



WAWA DRINKING WATER SYSTEM

Annual and Summary Report 2021

Wawa^{CA}
Real algoma.

Prepared by:

Water & Sewer Department
Infrastructure Services

March 2022

Revised May 2022

WAWA DRINKING WATER SYSTEM

Annual and Summary Report 2021

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



Rebecca Weatherall, EIT – Assistant Director,
Infrastructure Services

David Lowe – Water and Wastewater Lead
Hand

Mark McRae – Water and Wastewater Operator

Feb 23/22

Date

**Reviewed
by:**



Daniel Beach, CRS – Director,
Infrastructure Services

FEB 23 / 22

Date

Presented to Council: March 1, 2022
Date

**Presentation Confirmed
by Resolution:** RC22039 March 1, 2022
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.....	7

Tables

Table 1:	Annual Summary of Operational Checks for 2021.....	4
Table 2:	Summary of Annual Lead Testing under Schedule 15.1.....	5
Table 3:	Maximum Raw Water and Finished Water Flows.....	7
Table 4:	Summary of Annual Flows.....	8

Appendices

Appendix A:	Definition of Terms
Appendix B:	Wawa Drinking Water System 2021 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 2021 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, 2021.

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. Due to staffing shortages, Kresin Engineering Corp. is the Municipality's designated ORO. 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 2021.

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 the Environment, Conservation and Parks (MECP) completed an inspection of the Wawa DWS on November 25, 2021, with a follow-up tele-conference on December 15, 2021. This inspection was completed by Ministry Inspector Stephen Rouleau. Inspections are conducted annually or more often as required. Inspections may be completed with or without advance notice to the Operations staff. The MECP Inspection Report was received by the MECP on May 24, 2022 and is attached as Appendix D.

The 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.

There were no issues regarding non-compliance or additional actions required.

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 15, 2019.

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 1.04 mg/L and for water being pumped to the distribution system was averaged at of 0.80 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, 2021 the average turbidity from all three skids was 0.02 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, 2020, the average was 0.01 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, 2020 was 0.59 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 2021

Parameter	Number of Samples	Minimum	Average	Maximum
Free Chlorine Residual Entering CT Chamber (mg/L)	Online Analyzer (sample every second)	0.26	1.04	5.08
Free Chlorine Residual Pumped to the Distribution System (mg/L)	Online Analyzer (sample every second)	0.39	0.80	2.09
Turbidity Effluent from Each of the Three Membrane Filter Skids (NTU)	Online Analyzer (sample every second)	0.00	0.02	1.21
Fluoride Residual Pumped to the Distribution System (mg/L)	Online Analyzer (sample every second)	0.06	0.59	1.25
Distribution System Turbidity (NTU)	Online Analyzer (sample every second)	0.00	0.01	0.11

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 2021 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 - 2.7	0

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 and all laboratory results were satisfactory.

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 2021 was 81.95 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 2021 was 44.7 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 practice issues. In 2021, 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 2021.

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	3,765.20	2,988.80
February	3,755.80	3,199.20
March	3,934.70	2,320.00
April	3,068.90	3,212.20
May	2,995.10	2,634.50
June	5,213.50	2,202.40
July	2,508.30	2,309.50
August	2,716.00	2,185.80
September	2,263.60	1,901.50
October	2,285.10	1,873.20
November	2,429.10	2,090.00
December	3,238.50	2,768.10
Maximum Allowable Daily Volume	25,000.00	7,880.00
Highest % of Maximum Volume	21%	41%

