



WAWA DRINKING WATER SYSTEM

Annual and Summary Report 2023

Wawa 
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Prepared by:

Water & Sewer Department
Infrastructure Services

February 2024

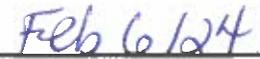
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Annual and Summary Report 2023

Prepared by: Municipality of Wawa
Infrastructure Services
Water & Sewer Department



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Date

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Date

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Date

Table of Contents

1.0	Introduction.....	1
1.1	Requirements of the Summary Report.....	1
1.2	Background.....	1
1.3	Facility Specifics.....	1
1.4	Format.....	1
2.0	System Requirements.....	2
2.1	The Act and Regulations.....	2
2.2	Operational Checks, Sampling and Testing.....	3
3.0	System Performance.....	8

Tables

Table 1:	Annual Summary of Operational Checks for 2023.....	4
Table 2:	Summary of Annual Lead Testing under Schedule 15.1.....	5
Table 3:	Maximum Raw Water and Finished Water Flows.....	8
Table 4:	Summary of Annual Flows and Water Consumption.....	9

Appendices

Appendix A:	Definition of Terms
Appendix B:	Wawa Drinking Water System 2023 Annual Report
Appendix C:	Certificate of Accreditation for a Full Scope of the Drinking Water Quality Management System (DWQMS)
Appendix D:	Wawa Water Treatment Plant Inspection Report

1.0 Introduction

1.1 Requirements of the Summary Report

The 2023 Annual and Summary Report for the Municipality of Wawa Drinking Water System (DWS) are being submitted to satisfy both Section 11 and Schedule 22 of the Ontario Regulation 170/03. The requirements of the regulation for each report have been consolidated into a single document. This report is intended to brief the owner and the consumers of the Wawa Drinking Water System on the system's performance over the past calendar year January 1, to December 31, 2023.

This report encompasses all elements as required by O. Reg. 170/03. Each section explains what is required for the category Large Municipal Residential DWS (as it pertains to the Wawa DWS), how limits were met and if shortfalls were revealed.

1.2 Background

The Wawa water supply system serves the Community of Wawa– sometimes referred to as the Wawa townsite and the Michipicoten River Village– which are located within the Municipality of Wawa, District of Algoma. The facility is owned, maintained and operated by The Corporation of the Municipality of Wawa and serves approximately 3,000 people. There are no major industrial users in the community.

The Wawa Water Treatment Plant (WTP) is located at 40C Broadway Avenue, at the north-east corner of Ganley Street and McKinley Avenue. The plant was constructed in accordance with Certificate of Approval 7008-648JTL issued by the Ministry of the Environment, Conservation and Parks (MECP) and remedied the deficiencies of the original plant. The WTP includes a low lift pumping station, membrane filtration system, disinfection utilizing sodium hypochlorite, fluoridation using hydrofluosilicic acid, chlorine contact cells, treated water storage, high lift pumping and a standby generator. The WTP has a rated capacity of 7,880 m³/day.

1.3 Facility Specifics

- The Wawa Water Treatment Plant is a Class II Plant. This type of facility requires the Overall Responsible Operator (ORO) to have a Class II Operator License. The Water and Wastewater Lead Hand possess a Class II Water Treatment License and a Class II Water Distribution License.
- Maximum rate of Raw Water Taking: 25,000 m³/day
- Waterworks Number: 210000050

1.4 Format

Chapter 2 of this report deals with the performance of the system and compliance with the requirements of the Act, Regulations, the system's approval, drinking water works permit, municipal drinking water license and any orders applicable to the system that were not met at any time during the period covered by the report.

Chapter 3 presents conclusions of the performance of the system.

2.0 System Requirements

2.1 The Act and Regulations

2.1.1 General

The system was compliant with the Act and Regulations during 2023.

2.1.2 Municipal Drinking Water Licence

MUNICIPAL DRINKING WATER LICENCE (2), Licence Number: 231-101, Issued June 07, 2016.

2.1.3 Drinking Water Works Permit

DRINKING WATER WORKS PERMIT (2), Permit Number: 231-201, Issued May 19, 2016.

2.1.4 Permit to take Water

The new Permit to Take Water (PTTW) # 8801-A3ZKAL, which renews, and replaces PTTW #1086-88UQXZ, was issued to The Corporation of the Municipality of Wawa on November 24, 2015.

2.1.5 MECP Inspection Report

The Ministry of Environment, Conservation and Parks (MECP) inspection report outlines the design, operating requirements and observations of the inspector, and includes recommendations and orders where required. Additional items are identified as best practices and serve as a guide to the Municipality and its Operators.

The MECP completed a their 2022/2023 inspection of the Wawa Drinking Water System on September 29, 2022, and completed the inspection on March 20, 2023 (Event No. 1-111238073). This inspection, completed by Ministry Inspector Stephen Rouleau is conducted annually (or more often as required) and can be either announced, in which the operators have advance notification of the inspection, or unannounced, wherein no notice is given. This report was submitted to the Municipality of Wawa on March 24, 2023. The inspection report which follows a structured format, outlines the design, operating requirements and observations of the inspector, along with recommendations and orders where required. Additional items are identified as "Best Practices" and serve as a guidance to the Municipality and operators. Also with the inspection there is inspection summary rating record. The report and inspection rating is attached as Appendix D

There were no non-compliance or additional actions identified in the 2022/2023 inspection report.

2.1.6 Drinking Water Quality Management Standard (DWQMS)

The Drinking Water Quality Management Standard (DWQMS) is a made in Ontario management standard developed specially by the drinking water sector for municipal residential drinking water systems. It is also a tool for Owners and Operators of a drinking system to help ensure that consistent processes and procedures are in place to manage production and delivery of high-quality drinking water.

The development and implementation of the Municipal Drinking Water Licensing Program is based on Justice O'Connor's recommendations in the Walkerton Inquiry Report. A municipal drinking water license is an approval that is issued by the Ministry of the Environment to owners under the Safe Drinking Water Act, 2002 (SDWA) for the operation of municipal residential drinking water systems.

The Municipality of Wawa DWS received their Certificate of Accreditation for a Full Scope Drinking Water Quality Management Standard (DWQMS) renewal on December 12, 2022. The Certificate of Accreditation is attached as Appendix C.

2.2 Operational Checks, Sampling and Testing

2.2.1 Continuous Monitoring Equipment

In accordance with the Drinking Water Works Permit (Issue #2), the Wawa WTP is equipped with continuous monitoring equipment to sample and test for free chlorine residual, turbidity and fluoride concentration in the water leaving the plant. These parameters and others—such as pH—are measured at critical points in the treatment sequence to assist with operational decision making. The data is transmitted to and archived in a designated SCADA system computer in the main control room. The SCADA system analyzes and archives the data to generate daily, monthly and annual reports. Operational set points are programmed into the SCADA system which triggers an auto-dialer if an alarm condition occurs. The auto-dialer notifies Operational Personnel of any potential problems.

