WAWA DRINKING WATER SYSTEM

Annual and Summary Report 2021

Prepared by:
Water & Sewer Department
Infrastructure Services

March 2022

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Water & Sewer Department

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FEB 23/22

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Date

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Date

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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 m^3/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 m^3/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 inspection report outlines the design, operating requirements and observations of the inspector, and includes recommendations and orders where required. Additional items are identified as best practices and serve as a guide to the Municipality and its Operators. **The results of the inspection report are pending. The Municipality had not yet received the report when the Annual and Summary Report was submitted to Council. This report shall be amended with the date the inspection report was received and results therein upon receipt of the inspection report. The inspection report will be attached to this document as Appendix D.**

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 (m^3/d)	Maximum Finished Water to Distribution System Flow (m^3/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 (m^3)**	**Average Daily Flow (m^3/d)**	**Maximum Daily Flow (m^3/d)**	**Maximum Peak Flow (m^3/d)**	**Wawa Total Consumption (m^3)**	**MRV Total Consumption (m^3)**
	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 m^3/day which includes an allowance of 392 m^3/day to serve Michipicoten River Village. The maximum day flow in 2021 was 3,212.20 m^3/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
m^3	Cubic metres
m^3/d	Cubic metres per day
mg/L	Milligram per litre (part per million)
ML	Megalitre (1000 m3)
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

Ontario **Drinking-Water Systems Regulation O. Reg. 170/03**

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

Complete if your Category is Large Municipal Residential or Small Municipal Residential

Does your Drinking-Water System serve more than 10,000 people? Yes [ ] No [X]

Is your annual report available to the public at no charge on a web site on the Internet? Yes [X] No [ ]

Location where Summary Report required under O. Reg. 170/03 Schedule 22 will be available for inspection.

Municipal Office

40 Broadway Avenue

Wawa, Ontario

P0S 1K0

Complete for all other Categories.

Number of Designated Facilities served:

N/A

Did you provide a copy of your annual report to all Designated Facilities you serve?
Yes [ ] No [X]

Number of Interested Authorities you report to: N/A

Did you provide a copy of your annual report to all Interested Authorities you report to for each Designated Facility?
Yes [ ] No [X]

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?
[X] Install required equipment
[ ] Repair required equipment
[X] Replace required equipment
[**X**] 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

Incident Date	*Parameter*	*Result*	*Unit of Measure*	*Corrective Action*	*Corrective Action Date*

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 metobolites	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	Original Certification Date:	December 17, 2013
File No.:	1633210	Certification Effective Date:	December 15, 2019
Issue Date:	August 20, 2019	Certification Expiry Date:	December 14, 2022

Heather Mahon
Global Head of Technical Services SAI Global Assurance

Certified System

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/

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Appendix D

Ministry of the Environment, Conservation and Parks

Wawa Drinking Water System

Inspection Report and Inspection Rating