



**The Corporation of the  
Municipality of Wawa**

**Wawa Drinking  
Water System**

# **ANNUAL AND SUMMARY REPORTS FOR 2017**

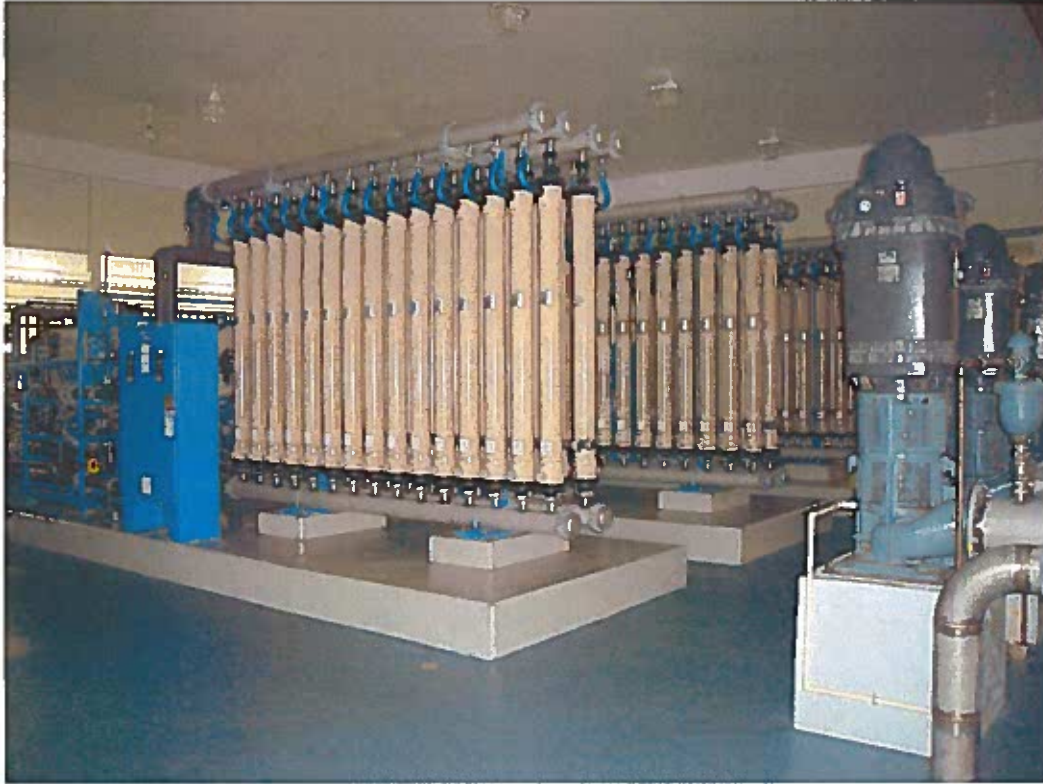


**Wawa**<sup>Canada</sup>  
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**Prepared by:  
Water & Sewer Department  
Infrastructure Services**

**February 2018**

# **Wawa Drinking Water System**



## **ANNUAL AND SUMMARY REPORTS 2017**

**Prepared for:  
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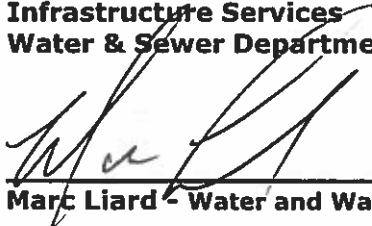
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**February 2018**