Table 4: Summary of Annual Flows and Water Consumption

Month	Total Consumption (m ³)	Average Daily Flow (m ³ /d)	Maximum Daily Flow (m ³ /d)	Instantaneous Peak Flow (L/s)	Wawa Monthly Consumption (m ³)	Net MRV Monthly Consumption (m ³)
January	85,618.30	2,761.88	2,988.80	123.00	83,285.30	2,333.00
February	83,421.70	2,972.91	3,199.20	84.00	81,336.70	2,085.00
March	92,162.30	2,972.98	2,320.00	92.00	90,005.30	2,157.00
April	80,394.70	2,679.80	3,212.20	85.00	78,312.70	2,082.00
May	70,712.00	2,281.00	2,634.50	115.00	68,314.00	2,398.00
June	59,920.60	1,936.50	2,202.40	72.00	58,244.60	1,676.00
July	44,138.60	1,423.80	2,309.50	44.70	41,891.60	2,247.00
August	63,249.90	2,040.30	2,185.80	54.10	61,287.90	1,962.00
September	45,993.40	1,533.10	1,901.50	73.10	44,540.40	1,453.00
October	37,613.00	1,213.30	1,873.20	78.70	35,847.00	1,766.00
November	46,437.50	1,547.90	2,090.00	52.00	44,648.50	1,789.00
December	72,258.80	2,330.90	2,768.10	52.10	70,472.80	1,786.00
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)
	781,920.80	2,141.20	3,212.20	123.00	758,186.80	23,734.00

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 2021 was 3,212.20 m³/day, which is approximately 41% of the WTP total rated capacity. The maximum recorded instantaneous flow rate was 123.0 L/s that occurred during the month of January.

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

2021

WAWA WATER SYSTEM 2020 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:	01-01-21 to 31-12-21

<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</td></tr> <tr><td>40 Broadway Avenue</td></tr> <tr><td>Wawa, Ontario</td></tr> <tr><td>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.

[X] **Public access/notice via the web**

[] **Public access/notice via Government Office**

[] **Public access/notice via a newspaper**

[X] **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 on November 13, 2020 and the water quality analysis results will be reviewed to help confirm appropriate start and stop dates for 2021.)

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

- New SCADA (supervisory control and data acquisition) – computer system to run the water plant - \$86,234.00
- Chemical room ventilation system - \$15,000

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>

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	0 – 4	0 - 142	N - A	N – A
Treated	52	Absent	Absent	47	0 – 0
Distribution	104	Absent	Absent	55	0 – 3

No extra samples were required this year

**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)	8760	0.00	0.024	1.207
Chlorine (mg/l)	8760	0.388	0.800	2.090
Fluoride (mg/l)	8760	0.062	0.590	1.250

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	0.31	0.74	0.98

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	19-Jan-21	<0.60	µg/L	No
Arsenic	19-Jan-21	<1.0	µg/L	No
Barium	19-Jan-21	<10	µg/L	No
Boron	19-Jan-21	<50	µg/L	No
Cadmium	19-Jan-21	<0.10	µg/L	No
Chromium	19-Jan-21	<1.0	µg/L	No
Fluoride	19-Jan-21	0.391	µg/L	No
*Lead				
Mercury	19-Jan-21	<0.10	µg/L	No
Nitrate	19-Jan-21	0.044	µg/L	No
Nitrite	19-Jan-21	<0.010	µg/L	No
Selenium	19-Jan-21	<1.0	µg/L	No

Sodium	19-Jan-21	6.88	µg/L	No
Uranium	19-Jan-21	<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 – 2.7	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	19-Jan-21	<0.10	µg/L	No
Aldicarb				
Aldrin + Deildrin				
Atrazine + N-dealkylated metabolites	19-Jan-21	<0.20	µg/L	No
Azinphos-methyl	19-Jan-21	<0.10	µg/L	No
Bendiocarb				
Benzene	19-Jan-21	<0.50	µg/L	No
Benzo(a)pyrene	19-Jan-21	<0.005	µg/L	No
Bromoxynil	19-Jan-21	<0.20	µg/L	No
Carbaryl	19-Jan-21	<0.20	µg/L	No
Carbofuran	19-Jan-21	<0.20	µg/L	No
Carbon Tetrachloride	19-Jan-21	<0.20	µg/L	No
Chlordane (Total)				
Chlorpyrifos	19-Jan-21	<0.10	µg/L	No
Cyanazine				
Diazinon	19-Jan-21	<0.10	µg/L	No
Dicamba	19-Jan-21	<0.20	µg/L	No
1,2-Dichlorobenzene	19-Jan-21	<0.50	µg/L	No

