# BAY AREA WATER SYSTEM 2019 WATER QUALITY REPORT









Pinconning Township













Merritt Township

Fraser Township



City of Pinconning
Cheese Capital of Michigan

Akron Township

Bangor Monitor Metro District, Inc

Kawkawlin Metropolitan Water District

KAWKAWLIN TOWNSHIP Mi

Beaver Road Area Water Association

# What's in This Report

Page 2 – Our Most Important Goal

Page 2-3 – Source Water

Page 3- PFAS

Page 4 – Definitions of Abbreviated Symbols

Page 4-7- Water Quality Data Tables

Page 7 - Monitoring Violation

Page 8 - Lead and Copper

Page 9 – Service Lines

Page 10 – Opportunities for Public Participation

### Safe Drinking Water - Our Most Important Goal

Delivering safe drinking water to nearly 100,000 customers who rely upon us every day is the number one goal of the operators, maintenance personnel, and supervisors at the Bay Area Water Treatment Plant (BAWTP), and of the water systems that purchase and distribute water throughout Bay County. This Annual Water Quality Report will be of interest to you if you consume drinking water from the public water supply in our service area. This report contains water quality data from the Bay Area Water Treatment Plant, along with results from the distribution system for calendar year 2019, unless stated otherwise.

Drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contaminants. The presence of contaminants does not necessarily indicate that water poses a health risk. Removing all contaminants would be extremely expensive, and in most cases, would not provide increased protection of public health.

In order to ensure that tap water is safe to drink, the U.S. EPA prescribes regulations that limit the levels of certain contaminants in water provided by public water systems. Federal Food and Drug Administration regulations establish limits for contaminants in bottled water, which provide the same protection for public health. More information about contaminants and potential health effects can be obtained by calling the Environmental Protection Agency's (EPA) Safe Drinking Water Hotline (800) 426-4791.

#### **Source Water**

The source of drinking water (both tap water and bottled water) include rivers, lakes, streams, ponds, reservoirs, springs, and wells. As water travels over the surface of the land or through the ground, it dissolves naturally-occurring minerals and, in some cases, radioactive material, and can pick up substances resulting from the presence of animals or from human activity.

Contaminants that may be present in source water include:

- **Microbial** contaminants, such as viruses and bacteria which may come from sewage treatment plants, septic systems, agricultural livestock operations, and wildlife.
- **Inorganic** contaminants, such as salts and metals, which can be naturally-occurring or result from urban storm water runoff, industrial or domestic wastewater discharges, oil and gas production, mining, or farming.
- **Pesticides** and **herbicides**, which may come from a variety of sources such as agriculture, urban storm water runoff, and residential uses.



- **Organic** chemical contaminants, including synthetic and volatile organic chemicals, which are byproducts of industrial processes and petroleum production, and can also come from gas stations, urban storm water runoff, and septic systems.
- Radioactive contaminants, which can be naturally-occurring or be the result of oil and gas production and mining activities.



#### **Source Water Assessment**

Key to delivering high quality water from the BAWTP starts with high quality raw water purchased and supplied by the Saginaw-Midland Municipal Water Supply Corporation (jointly owned by the cities of Saginaw and Midland). The Saginaw-Midland System's Whitestone Point facility near AuGres draws raw water from Lake Huron, a far more consistent and superior raw water source than the Saginaw Bay, which was the

previous source used prior to 2015. Raw water travels approximately 50 miles to the Bay Area Water Treatment Plant for processing.

SMMWSC's intake is located near Whitestone Point, a location selected in the 1940s after an engineering study showed that water at this location was typical of deep Lake Huron currents and relatively free from influences from Saginaw Bay and nearby on-shore sources of contamination.

