

Ministry of the Environment,
Conservation and Parks

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

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File: SI-ES-LE-540
Leamington (Wheatley) DS

July 11, 2018

Municipality of Leamington
111 Erie St. North
Leamington, ON N8H 2Z9

Attention: Mr. Peter Neufeld
Chief Administrative Officer
pneufeld@leamington.ca

Dear Mr. Neufeld:

Re: May 30, 2018 Inspection – Leamington (Wheatley) Distribution System

Enclosed is a copy of the inspection report prepared for the Leamington (Wheatley) Distribution System, under the Ministry's focused inspection protocol to assess compliance with *Safe Drinking Water Act* legislation. The report is based on conditions encountered at the time of inspection, and subsequent follow-up.

No Required Actions or Best Practice Recommendations are documented in the report.

Please note that as of June 29, 2018 the Ministry of the Environment and Climate Change's name has changed to the Ministry of the Environment, Conservation and Parks. This name change will take some time to be reflected in ministry materials and systems.

Section 19 of the Safe Drinking Water Act (Standard of Care) creates a number of obligations for individuals who exercise decision-making authority over municipal drinking water systems. Please be aware that the Ministry has encouraged such individuals, particularly municipal councillors, to take steps to be better informed about the drinking water systems over which they have decision-making authority. These steps could include asking for a copy of this inspection report and a review of its findings. Further information about Section 19 can be found in "*Taking Care of Your Drinking Water: A guide for members of municipal council*" found under "Resources" on the Drinking Water Ontario website at www.ontario.ca/drinkingwater.

In order to measure individual inspection results, the Ministry has established an inspection compliance risk framework based on the principles of the Inspection, Investigation & Enforcement (II&E) Secretariat and advice of internal/external risk experts. The Inspection Summary Rating Record (IRR), included as Appendix D of the inspection report, provides the Ministry, the system owner and the local Public Health Unit with a summarized quantitative measure of the drinking water system's annual inspection and regulated water quality testing performance. IRR ratings are published (for the previous inspection year) in the Ministry's Chief Drinking Water Inspectors' Annual Report.

Should you note any errors or omissions or have any concerns, please contact me at (519) 383-3785, or Marc Bechard at (519) 383-3778.

Yours truly,

Al Petersen
Provincial Officer
Water Compliance, Sarnia District Office
al.petersen@ontario.ca

ec: Dr. Wajid Ahmed, Acting Medical Officer of Health, Windsor-Essex County HU, wahmed@wechu.org
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Shannon Belleau, Manager of Environmental Services, Mun. of Leamington, sbelleau@leamington.ca
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Lilly Snobelen, Manager Compliance and Quality Standards, C-K PUC, lillys@chatham-kent.ca
Katie Stammler, Source Water Protection Manager, Essex Region CA, kstammler@erca.org
Marc Bechard, Drinking Water Supervisor, MECP Sarnia District, marc.bechard@ontario.ca
File: SI-ES-LE 540 Leamington (Wheatley) Distribution System, Mun. of Leamington (2018/19)



Ministry of the Environment and Climate Change

**LEAMINGTON DISTRIBUTION SYSTEM - WHEATLEY DS
Inspection Report**

Site Number:	260087048
Inspection Number:	1-ICS9L
Date of Inspection:	May 30, 2018
Inspected By:	Al Petersen

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OWNER INFORMATION:

Company Name:	LEAMINGTON, THE MUNICIPALITY OF THE TOWNSHIP OF		
Street Number:	111	Unit Identifier:	
Street Name:	ERIE St N		
City:	LEAMINGTON		
Province:	ON	Postal Code:	N8H 2Z9

CONTACT INFORMATION

Type:	Operating Authority	Name:	Nelson Carvalho
Phone:	(519) 326-4454	Fax:	(519) 326-5987
Email:	ncarvalho@leamington.ca		
Title:	Supervisor, Leamington Water Services, Municipality of Leamington		

Type:	Owner	Name:	Shannon Belleau
Phone:	(519) 326-5761 x1650	Fax:	(519) 326-2481
Email:	sbelleau@leamington.ca		
Title:	Manager of Environmental Services, Leamington		

