



# Bay Area Water System 2020 Water Quality Report

Serving the People  
of:

- Akron Township
- Bangor Township
- Bangor-Monitor Association
- Beaver Road Association
- Beaver Township
- City of Bay City
- City of Essexville
- City of Pinconning
- Frankenlust Township
- Fraser Township
- Hampton Township
- Kawkawlin Metro Township
- Kawkawlin Township
- Merritt Township
- Monitor Township
- Pinconning Township
- Portsmouth Township
- Williams Township
- Wisner Township



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## 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 distribution system workers, plant operators, maintenance personnel, and supervisors throughout the Bay Area Water System and at the Bay Area Water Treatment Plant.

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. It contains water quality data from the Bay Area Water Treatment Plant, along with results from the distribution system for calendar year 2020, unless stated otherwise. This information is a snapshot of the quality of the water that we provided to you in 2020. Included are details about where your water comes from, what it contains, and how it compares to United States Environmental Protection Agency (U.S. EPA) and state standards.

### Is Your Water Safe?

The State of Michigan and the U.S. Environmental Protection Agency require us to test our water on a regular basis to ensure its safety. **We are proud to state that we met all the monitoring and reporting requirements for 2020.**

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.

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. More information about contaminants and potential health effects can be obtained by calling the U.S. EPA's Safe Drinking Water Hotline (800-426-4791).

### Source Water

The source of drinking water (both tap water and bottled water) includes 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

The quality of tap water depends greatly on its source. Fortunately for us, we start 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). 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. Raw water travels approximately 50 miles from their facility near Au Gres to the Bay Area Water Treatment Plant for processing.

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 <http://www.michigan.gov/egle/>. Follow the link to Water, then to Drinking Water, and finally to Source Water Assessment.

## Water Quality Data Tables

The data presented in the upcoming tables are from testing done in 2020, unless otherwise noted. In the first table you will find terms, abbreviations, and definitions that might not be familiar to you.

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/ND	Not Applicable/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	0.70	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	5.5	No	Erosion of natural deposits.

- a) Level reported from annual regulatory sampling. The plant also performs daily sampling. Results for 2020 averaged 0.77 PPM, with a range of 0.18 PPM - 0.86 PPM.
- b) Testing for this substance is conducted every nine years. Last test date 2017.
- c) 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	0.022 NTU	0.020-0.218 NTU	None	Soil runoff.

- d) The treatment technique requires that all samples test below 1 NTU 100% all of the time and below 0.3 NTU 95% of the time in the month. 100% of samples in 2020 were below 0.3NTU, indicating full compliance with turbidity standards in 2020.

### REGULATED PARAMETERS IN THE DISTRIBUTION SYSTEM

#### Disinfectant & Disinfection By-Products

Substance	MRDL	MRDLG	Highest RAA	Range	Violation	Typical Source
Free Chlorine (as Cl <sub>2</sub> ) (PPM)	4	4	0.66	0.01-1.25	No	Water additive used to control microbes.

#### Total Trihalomethanes (TTHM) & Haloacetic Acid (HAA5) Typical Source: Byproduct of drinking water disinfection

	Akron Twp.(e)	Bangor Twp.	Bangor Monitor	City of Bay City	Bay County Supply #1(f)	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.	
TTHM MCL = 80 ppb HAA5 MCL = 60 ppb																				
<b>Highest TTHM LRAA</b>	<b>71</b>	<b>34</b>	<b>25</b>	<b>30</b>	<b>45</b>	<b>57</b>	<b>55</b>	<b>24</b>	<b>44</b>	<b>44</b>	<b>43</b>	<b>44</b>	<b>50</b>	<b>37</b>	<b>39</b>	<b>61</b>	<b>56</b>	<b>49</b>	<b>50</b>	
Low	71	17	14	15	25	34	34	16	24	16	28	25	29	18	19	40	37	30	24	
High	71	49	35	40	70	75	79	32	68	56	54	56	72	55	59	89	74	81	79	
Violation?	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	
<b>Highest HAA5 LRAA</b>	<b>33</b>	<b>25</b>	<b>25</b>	<b>29</b>	<b>28</b>	<b>28</b>	<b>28</b>	<b>23</b>	<b>33</b>	<b>26</b>	<b>30</b>	<b>29</b>	<b>27</b>	<b>28</b>	<b>31</b>	<b>31</b>	<b>28</b>	<b>26</b>	<b>26</b>	
Low	33	13	16	11	18	15	24	16	20	17	23	20	24	23	16	24	25	23	22	
High	33	39	38	40	38	36	32	29	48	42	39	36	30	38	56	42	32	29	33	
Violation?	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	