2.2.2 Free Chlorine Residual

Free chlorine residual is monitored continuously and recorded every second going into the chlorine contact chambers. This is consistent with the requirements in Schedule 7 of Regulation 170/03 that indicated that "...sampling and testing for free chlorine residual is carried out by continuous monitoring equipment in the treatment process at or near a location where the intended contact time has just been completed in accordance with the Ministry Procedure for Disinfection of Drinking Water in Ontario."

Chlorine residual readings of the water entering the clear wells for the year was averaged at 0.95 mg/L and for water being pumped to the distribution system was averaged at of 0.85 mg/L. Refer to Table 1 for the minimum and maximum.

2.2.3 Turbidity

At the Wawa Water Treatment Plant, turbidity is continuously monitored in the effluent from each of the three membrane filter skids and recorded every second, consistent with Regulation 170/03. From January 1 to December 31, 2023 the average turbidity from all three skids was 0.03 NTU.

The Ministry Procedure for Disinfection of Drinking Water in Ontario further requires that filtered water turbidity from membrane filtration processes be less than or equal to 0.10 NTU in 95% of the measurements each month in order to claim 2.0 + log cryptosporidium removal credit. Information from the operations at the plant indicates that this condition was met.

The turbidity for the water being pumped to distribution is also monitored and recorded every second. From January 1 to December 31, 2023, the average was 0.07 NTU. Refer to Table 1 below for the minimum and maximum.

2.2.4 Fluoride

At the Wawa Water Treatment Plant, fluoride is continuously monitored in the discharge from the high lift pumps and recorded at one second intervals. The average of the concentration recorded for the period of January 1 to December 31, 2023 was 0.71 mg/L. Regulation 170/03 (Schedule 7, sub.7.4) only requires fluoride testing once every day.

As per Ontario regulation 169/03 for Ontario Drinking Water Quality Standards the Maximum Allowable Concentration for fluoride is 1.5 mg/L for systems that provide fluoridation and if you have an exceedance of the Maximum Allowable Concentration, it is to be treated as an indicator of adverse water quality and must be reported to the proper authorities. There were no fluoride adverse incidents. Refer to Table 1 below for the minimum and maximum.

Table 1: Annual Summary of Operational Checks for 2023

Parameter	Number of Samples	Minimum	Average	Maximum
Free Chlorine Residual Entering CT Chamber (mg/L)	Online Analyzer (sample every second)	0.16	0.95	2.75
Free Chlorine Residual Pumped to the Distribution System (mg/L)	Online Analyzer (sample every second)	0.12	0.85	5.00
Turbidity Effluent from Each of the Three Membrane Filter Skids (NTU)	Online Analyzer (sample every second)	0.01	0.03	0.89
Fluoride Residual Pumped to the Distribution System (mg/L)	Online Analyzer (sample every second)	0.09	0.71	2.00
Distribution System Turbidity (NTU)	Online Analyzer (sample every second)	0.02	0.07	9.99

Note: The minimum and maximum residuals do not show true; there are the “spikes” in the readings that are caused by routine maintenance on analyzers (turning power off and back on). After maintenance, Operations Staff complete grab samples to calibrate the unit. This method has been discussed with and accepted by the Ministry of the Environment, Conservation and Parks.

2.2.5 Microbiological Sampling and Testing

The Regulation requires that:

1. In the distribution system, a minimum of twelve samples must be taken monthly and tested for:
 - E-Coli;
 - Total Coliforms; and
 - HPC (25% of the samples tested for this).

At least one of these samples must be taken every week.

2. Treated water samples at the Wawa WTP are to be taken at least once every week and tested for:
 - E-Coli or Fecal Coliform;
 - Total Coliforms; and
 - HPC.
3. Raw water samples at the WTP are to be taken at least once every week and tested for:
 - E-Coli; and,
 - Total Coliform.

Testing has conformed to the requirements of Regulation 170/03.

2.2.6 Chemical Testing

In accordance with Ontario Regulation 170/03, Schedule 13 – Chemical Sampling and Testing, for Large Municipal Residential System with surface water supply, the following testing is to be performed annually:

- Schedule 23 – Inorganic parameters;
- Schedule 24 – Organic parameters; and
- Lead – new mandatory testing since December 2007 – of testing for lead in the distribution system and into household plumbing. Refer to Table 2 on the for results from the 2023 lead sampling in the Municipality.

Table 2: Summary of Annual Lead Testing under Schedule 15.1

	Number of Samples	Range of Lead Results (min # - max #)	Number of Exceedances
Plumbing	N/A	N/A	N/A
Distribution	4	<1.0 - 1.0	0

It should be noted that during a voluntary sampling program with the MECP, a sample result indicated that the sample contained high lead concentrations. With the guidance of APH, resampling was completed which identified that the fixture that the sample was taken from contained lead. The fixture is within a municipal building and is not accessible to the public. Under APH direction, a notice was posted above the fixture indicating the water is not potable due to lead. There is no risk of lead poisoning to the public.

Note: As per the Amended Reg.170/03 (Drinking Water System) made under the Safe Drinking Water Act, 2002, the Community Lead Testing Program (Schedule 15.1) The Municipality of Wawa is now exempt from plumbing sampling for lead. As per Drinking Water System Regulation 170/03, made under the Safe Drinking water Act 2002, schedule 15.1-4 subsection 10.

In accordance with Ontario Regulation 170/03, Schedule 13 – Chemical Sampling and Testing, for Large Municipal Residential System with surface water supply, the following testing is to be performed quarterly:

- THM;
- HAA; and
- Nitrates and Nitrites.

In accordance with Ontario Regulation 170/03, Schedule 13 – Chemical Sampling and Testing, for Large Municipal Residential System with surface water supply, the following testing is to be performed every 60 months:

- Sodium

A review of the Municipality’s records confirmed that all testing was performed as required during this reporting period. There was one incident of low pressure in the distribution system as a result of a power failure to the WTP’s PLC. A BWA was not issued and subsequent distribution system sampling indicated that the drinking water distribution system was not adversely affected by the drop in pressure.

In 2014, the annual average for THMs in the Municipality’s drinking water was 112.9 µg/L, exceeding the current allowable concentration of 100 µg/L. This does not pose any short-term or acute health risk. However, the Algoma Public Health Unit issued a drinking water advisory (DWA) for the whole Municipality on November 26, 2014. As a result of the efforts taken by the Municipality to reduce the THM concentration, the DWA from The Algoma Public Health Unit was lifted on June 10, 2020. The average THM concentration in 2023 was 78.4 µg/L.

