



The Corporation of the
Municipality of Wawa

**Wawa Drinking
Water System**

ANNUAL AND SUMMARY REPORTS FOR 2020



Wawa^{CA}
Real algoma.

Prepared by:

**Water & Sewer Department
Infrastructure Services**

March 2021

Wawa Drinking Water System



ANNUAL AND SUMMARY REPORTS 2020

**Prepared for:
The Corporation of the
Municipality of Wawa**

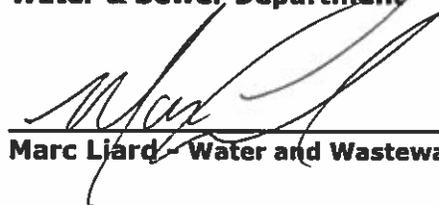
**Prepared by:
Water & Sewer Department
Infrastructure Services**

March 2021

SIGNATURE PAGE

**Wawa Drinking
Water System Annual and Summary
Reports 2020**

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



Marc Ljard - Water and Wastewater Lead Hand

24/03/2021
Date

Dave Lowe - Water and Wastewater Operator

Branden Kloosterhuis - Water and Wastewater Operator

**Received and Reviewed on behalf of
The Corporation of the Municipality of Wawa**



**Dan Beach, Director
Infrastructure Services**

24/03/2021
Date

Presented to Council: March 23, 2021
Date

Presentation Confirmed by Resolution SP21005

Wawa Drinking Water System Annual and Summary Report for 2020

Table of Contents

Signature Page	(i)
Table of Content	1
List of Appendices	1

1.0 Introduction

1.1 Requirements	3
1.2 Background	3
1.3 Facility Specifics	3
1.4 Format	4

2.0 System Requirements

2.1 The Act and Regulations

2.1.1 General.....	4
2.1.2 Municipal Drinking Water License	4
2.1.3 Drinking Water Works Permit.....	4
2.1.4 Permit to Take Water.....	4
2.1.5 M.E.C.P. Inspection Report Dated September 21, 2020.....	4
2.1.6 Drinking Water Quality Management Standard	5

2.2 Operational Checks, Sampling and Testing

2.2.1 Continuous Monitoring Equipment	5
2.2.2 Free Chlorine Residual	5
2.2.3 Turbidity	6
2.2.4 Fluoride	6
2.2.5 Table – Annual Summary of Operational Checks for 2020.....	6
2.2.6 Microbiological Sampling and Testing.....	7
2.2.7 Chemical Testing.....	7
2.2.8 Table - Summary of lead testing under Schedule 15.1	8

3.0 System Performance..... 9

3.1 Table of Water Quantities Taken	9
3.2 Table of Annual Summary of Flow for 2020	10

Appendix A Definition of Terms

Appendix B Wawa Drinking Water System 2020 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 dated September 21, 2020



**Summary Report for the
Municipality 2020**

As required by

**Schedule 22 of Ontario
Regulation 170/03**

1.0 Introduction

1.1 Requirements of the Summary Report

The 2020 Annual and Summary Report for the Municipality of Wawa Drinking Water System 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 01 to December 31, 2020.

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) and how limits were met, if shortfalls were revealed. The last section of the summary report contains a list of tables and definitions of terms identified in this report.

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 **3000** people. There are no major industrial users in the community.

The Wawa Water Treatment Plant, located at 40C Broadway Avenue, at the north-east corner of Ganley Street and McKinley Avenue, was constructed in accordance with Certificate of Approval **7008-648JTL** from Ministry of the Environment, Conservation and Parks and remedied the deficiencies of the original plant. This certificate has since been amended as noted in Section 2.1.2. It includes low lift pumping station, a membrane filtration system and disinfection utilizing sodium hypochlorite, fluoridation using hydrofluosilicic acid, chlorine contact cells, treated water storage, high lift pumping and a standby generator. The water treatment plant has a rated capacity of **7880 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) have a Class II Operator License. In our situation, the Water and Wastewater Lead Hand possess a Class II Water Treatment License and a Class I Water Distribution License and he is the Designated ORO.
- Maximum rate of Raw Water Taking: 25000 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 licence 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 in compliance with the Act and Regulations during 2020.