Parameter	Sample Date	Result Value	Unit of Measure	Exceedance
1,4-Dichlorobenzene	19-Jan-21	<0.50	µg/L	No
Dichlorodiphenyltrichloroethane (DDT) + metabolites				
1,2-Dichloroethane	19-Jan-21	<0.50	µg/L	No
1,1-Dichloroethylene (Vinylidene Chloride)	19-Jan-21	<0.50	µg/L	No
Dichloromethane	19-Jan-21	<5.0	µg/L	No
2-4 Dichlorophenol	19-Jan-21	<0.30	µg/L	No
2,4-Dichlorophenoxy acetic acid (2,4-D)	19-Jan-21	<0.20	µg/L	No
Diclofop-methyl	19-Jan-21	<0.20	µg/L	No
Dimethoate	19-Jan-21	<0.10	µg/L	No
Dinoseb	19-Jan-21	<0.20	µg/L	No
Diquat	19-Jan-21	<1.0	µg/L	No
Diuron	19-Jan-21	<1.0	µg/L	No
Glyphosate	19-Jan-21	<5.0	µg/L	No
Haptachlor + Heptachlor Epoxide				
Lindane (Total)				
Malathion	19-Jan-21	<0.10	µg/L	No
Methoxychlor				
Metolachlor	19-Jan-21	<0.10	µg/L	No
Metribuzin	19-Jan-21	<0.10	µg/L	No
Monochlorobenzene	19-Jan-21	<0.50	µg/L	No
Paraquat	19-Jan-21	<1.0	µg/L	No
Parathion				
Pentachlorophenol	19-Jan-21	<0.50	µg/L	No
Phorate	19-Jan-21	<0.10	µg/L	No
Picloram	19-Jan-21	<0.20	µg/L	No
Polychlorinated Biphenyls (PCB)	19-Jan-21	<0.035	µg/L	No
Prometryne	19-Jan-21	<0.10	µg/L	No
Simazine	19-Jan-21	<0.10	µg/L	No
THM (See latest annual average)				
Temephos				
Terbufos	19-Jan-21	<0.20	µg/L	No
Tetrachloroethylene	19-Jan-21	<0.50	µg/L	No
2,3,4,6-Trichlorophenol	19-Jan-21	<0.50	µg/L	No
Triallate	19-Jan-21	<0.10	µg/L	No
Trichloroethylene	19-Jan-21	<0.50	µg/L	No
2,4,6-Trichlorophenol	19-Jan-21	<0.50	µg/L	No
2,4,6-Trichlorophenoxy acetic acid (2,4,5-T)				
Trifluralin	19-Jan-21	<0.10	µg/L	No

Parameter	Sample Date	Result Value	Unit of Measure	Exceedance
Vinyl Chloride	19-Jan-21	<0.20	µg/L	No

THM – Summary Table

Date of Test	Location	Results (µg/L)
19-Jan-21	Mission Tower	80.60
13-Apr-21	Mission Tower	83.80
13-Jul-21	Mission Tower	64.60
12-Oct-21	Mission Tower	98.80

Average THM's for the year 2021 was 81.95 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)
22-Jan-21	3 Chris Simon Drive	41.50
15-Apr-21	3 Chris Simon Drive	49.90
13-Jul-21	3 Chris Simon Drive	42.50
12-Oct-21	3 Chris Simon Drive	44.90

Average HAA's for the year 2021 was 44.70 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 August 20, 2019 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-0130038
File No.: 1633210
Issue Date: August 20, 2019

Original Certification Date: December 17, 2013
Certification Effective Date: December 15, 2019
Certification Expiry Date: December 14, 2022