**SIGNATURE PAGE**

**Wawa Drinking  
Water System Annual and Summary  
Reports 2017**

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

  
\_\_\_\_\_  
Marc Liard - Water and Wastewater Lead Hand

Feb 14 / 2018  
Date

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

  
\_\_\_\_\_  
Cory Stainthorpe, Director  
Infrastructure Services

Feb 18, 2018  
Date

**Presented to Council:**

February 13, 2018  
Date

**Presentation Confirmed by Resolution**

RC18023

# Wawa Drinking Water System Annual and Summary Report for 2017

## Table of Contents

Signature Page .....	(i)
Table of Content.....	1
Appendices.....	1
<b>1. <u>Introduction</u></b>	
1.1. Requirements of the Summary Report.....	3
1.2. Background .....	3
1.3. Facility Specifics .....	4
1.4. Format.....	4
<b>2. <u>System Requirements</u></b>	
<b>2.1 The Act and Regulations</b>	
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. Drinking Water Quality Management Standard .....	5
<b>2.2 Operational Checks, Sampling and Testing</b>	
2.2.1 Continuous Monitoring Equipment.....	6
2.2.2 Free Chlorine Residual.....	6
2.2.3 Turbidity .....	6
2.2.4 Fluoride .....	7
2.2.5 Table – Annual Summary of Operational Checks for 2017 .....	7
2.2.6 Microbiological Sampling and Testing .....	7
2.2.7 Chemical Testing .....	8
2.2.8 Table - Summary of lead testing under Schedule 15.1.....	8
<b>3. <u>System Performance</u></b> .....	9
3.1.1 Table of Water Quantities Taken.....	10
3.1.2 Table of Annual Summary of Flow for 2017 .....	11
<b><u>Appendix A</u></b> Wawa Drinking Water System 2017 Annual Report .....	12
<b><u>Appendix B</u></b> Drinking Water Advisory dated November 26, 2014 .....	20
<b><u>Appendix C</u></b> Certificate of Accreditation for a Full Scope of the Drinking Water Quality Management System (DWQMS) .....	24



**Summary Report for the  
Municipality 2017**

**As required by**

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

## **1. Introduction**

### **1.1. Requirements of the Summary Report**

The 2017 Summary Report for the Municipality of Wawa Drinking Water System is being submitted to satisfy Schedule 22 of the Ontario Regulation 170/03, the requirement to prepare and distribute a summary report of water quality. As per Ontario Regulation 170/03, the summary report must contain the following information:

- List the requirements of the Safe Water Drinking Act, the corresponding regulations, the system approval, drinking water works permit, municipal drinking water license, any orders applicable to the system that were not met at any time during the period of January 01 to December 31, 2017, and specify the duration of any non-compliant situations;
- For each period of non-compliance, describe the measures and corrective actions taken to restore the system integrity;
- Provide a summary of the quantities and flow rates of the water supplied during the period of January 01 to December 31, 2017, including maximum daily flows, instantaneous peak flows and monthly average flows;
- A comparison of the summary to the rated capacity and flow rates approved in the system approval, drinking water works permit or municipal drinking water license.

### **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 the Ministry of the Environment 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 m<sup>3</sup>/day**.

### **1.3. Facility Specific**

- i. 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.
- ii. Maximum rate of Raw Water Taking: 25000 m3/day
- iii. 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. SYSTEM REQUIREMENTS**

### **2.1. The Act and Regulations**

#### **2.1.1. General**

The system was in compliance with the Act and Regulations during 2017.

#### **2.1.2. Municipal Drinking Water License**

MUNICIPAL DRINKING WATER LICENCE (2), License 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. Drinking Water Quality Management Standard (DWQMS)**

"The Drinking Water Quality management System"**(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 System** (DWQMS) renewal on December 16, 2016.

## **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 (Supervisory Control and Data Acquisition)** 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 1.02 mg/l and for water being pumped to the distribution system was averaged at of 0.91 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, 2017 to December 31, 2017 the average turbidity from all three skids was 0.01 Nephelometric Turbidity Units (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, 2017 to December 31, 2017, the average was 0.03 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, 2017 to December 31, 2017 was 0.60 mg/l. However, Regulation 170/03 (Schedule 7, sub.7.4) only requires fluoride testing once every day.

