

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

Drinking Water and Environmental
Compliance Division

Owen Sound District Office
101 17th St. E., 3rd Floor
Owen Sound ON N4K 0A5

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

Division de la conformité en matière d'eau
potable et d'environnement

Bureau du district de Owen Sound
101, 17^e rue Est, 3^e étage
Owen Sound ON N4K 0A5



January 15, 2021

Sent by Email: edance@huronkinloss.com

The Corporation of the Township of Huron-Kinloss
21 Queen Street
P.O. Box 130
Ripley, Ontario
N0G 2R0

Attention: Emily Dance
Clerk

Dear Ms. Dance:

Re: 2020/2021 Inspection Report 1-OEBOX
Lakeshore Drinking Water System
Municipal Drinking Water Licence 087-102, Issue #2
Drinking Water Works Permit 087-202, Issue #2

The enclosed report documents findings of the inspection that was performed on October 28, 2020.

Two sections of the report, namely "Actions Required" and "Recommended Actions", specify due dates for the submission of information or plans to my attention.

Please note that "Actions Required" are linked to incidents of non-compliance with regulatory requirements contained within an Act, a Regulation, or site-specific approvals, orders or instructions; "Recommended Actions" convey information that the owner or operating authority should consider implementing in order to conform with existing and emerging industry standards.

The report includes an Inspection Summary Rating Record as an appendix. This record forms part of the ministry's comprehensive, risk-based inspection process. The rating provides a quantitative measure of the inspection results for this specific drinking water system for the reporting year. An inspection rating that is less than 100 per cent does not mean that the drinking water from the system is unsafe. The primary goals of this assessment are to encourage ongoing improvement of drinking water systems and to measure this progress from year to year.

I would like to remind you that Section 19 of the Safe Drinking Water Act, 2002 (Standard of Care)

creates a number of obligations for individuals who exercise decision-making authority over municipal drinking water systems, including members of municipal councils. "Taking Care of Your Drinking Water: A guide for members of municipal council", a publication found on the [Drinking Water Ontario website](http://www.ontario.ca/environment-and-energy/municipal-drinking-water-systems-licencing-registration-and-permits) (<http://www.ontario.ca/environment-and-energy/municipal-drinking-water-systems-licencing-registration-and-permits>), provides further information about these obligations.

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

Yours truly,



Heather Lovely
Water Compliance Inspector
Phone: 519-376-2152
e-mail: heather.lovely@ontario.ca

Enclosure

cc: - Dr. Ian Arra, Medical Officer of Health, Grey-Bruce Health Unit
- Angela Newman, Public Health Manager, Grey-Bruce Health Unit
- Phil Beard, General Manager, Maitland Valley Conservation Authority
- Nancy Mayhew, Overall Responsible Operator, Veolia Water Canada Inc.
- John Yungblut, Director of Public Works, Township of Huron-Kinloss
- Mark Smith, Water Compliance Supervisor, Ministry of the Environment, Conservation and Parks

c: File SI-BR-HK-LA-540 (2020)



Ministry of the Environment, Conservation and Parks

**LAKESHORE DRINKING WATER SYSTEM
Inspection Report**

Site Number:	220000425
Inspection Number:	1-OEBOX
Date of Inspection:	Oct 28, 2020
Inspected By:	Heather Lovely

OWNER INFORMATION:

Company Name:	HURON-KINLOSS, THE CORPORATION OF THE TOWNSHIP OF		
Street Number:	21	Unit Identifier:	
Street Name:	QUEEN St		
City:	HURON KINLOSS		
Province:	ON	Postal Code:	N0G 2R0

CONTACT INFORMATION

Type:	Operating Authority	Name:	Nancy Mayhew
Phone:	(519) 524-6583	Fax:	(519) 524-9358
Email:	nancy.mayhew@veolia.com		
Title:	Overall Responsible Operator, Veolia Water Canada - WWT Class 2		

Type:	Owner	Name:	Tracey Howe
Phone:	(519) 395-3735 xext133	Fax:	(519) 395-4107
Email:	thowe@huronkinloss.com		
Title:	Administrative Assistant, Public Works, Township of Huron-Kinloss		

INSPECTION DETAILS:

Site Name:	LAKESHORE DRINKING WATER SYSTEM
Site Address:	HURON-KINLOSS
County/District:	HURON-KINLOSS
MECP District/Area Office:	Owen Sound Area Office
Health Unit:	GREY BRUCE HEALTH UNIT
Conservation Authority:	Saugeen Conservation
MNR Office:	Owen Sound Regional Office
Category:	Large Municipal Residential
Site Number:	220000425
Inspection Type:	Unannounced
Inspection Number:	1-OEBOX
Date of Inspection:	Oct 28, 2020
Date of Previous Inspection:	Nov 06, 2019

COMPONENTS DESCRIPTION

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

Sub Type:

Site (Name):	HURONVILLE SOUTH WELL 2 RAW (HS-W2)		
Type:	Source	Sub Type:	Ground

Comments:

HS-W2 is a 93.3 m deep bedrock well, drilled in 1994 equipped with a submersible pump. The well is located within a municipal park with a tractor tire rim surrounding the well. The rim is to provide physical protection to the well from being accidentally knocked by maintenance vehicles.

In April 2005, unusually high turbidity was recorded in the raw water. Turbidity in the raw water remains elevated and the cause of the turbidity is not known. Samples of the raw water have been collected and analyzed for inorganic and microbiological parameters. Analysis shows no microbial contamination has occurred and levels of inorganics remain unchanged. As part of the operating authority's increased vigilance over the situation they are collecting raw water samples weekly for bacteriological testing.

- The Lakeshore Municipal Drinking Water Licence is # 087-102 Issue 2, expires May 19, 2021
- The Lakeshore Drinking Water Works Permit is # 087-202 Issue 2, issued May 20, 2016.
- Schedule C: Authorization to Alter the Drinking Water System, Permit #: 087-202 for Point Clark Well #3, issued May2, 2015.
- PTTW Blairs Grove (Well 2): 6154-988KDE Issued 3-Jul-2013. Expiry: 31-May-2023
- PTTW Huronville South: 3332-9N6H8L Issued 13-Nov-2014. Expiry: 1-Nov-2024
- PTTW Murdoch Glen: 6123-A2UQBM Issued 5-Oct-2015. Expiry: 15-Oct-2025.
- PTTW Point Clark (Well 2 & 3): 1852-9YQMAY Issued 30-Jul-2015. Expiry: 1-Nov-2024
- Operational Plan #: 087-402, Operating Authority#: 087-OA1

Site (Name): HURONVILLE SOUTH PUMPHOUSE TREATED
Type: Treated Water POE **Sub Type:** Pumphouse
Comments:

A well pumphouse is located at the Huronville South site and houses treatment and control facilities including:

*A disinfection system utilizing sodium hypochlorite consisting of a 200 L chemical storage tank equipped with adequate secondary containment, two chlorine pumps (1 duty, 1 standby) with auto switch over, with the feed line connected to the well pump discharge line.

*Iron treatment system utilizing sodium silicate consisting of a 100 L chemical dosing tank equipped with secondary containment a chemical metering pump with the feed line connected to the well pump discharge line.

*A single cell concrete basement chlorine contact tank with a capacity of 65 m3.

* A continuous, on-line chlorine residual analyzer and a continuous, on-line turbidimeter.

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MDWL Schedule E: Pathogen Log Removal/Inactivation Credits

Huronville South

Minimum Disinfection Required: 2 log removal/inactivation of Viruses

Disinfection Credits Assigned: 2+ log removal/ inactivation of Viruses via Chlorination (CT: contact tank)

The following was provided by the Operator in Charge Feb. 23, 2015.

As per the Procedure for Disinfection of Drinking Water in Ontario

Inactivation Requirements (e.g. Cryptosporidium oocysts, Giardia cysts, viruses): 2-log

Average pre-treatment water pH range: pH 7.5 - 8

Average pre-treatment water temperature (oC): 7.5 - 8°C

CT – Concentration * Time to meet inactivation requirements = CT 4

(T10 is the length of time during which not more than 10% of the influent Water would pass through that process.)

Baffle ratio - Baffle condition is (e.g. poor, average, superior) therefore, T10/T Ratio = 0.5 BF

Maximum Reservoir: 68.2 m³ (5.6 x 5.8 x 2.10 m)

Reservoir volume capacity (m3) = 55.2 to 68.2 m³ (operating range)

Maximum permitted flow rate (m3/min) = 2.728 m³/min

Effective contact time @ max reservoir, max flow (min) = 12.50 minutes

Minimum Disinfection Residual Concentration (mg/L) = 0.32 mg/L

Therefore, a minimum free chlorine concentration of 0.32 mg/L is required to meet primary disinfection at maximum reservoir volume and maximum flow rate.

