previous year and black indicates increased water used per previous year.

Percentage of Non-Revenue Water (NRW)

- 2025 – 22.8% NRW (116,096 m³)
- 2024 – 46.5% NRW (280,071 m³)
- 2023 – 51.4% NRW (344,738 m³)
- 2022 – 51.0% NRW (350,701 m³)
- 2021 – 49.9% NRW (333,194 m³)

5.0 Annual Report

Water is sampled and tested for chemical, physical and microbiological parameters in accordance with the requirements of O. Reg. 170/03. This annual report must be completed for the previous year by February 28th and made available to the public free of charge. The annual report was posted to the Municipalities website on February 20, 2026, along with a public notice indicating where the report can be located. The entire 2025 annual report can be found in **Appendix C**.

6.0 Drinking Water Quality Management Standard

This section provides an update on the Drinking Water Quality Management Standard (DWQMS).

License and Permit

The Municipal Drinking Water License (MDWL) and Drinking Water Works Permit (DWWP) are valid until May 20th, 2026, with the application being sent on November 18th, 2025.

Accreditation 3rd Party – On-Site Audit:

The objective of the surveillance desktop audit is to determine whether the Drinking Water Quality Management System (QMS) is conforming to the requirements of the MECP DWQMS. The NSF International auditor conducted the twelve-month surveillance audit of the Lakeshore Drinking Water System Operational Plan on February 5th – 6th, 2025. During the audit, the Operational Plan was found to consist of 3 minor Corrective Action Request (CAR). The CARs were approved and resolved March 7th, 2025. There were also 3 opportunities for improvement (OFI) noted during the audit. The 3 OFIs were reviewed in implemented into the DWQMS operational plan. The 3rd party DWQMS audit results can be found in **Appendix D**.

Lakeshore received a certificate of accreditation from NSF International on March 13th, 2025, which is valid for three years until May 3rd, 2028.

Risk Assessment (Element 7) and Risk Assessment Outcomes (Element 8):

The annual risk assessment review was conducted on August 7th, 2025, in person. The team reviewed the previous risk assessment table and re-evaluated the risk ratings; several changes were suggested which were incorporated into the tables.

Internal Audit (Element 19):

The internal audit was conducted in-person on August 7th and 14th, 2025. Several operators were interviewed to gain insight into their understanding of the DWQMS process and procedures. A review of the current DWQMS Operational Plan was conducted for the audit as well. There was 1 minor non-conformance and 11 opportunities for improvement (OFI) noted.

Management Review (Element 20):

A Management Review was conducted June 10th, 2025, for the reporting period of May 29th, 2024, to June 10th, 2025, with top management, which includes the Executive Director - Infrastructure, Manager – Water, Lead Hand – Treatment, Lead Hand – Distribution and the Water Compliance Coordinator. The Team discussed previous action items from Management Review from 2024 and 2025. The Management Review Meeting Minutes can be found in **Appendix E**.

7.0 Source Water Protection

This section provides updates to Source Water Protection.

Lakeshore has entered into a perpetual agreement (commencing on January 1st, 2025) with Essex Region Conservation Authority (ERCA). For further information on ERCA and their source water protection please visit

<https://www.essexregionconservation.ca/programs-services/sourcewater-protection>

8.0 System Performance Measures

For information on costs and complaints for all of Lakeshore Water Systems, please refer to **Appendix F**.



MUNICIPAL DRINKING WATER LICENCE

Licence Number: 031-101
Issue Number: 4

Pursuant to the *Safe Drinking Water Act*, 2002, S.O. 2002, c. 32, and the regulations made thereunder and subject to the limitations thereof, I hereby issue this municipal drinking water licence under Part V of the *Safe Drinking Water Act*, 2002, S.O. 2002, c. 32 to:

The Corporation of the Municipality of Lakeshore

419 Notre Dame St.
Municipality of Lakeshore
ON N0R 1A0

For the following municipal residential drinking water system:

Municipality of Lakeshore Drinking Water System

This municipal drinking water licence includes the following:

Schedule	Description
Schedule A	Drinking Water System Information
Schedule B	General Conditions
Schedule C	System-Specific Conditions
Schedule D	Conditions for Relief from Regulatory Requirements
Schedule E	Pathogen Log Removal/Inactivation Credits

Upon the effective date of this drinking water licence # 031-101, all previously issued versions of licence # 031-101 are revoked and replaced by this licence.

DATED at TORONTO this 21st day of May, 2021

Signature

Aziz Ahmed, P.Eng.
Director
Part V, *Safe Drinking Water Act*, 2002

Schedule A: Drinking Water System Information

System Owner	The Corporation of the Municipality of Lakeshore
Licence Number	031-101
Drinking Water System Name	Municipality of Lakeshore Drinking Water System
Licence Effective Date	May 21, 2021

1.0 Licence Information

Licence Issue Date	May 21, 2021
Licence Effective Date	May 21, 2021
Licence Expiry Date	May 20, 2026
Application for Licence Renewal Date	November 20, 2025

2.0 Incorporated Documents

The following documents are applicable to the above drinking water system and form part of this licence:

2.1 Drinking Water Works Permit

Drinking Water System Name	Permit Number	Issue Date
Municipality of Lakeshore Drinking Water System	031-201	May 21, 2021

2.2 Permits to Take Water

Water Taking Location	Permit Number	Issue Date
Lake St. Clair	3648-B3EQEX	August 16, 2018
Lake St. Clair	0452-BM6M4M	April 17, 2020

2.3 Other Documents

Document Title	Version Number	Version Date

3.0 Financial Plans

The Financial Plan Number for the Financial Plan required to be developed for this drinking water system in accordance with O. Reg. 453/07 shall be:	031-301
Alternately, if one Financial Plan is developed for all drinking water systems owned by the owner, the Financial Plan Number shall be:	031-301A

4.0 Accredited Operating Authority

Drinking Water System or Operational Subsystems	Accredited Operating Authority	Operational Plan No.	Operating Authority No.
Municipality of Lakeshore Drinking Water System	Municipality of Lakeshore	031-401	031-OA1

Schedule B: General Conditions

System Owner	The Corporation of the Municipality of Lakeshore
Licence Number	031-101
Drinking Water System Name	Municipality of Lakeshore Drinking Water System
Licence Effective Date	May 21, 2021

1.0 Definitions

1.1 Words and phrases not defined in this licence and the associated drinking water works permit shall be given the same meaning as those set out in the SDWA and any regulations made in accordance with that act, unless the context requires otherwise.

1.2 In this licence and the associated drinking water works permit:

“**adverse effect**”, “**contaminant**” and “**natural environment**” shall have the same meanings as in the EPA;

“**alteration**” may include the following in respect of this drinking water system:

- (a) An addition to the system,
- (b) A modification of the system,
- (c) A replacement of part of the system, and
- (d) An extension of the system;

“**compound of concern**” means a contaminant described in paragraph 4 subsection 26 (1) of O. Reg. 419/05, namely, a contaminant that is discharged to the air from a component of the drinking water system in an amount that is not negligible;

“**CT**” means the CT Disinfection Concept, as described in subsection 3.1.1 of the Ministry’s Procedure for Disinfection of Drinking Water in Ontario, dated July 29 2016.

“**Director**” means a Director appointed pursuant to section 6 of the SDWA for the purposes of Part V of the SDWA;

“**drinking water works permit**” means the drinking water works permit for the drinking water system, as identified in Schedule A of this licence and as amended from time to time;

“**emission summary table**” means a table described in paragraph 14 of subsection 26 (1) of O. Reg. 419/05;

“**EPA**” means the *Environmental Protection Act*, R.S.O. 1990, c. E.19;

“**financial plan**” means the financial plan required by O. Reg. 453/07;

“**Harmful Algal Bloom (HAB)**” means an overgrowth of aquatic algal bacteria that produce or have the potential to produce toxins in the surrounding water, when the algal

cells are damaged or die. Such bacteria are harmful to people and animals and include microcystins produced by cyanobacterial blooms.

“**licence**” means this municipal drinking water licence for the municipal drinking water system identified in Schedule A of this licence;

“**Ministry**” means the Ontario Ministry of the Environment, Conservation and Parks;

“**operational plan**” means an operational plan developed in accordance with the Director’s Directions – Minimum Requirements for Operational Plans made under the authority of subsection 15(1) of the SDWA;

“**owner**” means the owner of the drinking water system as identified in Schedule A of this licence;

“**OWRA**” means the *Ontario Water Resources Act*, R.S.O. 1990, c. 0.40;

“**permit to take water**” means the permit to take water that is associated with the taking of water for purposes of the operation of the drinking water system, as identified in Schedule A of this licence and as amended from time to time;

“**point of impingement**” has the same meaning as in section 2 of O. Reg. 419/05 under the EPA;

“**point of impingement limit**” means the appropriate standard from Schedule 2 or 3 of O. Reg. 419/05 under the EPA and if a standard is not provided for a compound of concern, the concentration set out for the compound of concern in the document titled “Air Contaminants Benchmarks (ACB) List: Standards, guidelines and screening levels for assessing point of impingement concentrations of air contaminants”, as amended from time to time and published by the Ministry and available on a government of Ontario website;

“**licensed engineering practitioner**” means a person who holds a licence, limited licence or temporary licence under the Professional Engineers Act;

“**provincial officer**” means a provincial officer designated pursuant to section 8 of the SDWA;

“**publication NPC-300**” means the Ministry publication titled “Environmental Noise Guideline: Stationary and Transportation Sources – Approval and Planning” dated August 2013, as amended;

“**SCADA system**” means a supervisory control and data acquisition system used for process monitoring, automation, recording and/or reporting within the drinking water system;

“**SDWA**” means the *Safe Drinking Water Act*, 2002, S.O. 2002, c. 32;

“sensitive receptor” means any location where routine or normal activities occurring at reasonably expected times would experience adverse effect(s) from a discharge to air from an emergency generator that is a component of the drinking water system, including one or a combination of:

- (a) private residences or public facilities where people sleep (e.g.: single and multi-unit dwellings, nursing homes, hospitals, trailer parks, camping grounds, etc.),
- (b) institutional facilities (e.g.: schools, churches, community centres, day care centres, recreational centres, etc.),
- (c) outdoor public recreational areas (e.g.: trailer parks, play grounds, picnic areas, etc.), and
- (d) other outdoor public areas where there are continuous human activities (e.g.: commercial plazas and office buildings).

“sub-system” has the same meaning as in Ontario Regulation 128/04 (Certification of Drinking Water System Operators and Water Quality Analysts) under the SDWA;

“surface water” means water bodies (lakes, wetlands, ponds - including dug-outs), water courses (rivers, streams, water-filled drainage ditches), infiltration trenches, and areas of seasonal wetlands;

“UV” means ultraviolet, as in ultraviolet light produced from an ultraviolet reactor.

2.0 Applicability

- 2.1 In addition to any other applicable legal requirements, the drinking water system identified above shall be established, altered and operated in accordance with the conditions of the drinking water works permit and this licence.

3.0 Licence Expiry

- 3.1 This licence expires on the date identified as the licence expiry date in Schedule A of this licence.

4.0 Licence Renewal

- 4.1 Any application to renew this licence shall be made on or before the date identified as the application for licence renewal date set out in Schedule A of this licence.

5.0 Compliance

- 5.1 The owner and operating authority shall ensure that any person authorized to carry out work on or to operate any aspect of the drinking water system has been informed of the SDWA, all applicable regulations made in accordance with that act, the drinking water works permit and this licence and shall take all reasonable measures to ensure any such person complies with the same.

6.0 Licence and Drinking Water Works Permit Availability

- 6.1 At least one copy of this licence and the drinking water works permit shall be stored in such a manner that they are readily viewable by all persons involved in the operation of the drinking water system.

7.0 Permit to Take Water and Drinking Water Works Permit

- 7.1 A permit to take water identified in Schedule A of this licence is the applicable permit on the date identified as the Effective Date of this licence.
- 7.2 A drinking water works permit identified in Schedule A of this licence is the applicable permit on the date identified as the Effective Date of this licence.

8.0 Financial Plan

- 8.1 For every financial plan prepared in accordance with subsections 2(1) and 3(1) of O. Reg. 453/07, the owner of the drinking water system shall:
- 8.1.1 Ensure that the financial plan contains on the front page of the financial plan, the appropriate financial plan number as set out in Schedule A of this licence; and
- 8.1.2 Submit a copy of the financial plan to the Ministry of Municipal Affairs and Housing within three (3) months of receiving approval by a resolution of municipal council or the governing body of the owner.

9.0 Interpretation

- 9.1 Where there is a conflict between the provisions of this licence and any other document, the following hierarchy shall be used to determine the provision that takes precedence:
- 9.1.1 The SDWA;
- 9.1.2 A condition imposed in this licence that explicitly overrides a prescribed regulatory requirement;
- 9.1.3 A condition imposed in the drinking water works permit that explicitly overrides a prescribed regulatory requirement;
- 9.1.4 Any regulation made under the SDWA;
- 9.1.5 Any provision of this licence that does not explicitly override a prescribed regulatory requirement;
- 9.1.6 Any provision of the drinking water works permit that does not explicitly override a prescribed regulatory requirement;
- 9.1.7 Any application documents listed in this licence, or the drinking water works permit from the most recent to the earliest; and

- 9.1.8 All other documents listed in this licence, or the drinking water works permit from the most recent to the earliest.
- 9.1.9 Any other technical bulletin or procedure issued by the Ministry from the most recent to the earliest.
- 9.2** If any requirement of this licence or the drinking water works permit is found to be invalid by a court of competent jurisdiction, the remaining requirements of this licence and the drinking water works permit shall continue to apply.
- 9.3** The issuance of and compliance with the conditions of this licence and the drinking water works permit does not:
- 9.3.1 Relieve any person of any obligation to comply with any provision of any applicable statute, regulation or other legal requirement, including the *Environmental Assessment Act*, R.S.O. 1990, c. E.18; and
- 9.3.2 Limit in any way the authority of the appointed Directors and provincial officers of the Ministry to require certain steps be taken or to require the owner to furnish any further information related to compliance with the conditions of this licence or the drinking water works permit.
- 9.4** For greater certainty, nothing in this licence or the drinking water works permit shall be read to provide relief from regulatory requirements in accordance with section 46 of the SDWA, except as expressly provided in the licence or the drinking water works permit.

10.0 Adverse Effects

- 10.1** Nothing in this licence or the drinking water works permit shall be read as to permit:
- 10.1.1 The discharge of a contaminant into the natural environment that causes or is likely to cause an adverse effect; or
- 10.1.2 The discharge of any material of any kind into or in any waters or on any shore or bank thereof or into or in any place that may impair the quality of the water of any waters.
- 10.2** All reasonable steps shall be taken to minimize and ameliorate any adverse effect on the natural environment or impairment of the quality of water of any waters resulting from the operation of the drinking water system including such accelerated or additional monitoring as may be necessary to determine the nature and extent of the effect or impairment.
- 10.3** Fulfillment of one or more conditions imposed by this licence or the drinking water works permit does not eliminate the requirement to fulfill any other condition of this licence or the drinking water works permit.

11.0 Change of Owner or Operating Authority

- 11.1 This licence is not transferable without the prior written consent of the Director.
- 11.2 The owner shall notify the Director in writing at least 30 days prior to a change of any operating authority identified in Schedule A of this licence.
- 11.2.1 Where the change of operating authority is the result of an emergency situation, the owner shall notify the Director in writing of the change as soon as practicable.

12.0 Information to be Provided

- 12.1 Any information requested by a Director or a provincial officer concerning the drinking water system and its operation, including but not limited to any records required to be kept by this licence or the drinking water works permit, shall be provided upon request.

13.0 Records Retention

- 13.1 Except as otherwise required in this licence or the drinking water works permit, any records required by or created in accordance with this licence or the drinking water works permit, other than the records specifically referenced in section 12 or section 13 of O. Reg. 170/03, shall be retained for at least 5 years and made available for inspection by a provincial officer, upon request.