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 M.E.C.P. Inspection Report dated September 21, 2020

The Ministry of the Environment, Conservation and Parks carried out an inspection of the Wawa Water System on September 21, 2020, inspection number 1-OEWWQ. This inspection, by Ministry Inspector Stephen Rouleau which 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 January 06, 2021.

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 was no **Non-Compliance with regulatory requirements or 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 Drinking Water System received their **Certificate of Accreditation for a Full Scope of the 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 Water Treatment Plant is equipped with continuous monitoring equipment to sample and test for free chlorine residual, turbidity and fluoride concentration in the water leaving the plant. In addition, these parameters and others such as PH are measured at critical points in the treatment sequence to assist with operational decision making. All of the data is transmitted to and archived in a **SCADA** computer in the main control room. The **SCADA** system analyzes and archives the data and generates daily, monthly and yearly 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

At the Wawa Water Treatment Plant, 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 1.06 mg/l and for water being pumped to the distribution system was averaged at 0.83 mg/l. Refer to **Table 2.2.5** on page 7 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 01 to December 31, 2020 the average turbidity from all three skids was 0.016 N.T.U.

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 01 to December 31, 2020, the average was 0.01 NTU. Refer to **Table 2.2.5** 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 01 to December 31, 2020 was 0.63 mg/l. However, 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 2.2.5* below for the minimum and maximum.

Table 2.2.5

Annual Summary of Operational Checks for 2020

	Number of Samples	Maximum	Average	Minimum
Free Chlorine Residual Entering "CT" chamber	Online Analyzer (sample every second)	5.08	1.06	0.00
Free Chlorine Residual Pumped to the Distribution System	Online Analyzer (sample every second)	5.18	0.83	0.00
Turbidity Effluent from each of the Three Membrane filter Skids	Online Analyzer (sample every second)	0.04	0.016	0.00
Fluoride residual pumped to the distribution System	Online Analyzer (sample every second)	1.66	0.63	0.12
Turbidity Readings pumped to the distribution System	Online Analyzer (sample every second)	9.99	0.01	0.00

Note: The minimum and maximum residual do not show true because when performing routine maintenance on analyzers, turning power off – and back on the analyzers will get “spikes” in the reading. After maintenance we will do a few grab samples to calibrate the unit, this has been discussed and accepted by the Ministry of the Environment, Conservation and Parks in the past.

2.2.6 Microbiological Sampling and Testing:

The Regulation requires that;

- a) 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.

- b) Treated water samples at the Wawa Water Treatment Plant are to be taken at least once every week and tested for:
- E-Coli or Fecal Coliform;
 - Total Coliforms; and,
 - HPC.
- c) Raw water samples at the Water Treatment Plant 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.

2.2.7 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:

Annual Testing for

- 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 2.2.8** on the following page for results from the 2020 lead sampling in the Municipality.

Table 2.2.8

**Summary of lead testing under Schedule 15.1
during this reporting period**

Location Type	Number of Samples	Range of Lead Results (min#) – (max #)	Number of Exceedances
Plumbing			
Distribution	4	<1.0 - <1.0	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.**

Quarterly Testing for

- THM ; HAA and,
- Nitrates and Nitrites.

Every 60 Months for

- 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 THM's in Wawa was 112.9 ug/l and it exceeded the current allowable level of 100 ug/l. This does not pose any short-term or acute health risk but the Algoma Public Health Unit issued a drinking water advisory for the whole Municipality on November 26, 2014.

The Municipality worked on reducing the THM's in the drinking water system throughout 2015, 2016, 2017, 2018, 2019 and 2020. As a result of the effort taken by the Municipality, the THM's are under the allowable level of 100 ug/l. The 2020 average was **59.56** ug/l, and the Drinking Water Advisory from The Algoma Public Health Unit was lifted on **June 10, 2020**.

*(THM 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.)*

The Ontario Drinking Water Standard for Haloacetic Acids (**HAA's**) came into effect January 1, 2020, the standard is 0.80 ug/l. The Municipality's average for 2020 was 39.75 ug/l.

