

**Ministry of Environment
and Climate Change**

Safe Drinking Water
Branch

Windsor Area Office
Unit 620 – 4510 Rhodes Dr
Windsor ON N8W 5K5

**Ministère de l'Environnement et de
l'Action en matière de changement climatique**

Direction du contrôle de la qualité de
l'eau potable

Bureau du Secteur de Windsor
No 620 – 4510 Ch Rhodes
Windsor ON N8W 5K5



February 7, 2018

Town of Tecumseh
917 Lesperance Road
Tecumseh, Ontario
N8N 1W9

Attention: Brad Dupuis, D.W.Q.M.S. Representative

Re: Town of Tecumseh Distribution System Inspection Report

Please find enclosed the Drinking Water System Inspection Report for the inspection that was conducted at the Tecumseh Distribution System (DWS#260004969) on January 12, 2018.

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 B of the inspection report, provides the Ministry, the system owner and the local Public Health Units 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.

If you have any questions or concerns regarding the rating, please contact Marc Bechard, Drinking Water Program Supervisor, at 519-383-3778. If you have any questions or concerns regarding this report, please call me at (519) 948-5079.

Yours truly,



Cara Salustro
Provincial Officer
Water Inspector
Safe Drinking Water Branch, Windsor Area Office
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Enclosure

Ec:

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File: SI-ES-TE 540



Ministry of the Environment and Climate Change

TECUMSEH DISTRIBUTION SYSTEM

Inspection Report

Site Number:	260004969
Inspection Number:	1-F93JG
Date of Inspection:	Jan 12, 2018
Inspected By:	Cara Salustro

TABLE OF CONTENTS

	<u>Page</u>
Owner Information	
Contact Information.....	2
Inspection Details	
Drinking Water System Components Description.....	2
Inspection Summary	
Introduction.....	4
Treatment Processes.....	4
Treatment Process Monitoring.....	5
Distribution System.....	6
Operations Manuals.....	8
Logbooks.....	9
Contingency/Emergency Planning.....	10
Security.....	10
Certification and Training.....	9
Water Quality Monitoring.....	11
Water Quality Assessment.....	13
Reporting & Corrective Actions.....	13
Non-Compliance with Regulatory Requirements and Actions Required.....	14
Summary of Recommendations and Best Practice Issues.....	15
Signatures.....	16
Appendices	
Appendix A – Inspection Rating Record	
Appendix B – Key Reference and Guidance Material for Municipal Residential Drinking Water Systems	

OWNER INFORMATION:

Company Name:	TECUMSEH, THE CORPORATION OF THE TOWN OF		
Street Number:	917	Unit Identifier:	
Street Name:	LESPERANCE Rd		
City:	TECUMSEH		
Province:	ON	Postal Code:	N8N 1W9

CONTACT INFORMATION

Type:	Operator	Name:	Denis Berthiaume
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Title:	Manager Water & Wastewater		

Type:	Operator	Name:	Brad Dupuis
Phone:	(519) 735-2184 x145	Fax:	(519) 735-1895
Email:	bdupuis@tecumseh.ca		
Title:	D.W.Q.M.S. Representative		

INSPECTION DETAILS:

Site Name:	TECUMSEH DISTRIBUTION SYSTEM
Site Address:	1189 Lacasse Blvd. TECUMSEH ON N8N 2C7
County/District:	Tecumseh
MOECC District/Area Office:	Windsor Area Office
Health Unit:	WINDSOR-ESSEX COUNTY HEALTH UNIT
Conservation Authority:	Essex Region Conservation Authority
MNR Office:	Chatham Regional Office
Category:	Large Municipal Residential
Site Number:	260004969
Inspection Type:	Unannounced
Inspection Number:	1-F93JG
Date of Inspection:	Jan 12, 2018
Date of Previous Inspection:	

COMPONENTS DESCRIPTION

Site (Name): Distribution System
Type:
Comments:

Sub Type:

The Tecumseh Distribution System is a standalone distribution system which supplies water to the area of the Town of Tecumseh in two discrete service zones. The zone north of Highway 401 is bounded by the Tecumseh municipal boundaries, south to Baseline Road. The zone south of Highway 401 is bounded by the Tecumseh municipal boundaries generally south of Essex County Road 46. Source water is from the City of Windsor water supply via the Windsor municipal distribution system. The City of Windsor water supply draws its source water from the Detroit River in the vicinity of Belle Isle. According to the drinking water system profile, a population of approximately 24,000

residents is served by the Tecumseh Distribution System. It therefore falls into the "large municipal residential" category under O. Regulation 170/03.