Type:	Other - specify	Name:	Lilly Snobelen
Phone:	(519) 350-0116	Fax:	
Email:	lillys@chatham-kent.ca		
Title:	Manager Compliance and Quality Standards, C-K PUC		

INSPECTION DETAILS:

Site Name:	LEAMINGTON DISTRIBUTION SYSTEM - WHEATLEY DS
Site Address:	LEAMINGTON, ONTARIO
County/District:	LEAMINGTON
MOECC District/Area Office:	Windsor Area Office
Health Unit:	WINDSOR-ESSEX COUNTY HEALTH UNIT
Conservation Authority:	Essex Region Conservation Authority
MNR Office:	
Category:	Large Municipal Residential
Site Number:	260087048
Inspection Type:	Unannounced
Inspection Number:	1-ICS9L
Date of Inspection:	May 30, 2018
Date of Previous Inspection:	May 16, 2017

COMPONENTS DESCRIPTION

Site (Name):	Leamington (Wheatley) Distribution System		
Type:	Other	Sub Type:	Other
Comments:	The Leamington (Wheatley) Distribution System forms part of a stand-alone water distribution system owned by the		

Municipality of Leamington. The other subsystem which forms part of it is the Leamington (Union) Distribution System. They are both connected to each other at several inter-connections valves which are closed at all times except in emergency situations. The scope of this inspection is limited to the Leamington (Wheatley) distribution system. This distribution system does not contain storage, pumping or re-chlorination facilities.

There are 181 residential and commercial service connections served by the Leamington (Wheatley) Distribution System. It therefore falls into the "large municipal residential" category under O. Regulation 170/03. Treated drinking water is supplied by the Wheatley Drinking Water System which is owned and operated by the Chatham-Kent Public Utilities Commission (C-K PUC), which takes its source of raw water from Lake Erie. Pressure in the distribution system is maintained by the Wheatley tower, which the Chatham-Kent PUC governs by controlling tower levels.

A water supply agreement, renewed on January 1, 2016, between the Chatham-Kent PUC and the Municipality of Leamington, authorizes the Chatham-Kent PUC to conduct testing and monitoring services of the Leamington (Wheatley) DS in accordance with the provisions of O. Reg. 170/03 s. 5 (4) on Leamington's behalf. Leamington's Water Services is responsible for all other aspects of the operation, including maintenance and repairs of the water distribution infrastructure.

INSPECTION SUMMARY:

Introduction

- The primary focus of this inspection is to confirm compliance with Ministry of the Environment and Climate Change (MOECC) legislation as well as evaluating conformance with ministry drinking water policies and guidelines during the inspection period.

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

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

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

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

Specifically, this review includes an assessment of compliance / conformance in relation to the following:

- Drinking Water Systems Regulation (O. Reg. 170/03);
- Drinking Water Operator and Water Quality Analyst Certification Regulation (O. Reg. 128/04) with respect to selected facility certification, operator licensing and operating standards;
- Drinking Water System Licence 033-101, Issue Number 4., issued November 2, 2016, related to selected Performance, Monitoring and Recording, Operations and Maintenance requirements;
- Drinking Water Works Permit 033-201, Issue Number 4, issued November 2, 2016, and
- Ontario Drinking Water Quality Standards based on water quality data generated since the previous inspection.

The inspection was conducted on an unannounced basis. Initial activity was conducted on May 30, 2018, with audit sampling at one location in the distribution system in conjunction with a similar unannounced inspection of the Chatham-Kent Wheatley Drinking Water System.

Follow-up components of the inspection were conducted June 13, 2018 and June 20, 2018, consisting of collection of sampling results and operational documents and staff interviews with the Chatham-Kent PUC and the Leamington Water Services group. The inspection covers the period from May 1, 2017 to May 31, 2018.

Treatment Process Monitoring

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

Logs show that distribution system free chlorine residuals were taken and measured in conjunction with sampling of

Treatment Process Monitoring

the Wheatley DWS distribution system under O. Reg. 170/03 s. 5(4); at least seven times per week as required, with the sets of measurements being made at least 48 hours apart. Samples taken within the Leamington (Wheatley) service area were typically taken each week within this program.