Heather Mahon
Global Head of Technical Services SAI Global Assurance



DWQMS 2017



Accredited by:
QMI-SAI Canada Limited (SAI Global), 20 Carlson Court, Suite 200, Toronto, Ontario M9W 7K6 Canada. This registration is subject to the SAI Global Terms and Conditions for Certification. While all due care and skill was exercised in carrying out this assessment, SAI Global accepts responsibility only for proven negligence. This certificate remains the property of SAI Global and must be returned to them upon request.
To verify that this certificate is current, please refer to the SAI Global On-Line Certification Register: www.qmi-saiglobal.com/qmi_companies/

 **SAI GLOBAL**
INFORM. INSPIRE. IMPROVE.

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: 11/25/2021
Inspection End Date: 04/29/2022
Inspected By: Stephen Rouleau
Badge #: 600



(signature)

NON-COMPLIANCE/NON-CONFORMANCE ITEMS

The following item(s) have been identified as non-compliance/non-conformance, based on a "No" response captured for a legislative or best management practice (BMP) question (s), respectively.

Question Group: Other Inspection Findings

Question ID	MRDW1116000	Question Type	BMP
Question:			
Were the inspection questions sufficient to address other identified best practice issues?			
Legislative Requirement	Not Applicable		
Observation/Corrective Action(s)			
<p>The following issues were also noted during the inspection:</p> <p>Recent events in Wawa and in other northern municipalities has identified a risk to systems which are reliant on maintaining pumping operations to maintain distribution pressure and flow.</p> <p>The majority of the municipality is not served by a storage/pressure maintenance structure, such as an elevated reservoir, water tower or standpipe. Most of the town relies upon pumping pressure from the WTP at all times. It is therefore more vulnerable to loss of pressure events then systems which have elevated storage which can provide/maintain pressure often for several days.</p> <p>The advantages of elevated storage are many but two of the main reasons are that they can maintain the pressure in a drinking water system in the event of a WTP plant failure or to allow repair/replacement work which would best and/or can only be conducted with the facility shutdown. Additionally, these facilities can also be used to allow for better management of energy costs by avoiding the need to operate pumps at high-cost times and/or running the pumps at constant lower power levels rather than being highly variable to meet peak water demands.</p> <p>No action is required regarding this recommendation however if the municipality wish to discuss this method of improving the reliability and efficiency of the municipal drinking water system by adding an elevated reservoir, water tower or standpipe, the ministry would be available to discuss this issue further.</p>			

INSPECTION DETAILS

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

Ministry Program: DRINKING WATER | **Regulated Activity:** DW Municipal Residential

Question ID	MRDW1001000	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.</p> <p>The primary purpose of this inspection was to conduct an annual review of the facilities operation. Information reviewed is primarily from January 2021 to December 2021. However, some additional information/materials both received or regarding issues or activities previous to and after those dates has been included or referenced in this report.</p>			

Question ID	MRDW1000000	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	MRDW1011000	Question Type	BMP
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	MRDW1012000	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	MRDW1014000	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	MRDW1016000	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
<p>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.</p> <p>The current Permit To take Water (PTTW) issued by MECP allows for 25,000 cubic meters/day. The water treatment plant is rated at a treated water capacity of 7800 cubic meters/day.</p> <p>Wawa's 2021 annual report indicated that the maximum volume of treated water produced in one day was approximately 41% of the rated capacity.</p>

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	MRDW1032000	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	MRDW1033000	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 distribution system.	

Question ID	MRDW1037000	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	MRDW1038000	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	MRDW1039000	Question Type	Legislative
Question:			

If primary disinfection equipment that does not use chlorination or chloramination is provided, has the owner and operating authority ensured that the equipment has a recording device that continuously records the performance of the disinfection equipment?	
Legislative Requirement	SDWA O. Reg. 170/03 1-6 (3);
Observation	
The owner and operating authority ensured that the primary disinfection equipment had a recording device that continuously recorded the performance of the disinfection equipment.	