Water mains take treated water from the City of Windsor to the service area through 10 of 12 currently used boundary metered connections points with Tecumseh. The elevated storage tank in the community of Tecumseh maintains distribution system pressure. Secondary disinfection is provided by the A.H. Weeks water treatment plant.

The Tecumseh Distribution System 2015 annual report, prepared by the Town of Tecumseh, states that:

- Town of Tecumseh, City of Windsor and Windsor Utilities Commission (WUC) entered into a 50-year service agreement in November 2004 (By-law 2004-71). The service agreement was implemented on March 31, 2006.
- Prior to August 1, 2008, WUC provided water to 2400 residents in the former Township of Sandwich South, south of Highway 401 ("South Water Area"). The Town of Tecumseh assumed the responsibility for the operations and maintenance of the water distribution system from WUC in this South Water Area effective August 1, 2008.

Site (Name): MOE DWS Mapping
Type: DWS Mapping Point

Sub Type:

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 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 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);
- Safe Drinking Water Act;
- The Procedure for Disinfection of Drinking Water in Ontario;
- Ontario Drinking Water Quality Standards based on available water quality data for this inspection period;
- MUNICIPAL DRINKING WATER LICENCE No.040-101, Issue Number: 3, dated December 6, 2016, issued to the Corporation of the Town of Tecumseh (Licence);
- DRINKING WATER WORKS PERMIT No: 040-201, Issue Number: 3, dated December 6, 2016, issued to the Corporation of the Town of Tecumseh (Permit).

This detailed inspection was conducted on an unannounced basis on January 12, 2018. The inspection period covers January 2017 to December 2017. The site visit consisted of sampling of water from the Tecumseh Distribution System (DWS No. 260004969), a visit to the systems water storage tower, and an interview with The Town of Tecumseh/Public Works and Environmental Services (Owner/Operating Authority).

Treatment Processes

- **The owner had ensured that all equipment was installed in accordance with Schedule A and Schedule C of the Drinking Water Works Permit.**

There is no Schedule C in the Permit. Schedule A of the Permit contains the following physical components:

- 4,540 cubic meter water tower fed from the distribution system - 13000 Tecumseh
- Town of Tecumseh Water Infrastructure System

- **The owner/operating authority was in compliance with the requirement to prepare Form 1 documents as required by their Drinking Water Works Permit during the inspection period.**

Schedule B, Condition 3.0 of the Permit permits the drinking water system to be altered by adding, modifying, replacing or extending a watermain within the distribution system in accordance with and subject to the conditions detailed in the Condition and verifications recorded on Form 1.

Treatment Processes

There were two activities during this inspection period that required the completion of a Form 1.

- **The owner had evidence indicating that all chemicals and materials that come in contact with water within the drinking water system met the AWWA and ANSI standards in accordance with the Municipal Drinking Water Licence and Drinking Water Works Permit issued under Part V of the SDWA.**

Schedule B, Conditions 14.1 of the Licence includes a requirement that all chemicals and materials used in the alteration or operation of the drinking water system that come into contact with water within the system 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. Materials that are exempt from these requirements are detailed in Condition 14.3 of the Licence.

The Operating Authority stated that all chemicals and materials used meet standards, where applicable. The Operating Authority has prepared a document titled "Water Distribution System Standards & Material Specifications - dated December 3, 2013" that details water distribution system specifications including materials such as watermain pipe, fitting, and valves. The Operating Authority also has a SOP (SOP-019 Rev. B) in place that details procedures to ensure operators, contractors, and suppliers sign off verifying that materials used on a project meet specifications.

- **Up-to-date plans for the drinking-water system were kept in a place, or made available in such a manner, that they could be readily viewed by all persons responsible for all or part of the operation of the drinking water system in accordance with the Drinking Water Works Permit and Municipal Drinking Water Licence issued under Part V of the SDWA.**

Schedule B, Condition 4.8 of the Permit requires that the owner update drawings maintained for the drinking water system to reflect the modification or replacement of the works, where applicable.