EGLE (Michigan Department of Environment, Great Lakes, and Energy) previously completed Source Water Assessments of all 59 public water supplies in Michigan that draw drinking water from surface water sources such as rivers, lakes, and impoundments. The State used a seven-tiered susceptibility rating scale from "very low" to "very high" based primarily on geologic sensitivity, water chemistry, and contaminant sources. The EGLE Source Water Assessment report determined that the susceptibility of the Saginaw-Midland source raw water was rated "Moderately Low." This rating is the best a surface water source can achieve.

Anyone interested in seeing the source water assessment for water being used at the BAWTP can call the plant at (989) 439-7245. Additional information about the EGLE Source Water Assessment program can be viewed on the internet at <a href="http://www.michigan.gov/egle/">http://www.michigan.gov/egle/</a>. Follow the link to Water, then to Drinking Water, and finally to Source Water Assessment.

#### **PFAS**

PFAS contamination of source and tap water has become a major area of concern over the last few years. In 2019, the State of Michigan implemented a testing program to see if PFAS was located in surface, ground, and tap waters throughout Michigan. We agreed to take part in this sampling, as did Saginaw-Midland. Samples were collected every month for 6 months at the Bay Area Water Treatment Plant tap and the Saginaw Midland Water Supply Corporation (sampled at AuGres). PFAS was **Not Detected** in any of the samples collected throughout 2019 at either location.

# **Water Quality Data Tables**

The data presented in the upcoming tables are from testing done in 2019, unless otherwise noted. In the first table you will find terms and abbreviations that might not be familiar to you. To help you better understand these terms, we have provided the definitions.

	DEFINITIONS OF ABBREVIATED SYMBOLS										
Symbol	Abbreviation for	Definition/Explanation									
AL	Action Level	The concentration of a contaminant, which, if exceeded, triggers treatment or other requirements that a water system must follow.									
LRAA	Locational Running Annual Average	The average of sample results taken at a particular monitoring location during the previous four calendar quarters, calculated quarterly.									
MCL	Maximum Contaminant Level	The highest level of a contaminant that is allowed in drinking water. MCLs are set as close to the MCLGs as feasible using the best available treatment technology.									
MCLG	Maximum Contaminant Level Goal	The level of contaminant in drinking water below which there is no known or expected risk to health. MCLGs allow for a margin of safety.									
MRDL	Maximum Residual Disinfectant Level	The highest level of disinfectant allowed in drinking water. There is convincing evidence that addition of a disinfectant is necessary for control of microbial contaminants.									
MRDLG	Maximum Residual Disinfectant Level Goal	The level of a drinking water disinfectant below which there is no known or expected risk to health. MRDLGs do not reflect the benefits of the use of disinfectants to control microbial contaminants.									
NA	Not Applicable										
ND	Not Detected										
NTU	Nephelometric Turbidity Units	A measurement of the lack of clarity in water, or cloudiness of the water.									
PPB	Parts Per Billion	The PPB is equivalent to micrograms per liter, or ug/L.									
PPM	Parts Per Million	The PPM is equivalent to milligrams per liter, or mg/L.									
RAA	Running Annual Average	The average of sample results during the previous four calendar quarters, calculated quarterly.									
TT	Treatment Technique	A required process intended to reduce the level of a contaminant in drinking water.									

REGULATED PARAMETERS AT THE BAY AREA WATER TREATMENT PLANT TAP										
Contaminants	MCL	MCLG	Result	Violation?	Typical Source					
Fluoride (ppm) (a)	4	4	0.80	No	Erosion of natural deposits; Water additive which promotes strong teeth; Discharge from fertilizer and aluminum factories.					
Barium (ppm) (b)	2	2	0.01	No	Discharge of drilling wastes; Discharge from metal refineries; Erosion of natural deposits.					
Sodium (ppm) (c)	NA	NA	6	No	Erosion of natural deposits.					
Styrene (ppm)	0.1	0.1	ND-0.0006	No	Industrial and environmental waste biproducts.					