- e) Akron Township was only required to collect one TTHM and HAA sample in 2020.
- f) Bay County Supply #1 includes parts of Frankenlust, Monitor, and Portsmouth Townships

In 2020, water from the plant tap and distribution system was sampled for an additional 70+ contaminants not listed in this report. Each contaminant was not detected in our water. To receive a list of these contaminants, please send requests to [bawtp@baycodws.org](mailto:bawtp@baycodws.org), or call us at (989) 439-7245.

## 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 lead 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.

<b>REGULATED PARAMETERS IN THE DISTRIBUTION SYSTEM</b>							
<b>LEAD AND COPPER RESULTS</b>							
		<b>LEAD, Action Level 15, MCLG 0</b>			<b>COPPER, Action Level 1.3, MCLG 1.3</b>		
<b>Your Community</b>	<b>Date Range/Year Sampled</b>	<b>Your Water (PPB) (g)</b>	<b>Range of Results</b>	<b>Number of Samples Above AL</b>	<b>Your Water (PPM) (g)</b>	<b>Range of Results</b>	<b>Number of Samples Above AL</b>
Akron Twp.	June-Sept 2020	0	0-0	0	0.2	0.1-0.3	0
Bangor Twp.	June-Sept 2020	1	0-9	0	0.2	0.0-0.2	0
Bangor Monitor	June-Sept 2020	0	0-0	0	0.2	0.0-0.2	0
City of Bay City	June-Sept 2020	3	0-13	0	0.2	0.0-0.3	0
Bay County Supply #1	June-Sept 2020	4	0-8	0	0.2	0.0-0.2	0
Beaver Rd. Assoc.	June-Sept 2020	0	0-0	0	0.2	0.1-0.2	0
Beaver Twp.	June-Sept 2020	0	0-2	0	0.2	0.1-0.3	0
City of Essexville	Jan-June 2020	14	0-22	2	0.4	0.0-0.4	0
	July-Dec 2020	8	0-22	2	0.2	0.0-0.3	0
Fraser Twp.	June-Sept 2020	0	0-0	0	0.2	0.0-0.3	0
Hampton Twp.	Jan-June 2020	3	0-8	0	0.2	0.0-0.3	0
	July-Dec 2020	1	0-21	1	0.2	0.0-0.3	0
Kawkawlin Metro.	June-Sept 2020	0	0-0	0	0.2	0.0-0.2	0
Kawkawlin Twp.	June-Sept 2020	0	0-0	0	0.2	0.1-0.3	0
Merritt Twp.	June-Sept 2020	0	0-2	0	0.3	0.1-0.4	0
Monitor Twp.	June-Sept 2020	0	0-0	0	0.2	0.1-0.2	0
City of Pinconning	June-Sept 2020	0	0-2	0	0.1	0.0-0.1	0
Pinconning Twp.	June-Sept 2020	0	0-1	0	0.2	0.0-0.3	0
Portsmouth Twp.	June-Sept 2020	0	0-4	0	0.2	0.1-0.3	0
Williams Twp.	June-Sept 2020	0	0-0	0	0.2	0.0-0.2	0
Wisner Twp.	June-Sept 2020	0	0-0	0	0.2	0.1-0.2	0

g) 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.

## Lead & Copper(continued)

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 have a lead service line it is recommended that you run your water for at least 5 minutes to flush water from both your home plumbing and the lead service line. 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>.

Infants and children who drink water containing lead 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.