Also the Municipality of Wawa started to do a monitoring testing plan as per inspection report's **Summary recommendations and Best Practice Issues** dated June 12, 2019, we started sampling in August 2019. In 2020 we sampled (seasonally–July to October) raw and treated water, with the average Microcystin (Blue /Green Algae) at a level of <0.1 ug/, well below the maximum acceptable concentration of 1.5 ug/.

In addition, the Municipality of Wawa was selected years ago by the Ministry of the Environment, Conservation and Parks 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 M.E.C.P. lab in Etobicoke, Ontario for analysis. The operators in Wawa find it to be another avenue for monitoring water quality for the Municipality.

3.0 SYSTEM PERFORMANCE

At the Wawa Water Treatment Plant, flow is monitored continuously in the discharge to the distribution system and recorded on the **SCADA** system. Daily reports are generated that indicate the average, minimum, maximum and total monthly and yearly flow. Below are the charts for Water Quantities Taken and Summary of Flows.

3.1 Table of Water Quantities Taken

Water Quantities Taken - 2020

Maximum Daily Volume in m³/day

	Wawa Water Treatment Plant Rate of Raw water Taking		Wawa Water Treatment Finished Water to Distribution
Maximum Daily Volume Allowed	25000.00 m ³ /day		7880 m ³ /day
January	3940.8		3367.7
February	4064.0		3602.6
March	4554.3		2904.1
April	3789.3		3117.3
May	3770.9		3185.6
June	3011.5		2710.6
July	3494.0		2994.2
August	2906.8		2471.2
September	2476.5		1983.3
October	2329.0		2077.4
November	2849.1		2369.8
December	3581.1		2778.1
Highest % of Maximum Volume	18.22 %		45.72 %

3.2 Table of Annual Summary of Flow for 2020

Water Total / Average / Peak Flows - 2020

Month	Total Consumption m³	Average Daily Flow m³/day	Maximum Daily Flow m³/day	Instantaneous Peak Flow (L/s)	Wawa Monthly Consumption m³	Net MRV Monthly Consumption m³
January	97685.6	3151.1	3367.7	96	95477.6	2208.0
February	95888.6	3306.5	3602.6	102	93712.6	2176.0
March	95198.0	3070.8	2904.1	167	93219.0	1979.0
April	85649.1	2854.9	3117.3	104	83404.1	2245.0
May	81606.4	2642.1	3185.6	119	79110.4	2496.0
June	68566.4	2033.6	2710.6	80	66129.4	2437.0
July	70452.5	2272.7	2994.2	97	67704.5	2748.0
August	65503.3	2113.0	2471.2	108	62832.3	2671.0
September	55286.1	1771.4	1983.3	153	53006.1	2280.0
October	57986.9	1877.6	2077.4	95	55795.9	2191.0
November	58973.2	1965.8	2369.8	207	57043.2	1930.0
December	76694.6	2474.0	2778.1	108	74507.6	2187.0
		Average flow for 2020 m³	Maximum flow for 2020 m³	Peak flow for 2020 l/s	Wawa Consumption 2020 m³	M.R.V. Consumption 2020 m³
Totals	909490.7	2486.0	3602.6	207	881942.7	27548.0

The Wawa Water Treatment Plant has an approved, rated treatment capacity of 7880 m³/day which includes an allowance of 392 m³/day to serve Michipicoten River Village.

The maximum day flow in 2020 was 3602.6 m³/day, which is approximately 47.10 % of the total rated capacity and 48.11 % of the rated capacity if the amount for Michipicoten River village is excluded.

In 2020, the Maximum recorded instantaneous flow rate was 207.0 l/s that occurred during the month of November.

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 # 210000050



Annual Report

2020



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:	01-01-20 to 31-12-20

<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> <div style="border: 1px solid black; padding: 5px;"> <p>Municipal Office 40 Broadway Avenue Wawa, Ontario POS 1K0</p> </div>	<p><u>Complete for all other Categories.</u></p> <p>Number of Designated Facilities served:</p> <div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 0 auto;">N/A</div> <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> <div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 0 auto;">N/A</div> <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>
--	---

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 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 “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 - \$86234.00
- New turbidity meter for all three skids - \$ 21854.00
- Water Tower Inspection and Intake inspection - \$18825.00
- Alum Project (THM reduction) - \$46000.00

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	54*	0 – 4	0 - 68	N - A	N – A
Treated	54*	Absent	Absent	47	0 – 0
Distribution	204*	Absent	Absent	55	0 - 3

*We had to do three extra raw and treated samples and twelve extra distribution due to samples freezing during transportation and not getting to the lab on time.