- a) Level reported from annual regulatory sampling. The plant also performs daily sampling. Results for 2019 were: average 0.77 PPM; range -0.67 PPM -0.88 PPM.
- b) Testing for this substance is conducted every nine years. Last test date 2017.
- $c) \quad \hbox{Sodium is not a regulated contaminant.} \\$

REGULATED PARAMETERS AT BAY AREA WATER TREATMENT PLANT FILTER EFFLUENT										
	MCL	MCLG	Average	Range	Violation	Typical Source				
Turbidity	TT(d)	0	0.018 NTU	0.015-0.028 NTU	None	Soil runoff.				

d) The treatment technique requires that all samples test below 1 NTU 100% of the time and below 0.3 NTU 95% of the time in a month. 100% of samples in 2019 were below 0.3 NTU, indicating full compliance with turbidity standards in 2019.

REGULATED PARAMETERS IN THE DISTRIBUTION SYSTEM									
LEAD AND COPPER RESULTS									
			ction Level 1	15, MCLG 0	COPPER, A	ction Level 1	.3, MCLG 1.3		
Your Community	Date Range/Year Sampled	Your Water (PPB) (e)	Range of Results	Number of Samples Above AL	Your Water (PPM) (e)	Range of Results	Number of Samples Above AL		
Akron Twp.	Jan-June 2019	0	0-1	0	0.2	0.0-0.3	0		
7	July-Dec 2019	0	0-0	0	0.2	0.0-0.3	0		
Bangor Twp.	Jan-June 2019	2	0-16	1	0.2	0.0-0.3	0		
Bullgor TWP.	July-Dec 2019	2	0-21	1	0.2	0.0-0.3	0		
Bangor Monitor	Jan-June 2019	0	0-2	0	0.2	0.1-0.3	0		
Dangor World	July-Dec 2019	0	0-3	0	0.2	0.0-0.2	0		
City of Bay City	Jan-June 2019	10	0-21	3	0.3	0.0-0.4	0		
	July-Dec 2019	12	0-870	4	0.2	0.0-0.8	0		
Pay County Supply #1	Jan-June 2019	3	0-13	0	0.2	0.0-0.3	0		
Bay County Supply #1	July-Dec 2019	1	0-18	1	0.2	0.0-0.2	0		
Beaver Rd. Assoc.	Jan-June 2019	2	2-9	0	0.3	0.1-0.5	0		
Deaver Nu. Assoc.	July-Dec 2019	0	0-3	0	0.2	0.0-0.2	0		
Beaver Twp.	Jan-June 2019	2	0-3	0	0.3	0.1-0.6	0		
beaver twp.	July-Dec 2019	0	0-1	0	0.2	0.1-0.3	0		
City of Essexville	Jan-June 2019	14	0-28	3	0.4	0.0-0.5	0		
City of Essexville	July-Dec 2019	19	0-100	7	0.3	0-0.4	0		
Fraser Twp.	Jan-June 2019	1	0-2	0	0.2	0.1-0.4	0		
riasei iwp.	July-Dec 2019	1	0-62	1	0.2	0.0-0.3	0		
	Jan-June 2019	21	0-37	9	0.3	0-0.8	0		
Hampton Twp.	July-Dec 2019	9	0-220	1	0.2	0.0-0.4	0		
Karla Pa Malas	Jan-June 2019	1	0-1	0	0.3	0.0-0.3	0		
Kawkawlin Metro.	July-Dec 2019	0	0-1	0	0.2	0.0-0.3	0		
W 1 11 T	Jan-June 2019	0	0-1	0	0.3	0.0-0.4	0		
Kawkawlin Twp.	July-Dec 2019	1	0-3	0	0.3	0.0-0.3	0		
	Jan-June 2019	1	0-1	0	0.2	0.0-0.4	0		
Merritt Twp.	July-Dec 2019	1	0-6	0	0.2	0.0-0.4	0		
NA it Too	Jan-June 2019	1	0-4	0	0.3	0.0-0.4	0		
Monitor Twp.	July-Dec 2019	1	0-2	0	0.2	0.1-0.2	0		
City of Discounting	Jan-June 2019	0	0-2	0	0.2	0.0-0.2	0		
City of Pinconning	July-Dec 2019	0	0-1	0	0.2	0.0-0.2	0		
Dinagrating	Jan-June 2019	1	0-1	0	0.2	0.0-0.3	0		
Pinconning Twp.	July-Dec 2019	2	0-2	0	0.2	0.0-0.3	0		
Portsmouth Twp.	Jan-June 2019	2	0-8	0	0.2	0.0-0.3	0		
Portsmouth Twp.	July-Dec 2019	1	0-4	0	0.3	0.1-0.9	0		
Williams Twp.	Jan-June 2019	1	0-3	0	0.2	0.1-0.3	0		
vviiliaitis tvvp.	July-Dec 2019	1	0-1	0	0.2	0.1-0.2	0		
Wisner Twp.	Jan-June 2019	0	0-1	0	0.2	0.0-0.3	0		
vvisitet tvvp.	July-Dec 2019	0	0-1	0	0.2	0.0-0.3	0		