14.0 Chemicals and Materials

- 14.1 All chemicals and materials used in the alteration or operation of the drinking water system that come into contact with water within the system shall meet all applicable standards set by both the American Water Works Association ("AWWA") and the American National Standards Institute ("ANSI") safety criteria standards NSF/60, NSF/61 and NSF/372.
- 14.1.1 In the event that the standards are updated, the owner may request authorization from the Director to use any on hand chemicals and materials that previously met the applicable standards.
- 14.2 The most current chemical and material product registration documentation from a testing institution accredited by either the Standards Council of Canada or by the American National Standards Institution ("ANSI") shall be available at all times for each chemical and material used in the operation of the drinking water system that comes into contact with water within the system.
- 14.3 Conditions 14.1 and 14.2 do not apply in the case of the following:
- 14.3.1 Water pipe and pipe fittings meeting AWWA specifications made from ductile iron, cast iron, PVC, fibre and/or steel wire reinforced cement pipe or high-density polyethylene (HDPE);
- 14.3.2 Articles made from stainless steel, glass, HDPE or Teflon®;

- 14.3.3 Cement mortar for watermain lining and for water contacting surfaces of concrete structures made from washed aggregates and Portland cement;
- 14.3.4 Gaskets that are made from NSF approved materials;
- 14.3.5 Food grade oils and lubricants, food grade anti-freeze, and other food grade chemicals and materials that are compatible for drinking water use that may come into contact with drinking water, but are not added directly to the drinking water; or
- 14.3.6 Any particular chemical or material where the owner has written documentation signed by the Director that indicates that the Ministry is satisfied that the chemical or material is acceptable for use within the drinking water system and the chemical or material is only used as permitted by the documentation.

15.0 Drawings

- 15.1 All drawings and diagrams in the possession of the owner that show any treatment subsystem as constructed shall be retained by the owner unless the drawings and diagrams are replaced by a revised or updated version showing the subsystem as constructed subsequent to the alteration.
- 15.2 Any alteration to any treatment subsystem shall be incorporated into process flow diagrams, process and instrumentation diagrams, and record drawings and diagrams within one year of the alteration being completed or placed into service.
- 15.3 Process flow diagrams and process and instrumentation diagrams for any treatment subsystem shall be kept in a place, or made available in such a manner, that they may be readily viewed by all persons responsible for all or part of the operation of the drinking water system.

16.0 Operations and Maintenance Manual

- 16.1 An up-to-date operations and maintenance manual or manuals shall be maintained, and applicable parts of the manual or manuals shall be made available for reference to all persons responsible for all or part of the operation or maintenance of the drinking water system.
- 16.2 The operations and maintenance manual or manuals, shall include at a minimum:
 - 16.2.1 The requirements of this licence and associated procedures;
 - 16.2.2 The requirements of the drinking water works permit for the drinking water system;
 - 16.2.3 A description of the processes used to achieve primary and secondary disinfection within the drinking water system including where applicable:
 - a) A copy of the CT calculations that were used as the basis for primary disinfection under worst case operating conditions and other operating conditions, if applicable; and

- b) The validated operating conditions for UV disinfection equipment, including a copy of the validation certificate;
- 16.2.4 Procedures for monitoring and recording the in-process parameters necessary for the control of any treatment subsystem and for assessing the performance of the drinking water system;
 - 16.2.5 Procedures for the operation and maintenance of monitoring equipment;
 - 16.2.6 Contingency plans and procedures for the provision of adequate equipment and material to deal with emergencies, upset conditions and equipment breakdown;
 - 16.2.7 Procedures for dealing with complaints related to the drinking water system, including the recording of the nature of the complaint and any investigation and corrective action taken in respect of the complaint;
- 16.3** Procedures necessary for the operation and maintenance of any alterations to the drinking water system shall be incorporated into the operations and maintenance manual or manuals prior to those alterations coming into operation.
- 16.4** All the procedures included or referenced within the operations and maintenance manual must be implemented.

Schedule C: System-Specific Conditions

System Owner	The Corporation of the Municipality of Lakeshore
Licence Number	031-101
Drinking Water System Name	Municipality of Lakeshore Drinking Water System
Licence Effective Date	May 21, 2021

1.0 System Performance

Rated Capacity

- 1.1 For each treatment subsystem listed in column 1 of Table 1, the maximum daily volume of treated water that flows from the treatment subsystem to the distribution system shall not exceed the value identified as the rated capacity in column 2 of the same row.

Table 1: Rated Capacity	
Column 1 Treatment Subsystem Name	Column 2 Rated Capacity (m ³ /day)
John George Water Treatment Plant	36,400
Stoney Point Water Treatment Plant	4,546

Maximum Flow Rates

- 1.2 For each treatment subsystem listed in column 1 of Table 2, the maximum flow rate of water that flows into a treatment subsystem component listed in column 2 shall not exceed the value listed in column 3 of the same row.

Table 2: Maximum Flow Rates		
Column 1 Treatment Subsystem Name	Column 2 Treatment Subsystem Component	Column 3 Maximum Flow Rate (L/s)
Not Applicable	Not Applicable	Not Applicable

- 1.3 Despite conditions 1.1 and 1.2, a treatment subsystem may be operated temporarily at a maximum daily volume and/or a maximum flow rate above the values set out in column 2 of Table 1 and column 3 of Table 2 respectively for the purposes of fighting a large fire or for the maintenance of the drinking water system.
- 1.4 Condition 1.3 does not authorize the discharge into the distribution system of any water that does not meet all of the requirements of this licence and all other regulatory requirements, including compliance with the Ontario Drinking Water Quality Standards.

Residuals Management

- 1.5** In respect of an effluent discharged into the natural environment from a treatment subsystem or treatment subsystem component listed in column 1 of Table 3:
- 1.5.1 The annual average concentration of a test parameter identified in column 2 shall not exceed the value in column 3 of the same row; and
- 1.5.2 The maximum concentration of a test parameter identified in column 2 shall not exceed the value in column 4 of the same row.
- 1.5.3 The test parameters listed in column 2 of Table 3 shall be sampled in accordance with conditions 5.2, 5.3 and 5.4 of this Licence.

Table 3: Residuals Management			
Column 1 Treatment Subsystem or Treatment Subsystem Component Name	Column 2 Test Parameter	Column 3 Annual Average Concentration (mg/L)	Column 4 Maximum Concentration (mg/L)
John George Water Treatment Plant	Suspended Solids	15	Not Applicable
Stoney Point Water Treatment Plant	Suspended Solids	25	Not Applicable

UV Disinfection Equipment Performance

- 1.6** For each treatment subsystem or treatment subsystem component listed in column 1 of Table 4, and while directing water to the distribution system and being used to meet pathogen log removal/inactivation credits specified in Schedule E:
- 1.6.1 The UV disinfection equipment shall be operated within the validated limits for the equipment at all times such that a continuous pass-through UV dose is maintained throughout the life time of the UV lamp(s) that is at least the minimum continuous pass-through UV dose set out in column 2 of the same row
- 1.6.2 In addition to any other sampling, analysis and recording that may be required, the ultraviolet light disinfection equipment shall test for the test parameters set out in column 4 of the same row at a testing frequency of once every five (5) minutes or less and record the test data at a recording frequency of once every four (4) hours or less;
- 1.6.3 If there is a UV disinfection equipment alarm signaling that the disinfection equipment is malfunctioning, has lost power, or is not providing the appropriate level of disinfection the test parameters set out in column 4 of the same row shall be recorded at a recording frequency of once every five minutes or less until the alarm condition has been corrected;

- 1.6.4 A monthly summary report shall be prepared at the end of each calendar month which sets out the time, date and duration of each UV equipment alarm described in condition 1.6.3, the volume of water treated during each alarm period and the actions taken by the operating authority to correct the alarm situation;

Table 4: UV Disinfection Equipment			
Column 1 Treatment Subsystem or Treatment Subsystem Component Name	Column 2 Minimum Continuous Pass-Through UV Dose (mJ/cm²)	Column 3 Control Strategy	Column 4 Test Parameter
John George Water Treatment Plant	40 mJ/cm ²	Calculated Dose	Calculated UV Dose
			Flow Rate
			UV Transmittance
			UV Lamp Status

2.0 Flow Measurement and Recording Requirements

- 2.1** For each treatment subsystem identified in column 1 of Table 1 and in addition to any other flow measurement and recording that may be required, continuous flow measurement and recording shall be undertaken for:
- 2.1.1 The flow rate (L/s) and daily volume (m³/day) of treated water that flows from the treatment subsystem to the distribution system.
- 2.1.2 The flow rate (L/s) and daily volume (m³/day) of water that flows into the treatment subsystem.
- 2.2** For each treatment subsystem component identified in column 2 of Table 2 and in addition to any other flow measurement and recording that may be required, continuous flow measurement and recording shall be undertaken for the flow rate and daily volume of water that flows into the treatment subsystem component.
- 2.3** Where a rated capacity from Table 1 or a maximum flow rate from Table 2 is exceeded, the following shall be recorded:
- 2.3.1 The difference between the measured amount and the applicable rated capacity or maximum flow rate specified in Table 1 or Table 2;
- 2.3.2 The time and date of the measurement;
- 2.3.3 The reason for the exceedance; and

- 2.3.4 The duration of time that lapses between the applicable rated capacity or maximum flow rate first being exceeded and the next measurement where the applicable rated capacity or maximum flow rate is no longer exceeded.

3.0 Calibration of Flow Measuring Devices

- 3.1 All flow measuring devices that are required by regulation, by a condition in the drinking water works permit #031-201, or by a condition otherwise imposed by the Ministry, shall be checked and where necessary calibrated in accordance with the manufacturer's instructions.
- 3.2 If the manufacturer's instructions do not indicate how often to check and calibrate a flow measuring device, the equipment shall be checked and where necessary calibrated at least once every 12 months during which the drinking water system is in operation.
- 3.2.1 For greater certainty, if condition 3.2 applies, 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.

4.0 Calibration of CT Monitoring System

- 4.1 Any measuring instrumentation that forms part of the monitoring system for CT shall be checked and where necessary calibrated at least once every 12 months during which the drinking water system is in operation, or more frequently in accordance with the manufacturer's instructions.
- 4.1.1 For greater certainty, if condition 4.1 applies, the instrumentation 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.

5.0 Additional Sampling, Testing and Monitoring

Drinking Water Health and Non-Health Related Parameters

- 5.1 For each treatment subsystem or treatment subsystem component identified in column 1 of Tables 5 and 6 and in addition to any other sampling, testing and monitoring that may be required, sampling, testing and monitoring shall be undertaken for a test parameter listed in column 2 at the sampling frequency listed in column 3 and at the monitoring location listed in column 4 of the same row.

Table 5: Drinking Water Health Related Parameters			
Column 1 Treatment Subsystem or Treatment Subsystem Component Name	Column 2 Test Parameter	Column 3 Sampling Frequency	Column 4 Monitoring Location
Not Applicable	Not Applicable	Not Applicable	Not Applicable

Table 6: Drinking Water Non-Health Related Parameters			
Column 1 Treatment Subsystem or Treatment Subsystem Component Name	Column 2 Test Parameter	Column 3 Sampling Frequency	Column 4 Monitoring Location
Not Applicable	Not Applicable	Not Applicable	Not Applicable

Environmental Discharge Parameters

- 5.2** For each treatment subsystem or treatment subsystem component identified in column 1 of Table 7 and in addition to any other sampling, testing and monitoring that may be required, sampling, testing and monitoring shall be undertaken for a test parameter listed in column 2 using the sample type identified in column 3 at the sampling frequency listed in column 4 and at the monitoring location listed in column 5 of the same row.
- 5.3** For the purposes of Table 7:
- 5.3.1 Manual Composite means the mean of at least three grab samples taken during a discharge event, with one sample being taken immediately following the commencement of the discharge event, one sample being taken approximately at the mid-point of the discharge event and one sample being taken immediately before the end of the discharge event; and
- 5.3.2 Automated Composite means samples must be taken during a discharge event by an automated sampler at a minimum sampling frequency of once per hour.
- 5.4** Any sampling, testing and monitoring for the test parameter Total Suspended Solids shall be performed in accordance with the requirements set out in the publication "Standard Methods for the Examination of Water and Wastewater", 23rd Edition, 2017, or as amended from time to time by more recently published editions.

Table 7: Environmental Discharge Parameters				
Column 1 Treatment Subsystem or Treatment Subsystem Component Name	Column 2 Test Parameter	Column 3 Sample Type	Column 4 Sampling Frequency	Column 5 Monitoring Location
John George Water Treatment Plant	Suspended Solids	Composite	Monthly	Point of discharge to drainage ditch
Stoney Point Water Treatment Plant	Suspended Solids	Composite	Monthly	Point of discharge

- 5.5** Pursuant to Condition 10 of Schedule B of this licence, the owner may undertake the following environmental discharges associated with the maintenance and/or repair of the drinking water system:
- 5.5.1 The discharge of potable water from a watermain to a road or storm sewer;

- 5.5.2 The discharge of potable water from a water storage facility or pumping station:
 - 5.5.2.1 To a road or storm sewer; or
 - 5.5.2.2 To a watercourse where the discharge has been dechlorinated and if necessary, sediment and erosion control measures have been implemented.
- 5.5.3 The discharge of dechlorinated non-potable water from a watermain, water storage facility or pumping station to a road or storm sewer;
- 5.5.4 The discharge of raw water from a groundwater well to the environment where if necessary, sediment and erosion control measures have been implemented; and
- 5.5.5 The discharge of raw water, potable water or non-potable water from a treatment subsystem to the environment where if necessary, the discharge has been dechlorinated and sediment and erosion control measures have been implemented.
- 5.5.6 The discharge of any excess water to a road, storm sewer or the environment, associated with the management of materials excavated as part of watermain construction or repair, where necessary sediment, erosion and environmental control measures have been implemented.

6.0 Studies Required

Harmful Algal Blooms

- 6.1 The owner shall develop and keep up to date a Harmful Algal Bloom monitoring, reporting and sampling plan, herein known as the "Plan", to be implemented when a potential harmful algal bloom is suspected or present. The owner shall have the Plan in place on or before November 15, 2021.
 - 6.1.1 The owner must have a copy of the Plan available onsite at the drinking water system, for inspection upon request by Ministry staff.
 - 6.1.2 The owner must implement the Plan annually during the harmful algal bloom season, during but not limited to the warm seasonal period between June 1 and October 31 each year, or as otherwise directed by the Ministry or the Medical Officer of Health.
 - 6.1.3 The owner must train all relevant drinking water system staff on the Plan prior to the beginning of each warm season, as described in Condition 6.1.2.
- 6.2 For clarity, a Harmful Algal Bloom is considered suspected or occurring when:
 - 6.2.1 the owner or operating authority has observed an algal bloom:
 - 6.2.1.1 near the shoreline at or near the source water intake(s) described in drinking water works permit #031-201, or

-
- 6.2.1.2 where the intake has an Intake Protection Zone in a source protection plan, within IPZ-1, or
 - 6.2.1.3 within a circle that has a radius, measured from the intake, equal to the distance from the intake to the farthest edge of IPZ-2.
 - 6.2.2 microcystin has been detected in a raw or treated water sample; and/or,
 - 6.2.3 the owner has received any form of notification related to an algal bloom from the Ministry, a Medical Officer of Health, or the public; or,
 - 6.2.4 the presence of or identification of cyanobacteria has been determined through optical probes or other analytic techniques used by the drinking water system.
- 6.3** The Plan described in condition 6.1 must include, at a minimum:
- 6.3.1 details relating to visual monitoring for harmful algal blooms at or near the drinking water system intake(s),
 - 6.3.1.1 as described in drinking water works permit #031-201, or
 - 6.3.1.2 where the intake has an Intake Protection Zone in a source protection plan, within IPZ-1, or
 - 6.3.1.3 within a circle that has a radius, measured from the intake, equal to the distance from the intake to the farthest edge of IPZ-2.
 - 6.3.2 details relating to visual monitoring of shoreline; this is applicable to drinking water systems where the proximity of the intake(s) may be of concern.
 - 6.3.3 details relating to reporting the observed or suspected harmful algal bloom, as described in section 6.2:
 - 6.3.3.1 to the Overall Responsible Operator(s) and/or Operator(s)-in-Charge if the blooms have been observed or suspected by a duty operator; the Plan shall include wording that directs relevant drinking water staff to follow the instructions provided by the Overall Responsible Operator(s) or the Operator(s)-in-Charge;
 - 6.3.3.2 to the medical officer of health; and
 - 6.3.3.3 to the Ministry's Spills Action Centre.,
 - 6.3.4 a sampling plan, including the identification of sample location(s) and frequencies that at a minimum match those described in condition 6.4.
 - 6.3.5 triggers that may increase the required sampling frequency;
 - 6.3.6 up-to-date records that document staff training on the harmful algal bloom monitoring, reporting, and sampling procedures.
- 6.4** Any water samples collected under Condition 6.3.4 must be:

- 6.4.1 collected, at a minimum, once per week, or as otherwise directed by the Ministry or the medical officer of health;
- 6.4.2 collected prior to any treatment, if the sample is taken from raw water;
- 6.4.3 collected at the point of entry into the distribution system, if the sample is taken from treated water;
- 6.4.4 collected from the shoreline by the drinking water system, if applicable based on Condition 6.3.1;
- 6.4.5 submitted to a laboratory licensed to perform ELISA testing for total microcystin;
- 6.4.6 repeatedly collected until 3 consecutive samples have shown non-detection of microcystin and the algal bloom is no longer suspected or visually observed.

