Bay Area Water System

2017 WATER QUALITY REPORT

Serving the People Of:

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

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 Plant, along with results from the distribution system for calendar year 2017, unless stated otherwise.

Is your water safe?

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 EPA prescribes regulations which limit the amount of certain contaminants in water provided by public water systems. Food and Drug Administration regulations establish limits for contaminants in bottled water, which must provide the same protection for public health. **We are proud to tell you that in 2017 there were no violations or exceedances regarding your drinking water, and all requirements and regulations set by the EPA and MDEQ were met.** 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.

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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 at the former Bay City Municipal Water Plant. Raw water travels approximately 50 miles to the Bay Area Water Treatment Plant for processing.

10 Million Gallon Raw Water Storage Tank

Raw water from the Saginaw Midland Municipal Water Supply Corporation gets pumped into a 10 Million Gallon Storage Tank located at the Bay Area Water Treatment Plant.

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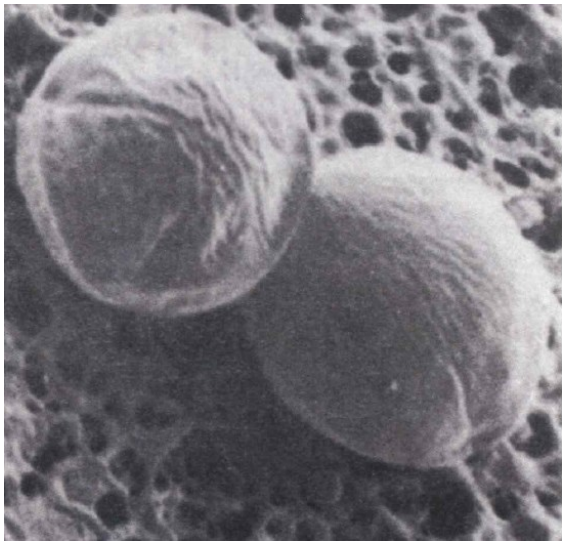
Source Water Assessment (continued)

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.

The MDEQ 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 MDEQ's 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 MDEQ Source Water Assessment program can be viewed on the internet at http://www.michigan.gov/deq/ . Follow the link to Water, then to Drinking Water, and finally to Source Water Assessment.

Long Term 2 Enhanced Surface Water Treatment Rule (LT2ESWTR)



Cryptosporidium Cysts on a Membrane Surface

The purpose of the LT2 rule is to reduce illness linked with the contaminant Cryptosporidium and other pathogenic organisms in drinking water. This rule was established in part due to the 1993 Cryptosporidium outbreak in Wisconsin which caused over 400,000 cases of illnesses. Under the rule, systems monitor their raw water source for Cryptosporidium. Then, based on these results, plants must ensure that their level of treatment can remove or destroy Cryptosporidium.

What is Cryptosporidium?

Cryptosporidium is a microbial parasite which can be found in surface water throughout the U.S. Although Cryptosporidium can be removed by filtration, the most commonly used filtration methods cannot guarantee 100 percent removal. From October 2015 to September 2017, the Bay Area Water Treatment Plant conducted monthly source water sampling for Cryptosporidium and Giardia. Of the 24 monthly untreated source water samples collected, none tested positive for Giardia, and only one sample (collected in 2016) showed any Cryptosporidium, and that was 1 Oocyst in a 10 L sample. Even if our source water at that time had Cryptosporidium in it, the pore size of our membrane filters are small enough to filter it out, practically eliminating the chance that Cryptosporidium could get through the treatment process and into our tap water (see pic above). Results from testing placed our system in the lowest risk category, Bin 1. This means that no additional treatment is required to remove Cryptosporidium.

Per- and Polyfluoroalkyl Substances (PFAS)

Per- and polyfluoroalkyl substances (PFAS), sometimes called PFCs, are a group of chemicals that are resistant to heat, water, and oil. PFAS have been classified by the U.S. Environmental Protection Agency (EPA) as an emerging contaminant on the national landscape. For decades, they have been used in many industrial applications and consumer products such as carpeting, waterproof clothing, upholstery, food paper wrappings, fire-fighting foams, and metal plating. They are still used today. PFAS have been found at low levels both in the environment and in blood samples of the general U.S. population.