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	0.01	9.99
Chlorine (mg/l)	8760	0.00	0.83	5.18
Fluoride (mg/l)	8760	0.12	0.63	1.66

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	0.24	0.76	1.52

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	Jan.27, 2020	<0.60	ug/l	No
Arsenic	Jan.27, 2020	<1.0	ug/l	No
Barium	Jan.27, 2020	<1.0	ug/l	No
Boron	Jan.27, 2020	<10	ug/l	No
Cadmium	Jan.27, 2020	<50	ug/l	No
Chromium	Jan.27, 2020	<0.10	ug/l	No
*Lead				
Mercury	Jan.27, 2020	<0.10	ug/l	No
Selenium	Jan.27, 2020	<1.0	ug/l	No
Sodium	Jan.27, 2020	6.52	ug/l	No
Uranium	Jan.27, 2020	<2.0	ug/l	No
Fluoride	Jan.27, 2020	0.386	ug/l	No
Nitrite	Jan.27, 2020	<0.010	ug/l	No
Nitrate	Jan.27, 2020	0.065	ug/l	No

*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			
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	Jan.27, 2020	<0.10	Ug/l	
Aldicarb				
Aldrin + Dieldrin				
Atrazine + N-dealkylated metabolites	Jan.27, 2020	<0.20	Ug/l	
Azinphos-methyl	Jan.27, 2020	<0.10	Ug/l	
Bendiocarb				
Benzene	Jan.27, 2020	<0.05	Ug/l	
Benzo(a)pyrene	Jan.27, 2020	<0.0030	Ug/l	
Bromoxynil	Jan.27, 2020	<0.20	Ug/l	
Carbaryl	Jan.27, 2020	<0.20	Ug/l	
Carbofuran	Jan.27, 2020	<0.20	Ug/l	
Carbon Tetrachloride	Jan.27, 2020	<0.20	Ug/l	
Chlordane (Total)				
Chlorpyrifos	Jan.27, 2020	<0.10	Ug/l	
Cyanazine	Jan.27, 2020	<0.10	Ug/l	
Diazinon	Jan.27, 2020	<0.10	Ug/l	
Dicamba	Jan.27, 2020	<0.20	Ug/l	
1,2-Dichlorobenzene	Jan.27, 2020	<0.50	Ug/l	
1,4-Dichlorobenzene	Jan.27, 2020	<0.50	Ug/l	
Dichlorodiphenyltrichloroethane (DDT) + metabolites	Jan.27, 2020	<0.10	Ug/l	
1,2-Dichloroethane	Jan.27, 2020	<0.50	Ug/l	
1,1-Dichloroethylene (vinylidene chloride)	Jan.27, 2020	<0.50	Ug/l	
Dichloromethane	Jan.27, 2020	<5.0	Ug/l	