7.0 Source Protection

- 7.1 The owner of the drinking water system shall implement risk management measures, as appropriate, to manage any potential threat to drinking water that results from the operation of the drinking water system.
- 7.2 The owner of the system shall notify the Director in writing within thirty (30) days of any approved changes to an applicable source protection plan that impact the assessed threat level of a fuel oil system identified in Schedule A of drinking water works permit.
- 7.3 The notification required in condition 7.2 shall include:
 - 7.3.1 A description of the changes and their impact on the assessed threat level of the fuel oil system(s); and,
 - 7.3.2 A timeline for re-assessing the threat level and providing the results of the assessment to the Director.

Schedule D: Conditions for Relief from Regulatory Requirements

System Owner	The Corporation of the Municipality of Lakeshore
Licence Number	031-101
Drinking Water System Name	Municipality of Lakeshore Drinking Water System
Licence Effective Date	May 21, 2021

As of the effective date of this drinking water licence, no relief from regulatory requirements is authorized by the Director under section 46 of the SDWA in respect of the drinking water system.

Schedule E: Pathogen Log Removal/Inactivation Credits

System Owner	The Corporation of the Municipality of Lakeshore
Licence Number	031-101
Drinking Water System Name	Municipality of Lakeshore Drinking Water System
Licence Effective Date	May 21, 2021

1.0 Primary Disinfection Pathogen Log Removal/Inactivation Credits

John George Water Treatment Plant

Lake St. Clair [SURFACE WATER]

Minimum Log Removal/ Inactivation Required	Cryptosporidium Oocysts	Giardia Cysts ^a	Viruses ^b
John George Water Treatment Plant	2	3	4

^a At least 0.5 log inactivation of Giardia shall be achieved by the disinfection portion of the overall water treatment process.

^b At least 2 log inactivation of viruses shall be achieved by disinfection.

Log Removal/Inactivation Credits Assigned ^c	Cryptosporidium Oocysts	Giardia Cysts	Viruses
Conventional Filtration	2	2.5	2
UV Disinfection [40 mJ/cm ²]	-	0.5	2
Chlorination	-	0.5	2

^c Log removal/inactivation credit assignment is based on each treatment process being fully operational and the applicable log removal/inactivation credit assignment criteria being met.

Treatment Component	Log Removal/Inactivation Credit Assignment Criteria
Conventional Filtration	<ol style="list-style-type: none"> 1. A chemical coagulant shall be used at all times when the treatment plant is in operation; 2. Chemical dosages shall be monitored and adjusted in response to variations in raw water quality; 3. Effective backwash procedures shall be maintained including filter-to-waste or an equivalent procedure during filter ripening to ensure that effluent turbidity requirements are met at all times; 4. Filtrate turbidity shall be continuously monitored from each filter; and 5. Performance criterion for filtered water turbidity of less than or equal to 0.3 NTU in 95% of the measurements each month shall be met for each filter.
UV Disinfection	<p>Duty UV Sensor Checks and Calibration</p> <ol style="list-style-type: none"> 1. Duty UV sensors shall be checked on at least a monthly basis against a reference UV sensor or at a frequency as otherwise recommended by the UV equipment manufacturer; 2. When comparing a duty UV sensor to a reference UV sensor, the calibration ratio (intensity measured with the duty UV sensor/intensity measured with the reference UV sensor) shall be less than or equal to 1.2; 3. If the calibration ratio is greater than 1.2, the duty UV sensor shall be replaced with a calibrated UV sensor or a UV sensor correction factor shall be applied while the problem with the UV sensor is being resolved; 4. Reference UV sensors shall be checked against a Master Reference Assembly at a minimum frequency of once every three years or on a more frequent basis depending upon the recommendations of the equipment manufacturer; <p>Operational Requirements</p> <ol style="list-style-type: none"> 5. Ultraviolet light disinfection equipment shall have a feature that ensures that no water is directed to users of water treated by the equipment or that causes an alarm to sound in the event that the equipment malfunctions, loses power or ceases to provide the appropriate level of disinfection; 6. Water shall not flow through a UV reactor when the reactor's UV lights are off or not fully energized; 7. UV lamp status shall indicate whether each UV lamp is on or off; 8. All UV sensors shall operate within their calibration range or corrective measures shall be taken; and 9. Installed or replaced UV equipment components shall be equal or better than the components used during validation testing unless the UV equipment was revalidated.
Chlorination	<ol style="list-style-type: none"> 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 <i>Procedure for Disinfection of Drinking Water in Ontario</i>; and 2. At all times, CT provided shall be greater than or equal to the CT required to achieve the log removal credits assigned.
Primary Disinfection Notes	

Stoney Point Water Treatment Plant

Lake St. Clair [SURFACE WATER]

Minimum Log Removal/ Inactivation Required	Cryptosporidium Oocysts	Giardia Cysts ^a	Viruses ^b
Stoney Point Water Treatment Plant	2	3	4

^a At least 0.5 log inactivation of Giardia shall be achieved by the disinfection portion of the overall water treatment process.

^b At least 2 log inactivation of viruses shall be achieved by disinfection.

Log Removal/Inactivation Credits Assigned ^c	Cryptosporidium Oocysts	Giardia Cysts	Viruses
Conventional Filtration	2	2.5	2
Chlorination		0.5+	2+

^c Log removal/inactivation credit assignment is based on each treatment process being fully operational and the applicable log removal/inactivation credit assignment criteria being met.

Treatment Component	Log Removal/Inactivation Credit Assignment Criteria
Conventional Filtration	<ol style="list-style-type: none"> 6. A chemical coagulant shall be used at all times when the treatment plant is in operation; 7. Chemical dosages shall be monitored and adjusted in response to variations in raw water quality; 8. Effective backwash procedures shall be maintained including filter-to-waste or an equivalent procedure during filter ripening to ensure that effluent turbidity requirements are met at all times; 9. Filtrate turbidity shall be continuously monitored from each filter; and 10. Performance criterion for filtered water turbidity of less than or equal to 0.3 NTU in 95% of the measurements each month shall be met for each filter.
Chlorination	<ol style="list-style-type: none"> 3. 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 <i>Procedure for Disinfection of Drinking Water in Ontario</i>; and 4. At all times, CT provided shall be greater than or equal to the CT required to achieve the log removal credits assigned.
Primary Disinfection Notes	

DRINKING WATER WORKS PERMIT

Permit Number: 031-201
Issue Number: 5

Pursuant to the *Safe Drinking Water Act, 2002*, S.O. 2002, c. 32, and the regulations made thereunder and subject to the limitations thereof, I hereby issue this drinking water works permit under Part V of the *Safe Drinking Water Act, 2002*, S.O. 2002, c. 32 to:

The Corporation of the Municipality of Lakeshore

419 Notre Dame St.
Municipality of Lakeshore
ON N0R 1A0

For the following municipal residential drinking water system:

Municipality of Lakeshore Drinking Water System

This drinking water works permit includes the following:

Schedule	Description
Schedule A	Drinking Water System Description
Schedule B	General
Schedule C	All documents issued as Schedule C to this drinking water works permit which authorize alterations to the drinking water system
Schedule D	Process Flow Diagrams

Upon the effective date of this drinking water works permit # 031-201, all previously issued versions of permit # 031-201 are revoked and replaced by this permit.

DATED at TORONTO this 21st day of May, 2021

Signature



Aziz Ahmed, P.Eng.
Director
Part V, *Safe Drinking Water Act, 2002*

Schedule A: Drinking Water System Description

System Owner	The Corporation of the Municipality of Lakeshore
Permit Number	031-201
Drinking Water System Name	Municipality of Lakeshore Drinking Water System
Permit Effective Date	May 21, 2021

1.0 System Description

- 1.1 The following is a summary description of the works comprising the above drinking water system:

Overview

The **Municipality of Lakeshore Drinking Water System** consists of the John George and Stoney Point Water Treatment Plants and a distribution system that includes the Lakeshore Elevated Storage Tank, the Maidstone Elevated Storage Tank, County Road No. 35 (Haycroft) and Comber Reservoirs and Pumping Stations. The Municipality of Lakeshore water distribution system also includes sectors that are supplied with drinking water from neighbouring drinking water systems: Tecumseh Water Service Area (from Windsor via Tecumseh) and Union Water Service Area (from the Union Water Supply System). Each of the four drinking water systems in Lakeshore is physically connected to at least one of the other systems.

John George Water Treatment Plant

Intake Facilities

Item	Qty	Description	Nominal Size/Rating
Source		Lake St. Clair	
Pipe	1	High Density Polyethylene	1,200 mm dia. 1,050 m length
Crib	1	Concrete, steel and HDPE increaser	4.1 m dia.
Carrier Pipe	1	zebra mussel control, frazil ice control	400 mm dia.
Intake Well	1	Intake well adjacent to low lift pumping station	2.4 m x 3.4 m x 7 m depth

Low Lift Pumping Station

Item	Qty	Description	Nominal Size/Rating
Low Lift Wells	1	A 5.6 m long by 1.6 m wide by 3.8 m SWD low lift raw water well with two separate screening wells each 4.9 m long by 1.6 m wide by 3.8 m SWD supply screened raw water to two separate low lift pump suction compartments each 2.9 m long by 2.1 m wide by 3.8 m SWD with bottom sloping to a dedicated sump	17 m ³ raw water well, 14.9 m ³ per screening well, 16 m ³ per pump compartment
Raw Water Screens	2	Raw water screens (one automatic duty and one manual bypass)	0 – 36.4 ML/d per screen
Low Lift Pumps	4	Vertical turbine pumps (three duty, one standby)	151.6 L/s at 15.9 m TDH each
Chlorine Solution Booster Pumps (zebra mussel control)	2	Horizontal centrifugal end suction pumps (one duty and one standby) to supply chlorine solution to the raw water intake crib	1 L/s at 23.9 m TDH each
Aeration Blowers (frazil ice control)	2	Low pressure, positive displacement blowers to supply coarse air bubbles to ring diffusers surrounding the intake crib for frazil ice control;	1.7 m ³ /min at 96 kPa (min), or 200 kPa (max) each
Air Compressor (frazil ice control)	1	A high pressure, compressor used for priming frazil ice control system.	0.2 m ³ /min at 83 kPa (min), or 690 kPa (max)

Water Treatment Systems

Item	Qty	Description	Nominal Size/Rating
Coagulant Mixer	1	A 600 mm diameter mechanical inline flash mixer to provide mixing of raw water and coagulant	
Clarifiers	4	10.67 m diameter by 5.5 m SWD upflow solids contact clarifiers with inclined tube settlers, rotating sludge rake drive mechanism each discharging sludge blow down to a collection sump	626 m ³ per unit, 4.4 m/h rise rate
Filters	4	8 m long x 4 m wide x 6.8 m SWD gravity flow dual media open bed filters containing 3 m of GAC as top layer and 300 mm of silica sand as bottom layer with underdrain system, air scouring capability, including all associated piping, valves and controls	12.0 m/h filtration rate with 15 minutes EBCT

Filter Backwash System

Item	Qty	Description	Nominal Size/Rating
Backwash Supply Tank	1	A 23.6 m long by 8.0 m wide by 2.4 m SWD concrete tank situated below the deep bed filters	400 m ³ capacity
Residuals Holding Tank	1	A two-cell concrete tank each 15.1 m long by 10.7 m wide by 3.0 m SWD with submersible mixer for filter backwash storage	500 m ³ per tank (approx.),
Backwash Pumps	2	Horizontal end suction centrifugal pumps (one lead and one lag to supply backwash flow)	200 L/s at 15 m TDH each, 45 m/h backwash rate
Air Scour Blowers	2	Centrifugal blowers (one duty and one standby)	1920 m ³ /h at 75 kPa discharge pressure, 60 m/h air scour rate

On-Site Water Storage

Item	Qty	Description	Nominal Size/Rating
Treated Water Storage Reservoir	1	Two-cell in-ground treated water reservoir. Each cell is 51.8 m long by 21.1 m wide by 5.2 m SWD.	4,950 m ³ per cell (approx.)

High Lift Pumping Station

Item	Qty	Description	Nominal Size/Rating
High Lift Well	1	A 8.1 m long by 1.7 m wide by 6.3 m SWD high lift treated water well with four separate high lift pump suction compartments each 2.8 m long by 1.8 m wide by 6.3 m SWD	90.9 m ³ treated water well, 33.3 m ³ per pump compartment
High Lift Pumps	3	Vertical turbine pumps (two duty and one standby)	211 L/s at 41.5 m TDH each
Treated Water Sampling Pumps	3	Pumps (two duty and one standby to sample treated water)	Varied ratings

Chemical Feed Facilities

Item	Qty	Description	Nominal Size/Rating
Coagulant Bulk Storage Tanks	2	3.05 m diameter by 3.55 m high vertical tanks	21,000 L per tank
Coagulant Feed Pumps	2	Metering pumps (one duty and one standby),	0 – 408 L/h
Powder Activated Carbon (PAC) System	1	A PAC hopper, variable speed feed auger paced to flow, two (2) booster pumps, PAC/water mixing eductor and an air compressor	2.1 m ³
PAC Booster Pumps	2	Two (2) booster pumps (one duty and one standby)	0 – 182 L/h
Liquid Polymer Container	2	Containers provide feed for the Polymer system	
Polymer Feed Pumps	2	Metering pumps (one duty and one standby)	0 – 9.5 L/h
Polymer Mixing Chamber	1	A mixing chamber complete with integral mechanical mixer and associated controls for polymer dilution	

Disinfection Facilities

Item	Qty	Description	Nominal Size/Rating
UV Reactors	2	Primary Disinfection - 600 mm diameter stainless steel UV reactors (one duty and one standby) in parallel configuration	0 – 36.4 ML/day per reactor
Chlorine Gas Feed Equipment and Accessories	2	Chlorine gas feed systems each consisting of up to eight (8) 150-lb chlorine gas cylinders connected to a common distribution manifold complete with automatic switchover, weigh scale, associated gas feed piping, control valves, and appurtenances	0 – 140.3 kg/d zebra mussel control, 0 – 175.0 kg/d post chlorination, 0 – 127.6 kg/d trim chlorination

Residue Management System

Item	Qty	Description	Nominal Size/Rating
Residuals Transfer Pumps	2	Centrifugal pumps	17 L/s at 8.7 m TDH each
DAF Tanks with initial rapid mixing, two stage flocculation and final clarification	2	5.2 m long by 3.7 m wide by 3.0 m high aluminum tanks	1.4 ML/day flow per train, 5.7 m/h surface loading rate
Air Saturation Tanks	2	600 mm diameter by 2.2 m long pressurized steel tanks for supplying recycled process air to DAF system	650 L per tank, 65 m/h surface loading rate at 550 kPa working pressure per tank
Recycle Pumps	2	Horizontal end suction centrifugal pumps	5 L/s at 63 m TDH each
Air Receivers	2	Pressurized steel tanks for storing and supplying compressed air to air saturation tank	6 L per tank
Air Compressors	2	Air compressors for supplying compressed air to air receivers	58.4 L/min at 414 kPa min, 620 kPa max each

Instrumentation Systems

Item	Qty	Description	Nominal Size/Rating
Flow Meters	17	<ul style="list-style-type: none"> • 4 x 350 mm diameter clarifier influent • 4 x 300 mm diameter filter effluent • 1 x 450 mm diameter filter backwash water supply • 2 x 600 mm diameter UV reactor influent • 1 x 500 mm diameter high lift pump discharge header • 1 combined clarifier blowdown • 1 PAC booster pump water flow • 1 zebra mussel chlorination booster pump flow • 2 DAF influent flow 	
Ultrasonic Level Transmitters	16	<ul style="list-style-type: none"> • Raw water level low lift wet well (2) • Water level in each filter cell (4) • Water level in the backwash supply tank (1) • Water level in both reservoir cells (2) • Water level in high lift wet well (3) • Water level in each residual holding tank (2) • Coagulant level in coagulant storage tanks (2) 	
Pressure Transmitters	5	<ul style="list-style-type: none"> • High lift pump discharge header to distribution system • Differential pressure transmitter for head loss on each filter (4) 	
Chlorine Residual Analyzers	8	<ul style="list-style-type: none"> • Raw water total residual chlorine (1) • Filtered water free residual chlorine (2) and total residual chlorine (2) • Reservoir inlet free residual chlorine (1) • Treated water free and total residual chlorine (2) 	
Turbidity Analyzers	13	<ul style="list-style-type: none"> • Raw water (1) • Clarifier effluent (4) • Filter inlet channel (1) • Filter effluent (4) • DAF system influent and effluent (2) • Treated water at entry to distribution system (1) 	
pH Analyzers	5	<ul style="list-style-type: none"> • Raw water (1) • Reservoir inlet (1) • Reservoir cells (2) • Treated water at entry to distribution system (1) 	
Temperature Transmitters	2	<ul style="list-style-type: none"> • Raw water (1) • Treated water at entry to distribution system (1) 	