Minimum Reservoir:

Auto shutoff of high lift pumps (% of reservoir capacity) = 1.25 m (60%)

Auto lock-out of high lift pumps and well pump: 0.85 mg/L

Effective contact time @ min reservoir, max flow (min) = 7.44 minutes

Minimum Disinfection Residual Concentration (mg/L) = 0.54 mg/L

Therefore, a minimum free chlorine concentration of 0.54 mg/L is required to meet primary disinfection at minimum reservoir volume and maximum flow rate.

At normal operating range minimum (1.70 m):

Effective contact time @ reservoir start, max flow (min) = 10.12 minutes

Minimum Disinfection Residual Concentration (mg/L) = 0.40 mg/L

Therefore, a minimum free chlorine concentration of 0.40 mg/L is required to meet primary disinfection at the normal operating well pump start level.

Site (Name): MURDOCH GLEN WELL 2 RAW (MG-W2)
Type: Source **Sub Type:** Ground
Comments:
MG-W2 is a 80.5 m deep bedrock well, drilled in 1992, equipped with a submersible pump.

Site (Name): MURDOCH GLEN PUMPHOUSE TREATED
Type: Treated Water POE **Sub Type:** Pumphouse
Comments:
The well pumphouse located at the Murdoch Glen site houses supply treatment and control facilities including:
*One diesel generator set including one 1,110 L capacity storage tank, for emergency power supply. New fuel storage installed in 2017.
*A disinfection system utilizing sodium hypochlorite consisting of a 100L capacity chemical solution storage tank and two chemical metering pumps (1 duty and 1 standby), with a feed line connected to the well pump discharge line.
*An iron treatment system utilizing sodium silicate consisting of a 100L solution storage tank and a chemical metering pump, with a feed line connected to the well pump discharge line.
The high-lift pump discharge manifold is equipped with two discharge pipes enabling the pumphouse to supply water to Pressure Zone 2 and Pressure Zone 3.

MDWL Schedule E: Pathogen Log Removal/Inactivation Credits

Murdoch Glen

Minimum Disinfection Required: 2 log removal/inactivation of Viruses

Disinfection Credits Assigned (log removal/inactivation):

- UV Disinfection: 2 of Crypto; 3 of Giardia; 2 of Viruses

(Though the above UV disinfection credits are assigned in Schedule E of MDWL 087-102 they are incorrect as no UV treatment exists at this drinking water system. This description is to be corrected by the municipality during the Licence renewal application process in November 2020, or earlier.)

- Chlorination (CT: contact tank): 2+ of Viruses

The following was provided by the Operator in Charge Feb. 23, 2015.

As per the Procedure for Disinfection of Drinking Water in Ontario

Inactivation Requirements (e.g. Cryptosporidium oocysts, Giardia cysts, viruses): 2-log

Average pre-treatment water pH range: pH 7.5 - 8

Average pre-treatment water temperature (oC): 7.5 - 8°C

CT – Concentration * Time to meet inactivation requirements = CT 4

(T10 is the length of time during which not more than 10% of the influent Water would pass through that process.)

Baffle ratio - Baffle condition is (e.g. poor, average, superior) therefore, T10/T Ratio = 1.0 BF

Contact Water Main: (DR18 PVC, 0.437 m ID x 130 m)

Volume Capacity (m³): 19.498 m³

Maximum permitted flow rate (m³/min) = 1.260 m³/min

Effective contact time @ max flow (min) = 15.47 minutes

Minimum Disinfection Residual Concentration (mg/L) = 0.26 mg/L

Therefore, a minimum free chlorine concentration of 0.26 mg/L is required to meet primary disinfection at maximum flow rate.

Maximum Reservoir: (10 x 10 x 5 m)

Reservoir volume capacity (m³) = 37 - 47 m³ (operating range)

* The reservoir is not counted in the contact time calculation.

Minimum Reservoir:

Auto shutoff of high lift pumps (% of reservoir capacity) = 1.50 m (30%)

Auto lock-out of well pump: 0.85 mg/L

Auto lock-out of high lift pumps: 0.50 mg/L

Site (Name): MURDOCH GLEN RESERVOIR

Type: Treated Water POE

Sub Type: Reservoir

Comments:

A ground level, single cell, concrete storage reservoir with a storage capacity of 400 m³ is situated at the Murdoch Glen pumphouse. The water level in the reservoir is monitored by a ultrasonic level transducer. The reservoir is configured so that when the level drops to the well pump start level the SCADA system triggers the well pump to maintain an adequate quantity of treated water in the reservoir.

Site (Name): BLAIRS GROVE WELL 2 RAW (BG-W2)

Type: Source

Sub Type: Ground

Comments:

BG-W2 is a 73.2 m deep flowing/artesian, bedrock well, drilled in 1982. The well is equipped with a submersible pump. BG-W2 is housed within a locked, wooden structure which is insulated.

On August 25, 2020 the Blairs Grove site was taken offline due to issues with the well. It was determined that the well casing was compromised and should no longer be used. This well is to be decommissioned.

Site (Name): BLAIRS GROVE WELL 3 RAW (BG-W3)

Type: Source

Sub Type: Ground

Comments:

BG-W3 is an overflowing artesian bedrock well, drilled in 1994, currently not equipped with a well pump.

A removable, locked metal housing unit has now replaced the previous wooden housing unit covering the well. A blow off valve and pressure gauge were also added to the well in 2011. BG-W3 is connected hydrologically to production well, BG-W2.

A DWWP (087-202) Schedule C: Authorization to Alter the Drinking Water System (Issue 2) was issued on November 25, 2020 to permit the owner to bring Well BG-W3 online to replace Well BG-W2. The newly equipped well will be treated by the existing Well BG-2 treatment system. Well BG-W2 is to be decommissioned.

Site (Name): BLAIRS GROVE PUMPHOUSE TREATED
Type: Treated Water POE **Sub Type:** Pumphouse
Comments:

A well pumphouse located at the Blairs Grove site housing treatment and control facilities including:
 *A disinfection system utilizing sodium hypochlorite consisting of a 200L capacity chemical storage tank and two chlorine pumps (1 duty, 1 standby) with auto switch over, with a feed line connected to the well pump discharge line.
 *An iron treatment system utilizing sodium silicate consisting of a 200L capacity chemical storage tank and one chemical metering pump with a feed line connected to the well pump discharge line.
 *An in-ground, single cell, concrete, chlorine contact tank with a capacity of 82.3 m3.

MDWL Schedule E: Pathogen Log Removal/Inactivation Credits

Blairs Grove

Minimum Disinfection Required: 2 log removal/inactivation of Viruses
 Disinfection Credits Assigned: 2+ log removal/ inactivation of Viruses via Chlorination (CT: contact tank)

The following was provided by the Operator in Charge Feb. 23, 2015.
 As per the Procedure for Disinfection of Drinking Water in Ontario
 Inactivation Requirements (e.g. Cryptosporidium oocysts, Giardia cysts, viruses): 2-log
 Average pre-treatment water pH range: pH 7.5 - 8
 Average pre-treatment water temperature (oC): 7.5 - 8°C
 CT – Concentration * Time to meet inactivation requirements = CT 4
 (T10 is the length of time during which not more than 10% of the influent Water would pass through that process.)
 Baffle ratio - Baffle condition is (e.g. poor, average, superior) therefore, T10/T Ratio = 0.5 BF

Maximum Reservoir: 83.1 m³ (7.0 x 5.6 x 2.12 m)
 Reservoir volume capacity (m3) = 72.5 to 79.2 m³ (operating range)
 Maximum permitted flow rate (m3/min) = 1.820 m³/min
 Effective contact time @ max reservoir, max flow (min) = 21.75 minutes
 Minimum Disinfection Residual Concentration (mg/L) = 0.19 mg/L

Therefore, a minimum free chlorine concentration of 0.19 mg/L is required to meet primary disinfection at maximum reservoir volume and maximum flow rate.