e) Ninety (90) percent of the samples collected were at or below the level reported for our water.

Typical source contaminants are erosion of natural deposits or corrosion of household piping or plumbing fixtures containing lead and copper. Homes with lead service lines and lead solder used in household plumbing and fixtures have a greater risk of high lead levels.

REGULATED PARAMETERS IN THE DISTRIBUTION SYSTEM																			
Disinfectant & Disinfection By-Products																			
Substance	e	N	MRDL	MRDL	G H	Highest RAA Range			ange	Vi	Violation			Typic	al Sou	ırce			
Free Chlorine (as C (PPM)	212)		4	4		0.6	5	0.02	2-1.16		No		Water	additiv	ve used	l to co	ntrol r	nicrol	oes.
Total Trihalomethanes (TTHM) & Haloacetic Acid (HAA5)  Typical Source: Byproduct of drinking water disinfection																			
TTHM MCL = 80 ppb HAA5 MCL = 60 ppb	. Akron Twp		Bangor Twp.	Bangor Monitor City of Bay City	Bay County Supply #1	Beaver Rd. Assoc.	Beaver Twp.	City of Essexville	Fraser Twp.	Hampton Twp.	Kawkawlin Metro	Kawkawlin Twp.	Merritt Twp.	Monitor Twp.	City of Pinconning	Pinconning Twp.	Portsmouth Twp.	Williams Twp.	Wisner Twp.
Highest TTHM LRAA	61	40	40	45	48	54	53	39	43	54	45	44	48	36	46	51	48	47	52
Low	54	17	15	19	32	23	35	17	29	30	25	26	36	14	20	41	37	31	38
High	54	49	37	48	60	62	68	42	59	67	67	63	56	51	52	64	67	58	60
Violation?	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No
Highest HAA5 LRAA	22	21	22	22	27	23	27	18	29	22	26	28	25	26	24	28	24	25	24
Low	19	6.3	11	11	20	12	21	6.3	24	13	17	24	20	17	14	22	14	19	19
High	19	34	28	28	33	29	34	28	34	37	33	35	31	32	38	34	29	30	38
Violation?	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No

#### **Additional Monitoring**

Unregulated contaminants are those for which the EPA has not established drinking water standards. Monitoring helps the EPA to determine where certain contaminants occur and whether regulation of those contaminants is needed.