2-4 Dichlorophenol	Jan.27, 2020	<0.30	Ug/l	
2,4-Dichlorophenoxy acetic acid (2,4-D)	Jan.27, 2020	<0.20	Ug/l	
Diclofop-methyl	Jan.27, 2020	<0.20	Ug/l	
Dimethoate	Jan.27, 2020	<0.10	Ug/l	
Dinoseb				
Diquat	Jan.27, 2020	<1.0	Ug/l	
Diuron	Jan.27, 2020	<1.0	Ug/l	
Glyphosate	Jan.27, 2020	<5.0	Ug/l	
Heptachlor + Heptachlor Epoxide				
Lindane (Total)				
Malathion	Jan.27, 2020	<0.10	Ug/l	
Methoxychlor				
Metolachlor	Jan.27, 2020	<0.10	Ug/l	
Metribuzin	Jan.27, 2020	<0.10	Ug/l	
Monochlorobenzene	Jan.27, 2020	<0.50	Ug/l	
Paraquat	Jan.27, 2020	<1.0	Ug/l	
Parathion				
Pentachlorophenol	Jan.27, 2020	<0.50	Ug/l	
Phorate	Jan.27, 2020	<0.10	Ug/l	
Picloram	Jan.27, 2020	<0.20	Ug/l	
Polychlorinated Biphenyls(PCB)	Jan.27, 2020	<0.035	Ug/l	
Prometryne	Jan.27, 2020	<0.10	Ug/l	
Simazine	Jan.27, 2020	<0.10	Ug/l	
THM (NOTE: show latest annual average)	See below			
Temephos				
Terbufos	Jan.27, 2020	<0.20	Ug/l	
Tetrachloroethylene	Jan.27, 2020	<0.50	Ug/l	
2,3,4,6-Tetrachlorophenol	Jan.27, 2020	<0.50	Ug/l	
Triallate	Jan.27, 2020	<0.10	Ug/l	
Trichloroethylene	Jan.27, 2020	<0.50	Ug/l	
2,4,6-Trichlorophenol	Jan.27, 2020	<0.50	Ug/l	
2,4,5-Trichlorophenoxy acetic acid (2,4,5-T)				
Trifluralin	Jan.27, 2020	<0.10	Ug/l	
Vinyl Chloride	Jan.27, 2020	<0.20	Ug/l	

THM – Summary Table

<i>Date of Test</i>	<i>Location</i>	<i>Results</i>	<i>Value</i>
January 23, 2020	Mission Tower	64.4	Ug/l
April 15, 2020	Mission Tower	61.0	Ug/l
July 28, 2020	Mission Tower	67.36	Ug/l
Oct.14, 2020	Mission Tower	45.5	Ug/l

Average THM's for the year 2020 was 59.56 Ug/l with the maximum acceptable concentration of 100 ug/l (A)
 "A" – The standard for THM's is expressed as a running annual average.

HAA – Summary Table

<i>Date of Test</i>	<i>Location</i>	<i>Results</i>	<i>Value</i>
January 23, 2020	26 Magpie Road	56.4	Ug/l
April 15, 2020	3 Chris Simon Drive	44.0	Ug/l
July 28, 2020	3 Chris Simon Drive	31.7	Ug/l
Oct.14, 2020	26 Magpie Road	26.9	Ug/l

*Average HAA's for the year 2020 was 39.75 Ug/l with the maximum acceptable concentration of 80 ug/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

Certificate of Accreditation

**For a full scope of the
Drinking Water Quality
Management Standard
(DWQMS)**



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**

2020

Wawa Drinking Water System

Inspection Report and

Inspection Rating



Ministry of the Environment, Conservation and Parks

**WAWA DRINKING WATER SYSTEM
Inspection Report**

Site Number:	210000050
Inspection Number:	1-OEWWQ
Date of Inspection:	Sep 21, 2020
Inspected By:	Stephen Rouleau

OWNER INFORMATION:

Company Name:	WAWA, THE CORPORATION OF THE MUNICIPALITY OF		
Street Number:	40	Unit Identifier:	
Street Name:	BROADWAY Ave		
City:	WAWA		
Province:	ON	Postal Code:	P0S 1K0

CONTACT INFORMATION

INSPECTION DETAILS:

Site Name:	WAWA DRINKING WATER SYSTEM
Site Address:	40 BROADWAY Avenue WAWA ON P0S 1K0
County/District:	MICHIPICOTEN
MECP District/Area Office:	Sault Ste. Marie Area Office
Health Unit:	ALGOMA PUBLIC HEALTH
Conservation Authority:	
MNR Office:	
Category:	Large Municipal Residential
Site Number:	210000050
Inspection Type:	Announced
Inspection Number:	1-OEWWQ
Date of Inspection:	Sep 21, 2020
Date of Previous Inspection:	

COMPONENTS DESCRIPTION

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

Site (Name):	SYSTEM CLASSIFICATION	Sub Type:	
Type:			

Comments:
The Municipality of Wawa is comprised of the Town of Wawa and Michipicoten River Village, with a population of approximately 3,000. The water treatment and distribution systems are owned and operated by the Municipality of Wawa. The water treatment system is a Class 2 WT subsystem, and the distribution system is a Class 1 WD subsystem. The treatment plant is rated at a capacity of 7,800 m³/d.