THMs are formed as a by-product predominantly when chlorine is used to disinfect water for drinking. They represent one group of chemicals generally referred to as disinfection by-products. They result from the reaction of chlorine or bromine with organic matter present in the water being treated.

In addition, the Ontario Drinking Water Standard for Haloacetic Acids (HAAs) came into effect January 1, 2020, the standard is 80.0 µg/L. The Municipality’s average for 2023 was 48.9 µg/L.

Furthermore, the Municipality began a monitoring testing plan in August 2019 as per the June 2019 inspection report’s summary recommendations and best management practices. In 2023, the Municipality sampled seasonally (July to October) raw and treated water, with the average Microcystin (Blue /Green Algae) at a level of <0.1 µg/L, well below the maximum acceptable concentration of 1.5 µg/L.

The Municipality of Wawa was also selected by the MECP to participate in a Drinking Water Surveillance Program (DWSP). This program is voluntary and no cost to the Municipality. Samples are routinely taken and sent to the MECP lab in Etobicoke, Ontario for analysis. The Operators consider this program to be another beneficial resource for monitoring water quality for the Municipality.

3.0 System Performance

The Wawa WTP flows are monitored continuously in the raw water intake and discharge to the distribution system, and are recorded on the SCADA system. Daily reports are generated that indicate the minimum, average, maximum and total monthly, and yearly flow. Table 3 illustrates the monthly maximum raw water and finished water flows, and Table 4 summarizes the plants annual flows and water consumption for 2023.

Table 3: Maximum Raw Water and Finished Water Flows

Month	Maximum Raw Water Taking Flow (m³/d)	Maximum Finished Water to Distribution System Flow (m³/d)
January	3,270.50	2,775.90
February	3,847.20	3,000.40
March	3,979.60	2,912.00
April	3,450.00	2,892.70
May	2,879.20	2,556.70
June	3,035.10	2,559.70
July	2,538.70	2,212.00
August	2,712.20	2,163.30
September	2,289.60	1,869.00
October	2,254.10	1,823.00
November	2,450.60	2,139.10
December	3,347.20	2,612.80
Maximum Allowable Daily Volume	25,000.00	7,880.00
Highest % of Maximum Volume	16%	38%

Table 4: Summary of Annual Flows and Water Consumption

Month	Total Consumption (m³)	Average Daily Flow (m³/d)	Maximum Daily Flow (m³/d)	Instantaneous Peak Flow (L/s)	Wawa Monthly Consumption (m³)	Net MRV Monthly Consumption (m³)
January	74,926.00	2,416.97	2,775.90	59.10	73,321.00	1,605.00
February	69,710.90	2,489.68	3,000.40	53.90	68,395.90	1,315.00
March	80,682.90	2,602.90	2,912.00	59.90	79,116.90	1,566.00
April	70,537.50	2,351.25	2,892.70	63.80	69,266.50	1,271.00
May	69,905.20	2,255.00	2,556.70	53.10	68,335.20	1,570.00
June	59,435.90	1,917.29	2,559.70	69.90	57,589.90	1,846.00
July	51,134.00	1,649.40	2,212.00	51.10	49,375.00	1,759.00
August	57,784.70	1,864.00	2,163.30	73.50	55,862.70	1,922.00
September	44,717.80	1,443.00	1,869.00	49.30	43,354.80	1,363.00
October	44,342.10	1,478.00	1,823.00	39.90	42,845.10	1,497.00
November	54,464.00	1,815.40	2,139.10	50.50	53,032.00	1,432.00
December	73,400.60	2,367.70	2,612.80	50.60	71,520.60	1,880.00
Annual Totals	Total Consumption (m³)	Average Daily Flow (m³/d)	Maximum Daily Flow (m³/d)	Maximum Peak Flow (m³/d)	Wawa Total Consumption (m³)	MRV Total Consumption (m³)
	751,041.60	2,054.22	3,000.40	73.50	732,015.60	19,026.00

The Wawa Water Treatment Plant has an approved, rated treatment capacity of 7,880 m³/day which includes an allowance of 392 m³/day to serve Michipicoten River Village. The maximum day flow in 2023 was 3,000.4 m³/day, which is approximately 38.1% of the WTP total rated capacity. The maximum recorded instantaneous flow rate was 73.5 L/s that occurred during the month of August.

Appendix A

Definition of Terms

AWQI	Adverse water quality incident
CT value	Product of disinfectant concentration and contact time (mg-min/L)
DWS	Drinking water system
EC	E. Coli
HAA	Haloacetic acids
HPC	Heterotrophic plate count
MAC	Maximum Acceptable Concentration
MECP	Ministry of the Environment, Conservation and Parks
m³	Cubic metres
m³/d	Cubic metres per day
mg/L	Milligram per litre (part per million)
ML	Megalitre (1000 m ³)
NTU	Nephelometric turbidity unit
ODWS	Ontario Drinking Water Standards
O. Reg. 170/03	Ontario Regulation 170/03
PLC	Programmable logic controller
PTTW	Permit to take water
SCADA	Supervisory control and data acquisition
TC	Total coliforms
THM	Trihalomethane
µg/L	Microgram per litre (part per billion)
WD	Water distribution
WT	Water treatment

Appendix B

WAWA DRINKING WATER SYSTEM

Waterworks No. 210000050



Annual Report

2023

WAWA WATER SYSTEM 2023 ANNUAL REPORT

Drinking-Water System Number:	210000050
Drinking-Water System Name:	Wawa Water Supply System
Drinking-Water System Owner:	The Corporation of the Municipality of Wawa
Drinking-Water System Category:	Municipal Residential – Large
Period being reported:	01-01-23 to 31-12-23

<p><u>Complete if your Category is Large Municipal Residential or Small Municipal Residential</u></p> <p>Does your Drinking-Water System serve more than 10,000 people? Yes [] No [X]</p> <p>Is your annual report available to the public at no charge on a web site on the Internet? Yes [X] No []</p> <p>Location where Summary Report required under O. Reg. 170/03 Schedule 22 will be available for inspection.</p> <table border="1" style="width: 100%;"> <tr> <td>Municipal Office 40 Broadway Avenue Wawa, Ontario POS 1K0</td> </tr> </table>	Municipal Office 40 Broadway Avenue Wawa, Ontario POS 1K0	<p><u>Complete for all other Categories.</u></p> <p>Number of Designated Facilities served:</p> <p align="center">N/A</p> <p>Did you provide a copy of your annual report to all Designated Facilities you serve? Yes [] No [X]</p> <p>Number of Interested Authorities you report to:</p> <p align="center">N/A</p> <p>Did you provide a copy of your annual report to all Interested Authorities you report to for each Designated Facility? Yes [] No [X]</p>
Municipal Office 40 Broadway Avenue Wawa, Ontario POS 1K0		

Note: For the following tables below, additional rows or columns may be added or an appendix may be attached to the report

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

Drinking Water System Name	Drinking Water System Number
--- NONE ---	

Did you provide a copy of your annual report to all Drinking-Water System owners that are connected to you and to whom you provide all of its drinking water?