These chemicals are persistent, which means they do not break down in the environment. They also bioaccumulate, meaning the amount builds up over time in the blood and organs. Studies in people who were exposed to PFAS found links between the chemicals and increased cholesterol, changes in the body's hormones and immune system, decreased fertility, and increased risk of certain cancers.

Are there health advisory levels?

The EPA has not established enforceable drinking water standards, called maximum contaminant levels, for these chemicals. However, EPA has set a lifetime health advisory (LHA) level in drinking water for two PFAS: perfluorooctanoic acid (PFOA) and perfluorooctanesulfonic acid (PFOS). The PFOA and PFOS LHA is the level, or amount, ***below which no harm is expected from these chemicals.*** The LHA level is 70 parts per trillion (ppt) for PFOA and 70 ppt for PFOS. If both PFOA and PFOS are present, the LHA is 70 ppt for the combined concentration.

Low levels of per- and polyfluoroalkyl substances (PFAS) were detected in samples collected from the Saginaw-Midland Corporation's raw water intake at Whitestone Point. The results are summarized in the table below. ND= Not Detected.

Raw Water Intake (Whitestone Point)

Date	Location	PFOS (ppt)	PFOA (ppt)	PFOS + PFOA (ppt)	LHA (ppt)	Total of Other PFAS (ppt)
12/7/2017	Intake Line	0.857	1.45	2.307	70	3.051
12/7/2017	48-inch discharge	1.14	1.60	2.74	70	2.403
12/7/2017	72-inch discharge	0.981	1.76	2.741	70	2.629
1/11/2018	Intake line	ND	0.758	0.758	70	1.624
1/11/2018	48-inch discharge	0.889	0.548	1.437	70	2.66
1/11/2018	72-inch discharge	0.545	ND	0.545	70	0.724

The amount of PFOA and PFOS combined in the sample collected from the Corporation's Lake Huron raw water intake ranged from 0.545 to 2.74 ppt, which is more than 20 times lower than the LHA for the combination of these two chemicals. There are many other PFAS compounds that currently do not have LHA levels. For information on PFOA, PFOS and other PFAS, including possible health outcomes, you may visit these websites: https://www.epa.gov/pfas; https://www.atsdr.cdc.gov/pfas; or http://www.michigan.gov./pfasresponse.

Why was the Corporation's source water tested for PFAS?

A sample collected from the city of Au Gres water distribution system reported the presence of PFAS. The DEQ coordinated sampling in the Saginaw-Midland Corporation's raw water supply to help characterize Lake Huron raw water quality. The Saginaw-Midland Corporation supplies our raw water.

Who can I call if I have questions about PFAS in my drinking water?

If any resident has additional questions regarding this issue, the State of Michigan Environmental Assistance Center can be contacted at 800-662-9278. Representatives may be reached to assist with your questions Monday – Friday, 8:00 AM to 4:30 PM. You may also contact the Bay Area Water Treatment Plant at (989) 439-7245.

Is it safe to eat fish in these areas?

Wild fish samples are being collected from local lakes and rivers. These samples will be analyzed to determine the levels of PFAS in fish and make recommendations on how much is safe to eat. Some information is already available in the State of Michigan Eat Safe Fish guides, which are available at **www.michigan.gov/eatsafefish**.

May I bathe or swim in water containing PFAS?

Yes, PFAS does not easily absorb into the skin. It is safe to bathe, as well as do your laundry and household cleaning. It is also safe to swim in and use recreationally.

How can PFAS affect people's health?

Some scientific studies suggest that certain PFAS may affect different systems in the body. The National Center for Environmental Health (NCEH)/Agency for Toxic Substances and Disease Registry (ATSDR) is working with various partners to better understand how exposure to PFAS might affect people's health.
If you are concerned about exposure to PFAS in your drinking water, please contact the MDHHS Toxicology Hotline at 800-648-6942 or the CDC/ATSDR: **https://www.cdc.gov/cdc-info/** or 800-232-4636. Currently, scientists are still learning about the health effects of exposures to PFAS, including exposure to mixtures.

What other ways could I be exposed to PFOA, PFOS and other PFAS compounds?

PFAS are used in many consumer products. They are used in food packaging, such as fast food wrappers and microwave popcorn bags; waterproof and stain resistant fabrics, such as outdoor clothing, upholstery, and carpeting; nonstick coatings on cookware; and cleaning supplies, including some soaps and shampoos. People can be exposed to these chemicals in house dust, indoor and outdoor air, food, and drinking water. Usually the amounts of PFAS a person may be exposed to is quite small.