Schedule B, Condition 5.0 of the Licence details requirements for drawings and diagrams (constructed, process, instrumentation) of the treatment subsystem.

Treatment Process Monitoring

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

Schedule 7-2(3) of Ontario Regulation 170/03(3) requires that the owner of a large municipal residential system that provides secondary disinfection and the operating authority for the system ensure that at least seven distribution samples are taken each week in accordance with subsection (4) and are tested immediately for, (a) free chlorine residual, if the system provides chlorination and does not provide chloramination; or (b) combined chlorine residual, if the system provides chloramination.

(4) The following rules apply to the distribution samples referred to in subsection (3) unless at least one sample is taken on each day of the week:

1. At least four of the samples must be taken on one day of the week, at least 48 hours after the last sample was taken in the previous week.
2. At least three of the samples must be taken on a second day of the week, at least 48 hours after the last sample was taken on the day referred to in paragraph 1.
3. When more than one sample is taken on the same day of the week under paragraph 1 or 2, each sample must be taken from a different location.

The Operating Authority monitors free chlorine residual in the distribution system greater than seven time per week. The Operating Authority measures and records free chlorine residuals at the same location as weekly microbiological samples at the beginning of a work week. The Operating Authority then measures weekly free chlorine residuals throughout the distribution system near the end of the same work week and records the results onto the "Water Analysis Report". Free chlorine residuals are measured at a minimum of 31 out of 50 locations in the distribution system on a weekly basis. The sampling schedule is rotated weekly to ensure all of the 50 locations

Treatment Process Monitoring

are captured each month.

- **Samples for chlorine residual analysis were tested using an acceptable portable device.**

The Operating Authority uses a hand held HACH kit for chlorine residual analysis in the distribution system. These devices are calibrated on an annual basis.

Distribution System

- **The owner had up-to-date documents describing the distribution components as required.**

Schedule B, Condition 3.5 of the Permit requires that the document or file referenced in Column 1 of Table 1 of Schedule A of the Permit that sets out watermains 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.

- **There is a backflow prevention program, policy and/or bylaw in place.**

The Town of Tecumseh has a Backflow Prevention By-law (No. 2001-68) in place that regulates the connections of water services supplied to the consumers of the municipal water system. The Chief Building Official/Building Inspector(s) administers the by-law. The building department addresses high hazard areas (industrial, commercial, institutional, agricultural) through the permitting process as well as inspections.

The Operating Authority has a Standard Operating Procedure (SOP-017 - Meter - Backflow Inspection) that provides details on the steps to take during an inspection of backflow preventors in municipal buildings/locations to evaluate if they are in good working condition to ensure there is no contamination of drinking water. The Operating Authority conducts annual inspection of back-flow preventors and completes any needed repairs as a result of these inspections.

- **The owner had a program or maintained a schedule for routine cleanout, inspection and maintenance of reservoirs and elevated storage tanks within the distribution system.**

Regular inspection and maintenance of the water tower is contracted to Landmark and scheduled for every 5 years. As a result of the last inspection the tower was painted two years ago. The Operating Authority reports that there are no outstanding recommendations to be completed from the last inspection.

- **Existing parts of the distribution system that are taken out of service for inspection, repair or other activities that may lead to contamination, and all new parts of the distribution system that come in contact with drinking water, were disinfected in accordance with Schedule B, Condition 2.3 of the Drinking Water Works Permit, or an equivalent procedure (i.e. the Watermain Disinfection Procedure).**

Schedule B, Condition(s) 2.3 of the Permit requires that all parts of the drinking water system in contact with drinking water which are:

2.3.1 Added, modified, replaced, extended; or

2.3.2 Taken out of service for inspection, repair or other activities that may lead to contamination, shall be disinfected before being put into service in accordance with a procedure approved by the Director or in accordance with the applicable provisions of the following documents:

- a) The ministry's Watermain Disinfection Procedure, effective June 5, 2017
- b) AWWA C652 – Standard for Disinfection of Water-Storage Facilities
- c) AWWA C653 – Standard for Disinfection of Water Treatment Plants; and
- d) AWWA C654 – Standard for Disinfection of Wells.