Distribution System

- **The receiving system was claiming exemptions to O. Reg. 170/03 available under subsection 5(4), and the agreement with the donor satisfied the requirements prescribed by subsection 5(4).**

The water supply receives water continuously from the Chatham-Kent Wheatley DWS. A review of the January 1, 2016 water supply agreement with the Chatham-Kent PUC appears to satisfy the requirements prescribed by O. Regulation 170/03 section 5(4).

Operations Manuals

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

For distribution system repairs and activities, Leamington Water Services operators have access to maps produced on the owner's GIS system; available via computer in the operator shop. All water service trucks are outfitted with a laptop to access this information in the field, plus are equipped with portable jump drives which contain CAD and hand-drawn files showing ground level detail with hydrants, valves and services. Three other service trucks, including the mobile locating unit, are also outfitted with VPN connection capabilities to view the latest network files. Jump drives are updated with the latest files on a monthly basis.

There is a comprehensive hardcopy set of individual maps organized by ward (both urban and rural) showing the ground level detail of distribution main location, valves, hydrants and water services. When these maps are created or modified, they are scanned and sent for updating in the GIS system master record.

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

Condition 16.2 of Leamington's Drinking Water System licence includes the following conditions regarding procedures to be maintained in the operations manual:

- 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 maintain secondary disinfection within the drinking water system;
- 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.

The available Operational Plant and standard operating procedures appear to satisfy these conditions.

Logbooks

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

Operator's conducting compliance and operational testing record their activities pertaining to the distribution system on laboratory chain of custody sheets and log sheets used to record operational readings.

Logbooks

The Leamington Water Services group maintains a Daily Operational Logbook for the two water service areas it oversees. Repair records, work orders and log sheets are used to document details of these activities.

- **Records or other record keeping mechanisms confirmed that operational testing not performed by continuous monitoring equipment was being done by a certified operator, water quality analyst, or person who suffices the requirements of O. Reg. 170/03 7-5.**

Free chlorine residual monitoring, conducted during regular compliance program sampling, was done by certified operators from the C-K PUC.

Chlorine residual sampling during maintenance flushing of hydrants and blowoffs is conducted by Leamington Water Services operators.

Certification and Training

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

The roles and responsibilities of overall responsible operator (ORO) are designated to the Supervisor of Leamington Services, and are spelled out in the section of the owner's operational plan entitled: "Organizational Structure, Roles, Responsibilities, and Authorities".

- **Operators in charge had been designated for all subsystems which comprised the drinking-water system.**

The ORO is also generally the Operator in charge (OIC) responsible for directing daily activities. Other licenced operators acting as operator in charge identify their designation in the daily pages of the log book detailing their duties for the day.

Water Quality Monitoring

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

Under an O. Regulation 170/03 section 5(4) agreement, the donor supply must ensure that the receiver's distribution system is sampled as though it were an extension of their own system.

Section 10-2 in O. Reg. 170/03 requires the donor system (C-K PUC) to take a minimum of one sample per week, and at least 18 samples per month from the larger distribution system. Any samples taken within the Leamington (Wheatley) distribution system are included towards this total. All samples must be analysed for E. coli and total coliforms. In addition, at least 25% of the distribution microbiological samples must be analysed for heterotrophic plate count (HPC).

Microbiological water quality monitoring data was reviewed for the period from May 1, 2017 to May 31, 2018. The C-K PUC's sampling program met minimum requirements. The Leamington (Wheatley) distribution system portion was sampled at three locations every week, resulting in a minimum of 12 samples per month. This sampling would have also satisfied O. Regulation 170/02 section 10-2 if it were sampled as an individual system. All of the samples taken were analysed for HPC.

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

Under an O. Regulation 170/03 section 5(4) agreement, the donor supply must ensure that the receiver's distribution system is sampled as though it were an extension of their own system.

Section 13-6.1 in O. Reg. 170/03 requires the donor to take a minimum of one sample per calendar quarter and analyse it for haloacetic acids.