## 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.

<b>UNREGULATED CONTAMINANT MONITORING IN THE BANGOR TWP. DISTRIBUTION SYSTEM</b>				
<b>Unregulated Contaminant Name</b>	<b>Average Level Detected</b>	<b>Range</b>	<b>Year Sampled</b>	<b>Comments</b>
Bromochloroacetic acid (ppb)	1.4	0-2.8	2020	Results of monitoring are available upon request. Please email <a href="mailto:bawtp@baycodws.org">bawtp@baycodws.org</a> .
Bromodichloroacetic acid (ppb)	1.9	0.8-3.0	2020	
Chlorodibromoacetic acid (ppb)	0.4	0.3-0.6	2020	
Dibromoacetic acid (ppb)	0.2	0-0.4	2020	
Dichloroacetic acid (ppb)	5.6	1.1-10.1	2020	
Trichloroacetic acid (ppb)	7.5	3.2-11.8	2020	

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.

## The Bay Area Water Treatment Plant Laboratory

The Bay Area Water Treatment Plant takes raw water, filters and treats it, and pumps it into the distribution system. What may surprise people is that the plant is also home to a bacteriological and chemical laboratory. Every year, plant staff analyzes over 1,600 water samples for E.coli and Coliform Bacteria. Samples are collected throughout our distribution system and from the plant tap.

Testing for bacteria throughout our system is important. Finding Coliform Bacteria in water indicates that it may have been contaminated. Because of this, the lab is required to be certified by the State of Michigan to run these tests. Certification requires regular thorough inspections and proficiency testing to ensure accuracy.

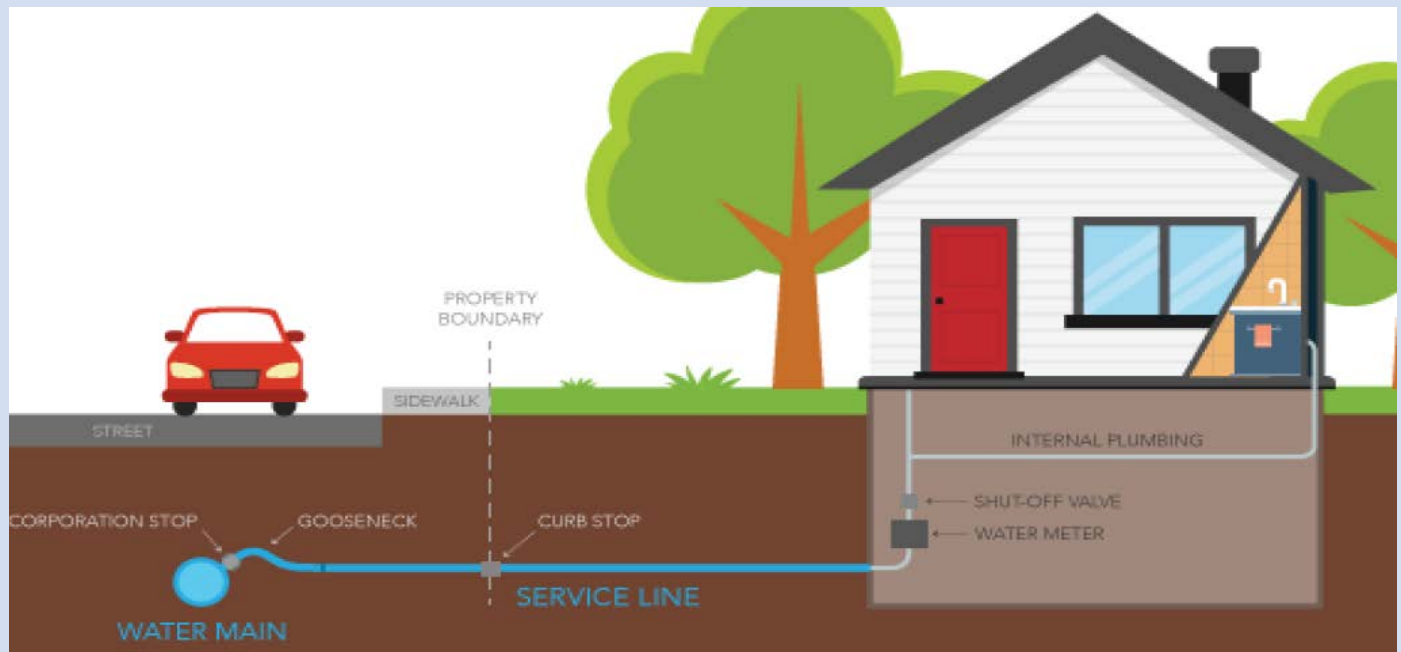
Along with bacteriological testing, the lab is capable of analyzing samples for a variety of other substances/water quality indicators. These include chlorine, turbidity (cloudiness of the water), pH, hardness, alkalinity, calcium, sulfate, iron, chloride, conductivity, dissolved oxygen, and orthophosphate. The table below shows the yearly averages for a good number of these.