Yes [] No [X]

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

Public access/notice via the web

Public access/notice via Government Office

Public access/notice via a newspaper

Public access/notice via Public Request

Public access/notice via a Public Library

Public access/notice via other method

Describe your Drinking-Water System

Water Treatment Plant consisting of a membrane filtration process with the intake from Wawa Lake. Raw water is pumped through the membrane filters then chlorinated before going to an under-floor reservoir. Sodium hypochlorite is used for pre-chlorination, primary and secondary disinfection, and membrane cleaning. Hydrofluorosilicic acid is added to filtered water before entering the under-floor reservoir. (In 2020, the addition of aluminum sulphate to the raw water was initiated on July 15, 2020, to reduce THMs (Trihalomethanes) in the drinking water. Aluminum sulphate (Alum) is used as a coagulant to reduce organic matter in the water. With alum added, organic matter combines to form particles large enough to be removed from the water during filtration and before sodium hypochlorite addition (chlorine). With reduced levels of organic matter in the water, less chlorine is required and in-turn, less THMs and other disinfection by-products (like haloacetic acids, HAAs) are formed. Water quality analysis results from samples collected in the water treatment plant and in the water distribution system confirmed a reduction in THMs, HAAs and chlorine demand. The need to use alum is anticipated to be on a seasonal basis, when levels of naturally occurring organic matter is greatest. Alum addition ceased in November and the water quality analysis results will be reviewed to help confirm appropriate start and stop dates for 2023.

Residue from the filter backwash and acid cleaning can be discharged to the municipal sanitary sewer system or to the storm sewer system. Continuous analyzers are in place for turbidity, chlorine residual and fluoride monitoring. Flow meters are used to monitor raw water flow into each filter train and treated and chlorinated water entering the under-floor reservoir.

A transmission main connects the Wawa water distribution system to the elevated water storage tank at the Michipicoten River Village, where a "touch-up" chlorination facility using sodium hypochlorite is installed.

List all water treatment chemicals used over this reporting period

- Sodium hypochlorite
- Hydrofluorosilicic acid
- Aluminum Sulphate (seasonally)

Were any significant expenses incurred to?

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

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

- Uninterrupted Power Supply Replacement for 3 PLCs: \$11,459.33
- Corrosion resistant heater for chemical room: \$6,582.25
- Transformer and Fan Replacement for Air Compressors: \$6,053.41
- Snow guards for WTP solar panels: \$11,526.00
- HDPE Filter Tank Replacement:
- Chemical Dosing Pumps, Monitoring Equipment and Instrument Replacements: \$17,662.30
- Skid A 30 Filter Module Replacement: \$200,608.42

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

<i>Incident Date</i>	<i>Parameter</i>	<i>Result</i>	<i>Unit of Measure</i>	<i>Corrective Action</i>	<i>Corrective Action Date</i>
August 11, 2023	High lead concentration	67.4	ug/L	Resampled from the fixture that contained high lead concentration. With assistance from APH, concluded it was the fixture used to retrieve the sample that had high lead concentration. A notice was posted above the fixture indicating the water is not potable due to high lead concentration.	August 25, 2023
September 8, 2023	Low Pressure in Distribution System	Pressure in system dropped	N/A	WTP returned to being online, bacterial testing identified that the system was not impacted by the drop in pressure	September 11, 2023

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

	Number of Samples	Range of E.Coli or Fecal Results (min #)-(max #)	Range of Total Coliform Results (min #)-(max #)	Number of HPC Samples	Range of HPC Results (min #)-(max #)
Raw	52	<1 - 4	<1 - 156	N-A	N-A
Treated	51	Absent	Absent	51	<1 - 2
Distribution	203	Absent	Absent	51	0 - 4

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

Water Treatment Plant

	Number of Grab Samples	Minimum	Average	Maximum
Turbidity (NTU)	8,760	0.00	0.033	0.890
Chlorine (mg/l)	8,760	0.118	0.854	5.000
Fluoride (mg/l)	8,760	0.090	0.706	2.000

NOTE: For continuous monitors use 8760 as the number of samples.

Note: Minimum and Maximum levels are caused by instrument spikes due to maintenance to the instruments.

Distribution System

	Number of Samples	Minimum	Average	Maximum
Chlorine Residual (mg/l)	365	0.34	0.80	1.08

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

Date of legal instrument issued	Parameter	Date Sampled	Result	Unit of Measure
Certificate of Approval 7805-76ZKUC	Waste Water Suspended Solids	N/A	None	No Discharge
Certificate of Approval 7805-76ZKUC	Waste Water Chlorine Residual	N/A	None	No Discharge

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

Parameter	Sample Date	Result Value	Unit of Measure	Exceedance
Antimony	14-Dec-23	<0.60	µg/L	No
Arsenic	14-Dec-23	<1.0	µg/L	No
Barium	14-Dec-23	<10	µg/L	No
Boron	14-Dec-23	<50	µg/L	No
Cadmium	14-Dec-23	<0.10	µg/L	No
Chromium	14-Dec-23	<1.0	µg/L	No
Fluoride	14-Dec-23	0.462	mg/L	No
*Lead				
Mercury	14-Dec-23	<0.100	µg/L	No
Nitrate	11-Apr-23	0.067	µg/L	No
Nitrite	14-Dec-23	<0.010	µg/L	Yes
Selenium	14-Dec-23	<1.0	µg/L	No

Sodium				No
Uranium	14-Dec-23	<2.0	µg/L	No

Note: Only for drinking water systems testing under Schedule 15.2; this includes large municipal non-residential systems, small municipal non-residential systems, non-municipal seasonal residential systems, large non-municipal non-residential systems, and small non-municipal non-residential systems

Summary of lead testing under Schedule 15.1 during this reporting period

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

Note: The Municipality of Wawa is now exempt from plumbing sampling for lead. As per Drinking water System Regulation 170/03, made under the Safe Drinking water Act 2002, schedule 15.1-4 subsection 10.