UNREGULATED CONTAMINANT MONITORING IN THE BANGOR TWP. DISTRIBUTION SYSTEM									
Unregulated Contaminant Name	Average Level Detected	Range	Year Sampled	Comments					
Bromochloroacetic acid (ppb)	2.182	0.414-3.79	2019						
Bromodichloroacetic acid (ppb)	3.64	2.48-4.38	2019						
Chlorodibromoacetic acid (ppb)	0.551	0.418-0.833	2019	D. 1					
Dibromoacetic acid (ppb)	0.057	0.000-0.343	2019	Results of monitoring are available upon request					
Dichloroacetic acid (ppb)	8.91	1.75-18.00	2019						
Monobromoacetic acid (ppb)	0.071	0.000-0.428	2019						
Trichloroactic acid (ppb)	15.33	8.56-18.30	2019						

Some people may be more vulnerable to contaminants in drinking water than the general population. Immuno-compromised persons such as persons with cancer undergoing chemotherapy, persons who have undergone organ transplants, people with HIV/AIDS or other immune system disorders, some elderly, and infants can be particularly at risk from infections. These people should seek advice about drinking water from their health care providers. EPA/Centers for Disease Control (CDC) guidelines on appropriate means to lessen the risk of infection by Cryptosporidium and other microbial contaminants are available from the Safe Water Drinking Hotline (800) 426-4791.

WATER QUALITY TEST RESULTS FROM THE BAY AREA WATER PLANT TAP									
<b>Testing Done</b>	Average	Range	Definition of Substance						
рН	7.5	7.3-7.6	A measure of acidity and alkalinity.						
Hardness (as CaCO3) (ppm)	102	90-124	A measure of the total concentration of calcium and magnesium ions.						
Alkalinity (as CaCO3) (ppm)	79	70-98	A measure of the capacity of water to neutralize an acid.						
Calcium (as CaCO3) (ppm)	74	62-98							
Sulfates (ppm)	12	7-17	Inorganic substances often found in water.						
Chloride (ppm)	10	8-18							
Conductivity (uS/cm)	235	214-326	A measure of the ability to carry an electrical current						
Orthophosphate-PO4 (ppm)	3.40	3.29-3.63	Corrosion inhibitor added to water to prevent corrosion of plumbing materials						

# Monitoring Requirements Not Met for Beaver Township and Williams Township

We are required to monitor your drinking water for specific contaminants on a regular basis. Results of regular monitoring are an indicator of whether or not our drinking water meets health standards. During the month of September 2019, we did not fully monitor or test for Total Coliform Bacteria and therefore cannot be sure of the quality of our drinking water during that time. However, these violations **do not** pose a threat to your supply's water.

What should I do? There is nothing you need to do at this time. This is not an emergency. You do not need to boil water or use an alternative source of water at this time. Even though this is not an emergency, as our customers, you have a right to know what happened and what we did to correct the situation.

The table below lists the Total Coliform sampling requirements, how often we are supposed to sample for this contaminant, how many samples we are supposed to take, how many samples we took, when samples should have been taken, and the date we collected follow-up samples.

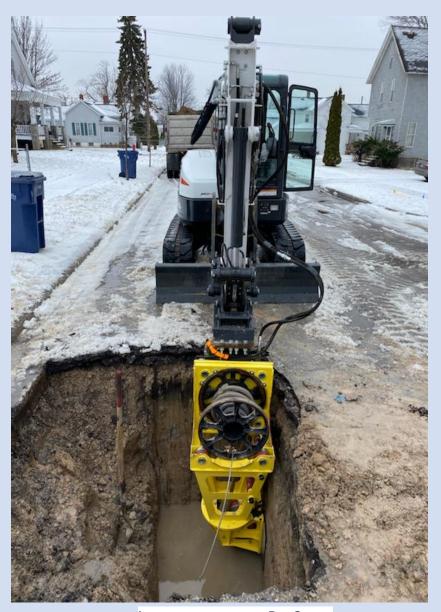
Total Coliform Bacteria Sampling	Required Sampling Frequency	Number of Samples Taken	When Samples Should Have Been Taken	Follow-up Samples Collected
Beaver Township	2 samples per month	1	September 1 to September 30, 2019	October 2019
Williams Township	6 samples per month	5	September 1 to September 30, 2019	October 2019

What happened? What is being done? We inadvertently missed taking samples within this required sampling period. To ensure that this doesn't happen again, a corrective action plan has been implemented and is in place. This plan ensures that verification of sampling compliance is performed every month by plant and distribution staff. For more information on this violation, please contact Trevor Jacobs, Distribution & Transmission Superintendent for the Bay County Department of Water & Sewer, at (989) 684-3883.