### **2.2.5.**

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 2017**

	<b>Number of Samples</b>	<b>Maximum</b>	<b>Average</b>	<b>Minimum</b>
Free Chlorine Residual Entering "CT" chamber	Online Analyzer (sample every second)	5.14	1.02	0.11
Free Chlorine Residual Pumped to the Distribution System	Online Analyzer (sample every second)	5.01	0.91	0.00
Turbidity Effluent from each of the Three Membrane filter Skids	Online Analyzer (sample every second)	0.81	0.01	0.00
Fluoride residual pumped to the distribution System	Online Analyzer (sample every second)	1.48	0.61	0.08
Turbidity Readings pumped to the distribution System	Online Analyzer (sample every second)	10.05	0.03	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 and Climate Change 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:
  - Escherichia Coli or E-Coli;
  - Total Coliforms; and,
  - Heterotrophic Plate Count (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,
  - Heterotrophic Count.
  
- c. Raw water samples at the Water Treatment Plant are to be taken at least once every week and tested for:
  - Escherichia Coli or 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 2016 lead sampling in the Municipality.

**Table 2.2.8**

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

<b>Location Type</b>	<b>Number of Samples</b>	<b>Range of Lead Results (min#) – (max #)</b>	<b>Number of Exceedances</b>
Plumbing	0		0
Distribution	4	<1.0 – 5.3	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**

- Trihalomethanes (THM) ; and,
- Nitrates and Nitrites.

### **Every 60 Months for**

- Sodium

A review of the Municipalities 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 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 (see Appendix C).

The Municipality worked on reducing the THM's in the drinking water system throughout 2015, 2016 and 2017. See Appendix D for the THM Action Plan. As a result of the effort taken by the Municipality, the THM's are just under the allowable level of 100 ug/l. The 201677 average is 99.95 ug/l, and we are still under the Drinking Water Advisory of The Algoma Public Health Unit.

*(Trihalomethanes 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 Municipality of Wawa was selected years ago by the Ministry of Environment and Climate Change 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.O.E.C.C. lab in Etobicoke, Ontario for analysis. The operators in Wawa find it to be another avenue for monitoring water quality for the Municipality.

### **3. 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.

**Table 3.1.1****Water Quantities Taken 2017****Maximum Daily Volume in m3/day**

	<b>Wawa Water Treatment Plant Rate of Raw water Taking</b>	<b>Wawa Water Treatment Finished Water to Distribution</b>
<b>Maximum Daily Volume Allowed</b>	25000.00 m3/day	7880 m3/day
January	4238.5	3521.9
February	4485.2	3752.5
March	4453.1	3785.2
April	3792.4	3687.3
May	4131.01	3875.5
June	3947.2	3151.5
July	4067.6	3287.7
August	3557.2	3366.9
September	2737.9	2364.9
October	2883.5	2482.2
November	3229.4	3023.4
December	4541.8	3999.7
<b>Highest % of Maximum Volume</b>	<b>18.1 %</b>	<b>51.2 %</b>

**Table 3.2.1**

**Annual Summary of Flow for 2017**

**Water Total / Average / Peak Flows – 2017**

Month	Total Consumption m <sup>3</sup>	Average Daily Flow m <sup>3</sup> /day	Maximum Daily Flow m <sup>3</sup> /day	Instantaneous Peak Flow (L/s)	Wawa Monthly Consumption m <sup>3</sup>	Net MRV Monthly Consumption m <sup>3</sup>
January	102094.4	3293.37	3521.90	77.0	99126.35	2968.05
February	95969.9	3429.49	3752.50	75.0	93289.60	2680.30
March	109554.3	3534.01	3785.20	100.0	106674.1	2880.20
April	100846.4	3361.54	3687.30	84.0	98384.90	2461.50
May	95498.8	3034.27	3875.50	116.0	93690.60	1808.20
June	88577.1	2952.57	3151.50	97.0	87132.10	1445.00
July	94320.8	3042.60	3287.7	98.0	91636.80	2684.00
August	71046.1	2291.91	3366.90	117.0	68305.10	2741.00
September	65605.3	2186.85	2364.90	117.0	63110.30	2495.00
October	68747.4	2217.33	2482.20	99.0	65061.40	3686.00
November	74785.6	2492.84	3023.40	78.0	71652.60	3133.00
December	103111.3	3326.16	3999.70	79.0	100333.3	2778.00
		Average flow for 2017 m <sup>3</sup>	Maximum flow for 2017 m <sup>3</sup>	Peak flow for 2017 l/s	Wawa Consumption 2017 m <sup>3</sup>	M.R.V. Consumption 2017 m <sup>3</sup>
<b>Totals</b>	<b>1070157.4</b>	<b>2930.25</b>	<b>3999.70</b>	<b>117.0</b>	<b>1038397.15</b>	<b>31760.25</b>

The Wawa Water Treatment Plant has an approved, rated treatment capacity of 7880m<sup>3</sup>/day which includes an allowance of 392m<sup>3</sup>/day to serve Michipicoten River Village.