Minimum Reservoir:

Auto shutoff of high lift pump (% of reservoir capacity) = 1.25 m (59%)
 Auto lock-out of high lift pump and well pump: 0.85 mg/L
 Effective contact time @ min reservoir, max flow (min) = 13.46 minutes
 Minimum Disinfection Residual Concentration (mg/L) = 0.30 mg/L

Therefore, a minimum free chlorine concentration of 0.30 mg/L is required to meet primary disinfection at minimum reservoir volume and maximum flow rate.

At normal operating range minimum (1.75 m):

Effective contact time @ lag reservoir, max flow (min) = 18.84 minutes
 Minimum Disinfection Residual Concentration (mg/L) = 0.22 mg/L

Therefore, a minimum free chlorine concentration of 0.22 mg/L is required to meet primary disinfection at the normal operating lag well pump start level.

Site (Name): POINT CLARK DEVELOPMENT WELL 1 RAW (PCD-W1)
Type: Source **Sub Type:** Ground

Comments:
Sealed for abandonment on September 24, 2014 (Audit #: Z178243) due to reported casing failures.

PCD-W1 was a 75.0 m deep bedrock well, drilled in 1979, equipped with a submersible pump.

Site (Name): POINT CLARK DEVELOPMENT WELL 2 RAW (PCD-W2)
Type: Source **Sub Type:** Ground

Comments:
PCD-W2 is a 75.6m deep bedrock well, drilled in 1994 equipped with a submersible pump. The well discharge line joins a common header in the pumphouse.

Site (Name): POINT CLARK DEVELOPMENT WELL 3 RAW (PCD-W3)
Type: Source **Sub Type:** Ground Water

Comments:
PCD-W3 is a 82.3 m (270 ft) deep bedrock well, drilled on April 3, 2015 (Well Tag#: A158007); and put into production on August 5, 2015. The well is located 16 m from Point Clark pumphouse on municipal land.

Site (Name): POINT CLARK PUMPHOUSE TREATED
Type: Treated Water POE **Sub Type:** Pumphouse

Comments:
A well pumphouse located at the Point Clark Development houses the well, treatment and control facilities including:
*Disinfection system utilizing sodium hypochlorite consisting of 200L capacity chemical storage tank and four chlorine pumps (1 duty, 1 standby for Well #3 and 1 duty, 1 standby for Well #2) with auto switch over, with separate feed line connected to the well pump discharge line.
*An iron treatment system utilizing sodium silicate consisting of a 100L capacity chemical storage tank and a chemical metering pump dedicated to each well pump.
*A single cell, concrete, basement chlorine contact tank, with a capacity of 65 m3.
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MDWL Schedule E: Pathogen Log Removal/Inactivation Credits

Point Clark

Minimum Disinfection Required: 2 log removal/inactivation of Viruses
Disinfection Credits Assigned: 2+ log removal/ inactivation of Viruses via Chlorination (CT: contact tank)
The following was provided by the Operator in Charge Feb. 23, 2015.
As per the Procedure for Disinfection of Drinking Water in Ontario
Inactivation Requirements (e.g. Cryptosporidium oocysts, Giardia cysts, viruses): 2-log
Average pre-treatment water pH range: pH 7.5 - 8
Average pre-treatment water temperature (oC): 7.5 - 8°C
CT – Concentration * Time to meet inactivation requirements = CT 4
(T10 is the length of time during which not more than 10% of the influent Water would pass through that process.)
Baffle ratio - Baffle condition is (e.g. poor, average, superior) therefore, T10/T Ratio = 0.5 BF

Maximum Reservoir: 68.2 m³ (5.6 x 5.8 x 2.10 m)
Reservoir volume capacity (m3) = 57.0 to 65.5 m³ (operating range)

Maximum permitted flow rate (m³/min) = 2.273 m³/min
Effective contact time @ max reservoir, max flow (min) = 15.00 minutes
Minimum Disinfection Residual Concentration (mg/L) = 0.27 mg/L

Therefore, a minimum free chlorine concentration of 0.27 mg/L is required to meet primary disinfection at maximum reservoir volume and maximum flow rate.

Minimum Reservoir:

Auto shutoff of high lift pumps (% of reservoir capacity) = 1.25 m (60%)
Auto lock-out of high lift pumps and well pumps: 0.85 mg/L
Effective contact time @ min reservoir, max flow (min) = 8.93 minutes
Minimum Disinfection Residual Concentration (mg/L) = 0.45 mg/L

Therefore, a minimum free chlorine concentration of 0.45 mg/L is required to meet primary disinfection at minimum reservoir volume and maximum flow rate.

At normal operating range minimum (1.75 m):

Effective contact time @ lag reservoir, max flow (min) = 12.50 minutes
Minimum Disinfection Residual Concentration (mg/L) = 0.32 mg/L

Therefore, a minimum free chlorine concentration of 0.32 mg/L is required to meet primary disinfection at the normal operating lag well pump start level.

As of March 2019 the Municipality of Huron-Kinloss is considering a proposal brought forth by the Municipality of Kincardine for a 50/50 cost sharing project to install a generator at the Huronville South pump house. This project would benefit both municipalities since the Lakeshore DWS provides water to the city of Kincardine (via the Huronville South pump house) in times of water supply emergency or drinking water system maintenance.

Site (Name): SCADA

Type: Other

Sub Type: Other

Comments:

The drinking water system is equipped with a supervisory control and data acquisition system (SCADA) allowing for remote control, monitoring and record keeping of the system. This provides the operator with the current operating status of the supply and treatment equipment throughout the system at any given time.

Site (Name): DISTRIBUTION SYSTEM

Type: Other

Sub Type: Other

Comments:

The distribution system is comprised of three different pressure zones. Interconnections permit water to be transmitted from one pressure zone to another, including during emergency or fire fighting conditions.

The southern system (Pressure Zone 1) is comprised of the Point Clark pumphouse, the Blairs Grove pumphouse and the standpipe. The northern portion of the Lakeshore water works is divided into two pressure zones (Pressure Zone 2 and Pressure Zone 3). Zone 2 is serviced by the Huronville South pumphouse. Zone 3 is serviced by the Murdoch Glen pumphouse.

The Lakeshore DWS is operated under the assumption there are 2.6 persons per household (based on 2016 census results for Ontario). Therefore, the estimated population served by the DWS is 5,548 (2,134 residential connections x 2.6). The design of the waterworks is reported to be for a population of 6,420 and for 2,568 residential lots. It should be noted that the Lakeshore area has a large seasonal population and therefore, the demands are significantly higher during the cottage season.

Trunk water mains were constructed along the lakeshore area, including interconnection of all new supply and storage facilities in 1996.

Several small private water systems used to operate in the northwest corner of the former Township of Ashfield, in an area known as Amberley Beach. These systems included the Courtney, Elliott, Amberley Beach and the South Amberley Beach water systems.

In response to the need to upgrade the Courtney system, the owner opted to connect to the Lakeshore (Well) Water System. The connection was completed in November 1998.

In 2005 the Township of Ashfield-Colborne-Wawanosh entered a water sampling and testing agreement with the Township of Huron-Kinloss. Huron-Kinloss has agreed to sample and test Ashfield-Colborne-Wawanosh distribution systems, which receive all their water from the Lakeshore water system, as if they were part of the Lakeshore water system.

Site (Name): STANDPIPE

Type: Treated Water POE

Sub Type: Reservoir

Comments:

Situated in the Point Clark area, the standpipe went into service in 1996. Constructed of bolted steel, the 102 ft high and 31 ft wide standpipe has an effective storage of approximately 1,500 m³. The high-lift pumps for the Point Clark pumphouse and the Blairs Grove pumphouse are automatically controlled by the water level in the standpipe. The standpipe is surrounded by a chain-link fence to prevent unwarranted entry.

Site (Name): BELL DR. STORAGE FACILITY

Type: Other

Sub Type: Other

Comments:

The Bell Drive storage facility is a former pumphouse converted into a storage facility. It currently houses water treatment chemicals and equipment. Piping still exists in this house to allow flushing of the distribution system and for water sample collection.

INSPECTION SUMMARY:

Introduction

- The primary focus of this inspection is to confirm compliance with Ministry of the Environment, Conservation and Parks (MECP) legislation as well as evaluating conformance with ministry drinking water policies and guidelines during the inspection period. The ministry utilizes a comprehensive, multi-barrier approach in the inspection of water systems that focuses on the source, treatment, and distribution components as well as management practices.

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

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

On October 28, 2020 Water Inspector, Heather Lovely, met with ORO, Nancy Mayhew, to inspect the Lakeshore Drinking Water System (DWS) concurrently with Courtney Subdivision Distribution System (DS). The system is classed as a Large Municipal Drinking Water System with four (4) pump houses, each with drilled wells and all considered as true groundwater sources. The inspection included all four pump houses and the respective wells.