Standby Power

Item	Qty	Description	Nominal Size/Rating
Diesel Generator	1	Emergency diesel generator with automatic transfer switch,	900 kW
Diesel Storage Tank	1	Double walled vacuum pressure tank	4,800 L
UPS	14	Uninterruptible Power Supply for the water treatment plant SCADA System, OIT's (4) and PLC's (10)	

Miscellaneous

Item	Qty	Description	Nominal Size/Rating
Laboratory	1	Laboratory equipped with testing/analytical equipment	
Raw Water Transmission Piping	1	A 600 mm diameter transmission main to convey raw water from the low lift pumping station to the water treatment building	
Treated Water Supply Piping	1	A 750 mm diameter water main to convey treated water from the water treatment building to a flow diversion valve chamber prior to entering each reservoir cell	
Overflow Piping	5	<ul style="list-style-type: none"> • A 600 mm diameter pipe from each reservoir cell • A 600 mm diameter pipe from the backwash supply tank • A 300 mm diameter filter-to-waste effluent pipe • A 600 mm diameter overflow pipe from the residuals holding tank combined with • A 600 mm diameter filter inlet channel pipe 	
Other		<ul style="list-style-type: none"> • SCADA and control systems 	

Combustion Equipment

Item	Qty	Description	Nominal Size/Rating
Boiler	1	Natural gas fired hot water boiler for	1.27 GJ/hr
HVAC Unit	1	Natural gas fired HVAC unit	253 MJ/hr
Water Heater	3	Natural gas fired hot water heater	103 MJ/hr

Emergency Chlorine Gas Scrubber

Item	Qty	Description	Nominal Size/Rating
Chlorine Gas Scrubber	1	A dry chlorine gas tub scrubber	Capacity to treat the contents of a 68 kg chlorine gas cylinder to a chlorine gas concentration of less than 5 ppb in the exhaust

Stoney Point Water Treatment Plant**Intake Facilities**

Item	Qty	Description	Nominal Size/Rating
Source		Lake St. Clair	
Pipe	1	Corrugated steel	600 mm dia 1,219 m length
Crib	1	Concrete, wood and steel increaser	1.67 m dia.
Chlorine Pipe	1	Laid inside intake pipe for conveying chlorine for Zebra mussel control	50 mm dia.

Low Lift Pumping Station

Item	Qty	Description	Nominal Size/Rating
Low Lift Well		3.7 m long x 3.7 m wide x 5.8 m SWD	79 m ³ raw water well
Low Lift Pumps	2	Vertical turbine pumps (one duty and one standby)	56.8 L/s at 9.1 m TDH
Raw Water Sampling Pump	1	Centrifugal pump	

Solids Contact Clarifier

Item	Qty	Description	Nominal Size/Rating
Clarifier	1	9.1 m diameter x 3.8 m SWD upflow solids contact clarifier to provide flocculation and sedimentation, including sludge withdrawal systems and bypass piping	4,546 m ³ /day

Intermediate Wet Well

Item	Qty	Description	Nominal Size/Rating
Intermediate Wet Well		6.0 m long x 9.4 m wide x 3.7 m SWD intermediate wet well	210 m ³ intermediate wet well
Pumps	3	Vertical turbine pumps (two duty and one standby)	26.5 L/s at 7.6 m TDH
Intermediate Well Sampling Pump	1	Centrifugal pump	

Filtration System

Item	Qty	Description	Nominal Size/Rating
Filters	2	3.7 m wide x 4.3 m long dual media (anthracite/sand) high rate gravity filters containing 450 mm of anthracite as top layer and 300 mm of silica sand as bottom layer complete with underdrain system, air scouring capability, including all associated piping, valves and controls, operating in a downward direction of flow	4,546 m ³ /day
Backwash Pump	1	Vertical turbine pump	190 L/s at 37.3 m TDH
Blower	1	Centrifugal blower	2,209 m ³ /hr at 81.3 kPa

On-Site Water Storage

Item	Qty	Description	Nominal Size/Rating
Treated Water Storage Reservoir	2	Parallel cells	1,380 m ³ volume
Reservoir #2 Sampling Pump	1	Centrifugal pump	

High Lift Pumping Station

Item	Qty	Description	Nominal Size/Rating
High Lift Wet Wells	2	Clearwell No 1: 3.73 m x 3.05 m x 5.49 m deep Clearwell No 2: 3.73 m x 6.25 m x 5.49 m deep	
Pumps	3	Three (3) vertical turbine pumps (two duty and one standby)	32 L/s at 68.3 m TDH

Disinfection System

Item	Qty	Description	Nominal Size/Rating
Chlorine Gas	4	Cylinders	68 kg
Scales	2	Dual cylinder	
Vacuum gas chlorinators	3	One (1) for Zebra mussel control, One (1) for pre-chlorination and One (1) for Post-chlorination	30 lb/day

Chemical Feed Systems

Item	Qty	Description	Nominal Size/Rating
Coagulant	1	Storage tank	22.7 m ³
	2	Metering pumps (one duty and one standby),	94 L/hr
Powdered Activated Carbon	1	Volumetric feeder	17 L to 1,415 L
	1	Peristaltic hose pump	
	1	Dust bag collector	

Standby Power

Item	Qty	Description	Nominal Size/Rating
Generator	1	Diesel generator set with automatic transfer switch and fuel storage tank inside a single wall containment	175 kW
Diesel Storage Tank	1	Fuel storage tank inside a single wall containment	

Wastewater Treatment Facility

Item	Qty	Description	Nominal Size/Rating
Wastewater Treatment	1	Transfer pump	75.7 L/s at 8.2 m TDH
Wastewater Lagoons	2	Wastewater lagoons	

Instrumentation

Item	Qty	Description	Nominal Size/Rating
Turbidimeters	5	Raw water (1) Intermediate (Clarifier effluent) (1) Filter effluents (2) Treated water (1)	
Conductivity/pH/ temperature	1	Low lift pumping station	
Flow Meters	3	Treated water (1) Filter effluents (2)	
	2	Raw water (1) Intermediate pump discharge (1)	
Chlorine Residual Analyzers	4	Low lift wet well (zebra mussel control)-Total	
	2	1 free, 1 total in treated water discharge line	
	2	Filter effluent-Free	
	1	Reservoir #2-Free	
Pressure Transmitters	3	For head loss on each filter (2) High lift pump discharge header (1)	
pH Analyzer	1	Upstream of High Lift pump clearwells	
Temperature Transmitter	1	Upstream of High Lift pump clearwells	
Ultrasonic Level Transmitters	7	Water level in low lift wet well (1) Water level in the intermediate wet well(1) Water level in the filter inlet well (1) Water level in each filter cell (2) Water level in reservoir cell #2 (1) Coagulant level in bulk storage tank (1)	

Storage Reservoirs

County Road No. 35 Reservoir (Haycroft)

Item	Qty	Description	Nominal Size/Rating
Location		County Road No. 35 and 3 rd Concession	
UTM Coordinates		NAD 27, UTM Zone 17: 372158 m E, 4681756 m N	
Description		Complete with re-chlorination and booster pumping facilities	
Firm capacity			33 L/s
Storage volume	1		425 m ³
Pumps	4	Centrifugal Pumps	11 L/s at 78 m TDH each
Chlorinators	2	Gas chlorinators	2 kg/day each
Instruments	2	Chlorine residual analyzers-free located at inlet and discharge	
	1	Flow meter on high lift pump discharge header	
	1	Pressure transmitter on high lift pump discharge header to distribution system,	
	1	Ultrasonic level transmitter for water level in reservoir	
Standby Power		Diesel generator, with automatic transfer switch and fuel storage tank inside a single wall containment	70 kW

Comber Reservoir

Item	Qty	Description	Nominal Size/Rating
Location		Highway 77 and County Road 46	
UTM Coordinates		NAD 27, UTM Zone 17: 371715 m E, 4676058 m N	
Description		Complete with re-chlorination and two booster pumping facilities	
Firm capacities		Pumping capacities of 22.8 L/s and 35.5 L/s	
Storage volume	1	Ground storage	473 m ³
	1	Wet well storage	545 m ³
Pumps	4	Centrifugal pumps (3 duty, 1 standby)	7.6 L/s at 69 m TDH each
	3	Centrifugal pumps (2 duty, 1 standby)	24.2 L/s at 48 m TDH each
Chlorinators	2	Gas chlorinators	Rated at 2 kg/day each
Instruments	2	Pressure transmitters, one on the discharge header to Comber distribution system and one on the discharge header to Tilbury West distribution system.	
	2	Flow meters, one for Comber distribution system, one for Tilbury West distribution system	
	3	Chlorine residual analyzers-free, one at inlet, one at discharge to Comber distribution system and one at discharge to Tilbury West distribution system.	
	1	One (1) ultrasonic level transmitter tfor water level in wet well storage	
Standby Power		Diesel generator set, with automatic transfer switch and fuel storage tank inside a single wall containment	70 kW

Elevated Storage Tanks

Belle River Elevated Water Storage Tank

Location	Oakwood Avenue, Belle River
UTM Coordinates	NAD 27, UTM Zone 17: 357203 m E, 4683395 m N
Useable Volume	5,800 m ³
Standby Power	20 kW standby propane generator
Notes	

Maidstone Elevated Water Storage Tank

Location	718 County Road 22
UTM Coordinates	NAD 27, UTM Zone 17: 351399 m E, 4685041 m N
Useable Volume	1,515 m ³
Notes	Taken offline in 2018 and longer in service

Fuel Oil Systems

John George Water Treatment Plant

Location	NAD 27, UTM Zone 17: 359324 m E, 4684189 m N
Description	One (1) 4800 litre storage tank
Fuel Type	Dyed Diesel
Source Protection Area	Essex Region Source Protection Area
Notes	Vulnerability score: 9 Moderate threat level

Stoney Point Water Treatment Plant

Location	NAD 27, UTM Zone 17: 371901 m E, 4687162 m N
Description	One (1) 1100 litre storage tank
Fuel Type	Dyed Diesel
Source Protection Area	Essex Region Source Protection Area
Notes	Vulnerability score: 9 Moderate threat level

Watermains

1.2 Watermains within the distribution system comprise:

1.2.1 Watermains that have been set out in each document or file identified in column 1 of Table 1.

Table 1: Watermains	
Column 1 Document or File Name	Column 2 Date
LakeshoreWaterDistributionSystems.pdf	June, 2020

1.2.2 Watermains that have been added, modified, replaced or extended further to the provisions of Schedule C of this drinking water works permit on or after the date identified in column 2 of Table 1 for each document or file identified in column 1.

1.2.3 Watermains that have been added, modified, replaced or extended further to an authorization by the Director on or after the date identified in column 2 of Table 1 for each document or file identified in column 1.

Schedule B: General

System Owner	The Corporation of the Municipality of Lakeshore
Permit Number	031-201
Drinking Water System Name	Municipality of Lakeshore Drinking Water System
Permit Effective Date	May 21, 2021

1.0 Applicability

- 1.1 In addition to any other applicable legal requirements, the drinking water system identified above shall be altered and operated in accordance with the conditions of this drinking water works permit and the licence #031-101.
- 1.2 The definitions and conditions of licence #031-101 are incorporated into this permit and also apply to this drinking water system.

2.0 Alterations to the Drinking Water System

- 2.1 Any document issued by the Director to be incorporated into Schedule C to this drinking water works permit shall provide authority to alter the drinking water system in accordance with the applicable conditions of this drinking water works permit and licence #031-101.
- 2.2 All documents issued by the Director as described in condition 2.1 shall form part of this drinking water works permit.
- 2.3 All parts of the drinking water system in contact with drinking water that are added, modified, replaced, extended shall be disinfected in accordance with a procedure approved by the Director or in accordance with the applicable provisions of the following documents:
- a) Until six months after the date of issue of this permit, the ministry's Watermain Disinfection Procedure, dated November 2015, thereafter, the ministry's Watermain Disinfection Procedure, dated August 1, 2020;
 - b) Subject to condition 2.3.2, any updated version of the ministry's Watermain Disinfection Procedure;
 - c) AWWA C652 – Standard for Disinfection of Water-Storage Facilities;
 - d) AWWA C653 – Standard for Disinfection of Water Treatment Plants; and
 - e) AWWA C654 – Standard for Disinfection of Wells.
- 1.0 For greater clarity, where an activity has occurred that could introduce contamination, including but not limited to repair, maintenance, or physical / video inspection, all equipment that may come in contact with the drinking water system shall be disinfected in accordance with the requirements of condition 2.3. above.
- 2.3.2 Updated requirements described in condition 2.3 b) are effective six months from the date of publication of the updated Watermain Disinfection Procedure.

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- 2.4 The owner shall notify the Director in writing within thirty (30) days of the placing into service or the completion of any addition, modification, replacement, removal or extension of the drinking water system which had been authorized through:
- 2.4.1 Schedule B to this drinking water works permit which would require an alteration of the description of a drinking water system component described in Schedule A of this drinking water works permit;
 - 2.4.2 Any document to be incorporated in Schedule C to this drinking water works permit respecting works other than watermains; or
 - 2.4.3 Any approval issued prior to the issue date of the first drinking water works permit respecting works other than watermains which were not in service at the time of the issuance of the first drinking water works permit.
- 2.5 The notification required in condition 2.4 shall be submitted using the “Director Notification Form” published by the Ministry.
- 2.6 For greater certainty, the notification requirements set out in condition 2.4 do not apply to any addition, modification, replacement, removal or extension in respect of the drinking water system which:
- 2.6.1 Is exempt from subsection 31(1) of the SDWA by subsection 9.(2) of O. Reg. 170/03;
 - 2.6.2 Constitutes maintenance or repair of the drinking water system; or
 - 2.6.3 Is a watermain authorized by condition 3.1 of Schedule B of this drinking water works permit.
- 2.7 The owner shall notify the legal owner of any part of the drinking water system that is prescribed as a municipal drinking water system by section 2 of O. Reg. 172/03 of the requirements of the licence and this drinking water works permit as applicable to the prescribed system.
- 2.8 For greater certainty, the owner may only carry out alterations to the drinking water system in accordance with this drinking water works permit after having satisfied other applicable legal obligations, including those arising from the *Environmental Assessment Act*, *Niagara Escarpment Planning and Development Act*, *Oak Ridges Moraine Conservation Act, 2001* and *Greenbelt Act, 2005*.