What is being done about this issue?

State and local agencies are actively working to obtain more information about this situation as quickly as possible. Additional testing of the drinking water will be conducted to demonstrate that the PFAS levels are consistent, and reliably below the existing LHA. Additional monitoring in and around Lake Huron and other affected areas will also be performed by DEQ, which will help us answer more questions and determine next steps.

How can I stay updated on the situation?

The state has created a website where you can find information about PFAS contamination and efforts to address it in Michigan. The site will be updated as more information becomes available. The website address is **http://michigan.gov/pfasresponse**

The Treatment Process

The Bay Area Water Treatment Plant started treating water in August 2015 and began delivering outstanding water to nearly 100,000 people. This section describes how water is treated in the plant:

Microfiltration Skid

The BAWTP has eight membrane skids in the plant that can filter raw water. After going through a membrane skid, filtered water is dosed with Sodium Hypochlorite for disinfection, Hydrofluosilicic Acid (Fluoride) for dental protection, and Phosphoric Acid for corrosion control. It is then pumped to the 2 finished water tanks outside the plant. From there, water is pumped out into the distribution system and into the water mains/water towers.

After a membrane skid has been filtering for a period of time, it goes into backwash. Air and water are used during this process to flush and clean particulates from the membrane surfaces. This backwash water is then sent through our two parallel plate clarifiers, where Aluminum Chlorohydrate is used as a coagulant to settle out particles in the water. This 'sludge' is sent to our lagoons down the road. The 'clarified' water gets recycled and is sent back to the head of the plant, where it is blended with incoming raw water. In 2017, the clarifiers recycled and reused almost 100 million gallons of backwash waste water. This saves us money by decreasing our sewer flows and charges.

Parallel Plate Clarifier

Most plant processes can be monitored and controlled on our computer SCADA system by Plant Operators in the Control Room. Operators monitor the plant 24 hours a day, 365 days a year.

Control Room

Water quality analyzers (as seen below) run continuously, monitoring different parts of the treatment process to ensure excellent water quality.

Online Analyzers

Below are general water quality results performed throughout 2017 on finished plant water.

General Water Quality Testing Results At the Plant Tap			
Test run	**Average**	**Range**	**Definition of Substance**
Sodium (ppm)	6	NA	Erosion of natural deposits; Leaching.
pH	7.7	7.5-7.9	A measure of acidity and alkalinity.
Hardness (as CaCO3) (ppm)	101	98-118	A measure of the total concentration of calcium and magnesium ions.
Alkalinity (as CaCO3) (ppm)	79	74-94	A measure of the capacity of water to neutralize an acid.
Calcium (as CaCO3) (ppm)	73	62-88	Inorganic substances often found in water.
Sulfates (ppm)	16	8-23	
Chloride (ppm)	9	8-13	
Conductivity (uS/cm)	224	193-261	A measure of the ability to carry an electrical current
Orthophosphate-PO_4 (ppm)	2.93	2.30-3.26	Corrosion inhibitor added to water to prevent corrosion of plumbing materials

Water Quality Data Tables

The data presented in the upcoming tables are from testing done in 2017, 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 which a water system must follow.
HAA5	Haloacetic Acids	HAA5 is the total of bromoacetic, chloroacetic, dibromoacetic, dichoroacetic, and trichloroacetic acids.
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. MRLDG's do not reflect the benefits of the use of disinfectants to control microbial contaminants.
NA	Not Applicable	
NTU	Nephelometric Turbidity Units	A measurement of the lack of clarity in water, or cloudiness of the water.
PPB	Parts Per Billion (one in one billion)	The PPB is equivalent to micrograms per liter, or ug/L . A microgram = 1/1000 milligram.
PPM	Parts Per Million (one in one million)	The PPM is equivalent to milligrams per liter, or mg/L. A milligram=1/1000 gram.
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.
TTHM	Total Trihalomethanes	Total Trihalomethanes is the sum of chloroform, bromodichloromethane, dibromochloromethane and bromoform. Compliance is based on total.

Water Contaminants

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.