**BAWTP LABORATORY; LAB STAFF ANALYZING SAMPLES**

<b>WATER QUALITY TEST RESULTS FROM THE BAY AREA WATER PLANT TAP</b>			
<b>Testing Done</b>	<b>Average</b>	<b>Range</b>	<b>Definition of Substance</b>
pH	7.6	7.4-7.8	A measure of acidity and alkalinity.
Hardness (as CaCO <sub>3</sub> ) (ppm)	103	70-116	A measure of the total concentration of calcium and magnesium ions.
Alkalinity (as CaCO <sub>3</sub> ) (ppm)	77	65-90	A measure of the capacity of water to neutralize an acid.
Calcium (as CaCO <sub>3</sub> ) (ppm)	74	64-88	Inorganic substances often found in water.
Sulfates (ppm)	10	7-16	
Chloride (ppm)	10	8-15	
Conductivity (uS/cm)	235	210-277	A measure of the ability to carry an electrical current
Orthophosphate-PO <sub>4</sub> (ppm)	3.40	3.35-3.54	Corrosion inhibitor added to water to prevent corrosion of plumbing materials

## 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. A service line is listed as a lead service if **any** part of the line is lead.

The communities that have lead services are working hard to remove them. In 2020, Bay City replaced 503 lead services, while Essexville replaced 51 and Hampton replaced 5.

If a community is not absolutely certain what every section of the service is made of, it is listed as an 'unknown service line.' A full inventory of the service lines in our system is currently being performed and is expected to be completed by 2025.

Service Line Numbers			
Community	Total Service Lines	Known Lead Service Lines	Unknown Service Lines
<b>Akron Township</b>	91	0	0
<b>Bangor Township</b>	5,260	7	1,400
<b>Bangor-Monitor Metropolitan Water District</b>	1,392	0	92
<b>City of Bay City</b>	14,234	5,578	2,712
<b>Bay Co. Supply #1 (Frankenlust, Monitor, &amp; Portsmouth Twps.)</b>	3,527	10	462
<b>Beaver Rd. Water Association</b>	284	0	0
<b>Beaver Township</b>	452	0	0
<b>City of Essexville</b>	1,605	332	68
<b>Fraser Township</b>	513	0	0
<b>Hampton Township</b>	2,987	6	2,753
<b>Kawkawlin Metro</b>	428	0	380
<b>Kawkawlin Township</b>	1,273	0	0
<b>Merritt Township</b>	567	0	0
<b>Monitor Township</b>	2,192	0	0
<b>City of Pinconning</b>	661	0	553
<b>Pinconning Township</b>	594	0	0
<b>Portsmouth Township</b>	222	0	0
<b>Williams Township</b>	2,078	0	0
<b>Wisner Township</b>	241	0	0



# 2020 System Improvements



**NEW 500,000 GALLON STORAGE TANK AT WILLIAMS TOWNSHIP PUMP STATION**



**10 MILLION GALLON RAW TANK AT BAWTP CLEANED & INSPECTED**



**BAY CITY STAFF CHECKING MATERIAL OF SERVICE FOR DISTRIBUTION SERVICE INVENTORY**



**NEW FINISHED WATER PUMP INSTALLED AT PLANT**

## 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	1 <sup>st</sup> & 3 <sup>rd</sup> 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> & 4 <sup>th</sup> Monday	7:00 pm	Township Hall, 801 W. Center Rd.
Kawkawlin Metro Assoc.	1 <sup>st</sup> 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.	4 <sup>th</sup> 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](mailto:bawtp@baycodws.org)

This entire water quality report is also available on the  
 Web site: [www.baycodws.org/ccr2020.pdf](http://www.baycodws.org/ccr2020.pdf)