# **Lead & Copper**

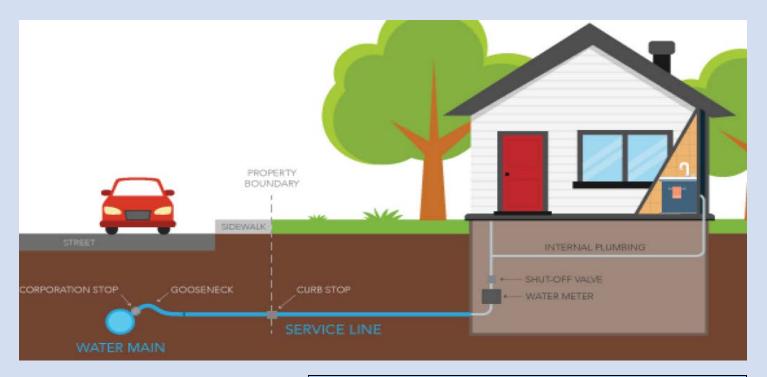
Lead and copper are not naturally present in our water, and they are not detected in the tap water leaving the plant. However, as long as there are lead services and lead containing fixtures in our water system, there will be traces of lead detected during testing at locations in the distribution system. In an effort to keep levels low, the water plant feeds phosphoric acid, a corrosion inhibitor. This forms a protective coating on service lines and plumbing that keeps water from dissolving some metals into the drinking water.

If present, elevated levels of lead can cause serious health problems, especially for pregnant women and young children. Lead in drinking water is primarily from materials and components associated with service lines and home plumbing. The Bay Area Water System is responsible for providing high quality drinking water, but cannot control the variety of materials used in plumbing components. When your water has been sitting for several hours, you can minimize the potential for lead exposure by flushing your tap for 30 seconds to 2 minutes before using water for drinking or cooking. If you are concerned about lead in your water, you may wish to have your water tested. Information on lead in drinking water, testing methods, and steps you can take to minimize exposure is available from the Safe Drinking Water Hotline at 1-800-426-4791 or at http://www.epa.gov/safewater/lead.



LEAD SERVICE REMOVAL, BAY CITY

Infants and children who drink water containing lead in excess of the action level could experience delays in their physical or mental development. Children could show slight deficits in attention span and learning abilities. Adults who drink this water over many years could develop kidney problems or high blood pressure.



#### **Service Lines**

A service line is the pipe that connects a house or business to a water main. The city or township that supplies the water owns the line from the water main to a water shutoff valve called a curb stop, and the homeowner owns the section of service line between the curb stop and the house.

This chart shows the communities in the Bay Area Water System and which ones have lead service lines. A service line is listed as a lead service if **any** part of the line is lead. If a community is not absolutely certain what every section of the service is made of, it is listed as an 'unknown service line' and these will be investigated in the near future. A full inventory of the service lines in our system is currently being performed and is expected to be completed over the next 5 years.