The maximum day flow in 2017 was 3999.7m<sup>3</sup>/day, which is approximately 48.3 % of the total rated capacity and 50.75 % of the rated capacity if the amount for Michipicoten River village is excluded.

In 2017, the Maximum recorded instantaneous flow rate was 117.0 l/s that occurred during the month of August.

# **APPENDIX A**

**Wawa**

**Drinking Water System**

**Waterworks # 210000050**



**Annual Report**

**2017**

**WAWA WATER SYSTEM 2017 ANNUAL REPORT**

<b>Drinking-Water System Number:</b>	21000050
<b>Drinking-Water System Name:</b>	Wawa Water Supply System
<b>Drinking-Water System Owner:</b>	The Corporation of the Municipality of Wawa
<b>Drinking-Water System Category:</b>	Municipal Residential – Large
<b>Period being reported:</b>	01-01-17 to 31-12-17

<p><b><u>Complete if your Category is Large Municipal Residential or Small Municipal Residential</u></b></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 P0S 1K0</p> </div>	<p><b><u>Complete for all other Categories.</u></b></p> <p>Number of Designated Facilities served:  <div style="border: 1px solid black; padding: 5px; width: 100px; text-align: center;">N/A</div> </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:  <div style="border: 1px solid black; padding: 5px; width: 100px; text-align: center;">N/A</div> </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>
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**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 to an under floor reservoir where it is chlorinated. Sodium hypochlorite is used for pre-chlorination, primary and secondary disinfection, and membrane cleaning. Hydrofluorosilicic acid is added to filtered water before distribution. 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 facilities, using sodium hypochlorite, are installed.

**List all water treatment chemicals used over this reporting period**

- Sodium hypochlorite
- Hydrofluorosilicic acid

**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**

M.R.V.(Michipicoten River Village) – Water tower restoration phase 1 of 2 - \$178,395.33

M.R.V. (Michipicoten River Village) – installation of a dechlorination outfall - \$124,270.30

THM (Trihalomethanes) study - \$29,519.91

**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>
Nov.09, 2017	AWQI 13794 Precautionary boil water for Michipicoten River Village after the water reservoir was recoated			Sample bactis at water tower (reservoir), upper Mission And lower Mission for three days. All results were good.(absent / Present)	Nov.11, 2017

**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	48	0 - 14	0 - 435	N/A	N/A
Treated	48	Absent	Absent	48	0 - 0
Distribution	192	Absent	Absent	53	0 - 2

**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	<b><i>NOTE: For continuous monitors use 8760 as the number of samples.</i></b>
Turbidity (NTU)	8760	0.00	0.03	10.05	
Chlorine (mg/l)	8760	0.00	0.91	5.01	
Fluoride (mg/l)	8760	0.00	0.60	2.00	

***\*NOTE: Minimum and Maximum levels are caused by instrument spikes because of maintenance to the instruments.***

**Distribution System**

	Number of Samples	Minimum	Average	Maximum
Chlorine Residual (mg/l)	365	0.18 mg/l	0.77 mg/l	1.03 mg/l