The Lakeshore DWS is located in the Township of Huron-Kinloss and supplies water to the Courtney Subdivision DS located in the Township of Ashfield Colborne Wawanosh (ACW). The two municipalities have a written agreement by which the Operating Authority, Veolia Water Canada, operates both drinking water systems and treats the Courtney Subdivision DS as part of the Lakeshore DWS.

The inspection period for this report is from the date of the last inspection, November 6, 2019, to the date of the current inspection, October 28, 2020.

Note: As of August 25, 2020 the Blairs Grove pump house has been offline due to the deterioration of the well casing. Subsequent to the inspection, a DWWP (087-202) Schedule C: Authorization to Alter the Drinking Water System (Issue 2) was issued on November 25, 2020 to permit the owner to bring Well BG-W3 online to replace Well BG-W2. The newly equipped well will be treated by the existing Well BG-2 treatment system. Well BG-W2 is to be decommissioned.

Source

- **The owner was maintaining the production well(s) in a manner sufficient to prevent entry into the well of surface water and other foreign materials.**

A review of raw water test results from January 1, 2010 to November 1, 2020 (n=5546) indicates there is little influence of surface water on the groundwater sources, since there were only five (5) instances (0.1% of samples) of total coliforms detected, most recently on October 30, 2018. There were no instances of E. coli detected in the raw water samples.

On the day of the field inspection the Blairs Grove site was offline and was being prepared for decommissioning, which was complicated by this well being a flowing artesian well.

All production and monitoring Lakeshore DWS wellheads are secure.

- **The owner was maintaining the municipal wells not being used as a raw water supply in a manner to**

Source

prevent the entry of surface water and other foreign materials.

Blairs Grove Well #3 (BG-W3) is a monitoring well that is an overflowing artesian bedrock well, not currently equipped with a well pump and it is covered by a metal shed that is kept locked. The owner was issued a Schedule C to DWWP 087-202 to allow BG-W3 to be brought online as a production well to replace BG-W2 that will be decommissioned.

- **Measures were in place to protect the groundwater and/or GUDI source in accordance with any the Municipal Drinking Water Licence and Drinking Water Works Permit issued under Part V of the SDWA.**

Conditions 16.2.8, 16.2.9 and 16.2.10 of Schedule B of Municipal Drinking Water Licence 087-102, Issue 2 prescribe that the Lakeshore DWS Operations and Maintenance Manual must include a well inspection and maintenance program that includes the following:

- An inspection schedule for all wells associated with the drinking water system, including all production wells, stand-by wells, test wells and monitoring wells;
- Well inspection and maintenance procedures for the entire well structure of each well including all above and below grade well components; and
- Remedial action plans for situations where an inspection indicates non-compliance with respect to regulatory requirements and/or risk to raw well water quality.

The Operating Authority is adhering to these conditions as specified under section L-OM-18 "Well Inspection and Maintenance Plan" of the Lucknow DWS Operations and Maintenance Manual. The Lakeshore DWS Operations and Maintenance is currently being updated to include the same procedures.

The procedure states that raw water (quality and quantity) trend data and well pump performance will be reviewed each year and a Licenced Well Contractor will be contacted to examine the well if a deterioration is noted (>25% compared to the historic average).

This data was included in the "Lakeshore Annual and Summary Report – For the 2019 Operating Year", that was prepared by the ORO and presented to the owner. The report states the following for all five production wells of the DWS:

- Raw water microbiological parameters – "Due to the infrequent historical results, there are no concerns at this time."
- "The well level(s) has remained consistent based on the 4-year historical average. There is no concern at this time."

The following statements were made regarding raw turbidity.

- Murdoch Glen and Point Clark (1&2) wells: "The raw turbidity has remained consistent based on the 4-year historical average. There is no concern at this time."
- Huronville South: "There is a 40.0% increase in raw turbidity based on the 4-year historical average. Turbidity monitoring will be increased in 2020 to acquire a bigger sampling base. Since the raw turbidity is low despite the increase, it is not a concern at this time."
- Blairs Grove: "There is a 29.5% increase in raw turbidity based on the 4-year historical average. Turbidity monitoring will be increased in 2020 to acquire a bigger sampling base. Since the average raw turbidity is >1.0 NTU, a well inspection could be warranted."

Note: A well inspection was conducted on the Blairs Grove production well on August 25, 2020 and severe deterioration of the well casing was noted and the well was taken offline as of that date. The owner plans to decommission and replace this well.

- **Trends in source water quality were being monitored.**

Source

ORO email response:

"The source water quality lab results are received via email and added to a spreadsheet maintained by the ORO/QACS. This spreadsheet is used to generate monthly and annual summaries. Any changes or trends are reported to operators, the owner and project manager."

Permit To Take Water

- **The owner was in compliance with all conditions of the PTTW.**

The Lakeshore DWS operates under the following Permits to Take Water (PTTW) with respective conditions of maximum amount of water taken each day:

- Huronville South (PTTW # 3332-9N6H8L) – 3,927,744 L/day or 3927 m3/day
- Murdoch Glen (PTTW # 6123-A2UQBM) – 1,814,400 L/day or 1814 m3/day
- Blairs Grove (PTTW # 6154-988KDE) – 2,621,000 L/day or 2621 m3/day
- Point Clark (PTTW # 1852-9YQMAY) – 3,273,120 L/day or 3273 m3/day

There were no exceedances of any of the daily maximum allowable volumes under the respective Permits to Take Water within the inspection period.

The PTTWs also stipulate the maximum rate of water taking for each pump house as follows:

- Huronville South – 2728 L/min or 45.47 L/s
- Murdoch Glen – 1260 L/min or 21.0 L/s
- Blairs Grove - 1820 L/min or 30.33 L/s
- Point Clark - 2273 L/min or 37.88 L/s

There were seven times when the flow rate exceeded the of the maximum rate of water taking at the Blairs Grove site between July 26 and 28, 2020, however the duration of all instances was less than 1 minute. The ORO maintains a spreadsheet of flow exceedances that includes duration, volume and respective CT calculations.

Capacity Assessment

- **There was sufficient monitoring of flow as required by the Municipal Drinking Water Licence or Drinking Water Works Permit issued under Part V of the SDWA.**

Flow measurement conditions 2.1.1 and 2.1.2 (Schedule C) of the MDWL (087-102, Issue 2) state flow rate and volume of water into the treatment subsystem and the distribution subsystem must be recorded daily. The Blairs Grove, Point Clark and Huronville pump houses have one flow meter since they are flow through systems. The Murdoch Glen pump house has three flow meters to measure raw water flow as well as volumes of water directed to zones 2 and 3 as needed.

- **The flow measuring devices were not calibrated or verified in accordance with the requirements of the MDWL issued under Part V of the SDWA.**

Endress & Hausser conducted verifications of the following flow meters June 30, 2020.

- Blairs Grove (Raw) PROMAG 50 W DN 150
- Murdoch Glen (Raw) PROMAG 10W DN 100
- Point Clark (Raw) PROMAG 50 W DN 150

Indus Control conducted verifications of the following flow meters June 30, 2020:

- Huronville (Treated) Sensus W-1000 Turbo
- Murdoch Glen (Treated – Zone 3) Sensus W-1000 Turbo
- Murdoch Glen (Treated – Zone 2) Sensus W-1000

Capacity Assessment

As per MDWL 087-102 Issue 2, Schedule C condition 3.1:

"All flow measuring devices that are required by regulation, by a condition in the Drinking Water Works Permit, or by a condition otherwise imposed by the Ministry of the Environment and Climate Change, shall be checked and calibrated in accordance with the manufacturer's instructions."

In June 2020 Indus Control and Endress & Hausser conducted on-site verifications of the Lakeshore flow meters since removal of the flow meters in order to calibrate the units was impractical.

The Ministry is willing to accept site verifications of flow measuring devices in comparison to a fully calibrated flow meter if the results include accuracy measurements across the range of flow rates representative of the system.

However, the Indus Control verification reports for the Lakeshore DWS flow meters did not include accuracy measurements over a range of flow rates that are representative of this DWS.

By March 1, 2021, the owner will provide the author of this report documentation that the Lakeshore DWS flow meters have been verified over a range of flow rates that are representative of this DWS or calibrated in accordance with the manufacturer's instructions as per MDWL 087-102 Issue 2, Schedule C condition 3.1.