3.0 Watermain Additions, Modifications, Replacements and Extensions

- 3.1 The owner may alter the drinking water system, or permit it to be altered by a person acting on the owner’s behalf, by adding, modifying, replacing or extending a watermain within the distribution system subject to the following conditions:
- 3.1.1 The design of the watermain addition, modification, replacement or extension:
 - a) Has been prepared by a licensed engineering practitioner;
 - b) Has been designed only to transmit water and has not been designed to treat water;

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- c) Satisfies the design criteria set out in the Ministry publication “Watermain Design Criteria for Future Alterations Authorized under a Drinking Water Works Permit – June 2012”, as amended from time to time; and
 - d) Is consistent with or otherwise addresses the design objectives contained within the Ministry publication “Design Guidelines for Drinking Water Systems, 2008”, as amended from time to time.
- 3.1.2 The maximum demand for water exerted by consumers who are serviced by the addition, modification, replacement or extension of the watermain will not result in an exceedance of the rated capacity of a treatment subsystem or the maximum flow rate for a treatment subsystem component as specified in the licence, or the creation of adverse conditions within the drinking water system.
 - 3.1.3 The watermain addition, modification, replacement or extension will not adversely affect the distribution system’s ability to maintain a minimum pressure of 140 kPa at ground level at all points in the distribution system under maximum day demand plus fire flow conditions.
 - 3.1.4 Secondary disinfection will be provided to water within the added, modified, replaced or extended watermain to meet the requirements of O. Reg. 170/03.
 - 3.1.5 The watermain addition, modification, replacement or extension is wholly located within the municipal boundary over which the owner has jurisdiction.
 - 3.1.6 The owner of the drinking water system consents in writing to the watermain addition, modification, replacement or extension.
 - 3.1.7 A licensed engineering practitioner has verified in writing that the watermain addition, modification, replacement or extension meets the requirements of condition 3.1.1.
 - 3.1.8 The owner of the drinking water system has verified in writing that the watermain addition, modification, replacement or extension meets the requirements of conditions 3.1.2 to 3.1.6.
- 3.2 The authorization for the addition, modification, replacement or extension of a watermain provided for in condition 3.1 does not include the addition, modification, replacement or extension of a watermain that:
 - 3.2.1 Passes under or through a body of surface water, unless trenchless construction methods are used;
 - 3.2.2 Has a nominal diameter greater than 750 mm;
 - 3.2.3 Results in the fragmentation of the drinking water system; or
 - 3.2.4 Connects to another drinking water system, unless:
 - a) Prior to construction, the owner of the drinking water system seeking the connection obtains written consent from the owner or owner’s delegate of the drinking water system being connected to; and

- b) The owner of the drinking water system seeking the connection retains a copy of the written consent from the owner or owner's delegate of the drinking water system being connected to as part of the record that is recorded and retained under condition 3.3.
- 3.3 The verifications required in conditions 3.1.7 and 3.1.8 shall be:
- 3.3.1 Recorded on "Form 1 – Record of Watermains Authorized as a Future Alteration", as published by the Ministry, prior to the watermain addition, modification, replacement or extension being placed into service; and
- 3.3.2 Retained for a period of ten (10) years by the owner.
- 3.4 For greater certainty, the verification requirements set out in condition 3.3 do not apply to any addition, modification, replacement or extension in respect of the drinking water system which:
- 3.4.1 Is exempt from subsection 31(1) of the SDWA by subsection 9.(2) of O. Reg. 170/03; or
- 3.4.2 Constitutes maintenance or repair of the drinking water system.
- 3.5 The document or file referenced in Column 1 of Table 1 of Schedule A of this drinking water works permit that sets out watermains shall be retained by the owner and shall be updated to include watermain additions, modifications, replacements and extensions within 12 months of the addition, modification, replacement or extension.
- 3.6 The updates required by condition 3.5 shall include watermain location relative to named streets or easements and watermain diameter.
- 3.7 Despite clause (a) of condition 3.1.1 and condition 3.1.7, with respect to the replacement of an existing watermain or section of watermain that is 6.1 meters in length or less, if a licensed engineering practitioner has:
- 3.7.1 inspected the replacement prior to it being put into service;
- 3.7.2 prepared a reporting confirming that the replacement satisfies clauses (b), (c) and (d) of condition 3.1.1 (i.e. "Form 1 – Record of Watermains Authorized by a Future Alteration" (Form 1), Part 3, items No. 2, 3 and 4); and
- 3.7.3 appended the report referred to in condition 3.7.2 to the completed Form 1,
- the replacement is exempt from the requirements that the design of the replacement be prepared by a licensed engineering practitioner and that a licensed engineering practitioner verify on Form 1, Part 3, item No. 1 that a licensed engineering practitioner prepared the design of the replacement.
- 3.8 For greater certainty, the exemption in condition 3.7 does not apply to the replacement of an existing watermain or section of watermain if two or more sections of pipe, each of which is 6.1 meters in length or less, are joined together, if the total length of replacement pipes joined together is greater than 6.1 meters.

4.0 Minor Modifications to the Drinking Water System

- 4.1 The drinking water system may be altered by adding, modifying or replacing the following components in the drinking water system:
- 4.1.1 Coagulant feed systems in the treatment system, including the location and number of dosing points:
 - a) Prior to making any alteration to the drinking water system under condition 4.1.1, the owner shall undertake a review of the impacts that the alteration might have on corrosion control or other treatment processes; and
 - b) The owner shall notify the Director in writing within thirty (30) days of any alteration made under condition 4.1.1 and shall provide the Director with a copy of the review.
 - c) The notification required in condition 4.1.1 b) shall be submitted using the "Director Notification Form" published by the Ministry
 - 4.1.2 Instrumentation and controls, including new SCADA systems and upgrades to SCADA system hardware;
 - 4.1.3 SCADA system software or programming that:
 - a) Measures, monitors or reports on a regulated parameter;
 - b) Measures, monitor or reports on a parameter that is used to calculate CT; or,
 - c) Calculates CT for the system or is part of the process algorithm that calculates log removal, where the impacts of addition, modification or replacement have been reviewed by a licensed engineering practitioner;
 - 4.1.4 Filter media, backwashing equipment, filter troughs, and under-drains and associated equipment in the treatment system;
 - 4.1.5 Spill containment works; or,
 - 4.1.6 Coarse screens and fine screens
- 4.2 The drinking water system may be altered by adding, modifying, replacing or removing the following components in the drinking water system:
- 4.2.1 Treated water pumps, pressure tanks, and associated equipment;
 - 4.2.2 Raw water pumps and process pumps in the treatment system;
 - 4.2.3 Inline booster pumping stations that are not associated with distribution system storage facilities and are on a watermain with a nominal diameter not exceeding 200 mm;
 - 4.2.4 Re-circulation devices within distribution system storage facilities;
 - 4.2.5 In-line mixing equipment;

- 4.2.6 Chemical metering pumps and chemical handling pumps;
 - 4.2.7 Chemical storage tanks (excluding fuel storage tanks) and associated equipment; or,
 - 4.2.8 Measuring and monitoring devices that are not required by regulation, by a condition in the Drinking Water Works Permit, or by a condition otherwise imposed by the Ministry.
 - 4.2.9 Chemical injection points.
 - 4.2.10 Valves;
- 4.3 The drinking water system may be altered by replacing the following:
- 4.3.1 Raw water piping, treatment process piping or treated water piping within the treatment subsystem;
 - 4.3.2 Measuring and monitoring devices that are required by regulation, by a condition in the Drinking Water Works Permit or by a condition otherwise imposed by the Ministry.
 - 4.3.3 Coagulants and pH adjustment chemicals, where the replacement chemicals perform the same function;
 - a) Prior to making any alteration to the drinking water system under condition 4.3.3, the owner shall undertake a review of the impacts that the alteration might have on corrosion control or other treatment processes; and
 - b) The owner shall notify the Director in writing within thirty (30) days of any alteration made under condition 4.3.3 and shall provide the Director with a copy of the review.
 - c) The notification required in condition 4.3.3 b) shall be submitted using the "Director Notification Form" published by the Ministry
- 4.4 Any alteration of the drinking water system made under conditions 4.1, 4.2 or 4.3 shall not result in:
- 4.4.1 An exceedance of a treatment subsystem rated capacity or a treatment subsystem component maximum flow rate as specified in the licence;
 - 4.4.2 The bypassing or removal of any unit process within a treatment subsystem;
 - 4.4.3 The addition of any new unit process other than coagulation within a treatment subsystem;
 - 4.4.4 A deterioration in the quality of drinking water provided to consumers;

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- 4.4.5 A reduction in the reliability or redundancy of any component of the drinking water system;
 - 4.4.6 A negative impact on the ability to undertake compliance and other monitoring necessary for the operation of the drinking water system; or
 - 4.4.7 An adverse effect on the environment.
- 4.5 The owner shall verify in writing that any addition, modification, replacement or removal of drinking water system components in accordance with conditions 4.1, 4.2 or 4.3 has met the requirements of the conditions listed in condition 4.4.
- 4.6 The verifications and documentation required in condition 4.5 shall be:
- 4.6.1 Recorded on “Form 2 – Record of Minor Modifications or Replacements to the Drinking Water System” published by the Ministry, prior to the modified or replaced components being placed into service; and
 - 4.6.2 Retained for a period of ten (10) years by the owner.
- 4.7 For greater certainty, the verification requirements set out in conditions 4.5 and 4.6 do not apply to any addition, modification, replacement or removal in respect of the drinking water system which:
- 4.7.1 Is exempt from subsection 31(1) of the SDWA by subsection 9.(2) of O. Reg. 170/03; or
 - 4.7.2 Constitutes maintenance or repair of the drinking water system, including software changes to a SCADA system that are not listed in condition 4.1.3
- 4.8 The owner shall update any drawings maintained for the drinking water system to reflect the modification or replacement of the works, where applicable.

5.0 Equipment with Emissions to the Air

- 5.1 The drinking water system may be altered by adding, modifying or replacing any of the following drinking water system components that may discharge or alter the rate or manner of a discharge of a compound of concern to the air:
 - 5.1.1 Any equipment, apparatus, mechanism or thing that is used for the transfer of outdoor air into a building or structure that is not a cooling tower;
 - 5.1.2 Any equipment, apparatus, mechanism or thing that is used for the transfer of indoor air out of a space used for the production, processing, repair, maintenance or storage of goods or materials, including chemical storage;
 - 5.1.3 Laboratory fume hoods used for drinking water testing, quality control and quality assurance purposes;
 - 5.1.4 Low temperature handling of compounds with a vapor pressure of less than 1 kilopascal;

-
- 5.1.5 Maintenance welding stations;
 - 5.1.6 Minor painting operations used for maintenance purposes;
 - 5.1.7 Parts washers for maintenance shops;
 - 5.1.8 Emergency chlorine and ammonia gas scrubbers and absorbers;
 - 5.1.9 Venting for activated carbon units for drinking water taste and odour control;
 - 5.1.10 Venting for a stripping unit for methane removal from a groundwater supply;
 - 5.1.11 Venting for an ozone treatment unit;
 - 5.1.12 Natural gas or propane fired boilers, water heaters, space heaters and make-up air units with a total facility-wide heat input rating of less than 20 million kilojoules per hour, and with an individual fuel energy input of less than or equal to 10.5 gigajoules per hour; or
 - 5.1.13 Emergency generators that fire No. 2 fuel oil (diesel fuel) with a sulphur content of 0.5 per cent or less measured by weight, natural gas, propane, gasoline or biofuel, and that are used for emergency duty only with periodic testing.
- 5.2 The owner shall not make an addition, modification, or replacement described in condition 5.1 in relation to an activity that is not related to the treatment and/or distribution of drinking water.
- 5.3 The emergency generators identified in condition 5.1.13 shall not be used for non-emergency purposes including the generation of electricity for sale or for peak shaving purposes.
- 5.4 The owner shall prepare an emission summary table for nitrogen oxides emissions only, for each addition, modification or replacement of emergency generators identified in condition 5.1.13.

Performance Limits

- 5.5 The owner shall ensure that a drinking water system component identified in conditions 5.1.1 to 5.1.13 is operated at all times to comply with the following limits:
- 5.5.1 For equipment other than emergency generators, the maximum concentration of any compound of concern at a point of impingement shall not exceed the corresponding point of impingement limit;
 - 5.5.2 For emergency generators, the maximum concentration of nitrogen oxides at sensitive receptors shall not exceed the applicable point of impingement limit, and at non-sensitive receptors shall not exceed the Ministry half-hourly screening level of 1880 ug/m³ as amended; and
 - 5.5.3 The noise emissions comply at all times with the limits set out in publication NPC-300, as applicable.

- 5.6 The owner shall verify in writing that any addition, modification or replacement of works in accordance with condition 5.1 has met the requirements of the conditions listed in condition 5.5.
- 5.7 The owner shall document how compliance with the performance limits outlined in condition 5.5.3 is being achieved, through noise abatement equipment and/or operational procedures.
- 5.8 The verifications and documentation required in conditions 5.6 and 5.7 shall be:
- 5.8.1 Recorded on "Form 3 – Record of Addition, Modification or Replacement of Equipment Discharging a Contaminant of Concern to the Atmosphere", as published by the Ministry, prior to the additional, modified or replacement equipment being placed into service; and
- 5.8.2 Retained for a period of ten (10) years by the owner.
- 5.9 For greater certainty, the verification and documentation requirements set out in conditions 5.6 and 5.8 do not apply to any addition, modification or replacement in respect of the drinking water system which:
- 5.9.1 Is exempt from subsection 31(1) of the SDWA by subsection 9.(2) of O. Reg. 170/03; or
- 5.9.2 Constitutes maintenance or repair of the drinking water system.
- 5.10 The owner shall update any drawings maintained for the works to reflect the addition, modification or replacement of the works, where applicable.

6.0 Previously Approved Works

- 6.1 The owner may add, modify, replace or extend, and operate part of a municipal drinking water system if:
- 6.1.1 An approval was issued after January 1, 2004 under section 36 of the SDWA in respect of the addition, modification, replacement or extension and operation of that part of the municipal drinking water system;
- 6.1.2 The approval expired by virtue of subsection 36(4) of the SDWA; and
- 6.1.3 The addition, modification, replacement or extension commenced within five years of the date that activity was approved by the expired approval.

7.0 System-Specific Conditions

- 7.1 Not applicable.

8.0 Source Protection

- 8.1 Not applicable.

Schedule C: Authorization to Alter the Drinking Water System

System Owner	The Corporation of the Municipality of Lakeshore
Permit Number	031-201
Drinking Water System Name	Municipality of Lakeshore Drinking Water System
Permit Effective Date	May 21, 2021

1.0 General

1.1 Table 2 provides a reference list of all documents to be incorporated into Schedule C that have been issued as of the date that this permit was issued.

1.1.1 Table 2 is not intended to be a comprehensive list of all documents that are part of Schedule C. For clarity, any document issued by the Director to be incorporated into Schedule C after this permit has been issued is considered part of this drinking water works permit.

Table 2: Schedule C Documents				
Column 1 Issue #	Column 2 Issued Date	Column 3 Description	Column 4 Status	Column 5 DN#
1	2013/03/21	The Belle River elevated storage tank	Completed	N/A
2	2019/09/12	Stoney Point WTP clarifier rehabilitation works (2746)	Completed	N/A

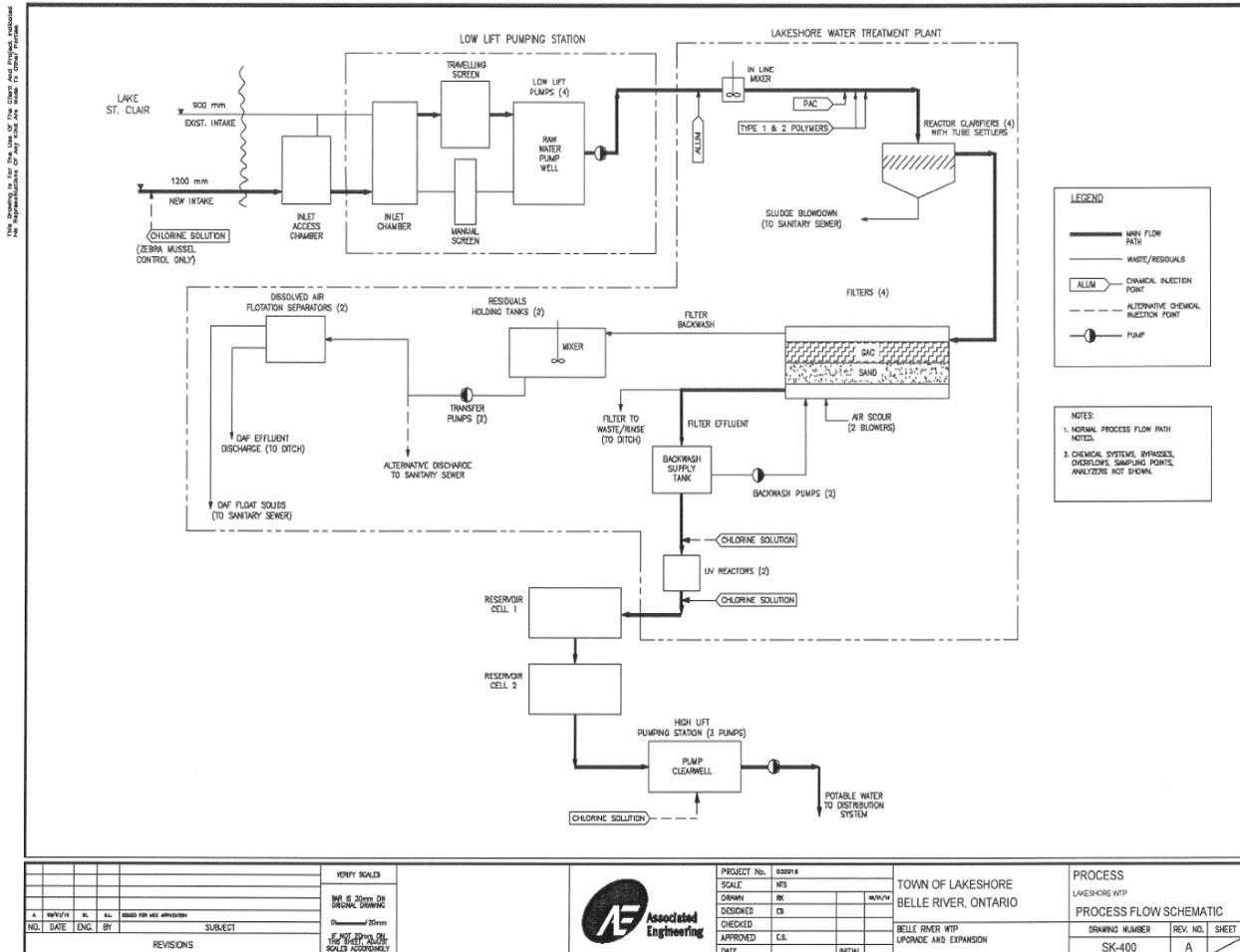
1.2 For each document described in columns 1, 2 and 3 of Table 2, the status of the document is indicated in column 4. Where this status is listed as 'Archived', the approved alterations have been completed and relevant portions of this permit have been updated to reflect the altered works. These 'Archived' Schedule C documents remain as a record of the alterations.