**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.24, 2017	<0.60	ug/l	No
Arsenic	Jan.24, 2017	<1.0	ug/l	No
Barium	Jan.24, 2017	<10	ug/l	No
Boron	Jan.24, 2017	<50	ug/l	No
Cadmium	Jan.24, 2017	<0.10	ug/l	No
Chromium	Jan.24, 2017	<1.0	ug/l	No
*Lead		See below	ug/l	No
Mercury	Jan.24, 2017	<0.10	ug/l	No
Selenium	Jan.24, 2017	<1.0	ug/l	No
Sodium	Jan.24, 2017	6.36	mg/l	No
Uranium	Jan.24, 2017	<2.0	ug/l	No
Fluoride	Jan.24, 2017	0.293	mg/l	No
Nitrite	Jan.24, 2017	<0.010	mg/l	No
Nitrate	Jan.24, 2017	0.067	mg/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	0		0
Distribution	4	<1.0 – 5.3	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.24, 2017	<0.010	ug/l	No
Aldicarb			ug/l	No
Aldrin + Dieldrin			ug/l	No
Atrazine + N-dealkylated metabolites	Jan.24, 2017	<0.20	ug/l	No
Azinphos-methyl	Jan.24, 2017	<0.10	ug/l	No
Bendiocarb			ug/l	No
Benzene	Jan.24, 2017	<0.50	ug/l	No
Benzo(a)pyrene	Jan.24, 2017	<0.010	ug/l	No
Bromoxynil	Jan.24, 2017	<0.20	ug/l	No
Carbaryl	Jan.24, 2017	<0.20	ug/l	No
Carbofuran	Jan.24, 2017	<0.20	ug/l	No
Carbon Tetrachloride	Jan.24, 2017	<0.20	ug/l	No
Chlordane (Total)	Jan.24, 2017		ug/l	No

<b>Chlorpyrifos</b>	Jan.24, 2017	<0.10	ug/l	No
<b>Cyanazine</b>			ug/l	No
<b>Diazinon</b>	Jan.24, 2017	<0.10	ug/l	No
<b>Dicamba</b>	Jan.24, 2017	<0.20	ug/l	No
<b>1,2-Dichlorobenzene</b>	Jan.24, 2017	<0.50	ug/l	No
<b>1,4-Dichlorobenzene</b>			ug/l	No
<b>Dichlorodiphenyltrichloroethane (DDT) + metabolites</b>			ug/l	No
<b>1,2-Dichloroethane</b>	Jan.24, 2017	<0.50	ug/l	No
<b>1,1-Dichloroethylene (vinylidene chloride)</b>	Jan.24, 2017	<0.50	ug/l	No
<b>Dichloromethane</b>	Jan.24, 2017	<5.0	ug/l	No
<b>2-4 Dichlorophenol</b>	Jan.24, 2017	<0.30	ug/l	No
<b>2,4-Dichlorophenoxy acetic acid (2,4-D)</b>	Jan.24, 2017	<0.20	ug/l	No
<b>Diclofop-methyl</b>	Jan.24, 2017	<0.20	ug/l	No
<b>Dimethoate</b>	Jan.24, 2017	<0.10	ug/l	No
<b>Dinoseb</b>			ug/l	No
<b>Diquat</b>	Jan.24, 2017	<1.0	ug/l	No
<b>Diuron</b>	Jan.24, 2017	<1.0	ug/l	No
<b>Glyphosate</b>	Jan.24, 2017	<5.0	ug/l	No
<b>Heptachlor + Heptachlor Epoxide</b>			ug/l	No
<b>Lindane (Total)</b>	Jan.24, 2017		ug/l	No
<b>Malathion</b>	Jan.24, 2017	<0.10	ug/l	No
<b>Methoxychlor</b>			ug/l	No
<b>Metolachlor</b>	Jan.24, 2017	<0.10	ug/l	No
<b>Metribuzin</b>	Jan.24, 2017	<0.10	ug/l	No
<b>Monochlorobenzene</b>	Jan.24, 2017	<0.50	ug/l	No
<b>Paraquat</b>	Jan.24, 2017	<1.0	ug/l	No
<b>Parathion</b>			ug/l	No
<b>Pentachlorophenol</b>	Jan.24, 2017	<0.50	ug/l	No
<b>Phorate</b>	Jan.24, 2017	<0.10	ug/l	No
<b>Picloram</b>	Jan.24, 2017	<0.20	ug/l	No
<b>Polychlorinated Biphenyls(PCB)</b>	Jan.24, 2017	<0.035	ug/l	No
<b>Prometryne</b>	Jan.24, 2017	<0.10	ug/l	No
<b>Simazine</b>	Jan.24, 2017	<0.10	ug/l	No
<b>THM (NOTE: show latest annual average)</b>		99.95	ug/l	No
<b>Temephos</b>			ug/l	No
<b>Terbufos</b>	Jan.24, 2017	<0.20	ug/l	No
<b>Tetrachloroethylene</b>	Jan.24, 2017	<0.50	ug/l	No
<b>2,3,4,6-Tetrachlorophenol</b>	Jan.24, 2017	<0.50	ug/l	No
<b>Triallate</b>	Jan.24, 2017	<0.10	ug/l	No
<b>Trichloroethylene</b>	Jan.24, 2017	<0.50	ug/l	No