The Operating Authority has developed several Standard Operating Procedures (for example, SOP-009, SOP-010-Watermain Repair Category 1 & 2 and SOP-007 - Commissioning New Watermains) to ensure that all parts of the

Distribution System

drinking water system which come into contact with drinking water, or that are taken out of service for inspection, repair or any other activities which could lead to contamination are disinfected before they are put back in service. The Operating Authority indicated that these procedures are in accordance with AWWA Standards and the ministry's Watermain Disinfection Procedure.

It is recommended that SOP-009 and SOP-010 should include numerical values for the disinfectant concentrations and secondary disinfectant restoration concentrations as detailed in the ministry "Watermain Disinfection Procedure". Where applicable, SOPs should reference the ministry's "Watermains Disinfection Procedure" as well as AWWA standards.

It is recommended that the Owner/Operating Authority review the ministry's Watermain Disinfection Procedure as well as any applicable AWWA standards to ensure the requirements are being met. If there are any deficiencies in meeting these objectives it is recommended that the Owner update the SOPs where necessary.

- **The owner had implemented a program for the flushing of watermains as per industry standards.**

The Operating Authority has developed a Standard Operating Procedure (SOP-002 - Hydrant Inspection and Flushing) that provides details on what steps to take when inspecting and flushing fire hydrants throughout the distribution system to ensure they are fully operational at all times. A hydrant flushing/leak detection program log sheet is used to record inspection/flushing activities.

With a view of continuous improvement, the Owner/Operating Authority should review Section 4.1.8 (see below) of the AWWA Management Standard "Distribution Systems Operation and Management" (ANSI/AWWA G200-15) to ensure the minimum requirements for a system flushing program are being met.

"The utility shall develop and implement a systematic flushing program that meets the needs of the utility, taking into consideration the condition of the system, hydraulic capability, treatment, water quality, and other site-specific criteria. At a minimum, the flushing program shall incorporate the following items:

1. The program addresses a preventative approach to the entire distribution system flushing at a frequency appropriate for the utility, including occasional spot flushing to address localized problems or customer concerns and routine flushing to avoid water quality concerns.
2. The utility shall perform system flushing at a velocity appropriate to address water quality concerns.
3. The utility has written procedures addressing all activities associated with system flushing - water quality and hydraulic monitoring, and frequency, location and duration of flushing as well as adherence to all regulatory requirements."

- **Records confirmed that disinfectant residuals were routinely checked at the extremities and "dead ends" of the distribution system.**

- **A program was in place for inspecting and exercising valves.**

The Operating Authority has developed a Standard Operating Procedure (SOP-004 - Valve Exercising Maintenance Program) that provides details on the steps to take when exercising hydrant and watermain distribution valve(s).

With a view of continuous improvement, the Owner/Operating Authority should review Section 4.2.5 (see below) of the AWWA Management Standard "Distribution Systems Operation and Management" (ANSI/AWWA G200-15) to ensure the minimum requirements for a valve exercising and replacement program are being met.

"The utility shall have a valve-exercising program. This program shall follow AWWA Manual M44 and the manufacturer's recommended procedures and include at least the following elements:

1. A goal for the number of transmission valves to be exercised annually based on the percentage of the total valves in the system.

Distribution System

2. A goal for the number of distribution valves to be exercised annually.
3. Measures to verify that the goals are met and written procedures for action if the goals are not attained.
4. Critical valves in the distribution system shall be identified for exercising on a regular basis. Potential water quality and isolation concerns shall be recognized. The program shall track the annual results and set goals to reduce the percent of inoperable valves.
5. The valve-exercising program may be implemented in conjunction with the systematic flushing program (4.1.8).
6. A goal of replacing the inoperable valves identified during the operation and maintenance process shall be established as part of the exercising program."

- **There was a program in place for inspecting and operating hydrants.**

The Operating Authority has developed a Standard Operating Procedure (SOP-002 - Hydrant Inspection and Flushing) that provides details on what steps to take when inspecting and flushing fire hydrants throughout the distribution system to ensure they are fully operational at all times.

With a view of continuous improvement, the Owner/Operating Authority should review Section 4.2.6 (see below) of the AWWA Management Standard "Distribution Systems Operation and Management" (ANSI/AWWA G200-15) to ensure the minimum requirements for a fire hydrant maintenance and testing are being met.