Site (Name):	RAW WATER, WAWA LAKE	Sub Type:	Surface
Type:	Source		

Comments:
The intake for the water supply is located approximately 144 m offshore in Wawa Lake, at a depth of 10.7 m below low water level. The intake is housed in a timber crib structure, equipped with coarse screens. The 623 mm I.D. cast iron pipe discharges by gravity to a wet well at the low lift pumphouse. Three 45.6 L/s VFD pumps are used to supply raw water to the treatment plant. A line from the treatment plant provides sodium hypochlorite to the low lift discharge header for pre-chlorination, if required.

Site (Name): TREATED WATER

Type:

Sub Type: Pumphouse

Comments:

The water treatment plant was constructed in 2006 and is a membrane filtration process. Raw water is pumped from the low lift station to a common header which feeds three Pall membrane systems, each consisting of a feed and backwash tank, feed/recirculation and reverse filtrate pump, 0.4 mm strainer, and 24 cartridge membrane rack. Filtered water is discharged to a contact tank where chlorine is injected to provide the necessary disinfection CT, and then to an under-floor reservoir prior to discharge to the distribution system. Sodium hypochlorite is used for pre-chlorination, primary and secondary disinfection, and membrane cleaning. Hydrofluosilicic acid is also added to the filtered water for dental health protection. Residue from the filter backwash and acid cleaning can be discharged to the municipal sanitary sewer system or to the storm sewer system (if it meets the discharge criteria). Continuous analyzers are in place for turbidity, chlorine residual and fluoride monitoring. Flow meters are used to monitor raw and treated flow as well as flow into each filter train.

Site (Name): DISTRIBUTION

Type:

Sub Type:

Comments:

The distribution system provides water for both domestic consumption and fire protection for the townships of Wawa and Michipicoten River Village. Both communities are part of the Municipality of Wawa. There are approximately 1,350 service connections, and water consumption meters were installed in 2012. A new main was installed to connect Michipicoten River Village (MRV) to the Wawa system in November 2006. This line has pressure reducing valves located prior to connecting to a 455 m3 storage tower. Chlorination equipment is available at the tower for the purpose of trimming the secondary disinfection as required. The wells and pump house for the old MRV system were decommissioned in 2007.

INSPECTION SUMMARY:

Introduction

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

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

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

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

Source

- The owner had a harmful algal bloom monitoring plan in place.
Visual checks and sampling plans for algae have been implemented.

Capacity Assessment

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

Treatment Processes

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

A Form 2 for the addition of a coagulation system was submitted January 28, 2019.

Treatment Processes

- 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.
- 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.
- 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.
- Where an activity has occurred that could introduce contamination, all parts of the drinking water system were disinfected in accordance with Schedule B, Condition 2.3 of the Drinking Water Works Permit.
- 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 Ontario Regulation 170/03.

Treatment Process Monitoring

- Primary disinfection chlorine monitoring was conducted at a location approved by Municipal Drinking Water Licence and/or Drinking Water Works Permit issued under Part V of the SDWA, or at/near a location where the intended CT has just been achieved.
- Continuous monitoring of each filter effluent line was being performed for turbidity.
- The secondary disinfectant residual was measured as required for the distribution system.
- Operators were examining continuous monitoring test results and they were examining the results within 72 hours of the test.
- 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.
- 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.
- The owner and operating authority ensured that the primary disinfection equipment had a recording device that continuously recorded the performance of the disinfection equipment.
- All continuous analysers were calibrated, maintained, and operated, in accordance with the manufacturer's instructions or the regulation.

Operations Manuals

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

Operations Manuals

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

Logbooks

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

Security

- **The owner had provided security measures to protect components of the drinking water system.**

Certification and Training

- **The overall responsible operator had been designated for each subsystem.**
- **Operators-in-charge had been designated for all subsystems which comprised the drinking water system.**
- **All operators possessed the required certification.**
- **Only certified operators made adjustments to the treatment equipment.**

Water Quality Monitoring

- **All microbiological water quality monitoring requirements for distribution samples were being met.**
- **All microbiological water quality monitoring requirements for treated samples were being met.**
- **All inorganic water quality monitoring requirements prescribed by legislation were conducted within the required frequency.**
- **All organic water quality monitoring requirements prescribed by legislation were conducted within the required frequency.**
- **All haloacetic acid water quality monitoring requirements prescribed by legislation are being conducted within the required frequency and at the required location.**

Please note that 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.