Water Quality Monitoring

No samples were taken within the Leamington (Wheatley) distribution system, but the C-K PUC's sampling program met minimum requirements within the larger connected distribution system.

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

Under an O. Regulation 170/03 section 5(4) agreement, the donor supply must ensure that the receiver's distribution system is sampled as though it were an extension of their own system.

Section 13-6.1 in O. Reg. 170/03 requires the donor to take a minimum of one sample per calendar quarter and analyse it for trihalomethanes.

No samples were taken within the Leamington (Wheatley) distribution system, but the C-K PUC's sampled program met minimum requirements within the larger connected distribution system.

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

Water Quality Assessment

- **Records showed that all water sample results taken during the inspection review period did not exceed the values of tables 1, 2 and 3 of the Ontario Drinking Water Quality Standards (O.Reg. 169/03), with the following exception:**

Available microbiological data from Leamington (Wheatley) distribution system sampling during the review period show that microbiological quality consistently met the requirements of the Ontario Drinking Water Quality Standards. One of the 170 routine distribution samples (0.6%) obtained showed an adverse bacteriological total coliform count. The October 3, 2017 result was measured despite an adequate free chlorine residual. Other distribution samples taken that day yielded clear results. Re-sampling yielded no subsequent adverse results.

The following water quality is also noted from the owner's results for treated water samples collected from May 1, 2017 to May 31, 2018:

(i) Trihalomethane samples from C-K PUC sampling in the larger connected distribution system yielded an average concentration of 0.0392 mg/L for the last four quarters of sampling, below the drinking water standard of 0.100 mg/L (moving annual average). The Technical Support Document for Ontario Drinking Water Quality Standards, Objectives and Guidelines indicates that trihalomethanes in drinking water are primarily produced by the reaction of chlorine and the naturally occurring organics (precursors) in the water.

An audit distribution sample was taken as part of the inspection and tested for free and total chlorine disinfectant residual levels. These operational sample readings are recorded in Appendix B.

Reporting & Corrective Actions

- **Corrective actions (as per Schedule 17) had been taken to address adverse conditions, including any other steps that were directed by the Medical Officer of Health.**

Corrective actions for the adverse distribution sample taken October 3, 2017, yielding a total coliform count of 13 cfu/100 mL, were completed. This consisted of flushing the sample location which gave rise to the adverse result, and re-sampling and checking the disinfectant residual at that location and two upstream sites. Re-samples taken yielded clear results.

- **All required notifications of adverse water quality incidents were immediately provided as per O. Reg. 170/03 16-6.**

Reporting & Corrective Actions

Required verbal notifications for the October 3, 2017 adverse total coliform result, discussed above, were completed by the C-K PUC upon the lab making them aware of the adverse result. Notifications included informing the Municipality of Leamington.

Other Inspection Findings

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

Records confirmed that the distribution system was operated, such that at all time and all locations where there is a daily flow, there was at least a free chlorine residual of 0.05 mg/L, as prescribed in Section 4 of the Procedure for Disinfection of Drinking Water in Ontario.

Secondary disinfection is supplied entirely by the Chatham-Kent Wheatley drinking water system. No re-chlorination takes place after entering the Leamington (Wheatley) distribution system. A review of available data from May 1, 2017 to May 31, 2018 revealed that:

1. Test results from the distribution system showed that none of the 170 grab samples taken during routine bacteriological sampling had free chlorine residuals less than 0.05 mg/L.
2. Additional available records of chlorine residual monitoring done during weekly checks of the distribution system showed that none of the approximately 52 extra grab samples taken in the Leamington (Wheatley) water service area portion of the system had free chlorine residuals less than 0.05 mg/L.
3. Additional available records of chlorine residual monitoring done during Leamington Water Services' checks of the distribution system at dead-end blowoff and hydrant locations in 2017 showed that none of the approximately 55 grab samples taken had free chlorine residuals less than 0.05 mg/L.