Schedule D: Process Flow Diagrams

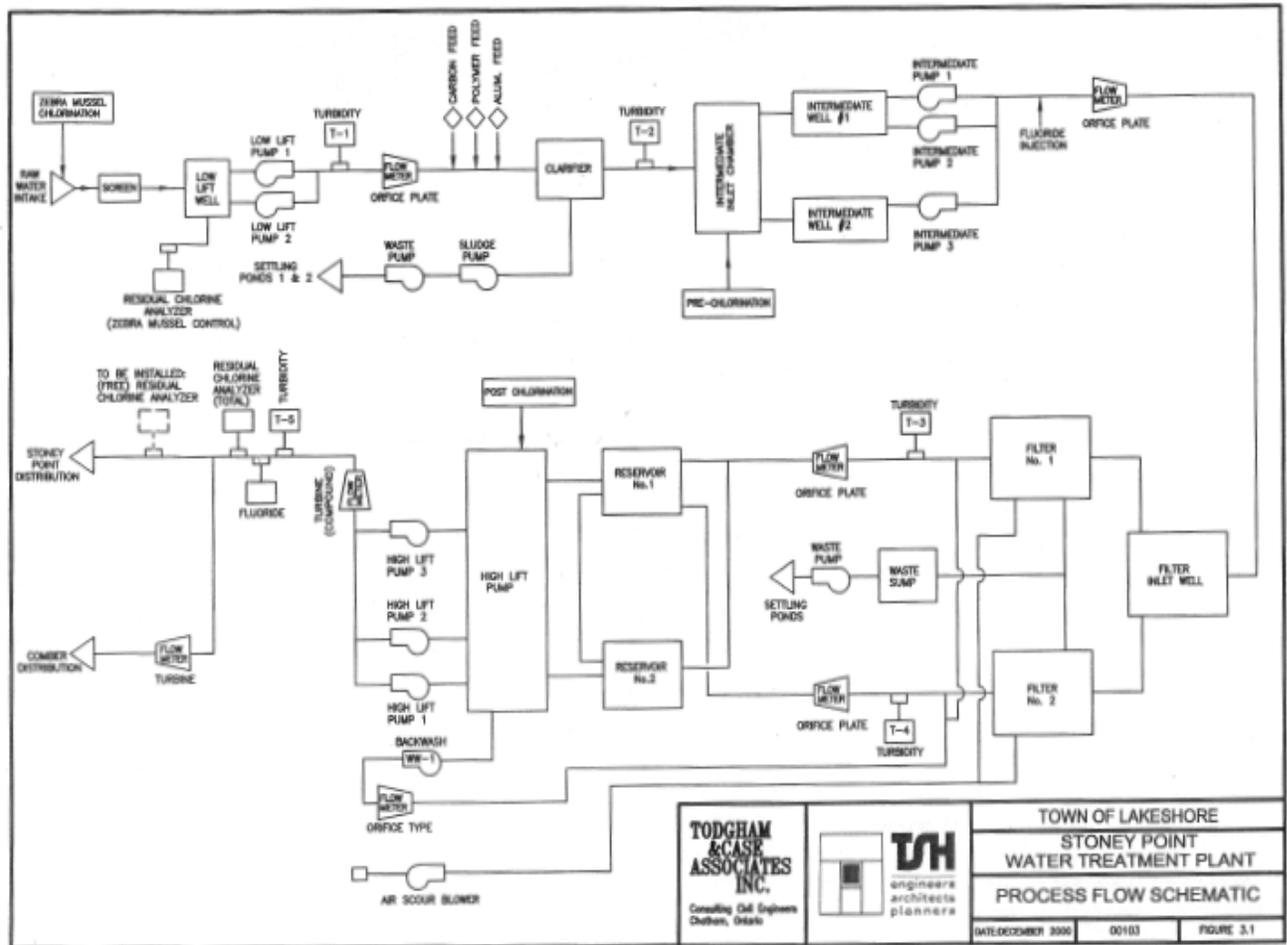
System Owner	The Corporation of the Municipality of Lakeshore
Permit Number	031-201
Drinking Water System Name	Municipality of Lakeshore Drinking Water System
Permit Effective Date	May 21, 2021

1.0 Process Flow Diagrams

John George Water Treatment Plant



Stoney Point Water Treatment Plant



[Source: Operational Plan, July 11, 2008]

Note: this process flow diagram is for reference only, and represents a high level overview of the system as of July 13, 2020.

Appendix B

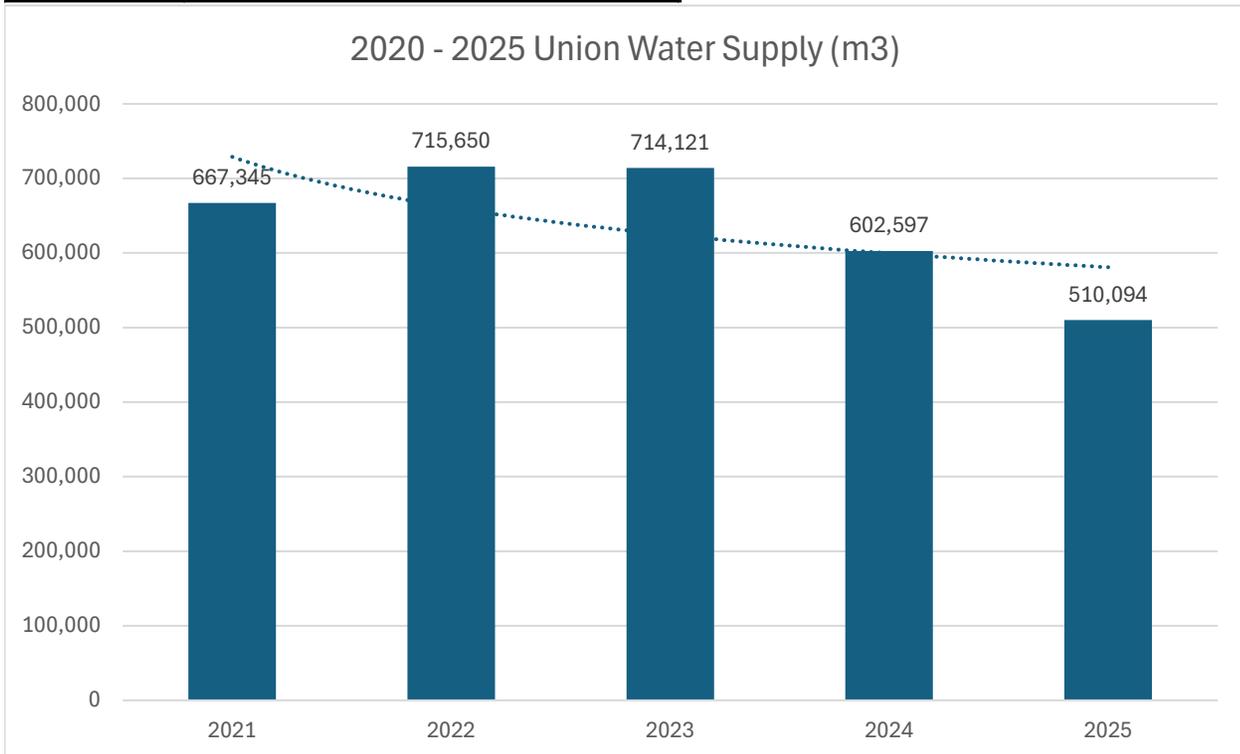
Month	Total (m3)
January	43,795
February	43055
March	38696
April	42688
May	45844
June	51652
July	56942
August	52821
September	38959
October	44233
November	33133
December	18276
Total	510094

Comparison to previous years

	Finished Water (m3)
2021	667,345
2022	715,650
2023	714,121
2024	602,597
2025	510,094

Source

[Water Audit Report Union 2019-2025](#)
[2025 UWSS Boundary Meter Flow Report](#)





Ontario Clean Water Agency
Agence Ontarienne Des Eaux



Annual Performance Report

Lakeshore Distribution System

Drinking Water System # 260004995

2025

Prepared for the Municipality of Lakeshore

By the Ontario Clean Water Agency

ANNUAL REPORT

Drinking Water System Number:	260004995
Drinking Water System Name:	Lakeshore Distribution System (Union WSS)
Drinking Water System Owner:	The Municipality of Lakeshore
Drinking Water System Category:	Large Municipal Residential
Period being reported:	01-January-2025 to 31-December 2025

<p><u>Complete if your Category is Large Municipal Residential or Small Municipal Residential</u></p> <p>Does your Drinking Water System serve more than 10,000 people? Yes [] No [X]</p> <p>Is your annual report available to the public at no charge on a web site on the Internet? Yes [X] No []</p> <p>Location where Summary Report required under O. Reg. 170/03 Schedule 22 will be available for inspection.</p> <div style="border: 1px solid black; padding: 5px; width: fit-content;"> <p>Municipality of Lakeshore Office 419 Notre Dame, Belle River, ON</p> </div>	<p><u>Complete for all other Categories</u></p> <p>Number of Designated Facilities served: <div style="border: 1px solid black; padding: 2px; width: 100px; text-align: center;">N/A</div> </p> <p>Did you provide a copy of your annual report to all Designated Facilities you serve? Yes [] No []</p> <p>Number of Interested Authorities you report to: <div style="border: 1px solid black; padding: 2px; width: 100px; text-align: center;">N/A</div> </p> <p>Did you provide a copy of your annual report to all Interested Authorities you report to for each Designated Facility? Yes [] No []</p>
--	--

List all Drinking Water Systems (if any), which receive all their drinking water from your system:

Drinking Water System Name	Drinking Water System Number
N/A	N/A

Did you provide a copy of your annual report to all Drinking Water System owners that are connected to you and to whom you provide all drinking water? Yes [] No [N/A]

Indicate how you notified system users that your annual report is available and is free of charge.

- Public access/notice via the web
- Public access/notice via Government Office
- Public access/notice via a newspaper
- Public access/notice via Public Request
- Public access/notice via a Public Library
- Public access/notice via other method _____

Describe your Drinking Water System

The Lakeshore Distribution System (Union Water Supply System) includes the area of Lakeshore generally bounded by County Rd. 19, County Rd. 8, and Lakeshore Road 245, Rochester Town line Road, Lakeshore Rd. 131 and Highway 401. The Lakeshore Distribution System (Union Water Supply System) supplies approximately 4100 residents located within the Municipality of Lakeshore. The Lakeshore distribution system (UWSS) is comprised of approximately 148 km of water mains ranging in size from 50 to 300 millimeters in diameter.

List all water treatment chemicals used over this reporting period

N/A

Were any significant expenses incurred?

- Install required equipment
- Repair required equipment
- Replace required equipment

Please provide a brief description and a breakdown of monetary expenses incurred

Item Description	Expenditures in 2025
Meter replacement program (all systems)	\$420,000
AMI Antenna Placement Projects (all systems)	\$174,027
Locator Equipment (all systems)	\$29,598
Remote Monitoring (Hydrant AI) Project (all systems)	\$69,519
Total (all systems)	\$693,144

Provide details on the notices submitted in accordance with subsection 18 (1) of the Safe Drinking Water Act or section 16-4 of Schedule 16 of O.Reg.170/03 and reported to Spills Action Centre

Incident Date	Parameter	Result	Unit of Measure	Corrective Action	Corrective Action Date

Microbiological testing done under the Schedule 10, 11 or 12 of Regulation 170/03, during this reporting period

	Number of Samples	Range of E. coli Results (min #)-(max #)	Range of Total Coliform Results (min #)-(max #)	Number of HPC Samples	Range of HPC Results (min #)-(max #)
Raw	See annual report for the Union Water Supply System # 210000853				
Treated	See annual report for the Union Water Supply System # 210000853				
Distribution	208	0-0	0-0	106	<10 - 10

Operational testing done under Schedule 7, 8 or 9 of Regulation 170/03 during the period covered by this Annual Report.

	Number of Grab Samples	Range of Results (min #)-(max #)	Unit of Measure
Turbidity	Please see the Annual Report for the Union Water Supply System # 210000853		
Chlorine	365	0.53 – 1.63	mg/L
Fluoride (If the DWS provides fluoridation)	N/A		

Summary of additional testing and sampling carried out in accordance with the requirement of an approval, order or other legal instrument.

Date of legal instrument issued	Parameter	Date Sampled	Result	Unit of Measure
None				

Summary of Inorganic parameters tested during this reporting period or the most recent sample results

Parameter	Sample Date	Result Value	Unit of Measure	Exceedance
Nitrite (N)	06-Jan-2025	<0.05	mg/L	No
Nitrate (N)		0.32	mg/L	No
Ammonia N-Total		0.05	mg/L	No
Nitrite (N)	01-Apr-2025	<0.05	mg/L	No
Nitrate (N)		0.52	mg/L	No
Ammonia N-Total		0.18	mg/L	No
Nitrite (N)	07-July-2025	0.06	mg/L	No
Nitrate (N)		0.31	mg/L	No
Ammonia N-Total		0.33	mg/L	No
Nitrite (N)	06-Oct-2025	<0.05	mg/L	No
Nitrate (N)		0.08	mg/L	No
Ammonia N-Total		<0.05	mg/L	No

Summary of lead testing under Schedule 15.1 during this reporting period

(applicable to the following drinking water systems; large municipal residential systems, small municipal residential systems, and non-municipal year-round residential systems)

Location Type	Number of Samples	Range of Lead Results (min#) – (max #)	Unit of Measure	Number of Exceedances
Plumbing	N/A	N/A	N/A	N/A
Distribution - Lead	N/A	N/A	N/A	N/A
Distribution - Alkalinity	6	84 – 97	mg/L	N/A
Distribution - pH	6	7.21 – 7.51	N/A	N/A

Summary of Organic parameters sampled during this reporting period or the most recent sample results

Parameter	Sample Date	Result Value	Unit of Measure	Exceedance
THM	Annual Average	35.75	ug/L	No
HAA	Annual Average	15.7	ug/L	No

List any Inorganic or Organic parameter(s) that exceeded half the standard prescribed in Schedule 2 of Ontario Drinking Water Quality Standards

Parameter	Result Value	Unit of Measure	Date of Sample
None			



NSF International Strategic Registrations Audit Report

The Corporation of the Municipality of Lakeshore

419 Notre Dame Street
Belle River, Ontario N8L 0P8 CAN

C0121465

Audit Type

Re-certification Audit

Auditor

Rose Johnson

Standard

Ontario's Drinking Water Quality Management Standard Version 2
(Exp Date: 03-MAY-2025)

Audit Date(s):

02/05/2025 - 02/06/2025

Recommendation

Ontario's Drinking Water Quality Management Standard Version 2 : Recertification Pending
Closure of Minor NCR(s)



Executive Summary	
Ontario's Drinking Water Quality Management Standard Version 2	<p>This was a re-accreditation audit for the Municipality of Lakeshore's Drinking Water Quality Management System (DWQMS).</p> <p>The DWQMS was found to be overall effectively implemented, with the exception of three minor nonconformities (NCs) detailed in this report.</p> <p>Numerous system strengths were observed during the audit, including:</p> <ul style="list-style-type: none"> - Commitment to DWQMS - Continual improvement, including expanded use of technology - Internal audit process <p>The audit results are summarized as follows:</p> <ul style="list-style-type: none"> - zero major NCs - three minor NCs - three opportunities for improvement (OFIs) <p>Please respond to the minor NCs using NSF-Connect within 30 days of the closing meeting date. OFIs do not require a formal response, but are included in this report for consideration by the DWQMS team.</p> <p>The support and cooperation of all involved in the audit is acknowledged and appreciated. Thank you for choosing NSF-ISR for your DWQMS accreditation.</p>