Question ID	MRDW1035000	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	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	MRDW1108000	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 Regulation 170, 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	MRDW1018000	Question Type	Legislative
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	MRDW1020000	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	MRDW1021000	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	MRDW1022000	Question Type	Legislative
Question:			
Is the owner/operating authority able to demonstrate that, when required during the inspection period, Form 3 and associated condition 5.7 requirements 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 3 and associated documents as required by their Drinking Water Works Permit during the inspection period.			

Question ID	MRDW1023000	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 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.			

Question ID	MRDW1024000	Question Type	Legislative
Question:			
Do records confirm 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?			
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	MRDW1025000	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	MRDW1062000	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	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	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	MRDW1073000	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 has been designated for each subsystem.			

Question ID	MRDW1074000	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 comprised the drinking water system.			

Question ID	MRDW1075000	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	MRDW1076000	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	MRDW1099000	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	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			
The required daily samples were being taken at the end of the fluoridation process.			
The fluoride system is also equipped with a continuous meter.			
The 2021 annual report indicated an average annual average of 0.59 mg/l. This is within			

the recommended range for fluoride of 0.5 to 0.8 mg/l found in the MECP guidelines

Note: the 2014 MOH protocol recommends 0.6-0.8 mg/l for the prevention of tooth decay. Health Canada recommends an optimum value of 0.7 mg/l.

No action is required by the MECP, at this time. However, it is recommended that based on the guidance found in the Health Canada and Ontario Ministry of Health guidelines that the level of fluoride be maintained within the beneficial range. The municipality may wish to discuss this issue further with Algoma Public Health.

Please note that 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 by-laws passed by the municipality in accordance with the Fluoridation Act.

Question ID	MRDW1094000	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	MRDW1096000	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	MRDW1081000	Question Type	Legislative
Question: 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 for distribution samples were being met.	
Several issues with shipping of samples were reported in 2021. These issues were reported to the MECP in a timely manner.	
Operators are encouraged to find the most reliable methods of shipping and to have routine discussions with their shippers to stress the importance of timely pick-up and deliver of all water/wastewater samples.	

Question ID	MRDW1082000	Question Type	Legislative
Question:			
Are all microbiological water quality monitoring requirements for distribution samples prescribed by legislation being met?			
Legislative Requirement	SDWA O. Reg. 170/03 11-2 (1); SDWA O. Reg. 170/03 11-2 (2); SDWA O. Reg. 170/03 11-2 (6);		
Observation			
All microbiological water quality monitoring requirements for distribution samples prescribed by legislation were being met.			

Question ID	MRDW1083000	Question Type	Legislative
Question:			
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 for treated samples were being met.			

Question ID	MRDW1084000	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	MRDW1085000	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.			

Question ID	MRDW1086000	Question Type	Legislative
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			
All haloacetic acid water quality monitoring requirements prescribed by legislation are being conducted within the required frequency and at the required location.			
As of January 1, 2020 a new Ontario Drinking Water Standard (O.Reg 169) limit for haloacetic acids (HAAs) of 80 ug/l (expressed as a running annual average of quarterly results) was introduced.			
HAA's can be formed due to the presence of the same or similar precursors and conditions in the raw water which create THMs.			
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.

The use of the coagulation system appears to have resulted in a reduction in the HAA levels. The 2021 individual samples and the running average remained in the 40's ug/l range. This is similar, but slightly higher than the levels recorded in 2020.

Question ID	MRDW1087000	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);		
Observation			
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 mark for approximately 5 years.			
THM levels can be very variable due to the many factors which can influence their production. In 2021 an increase in individual results (a low of 64.6 ug/l and a high of 98.8 u/l) and the averages was noted as compared to 2020. It should however also be noted that 2020 had some of the lowest THM values recorded in the last ten years.			
The first two quarters of 2022 have both tested in the 70's.			
If an upwards trend continues additional considerations regarding the filter operations may be required. The ministry has no specific recommendations regarding the THM and HAA levels, at this time. However, it does encourage the municipality to continue to monitor and actively work to further reduce the level of these parameters in Wawa's drinking water.			