- **The owner was in compliance with the conditions associated with maximum flow rate or the rated capacity conditions in the Municipal Drinking Water Licence issued under Part V of the SDWA.**

The DWWP (087-202, Issue 2) does not stipulate maximum flow rates. There were no exceedances of the rated capacities for each subsystem (n=4) of the MDWL Schedule C, Condition 1.1 within the inspection period.

- Huronville South – 3931 m³/day
- Murdoch Glen – 1814 m³/day
- Blairs Grove – 2618 m³/day
- Point Clark – 3275 m³/day

- **Appropriate records of flows and any capacity exceedances were made in accordance with the Municipal Drinking Water Licence issued under Part V of the SDWA.**

There were seven instances when the flow rate exceeded the of the maximum rates of water taking at the Blairs Grove site between July 26 and 28, 2020, however the duration of all instances was less than 1 minute. The ORO maintains a spreadsheet of flow exceedances that includes duration, volume and respective CT calculations.

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.**

At the time of field inspection the Blairs Grove production well (BG-W2) was offline and the casing removed and the owner had applied to the MECP to replace this well. Subsequent to the current inspection review period, a new Schedule C to DWWP 087-2020, Issue 2 was issued on November 25, 2020. This Schedule C allows for the Blairs Grove monitoring well (BG-W3) to be brought into production to replace BG-W2 that will be decommissioned.

- **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.**

There was one Form 1 completed for this DWS during the inspection review time frame. There was 150 mm diameter PVC DR18 watermain installed on Woodhaven Road, Tanglewood Drive, Laidlaw Place, Jardine Place and Ridgewood Road to replace existing 50 mm diameter lines (B. M. Ross & Associates project # 19017). These watermains were put into service on September 1, 2020, with the Form 1 signed by P. Eng., Izaak De Jager, on August 14, 2020 and by the Huron-Kinloss Public Works Manager, John Yungblut, on August 17, 2020.

Treatment Processes

- Records indicated that the treatment equipment was operated in a manner that achieved the design capabilities required under Ontario Regulation 170/03 or a Drinking Water Works Permit and/or Municipal Drinking Water Licence issued under Part V of the SDWA at all times that water was being supplied to consumers.

There was no indication that the Lakeshore DWS did not operate as designed during the inspection period.

- Records confirmed that the water treatment equipment which provides chlorination or chloramination for secondary disinfection purposes was operated so that at all times and all locations in the distribution system the chlorine residual was never less than 0.05 mg/l free or 0.25 mg/l combined.

The free chlorine residual was measured each day in the distribution system during the inspection period, with the minimum measurement of 0.86 mg/L on September 21, 2020 (n=357).

- Where an activity has occurred that could introduce contamination, all parts of the drinking water system were disinfected in accordance with Schedule B, Condition 2.3 of the Drinking Water Works Permit.

Procedure No. LS-OM-09 of the Lakeshore Operations and Maintenance Manual refers to the ministry's Watermain Disinfection Procedure (2015) and AWWA disinfection standards (section 14).

The ORO was made aware that the updated Ontario Watermain Disinfection Procedure was issued on August 1, 2020. The ORO was advised that the municipality is required to modify its watermain repair/commissioning procedures and forms to meet the updated procedure's documentation requirements by the date that will be stipulated in the renewed DWWP.

At the time of writing this report, the owner and Operating Authority are in the renewal process and awaiting the new issues of their MDWL and DWWP.

- 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.

The owner provided invoices of NSF certified 12% sodium hypochlorite from D.H. Jutzi in Stratford, Ontario.

- 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 DWWP and MDWL issued under Part V of the SDWA.

Facility drawings and diagrams are available for each subsystem (n=4) in the Lakeshore DWS Operations and Maintenance Manual, in which a hardcopy is available in each of the pump houses with electronic copies maintained on Operating Authority computers and available to operators.

Note: Updates to the Operations and Maintenance Manual will be required after the new production well is brought online.

- Where a potential bypass of primary or secondary treatment equipment existed, measures were taken to ensure that raw or partially treated water was not directed to the distribution system.

Treatment Process Monitoring

- Primary disinfection chlorine monitoring was conducted at a location approved by Municipal Drinking Water Licence and/or Drinking Water Works Permit issued under Part V of the SDWA, or at/near a location where the intended CT has just been achieved.

The chlorine residual analyzers are installed at a point in each pumphouse (n=4) where CT requirements are to

Treatment Process Monitoring

have been met to ensure primary disinfection and before water enters the distribution system.

- **Operators were aware of the operational criteria necessary to achieve primary disinfection within the drinking water system.**

Please refer to CT calculations that were provided by ORO, Nancy Mayhew, and are presented in the "Components" section of this report. This information is posted in each of the pump houses of this DWS and are available to operators electronically via their smartphones.

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

The free chlorine residual was measured each day in the distribution system during the inspection period, with the minimum measurement of 0.86 mg/L on September 21, 2020 (n=357).

- **Operators were examining continuous monitoring test results and they were examining the results within 72 hours of the test.**

The ORO provided SCADA login information (Excel file format) for each month to demonstrate how often operators reviewed SCADA data remotely. For any remote review period greater than 72 hours, the SCADA Daily Operating Log was reviewed to determine length of time between SCADA information reviews. These monthly logs are kept at the Veolia Ripley office since operators review all of the Huron-Kinloss SCADA information at once print trend reports ("eRIS reports") for each DWS. Operators also generate "incident reports" to provide details concerning anomalous data and operator response or circumstance (e.g. power outage).

SCADA trend information was consistently reviewed within 72 hours.

(Note: The SCADA login history does not record when operators review information in the office. Remote SCADA login is recorded in the login history as it is intended to be a fool-proof way to prevent any unauthorized changes to the DWS.)

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

Operating Authority staff use Hach portable colorimeters to test the chlorine residual in the field.

- **All continuous monitoring equipment utilized for sampling and testing required by O. Reg.170/03, or Municipal Drinking Water Licence or Drinking Water Works Permit or order, were equipped with alarms or shut-off mechanisms that satisfy the standards described in Schedule 6.**

The chlorine continuous monitoring equipment signals an alarm when the free chlorine residual drops below the respective alarm set point at all four pump houses. The alarm set points are set well above the minimum free chlorine concentration required to meet primary disinfection at minimum reservoir volume and maximum flow rate at each pump house, listed below:

Pump House CT requirement / Analyzer alarm setpoints (low):

- Blairs Grove: 0.30 / 0.85 mg/L
- Huronville South: 0.54 / 0.90 mg/L
- Point Clark: 0.45 / 0.70 mg/L
- Murdoch Glen: 0.26 / 0.65 mg/L

Pump House CT requirement / SCADA alarm setpoints (low):

- Blairs Grove: 0.30 / 0.70 mg/L
- Huronville South: 0.54 / 1.0 mg/L
- Point Clark: 0.45 / 0.80 mg/L
- Murdoch Glen: 0.26 / 0.95 mg/L

Treatment Process Monitoring

- **Continuous monitoring equipment that was being utilized to fulfill O. Reg. 170/03 requirements was performing tests for the parameters with at least the minimum frequency specified in the Table in Schedule 6 of O. Reg. 170/03 and recording data with the prescribed format.**

Continuous monitoring of free chlorine to achieve primary disinfection is recorded at a frequency of once every 2.5 minutes, which is more frequently than legislatively required.

- **All continuous analysers were calibrated, maintained, and operated, in accordance with the manufacturer's instructions or the regulation.**

The continuous chlorine analyzers are checked daily and compared with a representative grab sample from a calibrated hand held instrument to ensure readings are within 5% of each other (Operations Manual document: LS-OM-13). The continuous chlorine analyzers are also cleaned monthly as per manufacturer's instructions.

Distribution System

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

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

This issue is addressed in the Lakeshore Contingency Plan, (Procedure No. LS-CP-17), "Backflow from Private Plumbing - Cross Contamination".

- **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.**

As per the Lakeshore Operations Manual (document LS-OM-18): "The standpipe should be inspected internally for structural integrity and build up of sediment at a minimum of every five years."

The standpipe was drained and cleaned in 2017 by Greatario Services. The ORO provided photos of the cleaned standpipe for this inspection.

Additional maintenance, (repair of ladder bracket to stop leak), was conducted in December 2020 by Greatario Services.

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

Operating Authority staff conduct watermain (hydrant) flushing semi-annually.