Service Line Numbers						
		Known				
	Total	Lead	Unknown			
	Service	Service	Service			
Community	Lines	Lines	Lines			
Akron Township	90	0	0			
Bangor Township	4709	9	1,400			
Bangor-Monitor Metropolitan Water						
District	1,392	0	100			
City of Bay City	14,234	5,085	3,227			
Bay Co. Supply #1 (Frankenlust,						
Monitor, & Portsmouth Twps.)	2,996	10	462			
Frankenlust Township	1097	0	0			
Beaver Rd. Water Association	283	0	0			
Beaver Township	438	0	0			
City of Essexville	1,605	383	68			
Fraser Township	483	0	0			
Hampton Township	2980	16	2754			
Kawkawlin Metro	428	0	382			
Kawkawlin Township	1172	0	0			
Merritt Township	553	0	0			
Monitor Township	1,812	0	0			
City of Pinconning	642	0	476			
Pinconning Township	567	0	0			
Portsmouth Township	212	0	0			
Williams Township	1,626	0	0			
Wisner Township	231	0	0			

# **Opportunities for Public Participation**

We believe that informed and involved citizens can be strong allies of water systems as they take action on pressing problems. The table below lists the meeting dates and locations where your elected officials may discuss water system issues.

Water Supplier	Board Meeting Monthly Schedule	Time	Location of Meeting
Akron Twp.	3 <sup>rd</sup> Thursday	7:00 pm	Township Hall, 4280 Bay City Forestville Rd.
Bangor Twp.	2 <sup>nd</sup> Tuesday	6:00 pm	Township Admin. Office, 180 State Park Dr.
Bangor-Monitor Assoc.	2 <sup>nd</sup> Wednesday	9:00 am	Bangor-Monitor, 2523 E. Midland Rd.
Beaver Twp.	2 <sup>nd</sup> Monday (typically)	6:30 pm	Township Hall, 1850 S. Garfield Rd.
Bay County Road Comm/DWS	1 <sup>st</sup> & 3 <sup>rd</sup> Wednesday (typically)	9:00 am	Road Commission, 2600 E. Beaver Rd.
City of Bay City	1st & 3rd Monday	6:30 pm	City Hall, 301 Washington Ave.
City of Essexville	2 <sup>nd</sup> Tuesday	7:00 pm	City Hall, 1107 Woodside Ave.
City of Pinconning	3 <sup>rd</sup> Monday	5:00 pm	City Hall, 208 S. Manitou St.
Frankenlust Twp.	2 <sup>nd</sup> Tuesday	4:00 pm	Township Hall, 2401 Delta Rd.
Fraser Twp.	2 <sup>nd</sup> Monday	7:00 pm	Township Hall, 1474 N. Mackinaw Rd.
Hampton Twp.	2 <sup>nd</sup> & 4th Monday	7:00 pm	Township Hall, 801 W. Center Rd.
Kawkawlin Metro Assoc.	1st Tuesday	7:00 pm	405 Old Beaver Road
Kawkawlin Twp.	2 <sup>nd</sup> Monday	7:00 pm	Township Administrative Bldg, 1836 E. Parish Rd
Merritt Twp.	2 <sup>nd</sup> Tuesday	7:30 pm	Township Hall, 48 E. Munger Rd.
Monitor Twp.	4th Monday (typically)	7:00 pm	Township Hall, 2483 Midland Rd.
Pinconning Twp.	2 <sup>nd</sup> Tuesday	4:00 pm	Township Hall, 1751 E. Cody Estey Rd
Portsmouth Twp.	3 <sup>rd</sup> Monday	6:00 pm	Township Hall, 1711 W. Cass Ave.
Williams Twp.	2 <sup>nd</sup> Tuesday	7:00 pm	Township Hall, 1080 W. Midland Rd.
Wisner Twp.	3 <sup>rd</sup> Monday	7:00 pm	Township Hall, 7894 Bay City Forestville Rd.

#### For more information please contact:

Contact Name: Ryan W. Goebel, Plant Superintendent Bay Area Water Treatment Plant Address: 2701 N. Euclid Avenue Bay City, MI 48706 Phone: (989)439-7245

#### Customer questions and comments are welcome

To receive a hard copy of this report, or to ask questions, please write, call, or send email to:

E-mail: bawtp@baycodws.org

This entire water quality report is also available on the Web site: www.baycodws.org/ccr2019.pdf