2,4,6-Trichlorophenol	Jan.24, 2017	<0.50	ug/l	No
2,4,5-Trichlorophenoxy acetic acid (2,4,5-T)			ug/l	No
Trifluralin	Jan.24, 2017	<0.10	ug/l	No
Vinyl Chloride	Jan.24, 2017	<0.20	ug/l	No

**THM – Summary Table**

<i>Date of Test</i>	<i>Location</i>	<i>Results</i>	<i>Value</i>
Jan.24, 2017	Mission Tower	79.4	Ug/l
Apr.19, 2017	Mission Tower	84.4	Ug/l
July 18, 2017	Mission Tower	123	Ug/l
Oct.15, 2017	Mission Tower	114	Ug/l

*Average THM's for the year 2017 is 99.95 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.*

**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 B

## Wawa Drinking Water System

## Algoma Public Health Drinking Water Advisory Dated November 26, 2014



Algoma  
PUBLIC HEALTH  
Santé publique Algoma

Dr. Kimberley Barker, MD CCFP MPH FRCPC  
Medical Officer of Health  
[www.algomapublichealth.com](http://www.algomapublichealth.com)

## ADVISORY

To Consumers of the Wawa Municipal Water System:

November 26, 2014

## THM levels exceed Ontario Drinking Water Standards

Algoma Public Health has reviewed water quality data for the Wawa Municipal water system and is advising consumers that Trihalomethane (THMs) levels exceed Ontario Drinking Water Quality Standards. The current allowable level for THMs in a drinking water supply in Ontario is 100 micrograms per liter, and the current level in the drinking water supply in Wawa has been calculated to be 112.9 micrograms per liter.

You will be notified when the level of THMs have returned to acceptable levels.

This advisory applies to water consumed directly, ice made from this water, or mixed with drinks such as juice or powdered drink mixes, baby formulas, etc.

**This notification does not pose any short-term or acute health risk.** All bacterial indicators for this water system are satisfactory.

Chlorine is used to protect the water supply from microorganisms, such as bacteria and viruses. When naturally occurring organic material is present, chlorine can produce THMs.

The high levels of THMs are due to an increase in organic material in the water source and chlorine levels introduced at the plant. At this time, chlorine levels have already been reduced to levels that will decrease THM production while still providing adequate treatment of the water. Options for a longer-term solution are being explored at this time.

.../2

Blind River  
P.O. Box 194  
9B Lawton Street  
Blind River, ON P0R 1B0  
Tel: 705-356-2551  
TF: 1 (888) 356-2551  
Fax: 705-356-2494

Elliot Lake  
50 Roman Avenue  
Elliot Lake, ON P5A 1R9  
Tel: 705-848-2314  
TF: 1 (877) 748-2314  
Fax: 705-848-1911

Sault Ste. Marie  
294 Willow Avenue  
Sault Ste. Marie, ON P6B 0A9  
Tel: 705-942-4646  
TF: 1 (866) 892-0172  
Fax: 705-759-1534

Wawa  
18 Ganley Street  
Wawa, ON P0S 1K0  
Tel: 705-856-7208  
TF: 1 (888) 211-8074  
Fax: 705-856-1752

Accredited for Environmental Assessment per ISO 14001



**Page Two**  
**November 26, 2014**

THMs will naturally dissipate when the water is exposed to air, and are removed easily by activated carbon type filters. If you would like to reduce the level of THMs in your drinking water you can:

- Store water in an open container in the refrigerator for 24 hours
- Use water treatment devices containing activated carbon (i.e. Brita filter or similar)
- Aerate the water in a blender
- Use commercially available bottled water for drinking and other consumption purposes.