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

As per the Lakeshore Operations Manual, "Daily System Checks" (LS-OM-12), "Emphasis should be put on sampling the dead ends of the system".

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

According to the Lakeshore DWS Operations Manual "Valve exercising... should be carried out at the time of the spring flushing" (document LS-OM-08-0).

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

Hydrant operation is addressed in the Lakeshore Operations Manual document LS-OM-08-0, and is completed semi-annually with the flushing program.

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

Distribution System

Limiting access to hydrants is addressed in the Huron-Kinloss By-Law 2006-109, Section 9.1.5

- **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.**

There were two water pressure complaints that were submitted by residents within the inspection period. Both complaints were investigated by operators and found to be related to issues within the respective residence and were therefore not due to a problem within the distribution system.

- **The donor had an agreement with a receiver system, and the agreement satisfied the requirements prescribed by subsection 5(4) under O. Reg. 170/03.**

There is a water agreement between the Township of Huron-Kinloss (donor) and the Township of Ashfield-Colborne-Wawanosh (ACW) (receiver). Huron-Kinloss By-law 2014-136 and ACW By-law 61-2014, establishes that Lakeshore DWS will treat the Courtney Subdivision DS as an extension of the Lakeshore distribution system.

- **The donor had provided an Annual Report to the receiver stand alone distribution system(s) connected to this system.**

The Annual Report and Summary Report were combined into one report for the first time during the inspection review period. The "Lakeshore Annual Report and Summary Report – For the 2019 Operating Year" was written by the ORO, Nancy Mayhew, and was provided to the Lakeshore DWS owner, Municipality of Huron-Kinloss and the owner of the Courtney Distribution System (water receiver), the Municipality of Ashfield-Colborne-Wawanosh (ACW) via "Google Docs" before February 28, 2020.

Operations Manuals

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

A copy of the Operations and Maintenance Manual is available in each of the Lakeshore well pump houses as well as available electronically to operators via their smartphones.

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

Once the Lakeshore DWS has brought the new replacement production well online, the Operations and Maintenance Manual will need to be updated.

- **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.**

Conditions 16.2.8, 16.2.9 and 16.2.10 of Schedule B of Municipal Drinking Water Licence 087-102, Issue 2 prescribe that the Lakeshore DWS Operations and Maintenance Manual must include a well inspection and maintenance program that includes the following:

- An inspection schedule for all wells associated with the drinking water system, including all production wells, stand-by wells, test wells and monitoring wells;
- Well inspection and maintenance procedures for the entire well structure of each well including all above and below grade well components; and
- Remedial action plans for situations where an inspection indicates non-compliance with respect to regulatory requirements and/or risk to raw well water quality.

The Operating Authority is currently reformatting all files and updating and the Lakeshore DWS Operations and Maintenance Manual to include the provisions above. The Operating Authority is currently using section L-OM-18 "Well Inspection and Maintenance Plan" of the Lucknow DWS Operations and Maintenance Manual in the

Operations Manuals

management of the Lakeshore DWS, which states the following:

"Above Ground

A quick visual inspection of the area around all the wells should be conducted at every visit. This includes making sure the area around the well casings is sanitary, that the well caps/well heads are securely in place and ensuring that all potential contamination sources are kept away from the wells.

Below Ground

A formal inspection of the production wells should occur every time a pump is to be pulled from the well."
[Summary report criteria specified.]

In addition, the procedure stipulates remedial action plans. The raw water (quality and quantity) trend data and well pump performance will be reviewed each year and a Licenced Well Contractor will be contacted to examine the well if a deterioration is noted (>25% compared to the historic average). This data was included in the "Lakeshore Annual and Summary Report – For the 2019 Operating Year", that was prepared by the ORO and presented to the owner.

The Operating Authority is reminded that the Lakeshore DWS Operating and Maintenance Manual, section LS-OM-18 "Well Inspection and Maintenance Plan" needs to be updated to include information specific to this DWS, e.g. well names.

Logbooks

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

Logbooks are properly maintained and include specified daily checks, alarm summary, work order section as well as daily events and observations.

- **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.**
- **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.**
- **The operator-in-charge ensured that records were 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.**

Records are maintained by the owner at the Huron-Kinloss municipal office and an owner representative confirmed that records will be kept for the required time frames.

Contingency/Emergency Planning

- **Spill containment was provided for process chemicals and/or standby power generator fuel.**

Handling a spill is dealt with in document LS-OM-15 in the Lakeshore Operations Manual, and process chemicals, e.g. sodium hypochlorite are kept in secondary containers designed to capture all liquid that could leak from the primary container.

- **Clean-up equipment and materials were in place for the clean up of spills.**

Contingency/Emergency Planning

Handling a spill is dealt with in document LS-OM-15 in the Lakeshore Operations Manual and each operator has materials and equipment to clean up a spill should one occur.

- **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.**

Wellheads that are located outside of the pump houses and are equipped with bolted caps. The treatment equipment is located inside the brick pump houses which have no windows, keyed lock entry, appropriate signage and is attended daily by an operator.

At the time of the field inspection Blairs Grove production well (BG-W2) was offline with the well casing removed. This artesian well is soon to be decommissioned and the wellhead is located in a locked structure.

Consumer Relations

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

Water conservation measures (i.e. lawn watering) is addressed in the Huron-Kinloss By-Law 99-88.

Certification and Training

- **The overall responsible operator had been designated for each subsystem.**
The Overall Responsible Operator during the inspection period was Nancy Mayhew with Veolia Water Canada.
- **Operators-in-charge had been designated for all subsystems which comprised the drinking water system.**
The Operator-In-Charge (OIC) is designated and documented each day in the pump house logbooks.
- **All operators possessed the required certification.**

The Lakeshore DWS is classified as a Class 3 Water Distribution and Supply Subsystem. Persons making operational adjustments to the Lakeshore DWS are required to hold, or be deemed to hold, a valid Class 3 Water Distribution and Supply (WD&S) operator's certificate.

On July 15, 2020, emergency order O. Reg. 75/20 Drinking Water System and Sewage Works under the Reopening of Ontario (A Flexible Response to Covid-19) Act, 2020 was amended.

The amended emergency order extends all drinking water certificates and wastewater licences expiring between March 23, 2020 and October 31, 2020 to the later of the following dates:

- the end of the sixth month after the original expiry date
- the end of the third month after July 24, 2020 (termination of Ontario's declaration of emergency, O. Reg. 50/20)

Under this emergency order Nancy Mayhew's Water Distribution Subsystem Class 3 certification is extended to

Certification and Training

January 31, 2021 (original expiry was July 31, 2020) and Ben Nethery's Water Treatment Subsystem Class 1 certification is extended to March 31, 2021 (original expiry September 30, 2020).

Therefore, during the inspection period, there were primarily five (5) operators who did most of the operational checks and sampling for the Lakeshore DWS. All of these operators had adequate and current certification for the inspection period. Two (2) operators hold Water Distribution and Supply (WD&S) Class 3 certification, two operators hold WD&S Class 2 and one has a WD&S OIT certificate. Operators without WD&S Class 3 certificates report to the OIC or ORO.

- **Only certified operators made adjustments to the treatment equipment.**
- **An adequately licenced operator was designated to act in place of the overall responsible operator when the overall responsible operator was unable to act**

When ORO, Nancy Mayhew, was unavailable to act, John Graham was the designated ORO for the facility. John Graham holds a Water Treatment Subsystem Class 3 that expires August 31, 2022, and a Water Distribution and Supply Subsystem that expires August 31, 2022. The ORO is stipulated each day in the pump house logbooks.

Water Quality Monitoring

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

E. coli and total coliforms were both sampled each week in the raw water at each well, with the greatest period between sampling events of 8 days on three occasions. All samples resulted in no detection of E. coli or total coliforms.

Note: Blairs Grove production well was taken offline and no raw water samples taken as of August 25, 2020.

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

Based on a population of 5,548 residents, the Lakeshore DWS is required to take thirteen (8 + 5) distribution samples per month, with at least one taken each week. This includes sampling within the Courtney Subdivision DS. Microbiological sampling in the distribution system was conducted more frequently than required with seven (7) samples were taken each week and tested for E. coli and total coliforms, with the greatest period between sampling events of 8 days on three occasions during the inspection period. All samples within the inspection period resulted in no detection of E. coli and one (1) detection of total coliforms (1 cfu/100 mL on December 3, 2019). Typically, four of these weekly samples were tested for microbial Heterotrophic Plate Count (HPC) with results ranging from 0 to 3 cfu/1mL (average = 0.28 cfu/100 mL; n= 205).