Water Quality Monitoring

During 2020 the use of the coagulation system appears to have resulted in a significant reduction in the HAA levels. The two samples collected during the quarters when the coagulation system was operating being among the lowest results since testing began in 2017.

- **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 pilot project of the coagulation system (2019) and its use in 2020, appears to have resulted in a substantial reduction in the THM levels. Several of the THM results reported in 2020 are among the lowest THM levels recorded in the last ten years.

These actions have resulted in the THM level being less than the 100 ug/l running average limit for approximately three years.

- **All nitrate/nitrite water quality monitoring requirements prescribed by legislation were conducted within the required frequency for the DWS.**
- **All sodium water quality monitoring requirements prescribed by legislation were conducted within the required frequency.**
- **The required daily samples were being taken at the end of the fluoridation process.**
- **The owner was required to increase frequency of monitoring as a result of having exceeded half the value of an applicable ODWQS of a Schedule 13-2 or 13-4 parameter(s) and that increased monitoring was conducted.**
- **All water quality monitoring requirements imposed by the MDWL or DWWP issued under Part V of the SDWA were being met.**
- **Records confirmed that chlorine residual tests were being conducted at the same time and at the same location that microbiological samples were obtained.**

Water Quality Assessment

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

Reporting & Corrective Actions

- **Corrective actions (as per Schedule 17) had been taken to address adverse conditions, including any other steps that were directed by the Medical Officer of Health.**
- **All required notifications of adverse water quality incidents were immediately provided as per O. Reg. 170/03 16-6.**
- **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.**
- **When the primary disinfection equipment, other than that used for chlorination or chloramination, has failed causing an alarm to sound or an automatic shut-off to occur, a certified operator responded in a**

Reporting & Corrective Actions

timely manner and took appropriate actions.

Other Inspection Findings

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

NON-COMPLIANCE WITH REGULATORY REQUIREMENTS AND ACTIONS REQUIRED

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

Not Applicable

SUMMARY OF RECOMMENDATIONS AND BEST PRACTICE ISSUES

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

Not Applicable

SIGNATURES

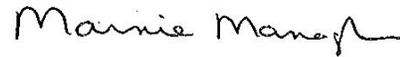
Inspected By:
Stephen Rouleau

Signature: (Provincial Officer)



Reviewed & Approved By:
Marnie Managhan

Signature: (Supervisor)



Review & Approval Date:

January 7, 2021

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

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

DWS Name:	WAWA DRINKING WATER SYSTEM
DWS Number:	210000050
DWS Owner:	Wawa, The Corporation Of The Municipality Of
Municipal Location:	Michipicoten

Regulation: O.REG 170/03
Category: Large Municipal Residential System
Type Of Inspection: Focused
Inspection Date: September 21, 2020
Ministry Office: Sault Ste. Marie Area Office

Maximum Question Rating: 568

Inspection Module	Non-Compliance Rating
Capacity Assessment	0 / 30
Treatment Processes	0 / 110
Operations Manuals	0 / 28
Logbooks	0 / 14
Certification and Training	0 / 42
Water Quality Monitoring	0 / 120
Reporting & Corrective Actions	0 / 87
Other Inspection Findings	0 / 0
Treatment Process Monitoring	0 / 137
TOTAL	0 / 568

Inspection Risk Rating	0.00%
-------------------------------	--------------

FINAL INSPECTION RATING:	100.00%
---------------------------------	----------------

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

DWS Name: WAWA DRINKING WATER SYSTEM
DWS Number: 210000050
DWS Owner: Wawa, The Corporation Of The Municipality Of
Municipal Location: Michipicoten

Regulation: O.REG 170/03
Category: Large Municipal Residential System
Type Of Inspection: Focused
Inspection Date: September 21, 2020
Ministry Office: Sault Ste. Marie Area Office

Maximum Question Rating: 568

Inspection Risk Rating | 0.00%

FINAL INSPECTION RATING: | 100.00%