"The utility shall have a hydrant maintenance and fire-flow testing program. Testing and maintenance shall comply with the requirement of AWWA Manual M14. This program shall include as a minimum the following elements:

1. A goal for the number of hydrants to be inspected and tested based on a percentage of the total hydrants in the system.
2. Procedures for operating and closing hydrants to minimize potential damage to the distribution system.
3. Fire-flow testing requirements.
4. The hydrant and maintenance program may be implemented in conjunction with the systematic flushing program (4.1.8).
5. A goal of replacing inoperable fire hydrants identified during the operation and maintenance effort shall be established as part of the process."

- **There was a by-law or policy in place limiting access to hydrants.**

The Town of Tecumseh Water-Use By-law (No. 2003-99), Parts 7.3 and 11 contain conditions with respect to the use and restriction of hydrants.

- **The owner was able to maintain proper pressures in the distribution system and pressure was monitored to alert the operator of conditions which may lead to loss of pressure below the value under which the system is designed to operate.**

- **The donor had provided an Annual Report to the receiver drinking water system.**

Operations Manuals

- **Operators and maintenance personnel had ready access to operations and maintenance manuals.**

Section 28 of Ontario Regulation 128/04 requires that the owner or operating authority of a subsystem ensure that operators and maintenance personnel in the subsystem have ready access to the comprehensive operations and maintenance manuals that contain plans, drawings and process descriptions sufficient for the safe and efficient operation of the subsystem.

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

Operations Manuals

- **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.**

Schedule B, Condition 16 of the Licence requires that an up-to-date operations and maintenance manual or manuals be maintained and applicable parts of the manual or manuals shall be made available for reference by 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 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 Owner/Operating Authority has several Standard Operating Procedures such as: water sampling, fire hydrant installation, valve exercising and maintenance, lead testing, water distribution flow testing, commissioning new water mains, watermain repairs, low chlorine residual, and adverse water quality. The Owner/Operating Authority also has a document titled "Drinking Water Quality Management System Water Services Operational Plan - Version 7" that includes information on sampling, testing and monitoring, equipment calibration and maintenance, emergency management, and infrastructure maintenance rehabilitation and renewal.

Logbooks

- **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.**

Schedule 7-5(1) of Ontario Regulation 170/03 requires that the owner of a drinking water system and the operating authority for the system ensure that every test required by this Schedule is conducted by a certified operator or a water quality analyst.

- **For every required operational test and every required sample, a record was made of the date, time, location, name of the person conducting the test and result of the test.**

Schedule 6-10(1) of Ontario Regulation 170/03 requires that the owner of a drinking water system and the operating authority for the system ensure that, for every sample required by this Regulation or by an approval, municipal drinking water licence or order, including an OWRA order, a record is made of the following information:

1. The date and time the sample was taken, the location where the sample was taken and the name of the person who took the sample.

2. If the sample is taken under section 7 of this Regulation or Schedule 7, 8 or 9, the date and time the sample was tested, the name of the person who conducted the test, and the results of the test.

3. If the sample is taken from a drinking water system's distribution system under section 15.1-4 or 15.1-5 of Schedule 15.1, the addresses of all premises served by the plumbing from which samples were taken on the same day in accordance with subsection 15.1-6 (3).

4. If the sample is taken under section 15.1-7 of Schedule 15.1 and tested for pH,

i. the date and time of the test,

ii. the name of the person who conducted it, and

iii. the results of the test.

Logbooks

(2) Subsection (1) does not apply to a sample tested by continuous monitoring equipment or microbiological in-line testing equipment.

The Operating Authority records the name of the person sampling, date, time and chlorine residual on the chain of custody forms completed for chemical and biological testing. However, weekly chlorine residuals taken in the distribution system and recorded on "Water Analysis Reports" (No.1, 2, 3 and 4) do not include the time of sampling. The Operating Authority is reminded of these requirements and must record all the required information (including time of sampling).

- **The operator-in-charge ensured that records were maintained of all adjustments made to the processes within his or her responsibility.**

Subsection 26(2)(c) of Ontario Regulation 128/04 requires that an operator-in-charge ensure that records are maintained of all adjustments made to the processes within his or her responsibility.