Location Type	Number of Samples	Range of Lead Results (min#) – (max #)	Number of Exceedances
Plumbing	N/A	N/A	N/A
Distribution	4	<1.0 - 1.0	0

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

Parameter	Sample Date	Result Value	Unit of Measure	Exceedance
Alachlor	14-Dec-23	<0.10	µg/L	No
Aldicarb				
Aldrin + Deildrin				
Atrazine + N-dealkylated metabolites	14-Dec-23	<0.20	µg/L	No
Azinphos-methyl	14-Dec-23	<0.10	µg/L	No
Bendiocarb				
Benzene	14-Dec-23	<0.50	µg/L	No
Benzo(a)pyrene	14-Dec-23	<0.0050	µg/L	No
Bromoxynil	14-Dec-23	<0.200	µg/L	No
Carbaryl	14-Dec-23	<0.20	µg/L	No
Carbofuran	14-Dec-23	<0.20	µg/L	No
Carbon Tetrachloride	14-Dec-23	<0.20	µg/L	No
Chlordane (Total)				
Chlorpyrifos	14-Dec-23	<0.10	µg/L	No
Cyanazine				
Diazinon	14-Dec-23	<0.10	µg/L	No
Dicamba	14-Dec-23	<0.20	µg/L	No
1,2-Dichlorobenzene	14-Dec-23	<0.50	µg/L	No

Parameter	Sample Date	Result Value	Unit of Measure	Exceedance
1,4-Dichlorobenzene	14-Dec-23	<0.50	µg/L	No
Dichlorodiphenyltrichloroethane (DDT) + metabolites				
1,2-Dichloroethane	14-Dec-23	<0.50	µg/L	No
1,1-Dichloroethylene (Vinylidene Chloride)	14-Dec-23	<0.50	µg/L	No
Dichloromethane	14-Dec-23	<1.0	µg/L	No
2-4 Dichlorophenol	14-Dec-23	<0.30	µg/L	No
2,4-Dichlorophenoxy acetic acid (2,4-D)	14-Dec-23	9.9	µg/L	No
Diclofop-methyl	14-Dec-23	<0.10	µg/L	No
Dimethoate	14-Dec-23	<0.10	µg/L	No
Dinoseb				
Diquat	14-Dec-23	<1.0	µg/L	No
Diuron	14-Dec-23	<1.0	µg/L	No
Glyphosate	14-Dec-23	<0.20	µg/L	No
Haptachlor + Heptachlor Epoxide				
Lindane (Total)				
Malathion	14-Dec-23	<0.10	µg/L	No
Methoxychlor				
Metolachlor	14-Dec-23	<0.10	µg/L	No
Metribuzin	14-Dec-23	<0.10	µg/L	No
Monochlorobenzene				
Paraquat	14-Dec-23	<1.0	µg/L	No
Parathion				
Pentachlorophenol	14-Dec-23	<0.50	µg/L	No
Phorate	14-Dec-23	<0.10	µg/L	No
Picloram	14-Dec-23	<0.20	µg/L	No
Polychlorinated Biphenyls (PCB)	14-Dec-23	<0.030	µg/L	No
Prometryne	14-Dec-23	<0.10	µg/L	No
Simazine	14-Dec-23	<0.10	µg/L	No
THM (See latest annual average)				
Temephos				
Terbufos	14-Dec-23	<0.10	µg/L	No
Tetrachloroethylene	14-Dec-23	<0.50	µg/L	No
2,3,4,6-Trichlorophenol	14-Dec-23	<0.50	µg/L	No
Triallate	14-Dec-23	<0.10	µg/L	No
Trichloroethylene	14-Dec-23	<0.50	µg/L	No
2,4,6-Trichlorophenol	14-Dec-23	<0.50	µg/L	No
2,4,6-Trichlorophenoxy acetic acid (2,4,5-T)				
Trifluralin	14-Dec-23	<0.10	µg/L	No

Parameter	Sample Date	Result Value	Unit of Measure	Exceedance
Vinyl Chloride	14-Dec-23	<0.50	µg/L	No

THM – Summary Table

Date of Test	Location	Results (µg/L)
16-Jan-23	MRV Water Tower	99.2
14-Feb-23	MRV Water Tower	88.4
02-Feb-23	MRV Water Tower	81.7
13-Mar-23	MRV Water Tower	81.4
27-Mar-23	MRV Water Tower	93.7
11-Apr-23	MRV Water Tower	75.3
26-Apr-23	MRV Water Tower	88.5
05-May-23	MRV Water Tower	103
22-May-23	MRV Water Tower	116
30-May-23	MRV Water Tower	70.5
12-Jun-23	MRV Water Tower	63.5
27-Jun-23	MRV Water Tower	73
07-Jul-23	MRV Water Tower	69.9
25-Jul-23	MRV Water Tower	60.9
08-Aug-23	MRV Water Tower	69.4
22-Aug-23	MRV Water Tower	73
05-Sep-23	MRV Water Tower	77.9
18-Sep-23	MRV Water Tower	97.2
02-Oct-23	MRV Water Tower	66
16-Oct-23	MRV Water Tower	49
31-Oct-23	MRV Water Tower	45.3
12-Dec-23	MRV Water Tower	82.5

Average THM's for the year 2023 was 78.4 µg/L with the maximum acceptable concentration of 100 µg/L (A). "A" – The standard for THM's is expressed as a running annual average.

HAA – Summary Table

Date of Test	Location	Results (µg/L)
16-Jan-23	3 Chris Simon Drive	56.6
04-Apr-23	3 Chris Simon Drive	56.2
11-Jul-23	3 Chris Simon Drive	49.1
16-Oct-23	3 Chris Simon Drive	33.7

Average HAA's for the year 2023 was 48.9 µg/L with the maximum acceptable concentration of 80 µg/L (A). "A" – The standard for HAA's is expressed as a running annual average.

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

Parameter	Result Value	Unit of Measure	Date of Sample

Appendix C

Drinking Water Quality Management Standard

Certificate of Accreditation



CERTIFICATE OF ACCREDITATION

This is to certify that the following operating authority:

Municipality of Wawa

40 Broadway Avenue, Wawa, Ontario P0S 1K0 Canada

Refer to Attachment to Certificate of Accreditation dated December 12, 2022 for additional drinking water systems

operates a

Quality Management System

which conforms with the requirements of

DRINKING WATER QUALITY MANAGEMENT STANDARD VERSION 2 - 2017

for the following scope of accreditation

Full Scope - Entire DWQMS

Certificate No.: CERT-0148753
File No.: 1633210
Issue Date: December 12, 2022

Original Certification Date: December 17, 2013
Certification Effective Date: December 14, 2022

Calin Moldovean
President, Business Assurance
SAI Global Assurance



DWQMS 2017



ATTACHMENT TO CERTIFICATE OF ACCREDITATION

These sites are accredited under Certificate No: CERT-0148753 issued on December 12, 2022

File No.