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

E. coli, total coliforms and Heterotrophic Plate Count (HPC) were all sampled weekly from treated water at each pump house, with the greatest period between sampling events of 8 days on three occasions. All samples resulted in no detection of E. coli or total coliforms. HPC was also measured for 100% of the required samples and results ranged from 0 to 44 cfu/1mL (average cfu/1mL, n=199).

Note: Blairs Grove production well was taken offline and treated water samples were not taken as of August 25, 2020.

- **All inorganic water quality monitoring requirements prescribed by legislation were conducted within the required frequency.**

The Operating Authority sampled the O. Reg 170/03 Schedule 23 inorganic parameters on June 4, 2018. All results for Schedule 23 parameters were below the reportable threshold or maximum allowable concentration (MAC). Most results were between 0-16% of the MAC, except for arsenic from the Point Clark pump house with a

Water Quality Monitoring

result of 0.0056 mg/L or 56% of the MAC. With an arsenic concentration greater than 50% of the MAC sampling requirements are required on a quarterly basis, which was completed nine (9) times during the inspection review period.

The Lakeshore DWS is categorized as a large municipal residential system with a ground water source, therefore, as per O. Reg. 170/03 Schedule 13-3, inorganic parameters stipulated in O. Reg. 170/03 Schedule 23 parameters are due to be sampled again in 36 months, or in June 2021. Arsenic sampling needs to be sampled quarterly until the results from two consecutive three-month periods are below half of the standard (i.e., less than 0.005 mg/L).

- **All organic water quality monitoring requirements prescribed by legislation were conducted within the required frequency.**

The Operating Authority sampled the O. Reg 170/03 Schedule 24 organic parameters on June 4, 2018 with no exceedance. All results were below the reportable threshold or maximum allowable concentration (MAC) and ranged from 0-40% MAC.

The Lakeshore DWS is categorized as a large municipal residential system with a ground water source, therefore, as per O. Reg. 170/03 Schedule 13-4, organic parameters stipulated in O. Reg. 170/03 Schedule 24 are due to be sampled again in 36 months, or in June 2021.

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

Total Haloacetic Acids (HAAs) were sampled quarterly throughout the inspection review period with sampling events occurring between 84 and 98 days. This is within the legislative requirements (60-120 days). Typically, HAAs were sampled close to the pump houses, as per the requirement to sample where there is a higher likelihood of elevated HAAs. HAAs generally form at the beginning of the distribution system or may be found just past the chlorination point if the right humic acids are present.

There were sixteen (16) samples taken on four (4) dates with consistent results of 5.3 ug/L, the Minimum Detection Limit (MDL). The standard for Haloacetic Acids (80 ug/L) came into effect until January 1, 2020, expressed as a Running Annual Average (RAA). The RAA for this inspection review period was 5.3 ug/L (consistent results).

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

Trihalomethanes (THMs) were sampled quarterly throughout the inspection review period with sampling events occurring between 84 and 98 days. This is within the legislative requirements (60-120 days).

There were eighteen (18) samples taken on four (4) dates with results ranging from 4.9 to 23 ug/L and a Running Annual Average of 10.83 ug/L, less than the Ontario Drinking Water Quality Standard (ODWQS) of 100 ug/L.

Sampling for THMs will be due again in the next quarter, i.e. within the July to September 2020 time frame.

- **All nitrate/nitrite water quality monitoring requirements prescribed by legislation were conducted within the required frequency for the DWS.**

Nitrates and nitrites are required to be sampled every three months. Nitrates and nitrites were sampled at each pump house throughout the inspection review period with sampling events occurring between 84 and 98 days. This is within the legislative requirements (60-120 days).

Note: Blairs Grove production well was taken offline and treated water samples were not taken as of August 25, 2020.

Nitrite and Nitrate had consistent results below the Minimum Detection Limit of the lab test and were recorded as

Water Quality Monitoring

0.003 mg/L (0.03%MAC) and 0.006 & 0.008 mg/L (0.06 – 0.08%MAC) respectively during the inspection time frame, lower than the ODWQS of 10.0 mg/L.

- **All sodium water quality monitoring requirements prescribed by legislation were conducted within the required frequency.**

Sodium sampling is legislatively required every 60 months. Each pumphouse within the Lakeshore DWS was most recently sampled for sodium on June 21 and 30, 2016, and July 13, 2016 with a results ranging from 20.9 to 104 mg/L. (A total of seven (7) samples were taken including the resamples.) Sodium concentrations were consistently in exceedance of the reportable threshold of 20 mg/L, however, it is considered naturally occurring and residents are notified via bi-annual newsletters sent out in tax notices. Sodium is due to be sampled again in June 2021.

Since the Lakeshore system supplies water to the Courtney Subdivision in Ashfield-Colborne-Wawanosh, the Huron County Health Unit has requested notification whenever the Point Clark supply is off-line and Blairs Grove is supplying Zone 1, due to the high sodium present in the water from Blairs Grove. This communication is typically conducted via email.

- **All fluoride water quality monitoring requirements prescribed by legislation were conducted within the required frequency.**

Fluoride sampling was most recently sampled on August 15 and 21, 2017 with results (ranging from 2.14 to 2.24 mg/L) in exceedance of the ODWQS of 1.5 mg/L, however, the Grey Bruce Health Unit is aware of the relatively high fluoride levels which are naturally occurring in this area. The municipality provides this information to consumers through bi-annual newsletters sent out with tax notices. Most recently, elevated fluoride was reported to MOECC on August 18, 2017. Fluoride sampling is due again in August 2022.

- **The owner ensured that water samples were taken at the prescribed location.**
- **The owner was required to increase frequency of monitoring as a result of having exceeded half the value of an applicable ODWQS of a Schedule 13-2 or 13-4 parameter(s) and that increased monitoring was conducted.**

Schedule 13-5. (1) states that if a test result obtained under section 13-2 or 13-4 for a parameter exceeds half of the standard prescribed for the parameter in Schedule 2 of the Ontario Drinking-Water Quality Standards, the frequency of sampling for that parameter shall be increased to every three months until there are two consecutive three-month periods in which the results do not exceed half of the prescribed standard (for ground water sources).

Under Schedule 2 of O. Reg. 169/02, the Ontario Drinking Water Quality Standard for arsenic is 0.01 mg/L. There have been several instances of the arsenic concentration at the Point Clark pump house exceeded the half-MAC threshold. Prior to the inspection review period, the arsenic concentration exceeded the half-MAC value most recently on August 12, 2019. Therefore, quarterly sampling of arsenic was required for part of the inspection review period.

During the current inspection review period arsenic sampling was conducted at a range of 84 and 98 days between sampling events. Samples taken in February and May 2020 were 59% and 56% of the MAC. The subsequent samples, taken in August and November 2020, were 49% and 47% MAC. Therefore, the requirement of obtaining two consecutive three-month periods in which the results do not exceed half of the prescribed standard has been met and quarterly arsenic sampling is no longer required.

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

The Lakeshore DWS serves a population of approximately 6,042 (based on Census data of 2.6 persons per household). Based on previous lead sampling results, the owner was eligible for an exemption from lead plumbing sampling under sub-section 15.1-5 (9) of O. Regulation 170/03. Under this exemption, the required sampling

Water Quality Monitoring

consists of alkalinity and pH samples taken from the distribution system each period and with lead samples taken from the distribution system for two consecutive periods every third year.

As per O. Reg. 170/03 15.1, sampling periods are defined as between:

- December 15 - April 15 and
- June 15- October 15 each year

Given the population served by the Lakeshore DWS, three distribution samples are required each time lead sampling is due. The correct number of samples were taken during the appropriate time frame and the lead test results were 0.08, 0.34 and 0.12 ug/L in January 2020 and 0.06, 0.29 and 0.52 ug/L in July 2020. (One of the lead samples was assigned to the Courtney DS in the provincial database.) Lead sampling of the Lakeshore distribution system is due again in 2023.

Alkalinity and pH sampling of the distribution system were completed as required within the inspection review period and will be due again for sampling between December 15, 2020 and April 15, 2021.

- **Records confirmed that chlorine residual tests were being conducted at the same time and at the same location that microbiological samples were obtained.**
- **Turbidity was being tested at least once every month from each well that is supplying water to the system.**

In 2019 the raw water turbidity was measured each month production well of the DWS.

As of February 2020, raw water turbidity was measured weekly from each production well of the DWS. This is more frequently than legislatively required.