- **Logs or other record keeping mechanisms were available for at least five (5) years.**

Subsection 27(6) of Ontario Regulation 128/04 requires that the owner or operating authority ensure that logs and other record-keeping mechanisms are accessible at the subsystem,

(a) for at least five years after the last entry in it was made, in the case of a log or record-keeping mechanism that is kept in a book or document form or kept on a similarly fixed basis; or (b) for at least five years after each entry in it was made, in the case of a log or record-keeping mechanism that is kept on a loose-leaf or electronic basis or kept on a similarly continuous basis.

Contingency/Emergency Planning

- **Spill containment was provided for process chemicals and/or standby power generator fuel.**
- **Clean-up equipment and materials were in place for the clean up of spills.**
- **Standby power generators were tested under normal load conditions.**

Security

- **All storage facilities were completely covered and secure.**
- **Air vents and overflows associated with reservoirs and elevated storage structures were equipped with screens.**
- **The owner had provided security measures to protect components of the drinking water system.**

The water tower is fenced, locked, alarmed and monitored.

The Ten States Standards (2012 Edition) provides recommendations on the construction of water storage facilities. For example, these standards recommend that overflows and vents for elevated storage tanks be screened with a no. 4 mesh (5.16 mm) non-corrodible screen. The screen should be installed within the overflow pipe at a location least susceptible to damage by vandalism. The Owner/Operating Authority indicated that they will review these recommendations with the contractor that completes regular inspection and maintenance activities on the storage tank. Please see these standards for further recommendations.

Consumer Relations

Consumer Relations

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

The Owner/Operating Authority has taken various water conservation efforts including, public education/water conservation promotion, water line replacement, and fully metering customers.

Certification and Training

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

Subsection 23(1) of Ontario Regulation 128/04 requires that the owner or operating authority of a municipal residential subsystem designate as overall responsible operator of the subsystem an operator who holds a certificate for that type of subsystem and that is of the same class as or higher than the class of that subsystem. (For example, the overall responsible operator of a Class III water treatment subsystem must be an operator who holds a Class III or Class IV water treatment subsystem operator's certificate.)

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

Subsection 25(1) of Ontario Regulation 128/04 states that the owner or operating authority of a subsystem or a person authorized by the owner or operating authority shall designate one or more operators as operators-in-charge of the subsystem.

- **All activities that were undertaken by uncertified persons in the DW subsystems were overseen by persons having the prescribed qualifications.**

- **All operators possessed the required certification.**

Section 22 of Ontario Regulation 128/03 requires that the owner or operating authority of a subsystem ensure that every operator employed in the subsystem holds,
(a) a certificate applicable to that type of subsystem; or
(b) a certificate applicable to that subsystem, in the case of an operator who holds a conditional certificate issued or renewed under section 10.

All operators identified by the Operating Authority to operate the works hold operator licences. The ORO holds a licence applicable to the Tecumseh Distribution System (Class II).

- **Only certified operators made adjustments to the treatment equipment.**

Schedule 1-2(2)(5) of Ontario Regulation 170/03 requires that the owner of a drinking water system and the operating authority for the system ensure adjustments to the water treatment equipment are carried out only by certified operators.

Water Quality Monitoring

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

Schedule 10-2(1) of Ontario Regulation 170/03 requires that the owner of a drinking water system and the operating authority for the system ensure that,
(a) if the system serves 100,000 people or less, at least eight distribution samples, plus one additional distribution sample for every 1,000 people served by the system, are taken every month, with at least one of the samples being taken in each week; and
(2) The owner of the drinking water system and the operating authority for the system shall ensure that each of the samples taken under subsection (1) is tested for,
(a) Escherichia coli; and
(b) total coliforms.

Water Quality Monitoring

(3) The owner of the drinking water system and the operating authority for the system shall ensure that at least 25 per cent of the samples required to be taken under subsection (1) are tested for general bacteria population expressed as colony counts on a heterotrophic plate count.

During this inspection period the Operating Authority sampled for E-coli and Total Coliforms 40-50 times per month which is above the requirement of 32 times per month. Samples for heterotrophic plate count were taken 12-15 times per month which is above the requirement of 8 times per month.