**Where can I get more information?**

Visit the Algoma Public Health website at [www.algomapublichealth.com](http://www.algomapublichealth.com) or contact the Environmental Health Department of Algoma Public Health at 1-888-356-2551.

For healthier communities,

Nick Roscoe, C.P.H.I.(C)  
Public Health Inspector

NR/jal

Enclosure



Algoma  
PUBLIC HEALTH  
Santé publique Algoma

## TRIHALOMETHANES IN DRINKING WATER

### What are Trihalomethanes?

Trihalomethanes (THMs) are a byproduct of the water treatment process. They are formed when naturally occurring organic substances found in raw water react with chlorine used to treat the water. This reaction produces "disinfection by-products" the most common of which are THMs. The four most common THMs in drinking water are chloroform, bromodichloromethane, chlorodibromomethane and bromoform.

### What are the health risks?

Current evidence is that THMs do not pose an immediate health risk. Studies suggest that long-term exposure (e.g. 35 years) to high levels of THMs may be linked to a slightly increased risk of some types of cancer, particularly bladder cancer.

### Why do we use chlorine if it creates these byproducts?

Chlorination continues to be the best choice to treat drinking water. Its use, since the early 1900's, has been a huge public health benefit in largely eliminating plagues such as cholera and typhoid and reducing other health problems caused by waterborne viruses and bacteria (e.g. E. coli). The benefits of chlorinating drinking water are considered much greater than the risk of health effects from THMs.

### I am pregnant. Should I stop drinking the water?

It is very important to maintain fluid intake during pregnancy. Based on current knowledge, the potential risks of adverse pregnancy outcomes associated with drinking water containing THMs are much lower than the risks of serious illness and death that could result from drinking water that has not been properly disinfected.

Pregnant women may wish to speak with their doctor for advice. It is important that pregnant women continue to drink sufficient water according to their doctor's recommendations.

### What options exist to reduce THMs?

Several options are available to the homeowner concerned about the level of THMs in their tap water. The effectiveness of the options depends on which THMs are in the water.

- Use bottled water (best method)
- Aerate the water in a blender
- Store it in the refrigerator for 24 hours
- Water treatment devices containing activated carbon

### What is being done to reduce the THM levels in the drinking water?

Algoma Public Health is actively involved in the remedial plans being implemented by the Municipality and the Ministry of Environment to address the elevated THM levels. The goal is to reduce the THM levels and maintain low levels over the long term.

Information adapted from: [Health Canada \(September 2008\)](http://www.hc-sc.gc.ca/lewh-smsd/pub/water-esu/trihalomethanes/index-eng.php)  
[www.hc-sc.gc.ca/lewh-smsd/pub/water-esu/trihalomethanes/index-eng.php](http://www.hc-sc.gc.ca/lewh-smsd/pub/water-esu/trihalomethanes/index-eng.php)

## APPENDIX C

## Certificate of Accreditation

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



## CERTIFICATE OF ACCREDITATION

This is to certify that the following operating authority:

### Municipality of Wawa

40 Broadway Avenue Wawa, Ontario P0S 1K0 Canada

**Additional Drinking Water System:**

Wawa Drinking Water System

operates a

### Quality Management System

which conforms with the requirements of

### Drinking Water Quality Management Standard (DWQMS):2006

for the following scope of accreditation

**Full Scope - Entire DWQMS**

Certificate No.:	CERT-0099301	Original Certification Date:	December 17, 2013
File No.:	1833210	Certification Effective Date:	December 16, 2016
Issue Date:	November 29, 2016	Certification Expiry Date:	December 15, 2019

Paul Simpson  
Global Head of Policy, Risk and Compliance



DWQMS



Accredited by  
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