NON-COMPLIANCE WITH REGULATORY REQUIREMENTS AND ACTIONS REQUIRED

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

Not Applicable

SUMMARY OF RECOMMENDATIONS AND BEST PRACTICE ISSUES

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

Not Applicable

SIGNATURES

Inspected By:

Al Petersen

Signature: (Provincial Officer)

Reviewed & Approved By:

Marc Bechard

Signature: (Supervisor)

Review & Approval Date:

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



Stakeholder Appendix

Key Reference and Guidance Material for Municipal Residential Drinking Water Systems

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

To access these materials online click on their titles in the table below or use your web browser to search for their titles. Contact the Public Information Centre if you need assistance or have questions at 1-800-565-4923/416-325-4000 or picemail.moe@ontario.ca.

For more information on Ontario's drinking water visit www.ontario.ca/drinkingwater and email drinking.water@ontario.ca to subscribe to drinking water news.



PUBLICATION TITLE	PUBLICATION NUMBER
Taking Care of Your Drinking Water: A Guide for Members of Municipal Councils	7889e01
FORMS: Drinking Water System Profile Information, Laboratory Services Notification, Adverse Test Result Notification Form	7419e, 5387e, 4444e
Procedure for Disinfection of Drinking Water in Ontario	4448e01
Strategies for Minimizing the Disinfection Products Trihalomethanes and Haloacetic Acids	7152e
Total Trihalomethane (TTHM) Reporting Requirements Technical Bulletin (February 2011)	8215e
Filtration Processes Technical Bulletin	7467
Ultraviolet Disinfection Technical Bulletin	7685
Guide for Applying for Drinking Water Works Permit Amendments, Licence Amendments, Licence Renewals and New System Applications	7014e01
Certification Guide for Operators and Water Quality Analysts	
Guide to Drinking Water Operator Training Requirements	9802e
Taking Samples for the Community Lead Testing Program	6560e01
Community Sampling and Testing for Lead: Standard and Reduced Sampling and Eligibility for Exemption	7423e
Guide: Requesting Regulatory Relief from Lead Sampling Requirements	6610
Drinking Water System Contact List	7128e
Technical Support Document for Ontario Drinking Water Quality Standards	4449e01

ontario.ca/drinkingwater



Inspection Audit Sample Results

Ministry Audit Samples - Operational Results

Sample Type	Location	Date/Time	Bacti Sample	Field Reading		Owner's Sample / Analyser Reading	
				F / T Cl ₂	turb.	F / T Cl ₂	turb.
Distribution	Leamington (Wheatley) Distribution System Ministry of Natural Resources office 320 Milo Road	May 30, 2018 12:40 PM	N	1.21 free 1.43 total	-	-	-

Provincial Officer Report(s) and Order(s)

Not applicable



Inspection Rating Record

Ministry of the Environment - Inspection Summary Rating Record (Reporting Year - 2018-2019)

DWS Name: LEAMINGTON DISTRIBUTION SYSTEM - WHEATLEY DS
DWS Number: 260087048
DWS Owner: Leamington, The Corporation Of The Municipality Of
Municipal Location: Leamington

Regulation: O.REG 170/03
Category: Large Municipal Residential System
Type Of Inspection: Adhoc
Inspection Date: May 30, 2018
Ministry Office: Windsor Area Office

Maximum Question Rating: 177

Inspection Module	Non-Compliance Rating
Operations Manuals	0 / 28
Logbooks	0 / 18
Certification and Training	0 / 14
Water Quality Monitoring	0 / 51
Reporting & Corrective Actions	0 / 45
Treatment Process Monitoring	0 / 21
TOTAL	0 / 177

Inspection Risk Rating	0.00%
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FINAL INSPECTION RATING:	100.00%
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Ministry of the Environment - Detailed Inspection Rating Record (Reporting Year - 2018-2019)

DWS Name: LEAMINGTON DISTRIBUTION SYSTEM - WHEATLEY DS
DWS Number: 260087048
DWS Owner: Leamington, The Corporation Of The Municipality Of
Municipal Location: Leamington

Regulation: O.REG 170/03
Category: Large Municipal Residential System
Type Of Inspection: Adhoc
Inspection Date: May 30, 2018
Ministry Office: Windsor Area Office

Maximum Question Rating: 177

Inspection Risk Rating | 0.00%

FINAL INSPECTION RATING: | 100.00%