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

Schedule 13-6.1(1) of Ontario Regulation 170/03 requires that the owner of a drinking water system that provides chlorination or chloramination and the operating authority for the system shall ensure that at least one distribution sample is taken in each calendar quarter, from a point in the drinking water system's distribution system, or plumbing that is connected to the drinking water system, that is likely to have an elevated potential for the formation of haloacetic acids.

During this inspection period the Operating Authority sampled for haloacetic acid once every three months as required. Sample results were below the maximum acceptable concentration for haloacetic acids of 80 ug/L prescribed by the standards. The running average ranged from 5.3-8.4 ug/L.

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

Schedule 13-6(1) of Ontario Regulation 170/03 requires that the owner of a drinking water system that provides chlorination or chloramination and the operating authority for the system ensure that at least one distribution sample is taken in each calendar quarter, from a point in the drinking water system's distribution system, or plumbing that is connected to the drinking water system, that is likely to have an elevated potential for the formation of trihalomethanes.

During this inspection period the Operating Authority sampled for trihalomethanes at least once every three months as required. Sample results were below the maximum acceptable concentration for trihalomethanes of 100 ug/L prescribed by the standards. Results ranged from 7.3-31.1 ug/L.

- **The owner ensured that water samples were taken at the prescribed location.**

Schedule 6-2 of Ontario Regulation 170/03 states that unless otherwise specified, a person who is required to ensure that samples are taken under this Regulation, or under an approval, municipal drinking water licence or order, including an OWRA order, shall ensure that they are taken from the point at which water enters the drinking water systems' distribution system or plumbing that is connected to the drinking water system.

- **All sampling requirements for lead prescribed by schedule 15.1 of O. Reg. 170/03 were being met.**

Subject to the results of previous sampling under the provisions of Schedule 15.1-5, the owner claimed an exemption from sampling of plumbing under sub-section 15.1-5 (9) of O. Regulation 170/03. Under this exemption, the owner was required to follow sampling as prescribed by sub-section 15.1-5 (10) of the regulation, consisting of alkalinity and pH samples taken from the distribution system with lead samples taken from the distribution system for two consecutive periods every third year.

A review of sample results for this inspection period indicates that lead sampling is being conducted annually which is greater than the legislative requirement for reduced distribution system sampling of once every third year. Testing for pH and alkalinity is being completed at the same time lead samples are taken. - Sample results were below the maximum acceptable concentration for lead of 10 ug/L prescribed by the standards. Results ranged from 0.02-0.3 ug/L with alkalinity ranging between 83-103 mg/L.

Water Quality Monitoring

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

Schedule 6-3(1) of Ontario Regulation 170/03 states that if this Regulation or an approval, municipal drinking water licence or order, including an OWRA order, requires a water sample to be taken and tested for a microbiological parameter, the owner of the drinking water system and the operating authority for the system shall ensure that another sample is taken at the same time from the same location and is tested immediately for,

(a) free chlorine residual, if the system provides chlorination and does not provide chloramination; or
(b) combined chlorine residual, if the system provides chloramination.

(2) Subsection (1) does not apply to water samples taken from the drinking water system's raw water or raw water supply.

(3) Subsection (1) does not apply to sampling and testing for a microbiological parameter that is conducted by microbiological in-line testing equipment.

- **The drinking water system owner submitted written notices to the Director that identified the laboratories that were conducting tests for parameters required by legislation, Order, Drinking Water Works Permit or Municipal Drinking Water Licence.**
- **The owner indicated that the required records are kept and will be kept for the required time period.**

Section 13 of Ontario Regulation 170/03 prescribes record keeping requirements. The Operating Authority keeps a record retention table.

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).**

Reporting & Corrective Actions

- **Summary Reports for municipal council were completed on time, included the required content, and were distributed in accordance with the regulatory requirements.**
- **All changes to the system registration information were provided within ten (10) days of the change.**

Subsection 10.1(1) of Ontario Regulation 170/03 requires that the owner of a drinking water system that commences operation after this section comes into force give the Director a written notice containing information about the system within 30 days after the system commences operation. (3) If there is any change to the information given to the Director under subsection (1) or (2), the owner of the drinking water system shall give the Director written notice of the change within 10 days of the change.

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:

Cara Salustro

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.