1633210

Municipality of Wawa

40 Broadway Avenue, Wawa, Ontario P0S 1K0 Canada

Effective Date

December 14, 2022

Drinking Water Systems

	Site No.	Site Name
Yes	1633211	Wawa Drinking Water System

These accreditations are dependent on Municipality of Wawa (File No. 1633210) maintaining their scope of registration to DRINKING WATER QUALITY MANAGEMENT STANDARD VERSION 2 - 2017

Appendix D

Ministry of the Environment, Conservation and Parks

Wawa Drinking Water System
Inspection Report and Inspection Rating



WAWA DRINKING WATER SYSTEM
40 BROADWAY AVE, WAWA, ON, P0S 1K0
Inspection Report

System Number: 210000050
Entity: CORPORATION OF THE
MUNICIPALITY OF WAWA
Inspection Start Date: 09/29/2022
Inspection End Date: 03/20/2023
Inspected By: Stephen Rouleau
Badge #: 600
Inspected By: Marnie Managhan
Badge #: 718



(signature)

NON-COMPLIANCE/NON-CONFORMANCE ITEMS

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

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

INSPECTION DETAILS

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

Ministry Program: DRINKING WATER | **Regulated Activity:**

Question ID	MRDW1001001	Question Type	Information
Question: What was the scope of this inspection?			
Legislative Requirement	Not Applicable		
Observation			
<p>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.</p> <p>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.</p> <p>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. The scope of this inspection covers the period of January 1, 2022 to December 31, 2022.</p>			

Question ID	MRDW1000001	Question Type	Information
Question: Does this drinking water system provide primary disinfection?			
Legislative Requirement	Not Applicable		
Observation			
This Drinking Water System provides for both primary and secondary disinfection and distribution of water.			

Question ID	MRDW1018001	Question Type	Legislative
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Question:	
Has the owner ensured that all equipment is installed in accordance with Schedule A and Schedule C of the Drinking Water Works Permit?	
Legislative Requirement	SDWA 31 (1);
Observation	
The owner had ensured that all equipment was installed in accordance with Schedule A and Schedule C of the Drinking Water Works Permit.	

Question ID	MRDW1020001	Question Type	Legislative
Question:			
Is the owner/operating authority able to demonstrate that, when required during the inspection period, Form 1 documents were prepared in accordance with their Drinking Water Works Permit?			
Legislative Requirement	SDWA 31 (1);		
Observation			
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.			

Question ID	MRDW1021001	Question Type	Legislative
Question:			
Is the owner/operating authority able to demonstrate that, when required during the inspection period, Form 2 documents were prepared in accordance with their Drinking Water Works Permit?			
Legislative Requirement	SDWA 31 (1);		
Observation			
The owner/operating authority was in compliance with the requirement to prepare Form 2 documents as required by their Drinking Water Works Permit during the inspection period.			

Question ID	MRDW1114001	Question Type	Legislative
Question:			
Does the owner have evidence that, when required, all legal owners associated with the DWS were notified of the requirements of the Licence & Permit?			
Legislative Requirement	SDWA 31 (1);		

Observation
The owner had evidence that required notifications to all legal owners associated with the Drinking Water System had been made during the inspection period.

Question ID	MRDW1025001	Question Type	Legislative
Question:			
Were all parts of the drinking water system that came in contact with drinking water (added, modified, replaced or extended) disinfected in accordance with a procedure listed in Schedule B of the Drinking Water Works Permit?			
Legislative Requirement	SDWA 31 (1);		
Observation			
All parts of the drinking water system were disinfected in accordance with a procedure listed in Schedule B of the Drinking Water Works Permit.			

Question ID	MRDW1024001	Question Type	Legislative
Question:			
Do records confirm that the water treatment equipment which provides chlorination or chloramination for secondary disinfection purposes was operated as required?			
Legislative Requirement	SDWA O. Reg. 170/03 1-2 (2);		
Observation			
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.			

Question ID	MRDW1038001	Question Type	Legislative
Question:			
Is continuous monitoring equipment that is being utilized to fulfill O. Reg. 170/03 requirements 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?			
Legislative Requirement	SDWA O. Reg. 170/03 6-5 (1)1-4;		
Observation			

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.

Question ID	MRDW1035001	Question Type	Legislative
Question: Are operators examining continuous monitoring test results and are they examining the results within 72 hours of the test?			
Legislative Requirement	SDWA O. Reg. 170/03 6-5 (1)1-4; SDWA O. Reg. 170/03 6-5 (1)5-10;		
Observation Operators were examining continuous monitoring test results and they were examining the results within 72 hours of the test.			

Question ID	MRDW1037001	Question Type	Legislative
Question: Are all continuous monitoring equipment utilized for sampling and testing required by O. Reg. 170/03, or MDWL or DWWP or order, equipped with alarms or shut-off mechanisms that satisfy the standards described in Schedule 6?			
Legislative Requirement	SDWA O. Reg. 170/03 6-5 (1)1-4; SDWA O. Reg. 170/03 6-5 (1)5-10; SDWA O. Reg. 170/03 6-5 (1.1);		
Observation 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.			

Question ID	MRDW1040000	Question Type	Legislative
Question: Are all continuous analysers calibrated, maintained, and operated, in accordance with the manufacturer's instructions or the regulation?			
Legislative Requirement	SDWA O. Reg. 170/03 6-5 (1)1-4; SDWA O. Reg. 170/03 6-5 (1)5-10;		
Observation			

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

Question ID	MRDW1108001	Question Type	Legislative
Question:			
Where continuous monitoring equipment used for the monitoring of free chlorine residual, total chlorine residual, combined chlorine residual or turbidity, required by O. Reg. 170/03, an Order, MDWL, or DWWP issued under Part V, SDWA, has triggered an alarm or an automatic shut-off, did a qualified person respond in a timely manner and take appropriate actions?			
Legislative Requirement	SDWA O. Reg. 170/03 6-5 (1)1-4; SDWA O. Reg. 170/03 6-5 (1)5-10; SDWA O. Reg. 170/03 6-5 (1.1);		
Observation			
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.			

Question ID	MRDW1033001	Question Type	Legislative
Question:			
Is the secondary disinfectant residual measured as required for the large municipal residential distribution system?			
Legislative Requirement	SDWA O. Reg. 170/03 7-2 (3); SDWA O. Reg. 170/03 7-2 (4);		
Observation			
The secondary disinfectant residual was measured as required for the large municipal residential distribution system.			

Question ID	MRDW1034001	Question Type	Legislative
Question:			
Is the secondary disinfectant residual measured as required for the small municipal residential distribution system?			
Legislative Requirement	SDWA O. Reg. 170/03 7-2 (5); SDWA O. Reg. 170/03 7-2 (6);		
Observation			
The secondary disinfectant residual was measured as required for the small municipal residential distribution system.			

residential distribution system.

Question ID	MRDW1099001	Question Type	Information
Question: Do records 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)?			
Legislative Requirement	Not Applicable		
Observation 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).			

Question ID	MRDW1081001	Question Type	Legislative
Question: For LMR systems, are all microbiological water quality monitoring requirements for distribution samples being met?			
Legislative Requirement	SDWA O. Reg. 170/03 10-2 (1); SDWA O. Reg. 170/03 10-2 (2); SDWA O. Reg. 170/03 10-2 (3);		
Observation All microbiological water quality monitoring requirements prescribed by legislation for distribution samples in a large municipal residential system were being met.			