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	MRDW1100000	Question Type	Information
Question: Did any reportable adverse/exceedance conditions occur during the inspection period?			
Legislative Requirement	Not Applicable		
Observation			
There were reportable adverse/exceedances during the inspection period.			

Question ID	MRDW1101000	Question Type	Legislative
Question: Have corrective actions (as per Schedule 17) 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 17-10 (2); 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) had been taken to address adverse conditions,			

including any other steps that were directed by the Medical Officer of Health.

Question ID	MRDW1102000	Question Type	Legislative
Question: Have corrective actions (as per Schedule 18) 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 18-10 (1); SDWA O. Reg. 170/03 18-11; SDWA O. Reg. 170/03 18-12; SDWA O. Reg. 170/03 18-13; SDWA O. Reg. 170/03 18-14; SDWA O. Reg. 170/03 18-2; SDWA O. Reg. 170/03 18-3; SDWA O. Reg. 170/03 18-4; SDWA O. Reg. 170/03 18-5; SDWA O. Reg. 170/03 18-6; SDWA O. Reg. 170/03 18-9;		
Observation Corrective actions (as per Schedule 18) had been taken to address adverse conditions, including any other steps that were directed by the Medical Officer of Health.			

Question ID	MRDW1113000	Question Type	Legislative
Question: Have all changes to the system registration information been provided to the Ministry within ten (10) days of the change?			
Legislative Requirement	SDWA O. Reg. 170/03 10.1 (3);		
Observation All changes to the system registration information were provided within ten (10) days of the change.			

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	MRDW1112000	Question Type	Legislative
Question:			
If the drinking water system was required to post warning notices, were approved warning notices posted in accordance with O. Reg. 170/03 19-2?			
Legislative Requirement	SDWA O. Reg. 170/03 19-2 (1); SDWA O. Reg. 170/03 19-2 (2); SDWA O. Reg. 170/03 19-2 (3);		
Observation			
The drinking water system was required to post warning notices and approved warning notices were posted in accordance with O. Reg. 170/03 19-2.			

Question ID	MRDW1114000	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 all required notifications to all legal owners associated with the Drinking Water System had been made during the inspection period.			

Question ID	MRDW1116000	Question Type	BMP
Question:			
Were the inspection questions sufficient to address other identified best practice issues?			
Legislative Requirement	Not Applicable		
Observation			
The following issues were also noted during the inspection:			
Recent events in Wawa and in other northern municipalities has identified a risk to systems which are reliant on maintaining pumping operations to maintain distribution pressure and flow.			

The majority of the municipality is not served by a storage/pressure maintenance structure, such as an elevated reservoir, water tower or standpipe. Most of the town relies upon pumping pressure from the WTP at all times. It is therefore more vulnerable to loss of pressure events than systems which have elevated storage which can provide/maintain pressure often for several days.

The advantages of elevated storage are many but two of the main reasons are that they can maintain the pressure in a drinking water system in the event of a WTP plant failure or to allow repair/replacement work which would best and/or can only be conducted with the facility shutdown. Additionally, these facilities can also be used to allow for better management of energy costs by avoiding the need to operate pumps at high-cost times and/or running the pumps at constant lower power levels rather than being highly variable to meet peak water demands.

No action is required regarding this recommendation however if the municipality wish to discuss this method of improving the reliability and efficiency of the municipal drinking water system by adding an elevated reservoir, water tower or standpipe, the ministry would be available to discuss this issue further.

Question ID	MRDW1117000	Question Type	Information
Question: Are there any other DWS related items that should be recognized in this report?			
Legislative Requirement	Not Applicable		
Observation			
The following items are noted as being relevant to the Drinking Water System: The ministry would like to recognize the water plant operators, municipal staff and Algoma Public Health for their exemplary work during the recent high chlorine incident. Through their efforts and cooperation, the safety of Wawa's water supply and the public were ensured.			

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	MRDW1061000	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	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?			
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.			