APPENDIX A

Inspection Rating Report

Ministry of the Environment - Inspection Summary Rating Record (Reporting Year - 2017-2018)

DWS Name:	TECUMSEH DISTRIBUTION SYSTEM
DWS Number:	260004969
DWS Owner:	Tecumseh, The Corporation Of The Town Of
Municipal Location:	Tecumseh

Regulation: O.REG 170/03
Category: Large Municipal Residential System
Type Of Inspection: Standalone
Inspection Date: January 12, 2018
Ministry Office: Windsor Area Office

Maximum Question Rating: 285

Inspection Module	Non-Compliance Rating
Treatment Processes	0 / 30
Distribution System	0 / 25
Operations Manuals	0 / 42
Logbooks	0 / 26
Certification and Training	0 / 50
Water Quality Monitoring	0 / 75
Reporting & Corrective Actions	0 / 8
Treatment Process Monitoring	0 / 29
TOTAL	0 / 285

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 - 2017-2018)

DWS Name: TECUMSEH DISTRIBUTION SYSTEM
DWS Number: 260004969
DWS Owner: Tecumseh, The Corporation Of The Town Of
Municipal Location: Tecumseh

Regulation: O.REG 170/03
Category: Large Municipal Residential System
Type Of Inspection: Standalone
Inspection Date: January 12, 2018
Ministry Office: Windsor Area Office

Maximum Question Rating: 285

Inspection Risk Rating | 0.00%

FINAL INSPECTION RATING: | 100.00%

APPENDIX B

Key Reference and Guidance Material

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

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

De nombreux documents utiles peuvent vous aider à exploiter votre réseau d'eau potable. Vous trouverez ci-après une liste de documents que les propriétaires et exploitants de réseaux résidentiels municipaux d'eau potable utilisent fréquemment.

Pour accéder à ces documents en ligne, cliquez sur leur titre dans le tableau ci-dessous ou faites une recherche à l'aide de votre navigateur Web. Communiquez avec le Centre d'information au public au 1 800 565-4923 ou au 416 325-4000, ou encore à picemail.moe@ontario.ca si vous avez des questions ou besoin d'aide.



Pour plus de renseignements sur l'eau potable en Ontario, consultez le site www.ontario.ca/eaupotable ou envoyez un courriel à drinking.water@ontario.ca pour suivre l'information sur l'eau potable.

TITRE DE LA PUBLICATION	NUMÉRO DE PUBLICATION
Prendre soin de votre eau potable – Un guide destiné aux membres des conseils municipaux	7889f01
Renseignements sur le profil du réseau d'eau potable, Avis de demande de services de laboratoire, Formulaire de communication de résultats d'analyse insatisfaisants et du règlement des problèmes	7419f, 5387f, 4444f
Marche à suivre pour désinfecter l'eau potable en Ontario	4448f01
Strategies for Minimizing the Disinfection Products Trihalomethanes and Haloacetic Acids (en anglais seulement)	7152e
Total Trihalomethane (TTHM) Reporting Requirements: Technical Bulletin (février 2011) (en anglais seulement)	8215e
Filtration Processes Technical Bulletin (en anglais seulement)	7467
Ultraviolet Disinfection Technical Bulletin (en anglais seulement)	7685
Guide de présentation d'une demande de modification du permis d'aménagement de station de production d'eau potable, de modification du permis de réseau municipal d'eau potable, de renouvellement du permis de réseau municipal d'eau potable et de permis pour un nouveau réseau	7014f01
Guide sur l'accréditation des exploitants de réseaux d'eau potable et des analystes de la qualité de l'eau de réseaux d'eau potable	
Guide sur les exigences relatives à la formation des exploitants de réseaux d'eau potable	9802f
Prélèvement d'échantillons dans le cadre du programme d'analyse de la teneur en plomb de l'eau dans les collectivités	6560f01
Échantillonnage et analyse du plomb dans les collectivités : échantillonnage normalisé ou réduit et admissibilité à l'exemption	7423f
Guide: Requesting Regulatory Relief from Lead Sampling Requirements (en anglais seulement)	6610
Liste des personnes-ressources du réseau d'eau potable	7128f
Document d'aide technique pour les normes, directives et objectifs associés à la qualité de l'eau potable en Ontario	4449f01

ontario.ca/eaupotable