The average of the raw water turbidity measurements from January to October 2020 were as follows:

- Blairs Grove = 0.84 NTU; n=30
- Huronville = 0.16 NTU; n=35
- Murdoch Glen = 0.27 NTU; n=35
- Point Clark Well 2 = 0.30 NTU; n=35
- Point Clark Well 3 = 0.23 NTU; n=35

Note: Blairs Grove was offline as of the beginning of September 2020, i.e. turbidity not measured.

- **The owner indicated that the required records are kept and will be kept for the required time period.**

Water Quality Assessment

- **Records did not show 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).**

During the inspection review period there was one occurrence of a sample result exceeding a parameter listed under O. Reg. 169/03 for a distribution sample taken on December 3, 2019 with a result of 1 cfu/100 mL for total coliforms. The threshold is no detection (0 cfu/100 mL) of total coliforms as listed in Schedule 1 of O. Reg. 169/03. Please refer to the "Corrective Actions" portion of this report for further details.

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.**

Reporting & Corrective Actions

There was one Adverse Water Quality Incident (AWQI) during the inspection from a distribution system sample that was taken on December 3, 2019, with a result of total coliforms of 1 CFU/100 mL and corresponding free chlorine residual of 1.59 mg/L.

The Operating Authority completed all required corrective actions including:

- Resample and test upstream, downstream and at the AWQI site (completed on December 5, 2019)
- Completed distribution system flushing
- The local medical officer of health did not assign additional corrective actions

It was noted by the operator and lab that there was evidence of debris in the sample bottle. This debris may have been the cause of total coliforms being detected.

- **Corrective actions as directed by the Medical Officer of Health had been taken by the owner and operating authority to address exceedances of the lead standard.**

The Operating Authority provided verbal notification to the Grey Bruce Health Unit and Spills Action Centre within 2 hours of receiving the verbal notice from the lab at 13:46 on December 5, 2019.

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

The Operating Authority provided written notification to the Grey Bruce Health Unit and Spills Action Centre within approximately 2 hours of receiving the verbal notice from the lab.

- **In instances where written notice of issue resolution was required by regulation, the notice was provided as per O. Reg. 170/03 16-9.**

The Operating Authority provided written notification of issue resolution to the Spills Action Centre the day after the issue was resolved (December 9, 2019) by receiving water sample results without any detection of total coliforms or *E. coli*, i.e. 0 CFU/100 mL.

- **Where required continuous monitoring equipment used for the monitoring of chlorine residual and/or turbidity triggered an alarm or an automatic shut-off, a qualified person responded in a timely manner and took appropriate actions.**

The ORO provided a database export Excel file of the alarm history for each month of the inspection period. Alarm history review included "filtering" the Excel file for alarms that operators would be required to respond to, e.g. low chlorine residual, and verifying operator response with the respective pump house logbook entry and/or SCADA login history. (SCADA login history is also an Excel export file of operator login when SCADA conditions are reviewed, and alarms addressed remotely.)

SCADA information (graph with data table) was provided by the ORO if logbooks did not address an alarm and possible adverse conditions, (e.g. alarms occurred after hours).

Operator response was appropriate and timely for all relevant alarms.

- **The Annual Report containing the required information was prepared by February 28th of the following year.**

The Annual Report and Summary Report were combined into one report for the first time during the inspection review period. The "Lakeshore Annual Report and Summary Report – For the 2019 Operating Year" was written by ORO, Nancy Mayhew, and was provided to the Lakeshore DWS owner, Municipality of Huron-Kinloss and the owner of the, Courtney Distribution System (water receiver), the Municipality of Ashfield-Colborne-Wawanosh (ACW) via "Google Docs" before February 28, 2020.

The content of the report met the criteria stipulated in O. Reg. 170/03 Section 11 (Annual Report) and was reviewed

Reporting & Corrective Actions

by municipal council on May 4, 2020 (Item # 4.15) then made available on the municipality's website.

- **Summary Reports for municipal council were completed on time, included the required content, and were distributed in accordance with the regulatory requirements.**

The Annual Report and Summary Report were combined into one report for the first time during the inspection review period. The "Lakeshore Annual Report and Summary Report – For the 2019 Operating Year" was written by ORO, Nancy Mayhew, and was provided to the Lakeshore DWS owner, the Municipality of Huron-Kinloss and the owner of the Courtney Distribution System (water receiver), the Municipality of Ashfield-Colborne-Wawanosh (ACW) via "Google Docs" before February 28, 2020.

The content of the report met the criteria stipulated in O. Reg. 170/03 Schedule 22-2 and was reviewed by municipal council on May 4, 2020 (Item # 4.15) then made available on the municipality's website.

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.

- 1. The flow measuring devices were not calibrated or verified in accordance with the requirements of the MDWL issued under Part V of the SDWA.**

Insufficient flow meter verification

Action(s) Required:

By March 1, 2021, the owner will provide the author of this report documentation that the Lakeshore DWS flow meters have been verified over a range of flow rates that are representative of this DWS or calibrated in accordance with the manufacturer's instructions as per MDWL 087-102 Issue 2, Schedule C condition 3.1.

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:

Heather Lovely

Signature: (Provincial Officer)



Reviewed & Approved By:

Mark Smith

Signature: (Supervisor)



Review & Approval Date:

January 15, 2021

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.



**Ministry of the Environment and Climate Change
Drinking Water Inspection Report**

APPENDIX A

INSPECTION SUMMARY RATING RECORD

Ministry of the Environment - Inspection Summary Rating Record (Reporting Year - 2020-2021)

DWS Name: LAKESHORE DRINKING WATER SYSTEM
DWS Number: 220000425
DWS Owner: Huron-Kinloss, The Corporation Of The Township Of
Municipal Location: Huron-Kinloss

Regulation: O.REG 170/03
Category: Large Municipal Residential System
Type Of Inspection: Detailed
Inspection Date: October 28, 2020
Ministry Office: Owen Sound District Office

Maximum Question Rating: 666

Inspection Module	Non-Compliance Rating
Source	0 / 26
Permit To Take Water	0 / 12
Capacity Assessment	8 / 42
Treatment Processes	0 / 93
Distribution System	0 / 8
Operations Manuals	0 / 42
Logbooks	0 / 30
Certification and Training	0 / 49
Water Quality Monitoring	0 / 152
Reporting & Corrective Actions	0 / 92
Treatment Process Monitoring	0 / 120
TOTAL	8 / 666

Inspection Risk Rating 1.20%

FINAL INSPECTION RATING: 98.80%

Ministry of the Environment - Detailed Inspection Rating Record (Reporting Year - 2020-2021)

DWS Name: LAKESHORE DRINKING WATER SYSTEM
DWS Number: 220000425
DWS Owner: Huron-Kinloss, The Corporation Of The Township Of
Municipal Location: Huron-Kinloss

Regulation: O.REG 170/03
Category: Large Municipal Residential System
Type Of Inspection: Detailed
Inspection Date: October 28, 2020
Ministry Office: Owen Sound District Office

Non-compliant Question(s)	Question Rating
Capacity Assessment	
Are the flow measuring devices calibrated or verified in accordance with the requirements of the MDWL issued under Part V of the SDWA?	8
TOTAL QUESTION RATING	8

Maximum Question Rating: 666

Inspection Risk Rating	1.20%
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FINAL INSPECTION RATING:	98.80%
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Ministry of the Environment and Climate Change
Drinking Water Inspection Report

APPENDIX B

REFERENCE GUIDE FOR STAKEHOLDERS

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.



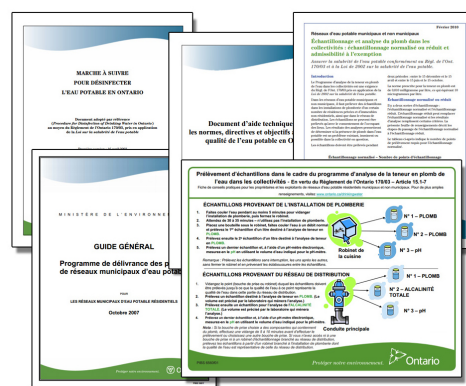
PUBLICATION TITLE	PUBLICATION NUMBER
Taking Care of Your Drinking Water: A Guide for Members of Municipal Councils	7889e01
FORMS: Drinking Water System Profile Information, Laboratory Services Notification, Adverse Test Result Notification Form	7419e, 5387e, 4444e
Procedure for Disinfection of Drinking 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