Question ID	MRDW1096001	Question Type	Legislative
Question: Do records confirm that chlorine residual tests are being conducted at the same time and at the same location that microbiological samples are obtained?			
Legislative Requirement	SDWA O. Reg. 170/03 6-3 (1);		
Observation Records confirmed that chlorine residual tests were being conducted at the same time and at the same location that microbiological samples were obtained.			

Question ID	MRDW1086001	Question Type	Legislative
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Question:	
Are all haloacetic acid water quality monitoring requirements prescribed by legislation conducted within the required frequency and at the required location?	
Legislative Requirement	SDWA O. Reg. 170/03 13-6.1 (1); SDWA O. Reg. 170/03 13-6.1 (2); SDWA O. Reg. 170/03 13-6.1 (3); SDWA O. Reg. 170/03 13-6.1 (4); SDWA O. Reg. 170/03 13-6.1 (5); SDWA O. Reg. 170/03 13-6.1 (6);
Observation	
<p>All haloacetic acid water quality monitoring requirements prescribed by legislation were conducted within the required frequency and at the required location. HAA's can be formed due to the presence of the same or similar precursors and conditions in the raw water which create THMs.</p> <p>Regular testing of HAA's began as part of a province wide sample program (2017 to 2019). This testing indicated that the Wawa system operated in compliance with this standard. However, the average typically remained in the 60-70 ug/l range, during this period.</p> <p>The use of the coagulation system appears to have also resulted in a reduction in the HAA levels. In 2021 and 2022 the individual samples and the running average typical remained in the 40's ug/l range.</p>	

Question ID	MRDW1087001	Question Type	Legislative
Question:			
Have all trihalomethane water quality monitoring requirements prescribed by legislation been conducted within the required frequency and at the required location?			
Legislative Requirement	SDWA O. Reg. 170/03 13-6 (1); SDWA O. Reg. 170/03 13-6 (2); SDWA O. Reg. 170/03 13-6 (3); SDWA O. Reg. 170/03 13-6 (4); SDWA O. Reg. 170/03 13-6 (5); SDWA O. Reg. 170/03 13-6 (6);		
Observation			
<p>All trihalomethane water quality monitoring requirements prescribed by legislation were conducted within the required frequency and at the required location. The municipality has taken significant actions to reduce and control THM levels. The use of coagulation and the other actions taken appears to have assisted in keeping THM averages and individual samples below the 100 ug/l Ontario drinking water limit for approximately 5 years.</p> <p>THM levels can be very variable due to the many factors which can influence their production. The project to add coagulation to the system during the historically higher months (which typically occur in the spring, summer or fall), appears to be controlling THM production.</p>			

Since the introduction of coagulation the THM running average has remained below the 80 ug/l objective.

Question ID	MRDW1094001	Question Type	Legislative
Question: Are all water quality monitoring requirements imposed by the MDWL and DWWP being met?			
Legislative Requirement	SDWA 31 (1);		
Observation All water quality monitoring requirements imposed by the MDWL or DWWP issued under Part V of the SDWA were being met.			

Question ID	MRDW1101001	Question Type	Legislative
Question: For LMR Systems, have corrective actions (as per Schedule 17 of O. Reg. 170/03) been taken to address adverse conditions, including any other steps as directed by the Medical Officer of Health?			
Legislative Requirement	SDWA O. Reg. 170/03 17-1; SDWA O. Reg. 170/03 17-10 (1); SDWA O. Reg. 170/03 17-11; SDWA O. Reg. 170/03 17-12; SDWA O. Reg. 170/03 17-13; SDWA O. Reg. 170/03 17-14; SDWA O. Reg. 170/03 17-2; SDWA O. Reg. 170/03 17-3; SDWA O. Reg. 170/03 17-4; SDWA O. Reg. 170/03 17-5; SDWA O. Reg. 170/03 17-6; SDWA O. Reg. 170/03 17-9;		
Observation Corrective actions (as per Schedule 17), including any other steps that were directed by the Medical Officer of Health, had been taken to address adverse conditions.			

Question ID	MRDW1103000	Question Type	Legislative
Question: Have corrective actions as directed by the Medical Officer of Health been taken by the owner and operating authority to address exceedances of the lead standard in plumbing?			
Legislative Requirement	SDWA O. Reg. 170/03 15.1-10;		
Observation			

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.

Question ID	MRDW1104000	Question Type	Legislative
Question: Were all required verbal notifications of adverse water quality incidents immediately provided as per O. Reg. 170/03 16-6?			
Legislative Requirement	SDWA O. Reg. 170/03 16-6 (1); SDWA O. Reg. 170/03 16-6 (2); SDWA O. Reg. 170/03 16-6 (3); SDWA O. Reg. 170/03 16-6 (3.1); SDWA O. Reg. 170/03 16-6 (3.2); SDWA O. Reg. 170/03 16-6 (4); SDWA O. Reg. 170/03 16-6 (5); SDWA O. Reg. 170/03 16-6 (6);		
Observation			
All required notifications of adverse water quality incidents were immediately provided as per O. Reg. 170/03 16-6.			

Question ID	MRDW1059000	Question Type	Legislative
Question: Do the operations and maintenance manuals contain plans, drawings and process descriptions sufficient for the safe and efficient operation of the system?			
Legislative Requirement	SDWA O. Reg. 128/04 28;		
Observation			
The operations and maintenance manuals contained plans, drawings and process descriptions sufficient for the safe and efficient operation of the system.			

Question ID	MRDW1060000	Question Type	Legislative
Question: Do the operations and maintenance manuals meet the requirements of the DWWP and MDWL issued under Part V of the SDWA?			
Legislative Requirement	SDWA 31 (1);		
Observation			
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.			

Question ID	MRDW1061001	Question Type	Legislative
Question: Are logbooks properly maintained and contain the required information?			
Legislative Requirement	SDWA O. Reg. 128/04 27 (1); SDWA O. Reg. 128/04 27 (2); SDWA O. Reg. 128/04 27 (3); SDWA O. Reg. 128/04 27 (4); SDWA O. Reg. 128/04 27 (5); SDWA O. Reg. 128/04 27 (6); SDWA O. Reg. 128/04 27 (7);		
Observation			
Logbooks were properly maintained and contained the required information.			

Question ID	MRDW1062001	Question Type	Legislative
Question: Do records or other record keeping mechanisms confirm that operational testing not performed by continuous monitoring equipment is being done by a certified operator, water quality analyst, or person who meets the requirements of O. Reg. 170/03 7-5?			
Legislative Requirement	SDWA O. Reg. 170/03 7-5;		
Observation			
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.			