Top 10 Non Compliant Standard Clauses
CAR Chart Displays Current and Previous Years Data

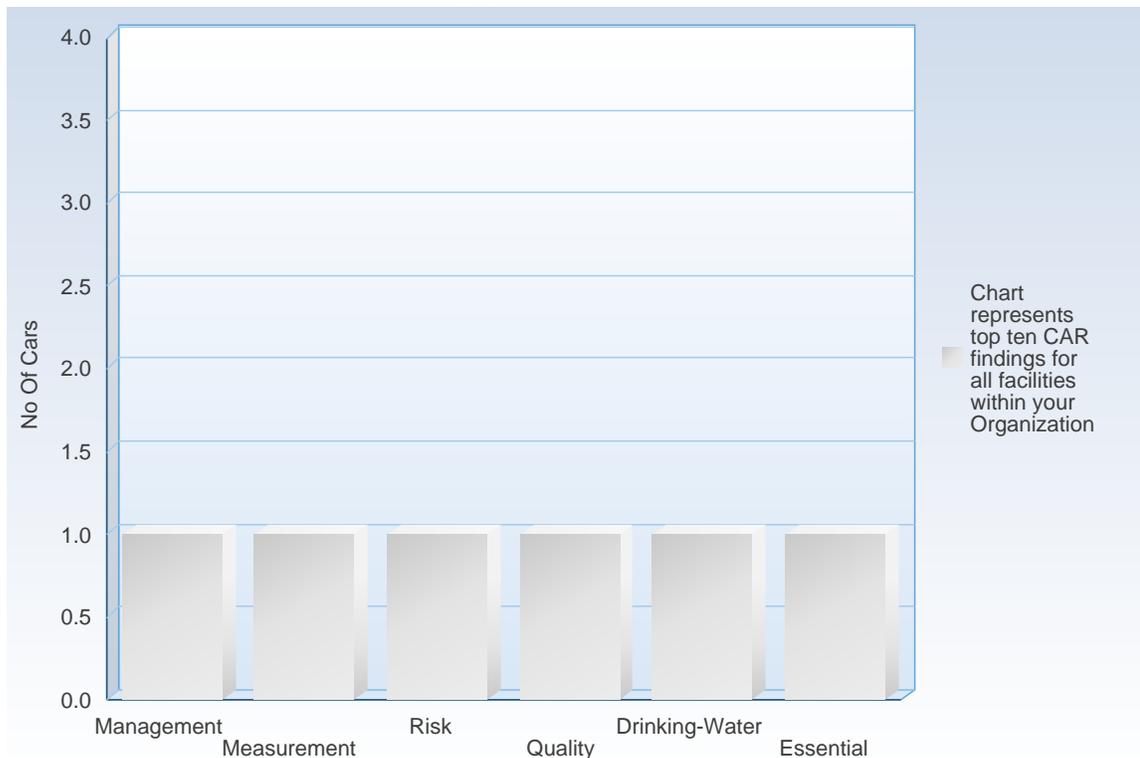


Chart represents top ten CAR findings for all facilities within your Organization

Municipality of Lakeshore

Standard Clause Description
Management Review Measurement & Recording Equipment, Calibration & Maintenance Risk Assessment Quality Management System Drinking-Water System Essential Supplies & Services



Opportunities	
Ontario's Drinking Water Quality Management Standard Version 2	See below

Corrective Action Request Summary By Type	
Car Type	Car Count
MINOR	3

Corrective Action Request Summary By Standard Clause	
Standard Clause	Car Count
Drinking-Water System	1
Essential Supplies & Services	1
Measurement & Recording Equipment, Calibration & Maintenance	1

Corrective Action Requests

CAR No	T00014733565-1	Type	MINOR
Standard & Clause	DWQMSV2, Drinking-Water System	Discussed with	Jason / Garry
Auditor Name	Rose Johnson		
Statement of Requirement	<p>PLAN – The Operational Plan shall document, as applicable:</p> <p>a) for the Subject System:</p> <ul style="list-style-type: none"> i. the name of the Owner and Operating Authority, ii. if the system includes equipment that provides Primary Disinfection and/or Secondary Disinfection: <ul style="list-style-type: none"> A. a description of the system including all applicable Treatment System processes and Distribution System components, B. a Treatment System process flow chart, C. a description of the water source, including: <ul style="list-style-type: none"> I. general characteristics of the raw water supply, II. common event-driven fluctuations, and III. any resulting operational challenges and threats. iii. if the system does not include equipment that provides Primary Disinfection or Secondary Disinfection: <ul style="list-style-type: none"> A. a description of the system including all Distribution System components, and B. a description of any procedures that are in place to maintain disinfection residuals. <p>b) if the Subject System is an Operational Subsystem, a summary description of the Municipal Residential Drinking Water System it is a part of including the name of the Operating Authority(ies) for the other Operational Subsystems.</p> <p>c) if the Subject System is connected to one or more other Drinking Water Systems owned by different Owners, a summary description of those systems which:</p> <ul style="list-style-type: none"> i. indicates whether the Subject System obtains water from or supplies water to those systems, ii. names the Owner and Operating Authority(ies) of those systems, and iii. identifies which, if any, of those systems that the Subject System obtains water from are relied upon to ensure the provision of safe drinking water. <p>DO – The Operating Authority shall ensure that the description of the Drinking Water System is kept current.</p>		
Statement of Nonconformity	Processes to ensure currency of the description of the Drinking Water System are not fully effective		
Objective Evidence	<p>Operational Plan - Section 6 Drinking Water System (Rev. August 24, 2024) does not clearly address:</p> <ul style="list-style-type: none"> - challenges / threats relating to wastewater discharge - names of Owners / Operating Authorities for connected systems - identification of connected systems which are relied upon to ensure the provision of safe drinking water 		
Location of Finding	Operational Plan, Rev. August 2024		

CAR No	T00014733565-2	Type	MINOR
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Standard & Clause	DWQMSV2, Essential Supplies & Services	Discussed with	Jason / Garry
Auditor Name	Rose Johnson		
Statement of Requirement	<p>PLAN – The Operational Plan shall:</p> <p>a) identify all supplies and services essential for the delivery of safe drinking water and shall state, for each supply or service, the means to ensure its procurement, and</p> <p>b) include a procedure by which the Operating Authority ensures the quality of essential supplies and services, in as much as they may affect drinking water quality.</p> <p>DO – The Operating Authority shall implement and conform to the procedure.</p> <p>Also 2024-06 "Quality Control of Chemical Shipments SOP", Rev. November 20, 2024</p> <p>"3.3 At the offloading area of the chemical being delivered, the operator onsite must obtain the certificate of analysis specs on the chemical. Review the specifications to ensure the proper chemical is being delivered...</p> <p>3.4 Once the certificate of analysis is confirmed, the operator will accept the delivery and let the delivery driver offload."</p>		
Statement of Nonconformity	Processes to ensure the quality of essential supplies are not fully effective		
Objective Evidence	<p>There is no evidence available to demonstrate that certificates of analysis are consistently obtained / reviewed / confirmed prior to offloading.</p> <p>E.g. Chemtrade delivery of Alum Sulfate - December 17, 2024</p>		
Location of Finding	Chemical delivery records - Stoney Point WTP		

CAR No	T00014733565-3	Type	MINOR
Standard & Clause	DWQMSV2, Measurement & Recording Equipment, Calibration & Maintenance	Discussed with	Jason / Garry
Auditor Name	Rose Johnson		
Statement of Requirement	<p>PLAN – The Operational Plan shall document a procedure for the calibration and maintenance of measurement and recording equipment.</p> <p>DO – The Operating Authority shall implement and conform to the procedure.</p>		
Statement of Nonconformity	Processes to ensure accuracy of measurement equipment are not fully effective		
Objective Evidence	<p>1. No evidence available to demonstrate that the required monthly verifications were performed for Distribution Colorimeters in January 2025</p> <p>2. Operational Plan OP-E17A-SP Calibration and Maintenance Index (Rev. September 4, 2024) is incomplete, e.g. no reference to Distribution Colorimeters; no reference to UV Reference sensor</p>		
Location of Finding	Instrument calibration / verification records		

Corrective Action Information and Instructions

See NSF-ISR Policies for Accredited Registration Services for corrective action information and instructions. (Available in the "Standards and Policies" section of [NSFOnline](#))

Also, submit all corrective actions through [NSFOnline](#). For instructions on how to use [NSFOnline](#), please click "Help" in the upper right-hand corner. If you require any assistance in accessing your [NSFOnline](#) account, please contact your Registration Specialist (Natasha Kwas email: Kwas@NSF-ISR.ORG).

Site Information

The audit was based on a sampling of the company's management system.

Industry Codes

NACE:E 41



Scope of Registration

Ontario's Drinking Water Quality Management Standard Version 2 : Municipality of Lakeshore Drinking Water System
– Lakeshore Water Treatment and Distribution System, 031-OA1, Entire Full Scope Accreditation



Opportunities for Improvements

Ontario's Drinking Water Quality Management Standard Version 2

Opportunity	Observations / Auditor Notes
Opportunities for Improvements (DWQMS)-01	<p>Location of OFI New hire onboarding;</p> <p>Discussed With Jason / Garry;</p> <p>Description Although generally found to be in conformance with the Standard, an opportunity exists to formalize the new hire onboarding process for DWQMS, e.g. review of Policy, CCPs, etc.;</p>
Opportunities for Improvements (DWQMS)-02	<p>Location of OFI Essential Supplies and Services List;</p> <p>Discussed With Jason / Garry;</p> <p>Description Although generally found to be in conformance with the Standard, an opportunity exists to clarify calibration services performed by Hach.;</p>
Opportunities for Improvements (DWQMS)-03	<p>Location of OFI Calibration process;</p> <p>Discussed With Jason / Garry;</p> <p>Description Although generally found to be in conformance with the Standard, consideration could be given to reducing re-calibration intervals when 'as-found' condition is 'out of tolerance', e.g. UV reference sensor</p> <p>(Repeated from 2022 verification audit);</p>

General Information

Operating Authority: Legal Name & Address	The Corporation of the Municipality of Lakeshore 419 Notre Dame Street Belle River, ON N0R 1A0
Owner: Legal Name and Address	The Corporation of the Municipality of Lakeshore 419 Notre Dame Street Belle River, ON N0R 1A0
Operating Authority Representative Information (Name, Title, Phone, Email & Address, if different from the OA Address)	Jason Barlow - Division Leader - Water Management / QMS Representative Tel: 519-728-1975 X618 jbarlow@lakeshore.ca
Accreditation Option	Full Scope - Entire DWQMS
List Drinking water system names and Population of the Subject System(s)	Municipality of Lakeshore Drinking Water System - Belle River - 30075 Municipality of Lakeshore Drinking Water System - Stoney Point - 6728



	<p>Municipality of Lakeshore Drinking Water System - Union DS - population 4066</p> <p>Municipality of Lakeshore Drinking Water System - Tecumseh DS - population 129</p>
<p>Activities:</p>	<p>Municipality of Lakeshore Drinking Water System - Belle River - Treatment & Distribution</p> <p>Municipality of Lakeshore Drinking Water System - Stoney Point - Treatment & Distribution</p> <p>Municipality of Lakeshore Drinking Water System - Union DS - Distribution only</p> <p>Municipality of Lakeshore Drinking Water System - Tecumseh DS - Distribution only</p>

Processes



Summary of Findings	
Requirement	Finding
1. Quality Management System	C
2. Quality Management System Policy	C
3. Commitment and Endorsement	C
4. Quality Management System Representative	C
5. Document and Record Control	C
6. Drinking-Water System	Mn
7. Risk Assessment	C
8. Risk Assessment Outcomes	C
9. Organizational Structure, Roles, Responsibilities, and Authorities	C
10. Competencies	OFI
11. Personnel Coverage	C
12. Communications	C
13. Essential Supplies and Services	Mn
14. Review and Provision of Infrastructure	C
15. Infrastructure Maintenance, Rehabilitation & Renewal	C
16. Sampling, Testing & Monitoring	C
17. Measurement & Recording Equipment, Calibration & Maintenance	Mn
18. Emergency Management	C
19. Internal Audits	C
20. Management Review	C
21. Continual Improvement	C
Mj	Major Non-Conformity. The auditor has determined one of the following: (a) a required element of the DWQMS has not been incorporated into a QMS; (b) a systemic problem with a QMS is evidenced by two or more minor conformities; or (c) a minor non-conformity identified in a corrective action request has not been remedied.
Mn	Minor Non-Conformity. In the opinion of the auditor, part of a required element of the DWQMS has not been incorporated satisfactorily into a QMS.
OFI	Opportunity for Improvement. Conforms to requirement, but there is opportunity for improvement.
C	Conforms to requirement.
	Not Applicable to this audit
*	Additional Comment added by auditor in the body of the report.



Verification of CARs For Ontario's Drinking Water Quality Management Standard Version 2

Have you verified the effectiveness of all previous CARs? (List all new CAR's that you initiated in this report because you did not verify effective implementation of a previous CAR)

Yes.

Reviewed corrective action implementation relating to the three minor NCs from the previous audit:

Discuss your evaluation in detail.

T00012809243-1 – Risk Assessment

Confirmed that two risk assessments were performed in 2024:

RA review – May 2024 (missed in 2023)

Full 36-month RA – June 26, 2024

Next annual review scheduled for Q2 2025

Confirmed additional resources have been added, including new Division Leader - Water Management (QMS Representative). No further issues.

T00012809243-2 – Management Review

Confirmed that actions / timelines / responsibilities were properly documented for the May 29, 2024 MRM. Confirmed additional resources have been added, including new Division Leader - Water Management (QMS Representative). No further issues.

T00012809243-3 – Operational Plan (Schedule C)

Confirmed that Schedule C has been updated to properly identify subsystems. Also confirmed that Schedule C is referenced in current Operational Plan (Rev. August 22, 2024) – element 6, section 1.3 (References). No further issues.