Question ID	MRDW1071000	Question Type	BMP
Question: Has the owner provided security measures to protect components of the drinking water system?			
Legislative Requirement	Not Applicable		
Observation			
The owner had provided security measures to protect components of the drinking water system.			

Question ID	MRDW1073001	Question Type	Legislative
Question:			

Has the overall responsible operator been designated for all subsystems which comprise the drinking water system?	
Legislative Requirement	SDWA O. Reg. 128/04 23 (1);
Observation	
The overall responsible operator had been designated for each subsystem.	

Question ID	MRDW1074001	Question Type	Legislative
Question: Have operators-in-charge been designated for all subsystems for which comprise the drinking water system?			
Legislative Requirement	SDWA O. Reg. 128/04 25 (1);		
Observation			
Operators-in-charge had been designated for all subsystems which comprise the drinking water system.			

Question ID	MRDW1075001	Question Type	Legislative
Question: Do all operators possess the required certification?			
Legislative Requirement	SDWA O. Reg. 128/04 22;		
Observation			
All operators possessed the required certification.			

Question ID	MRDW1076001	Question Type	Legislative
Question: Do only certified operators make adjustments to the treatment equipment?			
Legislative Requirement	SDWA O. Reg. 170/03 1-2 (2);		
Observation			
Only certified operators made adjustments to the treatment equipment.			

Question ID	MRDW1011001	Question Type	BMP
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Question: Does the owner have a harmful algal bloom monitoring plan in place?	
Legislative Requirement	Not Applicable
Observation The owner had a harmful algal bloom monitoring plan in place.	

Question ID	MRDW1012001	Question Type	Legislative
Question: Does the owner have a harmful algal bloom monitoring plan in place that meets the requirements of the MDWL?			
Legislative Requirement	SDWA 31 (1);		
Observation The owner had a harmful algal bloom monitoring plan in place.			

Question ID	MRDW1014001	Question Type	Legislative
Question: Is there sufficient monitoring of flow as required by the MDWL or DWWP issued under Part V of the SDWA?			
Legislative Requirement	SDWA 31 (1);		
Observation 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.			

Question ID	MRDW1016001	Question Type	Legislative
Question: Is the owner in compliance with the conditions associated with maximum flow rate or the rated capacity conditions in the MDWL issued under Part V of the SDWA?			
Legislative Requirement	SDWA 31 (1);		
Observation 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.			

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Question ID	MRDW1023001	Question Type	Legislative
Question:			
Do records indicate that the treatment equipment was operated in a manner that achieved the design capabilities required under Ontario Regulation 170/03 or a DWWP and/or MDWL issued under Part V of the SDWA at all times that water was being supplied to consumers?			
Legislative Requirement	SDWA O. Reg. 170/03 1-2 (2);		
Observation			
Records indicated that the treatment equipment was operated in a manner that achieved the design capabilities required under O. Reg. 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.			

Question ID	MRDW1026001	Question Type	Legislative
Question:			
If primary disinfection equipment that does not use chlorination or chloramination is provided, is the equipment equipped with alarms or shut-off mechanisms that satisfy the standards described in Section 1-6 (1) of Schedule 1 of Ontario Regulation 170/03?			
Legislative Requirement	SDWA O. Reg. 170/03 1-6 (1);		
Observation			
The primary disinfection equipment was equipped with alarms or shut-off mechanisms that satisfied the standards described in Section 1-6 (1) of Schedule 1 of O. Reg. 170/03.			

Question ID	MRDW1030000	Question Type	Legislative
Question:			
Is primary disinfection chlorine monitoring being conducted at a location approved by MDWL and/or DWWP issued under Part V of the SDWA, or at/near a location where the intended CT has just been achieved?			
Legislative Requirement	SDWA O. Reg. 170/03 7-2 (1); SDWA O. Reg. 170/03 7-2 (2);		
Observation			
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.

Question ID	MRDW1032001	Question Type	Legislative
Question: If the drinking water system obtains water from a surface water source and provides filtration, is continuous monitoring of each filter effluent line being performed for turbidity?			
Legislative Requirement	SDWA O. Reg. 170/03 7-3 (2);		
Observation Continuous monitoring of each filter effluent line was being performed for turbidity.			

Question ID	MRDW1083001	Question Type	Legislative
Question: For LMR systems, are all microbiological water quality monitoring requirements for treated samples being met?			
Legislative Requirement	SDWA O. Reg. 170/03 10-3;		
Observation All microbiological water quality monitoring requirements prescribed by legislation for treated samples were being met.			

Question ID	MRDW1084001	Question Type	Legislative
Question: Are all inorganic water quality monitoring requirements prescribed by legislation conducted within the required frequency?			
Legislative Requirement	SDWA O. Reg. 170/03 13-2;		
Observation All inorganic water quality monitoring requirements prescribed by legislation were conducted within the required frequency.			

Question ID	MRDW1088000	Question Type	Legislative
Question: Are all nitrate/nitrite water quality monitoring requirements prescribed by legislation conducted within the required frequency for the DWS?			

Legislative Requirement	SDWA O. Reg. 170/03 13-7;
Observation	
All nitrate/nitrite water quality monitoring requirements prescribed by legislation were conducted within the required frequency for the DWS.	

Question ID	MRDW1089000	Question Type	Legislative
Question:			
Are all sodium water quality monitoring requirements prescribed by legislation conducted within the required frequency?			
Legislative Requirement	SDWA O. Reg. 170/03 13-8;		
Observation			
All sodium water quality monitoring requirements prescribed by legislation were conducted within the required frequency.			

Question ID	MRDW1091000	Question Type	Legislative
Question:			
Where fluoridation is practiced, are the required daily samples being taken at the end of the fluoridation process?			
Legislative Requirement	SDWA O. Reg. 170/03 7-4;		
Observation			
<p>The required daily samples were being taken at the end of the fluoridation process. The Ontario Ministry of Health and Long-Term Care (2014) protocol recommends fluoride levels of 0.6 to 0.8 mg/l be maintained for the prevention of tooth decay. Health Canada recommends an optimum value of 0.7 mg/l.</p> <p>The establishment, operations/use and/or termination of fluoride addition to a municipal drinking water supply is under the Fluoridation Act (MOHLTC legislation). Changes in the status of a municipal fluoridation system requires new or amended by-laws to be passed by the municipality, in accordance with the Fluoridation Act.</p>			

Question ID	MRDW1085001	Question Type	Legislative
Question:			
Are all organic water quality monitoring requirements prescribed by legislation conducted within the required frequency?			

Legislative Requirement	SDWA O. Reg. 170/03 13-4 (1); SDWA O. Reg. 170/03 13-4 (2); SDWA O. Reg. 170/03 13-4 (3);
Observation	
All organic water quality monitoring requirements prescribed by legislation were conducted within the required frequency.	