Corrective Actions Report

**The Corporation of the Municipality of Lakeshore
419 Notre Dame Street
Belle River, Ontario N8L 0P8 CAN**

C0121465

Audit Type

Re-certification Audit
05-FEB-2025 - 06-FEB-2025

Standard

Ontario's Drinking Water Quality Management Standard
Version 2 (Exp Date: 03-MAY-2025)

Corrective Action

CAR No	T00014733565-1	Type	MINOR
Standard & Clause	DWQMSV2,	Discussed with	Jason / Garry
Auditor Name	Rose Johnson	Car Status	APPROVED
Statement of Requirement	<p>PLAN – The Operational Plan shall document, as applicable:</p> <p>a) for the Subject System:</p> <p>i. the name of the Owner and Operating Authority,</p> <p>ii. if the system includes equipment that provides Primary Disinfection and/or Secondary Disinfection:</p> <p>A. a description of the system including all applicable Treatment System processes and Distribution System components,</p> <p>B. a Treatment System process flow chart,</p> <p>C. a description of the water source, including:</p> <p>I. general characteristics of the raw water supply,</p> <p>II. common event-driven fluctuations, and</p> <p>III. any resulting operational challenges and threats.</p> <p>iii. if the system does not include equipment that provides Primary Disinfection or Secondary Disinfection:</p> <p>A. a description of the system including all Distribution System components, and</p> <p>B. a description of any procedures that are in place to maintain disinfection residuals.</p> <p>b) if the Subject System is an Operational Subsystem, a summary description of the Municipal Residential Drinking Water System it is a part of including the name of the Operating Authority(ies) for the other Operational Subsystems.</p> <p>c) if the Subject System is connected to one or more other Drinking Water Systems owned by different Owners, a summary description of those systems which:</p> <p>i. indicates whether the Subject System obtains water from or supplies water to those systems,</p> <p>ii. names the Owner and Operating Authority(ies) of those systems, and</p> <p>iii. identifies which, if any, of those systems that the Subject System obtains water from are relied upon to ensure the provision of safe drinking water.</p> <p>DO – The Operating Authority shall ensure that the description of the Drinking Water System is kept current.</p>		
Statement of Nonconformity	Processes to ensure currency of the description of the Drinking Water System are not fully effective		
Objective Evidence	<p>Operational Plan - Section 6 Drinking Water System (Rev. August 24, 2024) does not clearly address:</p> <ul style="list-style-type: none"> - challenges / threats relating to wastewater discharge - names of Owners / Operating Authorities for connected systems - identification of connected systems which are relied upon to ensure the provision of safe drinking water 		
Location of Finding	Operational Plan, Rev. August 2024		
Changed Date	07-MAR-2025		
Issue Date	07-FEB-2025		
Due Date	23-MAR-2025		
CA Plan	Updated the details for both the Union Water System (operating authority OCWA) and Tecumseh Water System (Operating Authority Tecumseh). Included the detail of the potential impact of the wastewater facility as a threat to the source.		
PA Plan			
Containment Plan	Any changes to the owner/Operating authority for the connected system will be updated as required. Any threat documented to our risk assessment will be documented under element 6 as a threat to source water.		
RCA Description	A gap between the available system information and its integration into the Operational Plan at the required level of detail. While the Drinking Water System description includes references ownership of connected systems, and reliance on interconnected infrastructure, these elements are not explicitly outlined or fully developed within the plan.		
Completed Date	07-MAR-2025		

Corrective Actions Report

Completed By	Jason Barlow
Reviewer Name	Rose Johnson
Reviewer comments	<p>2025-03-06: ADDITIONAL INFORMATION REQUESTED - Reviewed containment, root cause, and corrective action plan, as well as updated OP-06 Element 6, Rev. Feb. 6, 2025. Please clarify root cause - it appears to restate the finding. Please ensure corrective action plan addresses the true root cause. Thank you. RJ.</p> <p>2025-03-07: APPROVED - Reviewed updated response, including root cause, and corrective action plan. Accepted as submitted. Implementation effectiveness to be evaluated at the next audit. Thank you. RJ.</p>
Attachments	Descr: Lakeshore Element 6 DWQMS Operational Plan 2024-Updated (February 6th, 2025).pdf (Date: 13-FEB-2025)

CAR No	T00014733565-2	Type	MINOR
Standard & Clause	DWQMSV2,	Discussed with	Jason / Garry
Auditor Name	Rose Johnson	Car Status	APPROVED
Statement of Requirement	<p>PLAN – The Operational Plan shall:</p> <p>a) identify all supplies and services essential for the delivery of safe drinking water and shall state, for each supply or service, the means to ensure its procurement, and</p> <p>b) include a procedure by which the Operating Authority ensures the quality of essential supplies and services, in as much as they may affect drinking water quality.</p> <p>DO – The Operating Authority shall implement and conform to the procedure.</p> <p>Also 2024-06 "Quality Control of Chemical Shipments SOP", Rev. November 20, 2024</p> <p>"3.3 At the offloading area of the chemical being delivered, the operator onsite must obtain the certificate of analysis specs on the chemical. Review the specifications to ensure the proper chemical is being delivered...</p> <p>3.4 Once the certificate of analysis is confirmed, the operator will accept the delivery and let the delivery driver offload."</p>		
Statement of Nonconformity	Processes to ensure the quality of essential supplies are not fully effective		
Objective Evidence	<p>There is no evidence available to demonstrate that certificates of analysis are consistently obtained / reviewed / confirmed prior to offloading.</p> <p>E.g. Chemtrade delivery of Alum Sulfate - December 17, 2024</p>		
Location of Finding	Chemical delivery records - Stoney Point WTP		
Changed Date	06-MAR-2025		
Issue Date	07-FEB-2025		
Due Date	23-MAR-2025		
CA Plan	Updated the Standard operating procedure to include a table on knowledge of acceptable ranges of chemical properties. Created a digital form on eRis and a back up paper copy to be completed when chemicals are delivered to the treatment plants. Scheduled Transportation of dangerous goods training for operators. Also uploaded updated SOP to compliance science and emailed staff to make them aware of the updates and changes on receiving chemicals. Contacted chemical Suppliers to ensure the CoA were supplied prior to or on delivery.		
PA Plan			
Containment Plan	Water Treatment Schedule calendar will allow staff to follow up on deliveries to ensure forms and procedures are being followed.		
RCA Description	Lack of awareness on staff regarding the requirement for certificates of analysis on chemical delivery. Lack of oversight/follow up after deliveries were completed.		
Completed Date	13-FEB-2025		
Completed By	Jason Barlow		
Reviewer Name	Rose Johnson		
Reviewer comments	2025-03-06: APPROVED - Reviewed containment, root cause, and corrective action plan, as well as submitted attachments, including updated 2024-05 Receiving Services and Supplies SOP, Rev. Feb. 13, 2025. Accepted as submitted. Implementation effectiveness to be evaluated at the next audit. Thank you. RJ.		

Corrective Actions Report

Attachments	Descr: 2024-05 Receiving Services and Supplies SOP (1).pdf (Date: 13-FEB-2025) Descr: Receiving of Treatment Chemicals - 2025-02-13 10_41_34.pdf (Date: 13-FEB-2025) Descr: 2025-01 Receiving of Treatment Chemical.pdf (Date: 13-FEB-2025)
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CAR No	T00014733565-3	Type	MINOR
Standard & Clause	DWQMSV2,	Discussed with	Jason / Garry
Auditor Name	Rose Johnson	Car Status	APPROVED
Statement of Requirement	PLAN – The Operational Plan shall document a procedure for the calibration and maintenance of measurement and recording equipment. DO – The Operating Authority shall implement and conform to the procedure.		
Statement of Nonconformity	Processes to ensure accuracy of measurement equipment are not fully effective		
Objective Evidence	1. No evidence available to demonstrate that the required monthly verifications were performed for Distribution Colorimeters in January 2025 2. Operational Plan OP-E17A-SP Calibration and Maintenance Index (Rev. September 4, 2024) is incomplete, e.g. no reference to Distribution Colorimeters; no reference to UV Reference sensor		
Location of Finding	Instrument calibration / verification records		
Changed Date	06-MAR-2025		
Issue Date	07-FEB-2025		
Due Date	23-MAR-2025		
CA Plan	Created Calendar reminders for the Compliance Coordinator, Water treatment plants & Distribution to assure the calibrations are completed by the second Wednesday of each month. New forms available on eRis to verify Colorimeters. Updated OP-E17A to add portable Distribution analyzers and UV reference sensor Instrument.		
PA Plan			
Containment Plan	Calendar events will send email reminders to both water treatment plants, distribution lead hand and compliance coordinator to check that the verification have been performed by the second Wednesday of each month. Reports available on eRis to verify forms are being completed.		
RCA Description	There was no schedule or reminders on verifying distribution colorimeters or who was responsible for verifying.		
Completed Date	19-FEB-2025		
Completed By	Jason Barlow, David Lauzon		
Reviewer Name	Rose Johnson		
Reviewer comments	2025-03-06: APPROVED - Reviewed containment, root cause, and corrective action plan, as well as submitted attachments, including updated OP-E17A Element 17 Appendix, Rev. Feb. 14, 2025. Accepted as submitted. Implementation effectiveness to be evaluated at the next audit. Thank you. RJ.		
Attachments	Descr: Distribution Chlorine Analyzer Calibration - 2025-02-18 11_09_13.pdf (Date: 19-FEB-2025) Descr: Element 17 Appendix - Calibration and Maintenance Index.pdf (Date: 19-FEB-2025)		

MEETING MINUTES

Review Period: May 29, 2024 - June 10, 2025

Subject: DWQMS – Management Review Meeting

Date: Tuesday June 10, 2025

Location: Operations Centre Boardroom

Attendees

<u>Name</u>	<u>Position with Municipality of Lakeshore</u>
David Lauzon (DL)	Compliance Coordinator
Krystal Kalbol (KK)	Corporate Leader, Operations
Jason Barlow (JB)	Division Leader, Water Management
Darrin Johnston (DJ)	Working Foreman, Water Treatment
Garry McDonald (GM)	Working Foreman, Water Distribution
Amy Disher (AD)	Administrative Assistant, Water Management

Commence: 11:11am

Discussion

<u>Item #</u>	<u>Topic of Discussion</u>	<u>Action Item</u>
A	<p>Incidents of Non-Compliance with Applicable Regulations</p> <ul style="list-style-type: none"> • Fixed review period on agenda. Now state start to finish dates • Reviewed non compliances for each system • Two inspections have been completed since non compliances were noted and there have been no issues • Operational Manual updates are reviewed in monthly/quarterly staff meetings and are available on Compliance Science • Flow data was not previously stated in summary report for Tecumseh. This was added and revision was noted • A recommendation was given regarding pressure in 	



	<p>the Tecumseh system not being monitored. Have a plan in place to install sensor to monitor pressure. This is not a requirement just a recommendation. Other systems are monitored</p> <ul style="list-style-type: none"> • Noncompliance was identified in the Stoney Point and Belle River systems due to the failure to complete required post inspection Bacti sampling. We are now compliant with this requirement. 	
B	<p>Incidents of Adverse Drinking-Water Tests</p> <ul style="list-style-type: none"> • One last year. A contractor that was working for Enbridge illegally hooked up to one of our fire hydrants without permission. Enbridge was notified and the contractor is no longer permitted to work within Lakeshore for Enbridge. Sampling was completed to ensure no issues. Jason will follow up with formal email to Krystal and Marco • Experienced some abnormal observations due to algae on raw water 	<p>JB – send formal email to Marco V and KK regarding contractor illegally connecting to fire hydrant</p>
C	<p>Deviations From Critical Control Point Limits and Corresponding Actions Taken</p> <ul style="list-style-type: none"> • Critical control points that occurred during review period discussed including possible reasons and action taken 	
D	<p>The Effectiveness of The Risk Assessment Process</p> <ul style="list-style-type: none"> • Risk assess process • Review Element 7 every year element 7 • Review Element 7 & 8 during the 36 month review • DL to send KK risk assessment minutes from last review 	<p>DL - send KK risk assessment minutes from last review</p>
E	<p>Findings From Internal and External Audits and Review of CARs</p> <ul style="list-style-type: none"> • Several staff have had training on internal audits. Will consider completing inhouse instead of having consultant complete. Will compare internal vs external results. • 3 OFI's were noted in last audit. These were reviewed 	



	<p>and we are now in compliance</p> <ul style="list-style-type: none"> External audit was for accreditation for renewal. Reviewed OFI'S and CAR's. We are now in compliance 	
F	<p>Review of CARs</p> <ul style="list-style-type: none"> Reviewed OFI/CAR tracking sheet The OP is updated on a regular basis. The electronic copy is always the most up to date. DL to send CAO the link to the electronic copy so he has access to a controlled copy. Paper copies are not controlled copies All revisions are recorded 	
G	<p>Emergency Preparedness and Response Based on Emergency Tests</p> <ul style="list-style-type: none"> Mock emergency of a chlorine leak at the Stoney Point plant scheduled for June 26, 2025. All water staff will be present. KK to be included. 	DL – send invite to KK for mock emergency
H	<p>Operational Performance</p> <ul style="list-style-type: none"> Summary reports reviewed. Available on Municipality's website 	
I	<p>Discuss and address any issues as per the Director's directions received from the MECP, which includes minimum requirements for the preparation and content of operational plans prepared by owners of municipal residential drinking water systems under SDWA</p> <ul style="list-style-type: none"> No direction 	
J	<p>Trends In the Quality of Raw Water Supply and Drinking Water</p> <ul style="list-style-type: none"> Each system will be reviewed monthly. Previously monitored annually. Want to monitor more often Ellen in process of creating dashboard KK asked if there has been any discussion of a reduced water campaign. JB states that's hard because we want the revenue of water usage and we are not currently constrained on volume to use. Only 	



	<p>issue is on the wastewater side</p> <ul style="list-style-type: none"> • Results should go back to when plants started. Compare current results to past to ensure normal • Abnormalities noted or have backup documentation 	
K	<p>Previous Management Review Meeting Action Items</p> <ul style="list-style-type: none"> • Reviewed action log from previous management meeting • KK inquired about the communication process for any critical issues in relation to treatment like there is for distribution. Will develop a clear communication plan/process and communication chart • Carry over items not completed to new action log 	DL – create communication process & flow chart for plant emergencies
L	<p>Updates On Action Items Identified Between Management Review Meetings</p> <ul style="list-style-type: none"> • Refer to item K 	
M	<p>Changes To Services, Activities, Regulations etc. That Could Impact the Drinking-Water; QMS Review of Best Practice Recommendations</p> <ul style="list-style-type: none"> • Filling positions • Strong mayor power 	
N	<p>Review of BMP</p> <ul style="list-style-type: none"> • Work on implementing sensors for pressure monitoring 	
O	<p>Consumer Feedback</p> <ul style="list-style-type: none"> • Reviewed Appendix F – System Performance Issues 	



P	Resources Needed for Drinking-Water QMS Maintenance <ul style="list-style-type: none">• New Team Lead• Internal auditing course/training for more/all staff	
Q	Results Of the Infrastructure Review <ul style="list-style-type: none">• Reviewed minutes of September 24th review• Need water model related to Capital distribution system. Will do Denis St Pierre first	
R	Results Of the Operations Plan; Content and Updates <ul style="list-style-type: none">• DL is continually reviewing the OP and updating as required	
S	Comments And Suggestions Made by Personnel <ul style="list-style-type: none">• Reviewed one form handed in from staff	
	Additional Items <ul style="list-style-type: none">• Options for emergency sessions - something tied to flooding at plant(s). Will consider for next year• Train derailment to be considered also	

Adjourned: 12:44pm

The foregoing is considered to be a true and accurate record of all items discussed. If any discrepancies or inconsistencies are noted, please contact the writer immediately.



Appendix F – System Performance Measures

Water Treatment & Distribution (for all four systems)

Chemical Costs	Natural Gas Costs	Hydro Costs	Laboratory/Sampling
2025 - \$549,986	2025 - \$28,820	2025 - \$270,527	2025 - \$62,689
2024 - \$379,504	2024 - \$28,554	2024 - \$251,549	2024 - \$80,712
2023 - \$471,173	2023 - \$33,174	2023 - \$297,899	2023 - \$62,150
2022 - \$348,327	2022 - \$24,533	2022 - \$229,283	2022 - \$42,212
2021 - \$256,921	2021 - \$24,579	2021 - \$294,388	2021 - \$50,672

Complaints per 1000 people served (44,935 pop (2025 Drinking Water System Profile))

2025 – 2.32 Complaints/1,000 (104 total complaints)
 2024 – 1.48 Complaints/1,000 (61 total complaints)
 2023 – 2.24 Complaints/1,000 (92 total complaints)
 2022 – 2.73 Complaints/1,000 (112 total complaints)
 2021 – 1.51 Complaints/1,000 (62 total complaints)

Low water Pressure

2025 – 0.62 Complaints/1,000 (28 Total complaints)
 2024 – 0.53 Complaints/1,000 (22 total complaints)
 2023 – 0.68 Complaints/1,000 (28 total complaints)
 2022 – 0.58 Complaints/1,000 (24 total complaints)
 2021 – 0.24 Complaints/1,000 (10 total complaints)

Water Quality Issues (Taste/Odour, Colour)

2025 – 0.58 Complaints/1,000 (26 total complaints)
 2024 – 0.24 Complaints/1,000 (10 total complaints)
 2023 – 0.21 Complaints/1,000 (9 total complaints)
 2022 – 0.21 Complaints/1,000 (9 total complaints)
 2021 - 0.12 Complaints/1,000 (5 total complaints)

Water meter/Service leak

2025 – 1.05 Complaints/1,000 (47 total complaints)
 2024 – 0.61 Complaints/1,000 (25 total complaints)
 2023 – 1.17 Complaints/1000 (48 total complaint)
 2022 – 1.63 Complaints/1,000 (67 total complaints)
 2021 – 1.05 Complaints/1,000 (43 total complaints)

No Water Issues

2025 – 0.07 Complaints/1,000 (3 total complaints)
 2024 – 0.09 Complaints/1,000 (4 total complaints)
 2023 – 0.17 Complaints/1,000 (7 total complaints)
 2022 – 0.29 Complaints/1,000 (12 total complaints)
 2021 – 0.09 Complaints/1,000 (4 total complaints)

Service repairs per 100km of distribution pipe/year

2025 – 44 repairs/641.7km (6.9/100km)
2024 – 12 repairs/641.7km (1.9/100km)
2023 – 6 repairs/641.7km (0.9/100km)
2022 – 23 repairs/641.7km (3.6/100km)
2021 – 19 repairs/641.7km (3.0/100km)

Water Main Breaks per 100km of distribution pipe/year

2025 – 34 repairs/641.7km (5.3/100km)
2024 – 12 repairs/641.7km (1.9/100km)
2023 – 10 repairs/641.7km (1.6/100km)
2022 – 17 repairs/641.7km (2.6/100km)
2021 – 11 repairs/641.7km (1.7/100km)