REGULATED PARAMETERS AT THE BAY AREA WATER TREATMENT PLANT TAP

Inorganic Contaminants

Contaminants	MCLG	MCL	Result	Violation?	Typical Source
Fluoride (ppm)	4.0	4.0	0.73(a)	No	Erosion of natural deposits; Water additive which promotes strong teeth; Discharge from fertilizer and aluminum factories.
Barium (ppm)	2.0	2.0	.01	No	Discharge of drilling wastes; Discharge from metal refineries; Erosion of natural deposits.

REGULATED PARAMETERS AT BAY AREA WATER TREATMENT PLANT FILTER CONFLUENCE

	MCLG	MCL	Average	Range	Violation	Typical Source
Turbidity	None	TT(b)	0.014 NTU	0.011-0.055 NTU	None	Soil runoff; suspended matter in surface water.

REGULATED PARAMETERS IN THE DISTRIBUTION SYSTEM

Microbiological Contaminants

Contaminant	Ideal Goal	Highest Number Detected	Violation	Typical Source
Total Coliform	0/ month	1 positive sample/month(c)	No	Naturally present in the environment.

Disinfectant & Disinfection By-Products

Substance	MRDLG	MRDL	Highest RAA	Range	Violation	Typical Source
Free Chlorine (as Cl2) (PPM)	4	4	0.62	0.05-1.27	No	Water additive used to control microbes.

Total Trihalomethanes (TTHM) & Haloacetic Acid (HAA)

TTHM MCL = 80 ppb HAA5 MCL = 60 ppb	Akron	Bangor	Bangor Monitor	City of Bay City	Bay County	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**	**47**	**37**	**39**	**47**	**66**	**53**	**44**	**47**	**50**	**41**	**39**	**47**	**31**	**44**	**55**	**49**	**47**	**46**
Low	61	20	16	13	20	58	29	26	18	32	18	17	18	13	21	31	29	19	21
High	61	71	64	58	66	78	66	69	59	67	57	55	64	44	74	79	69	63	59
Monitoring Violation?	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No
MCL Violation?	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No
Highest HAA5 LRAA	**19**	**22**	**19**	**18**	**18**	**20**	**25**	**22**	**26**	**30**	**20**	**22**	**21**	**21**	**21**	**27**	**21**	**23**	**28**
Low	19	7	10	7	8	10	13	14	12	11	11	11	9	11	15	10	8	13	11
High	19	25	31	21	18	29	15	28	28	29	34	31	26	25	26	26	31	23	31
Monitoring Violation?	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No
MCL Violation?	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No

Inorganic Contaminants Subject to Action Level (AL)

Parameter	(AL)	Your Water (d)	# of Samples Above AL	Exceeds Action Level?	Violation	Possible Sources
Lead (PPB)	15	10	6	**No**	**NONE**	Corrosion of household plumbing systems.
Copper (PPB)	1300	170	0	**No**	**NONE**	Corrosion of household plumbing systems.

a) Level reported from annual regulatory sampling. The plant also performs daily sampling. Results for 2017 were: average - 0.49 PPM; range - 0.06 PPM - 0.84 PPM.

b) 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 2017 were below 0.3 NTU, indicating full compliance with turbidity standards in 2017.

c) Sample was collected in Bay County on 7/25/17 and was positive for Total Coliform, negative for E. coli.

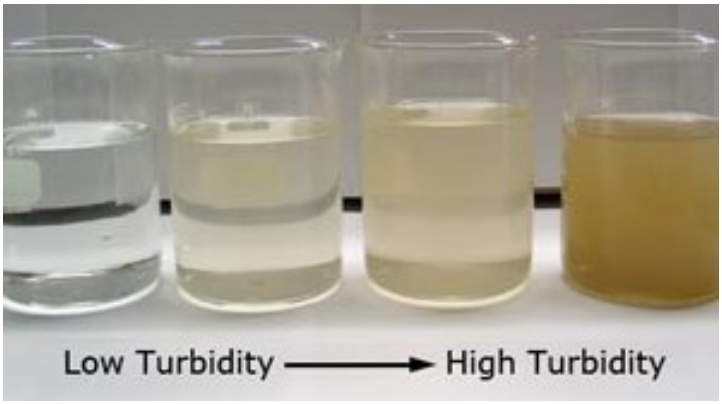
d) 90 percent of the samples collected were at or below the level reported for our water.

Note: Testing for Radionuclides (Gross Alpha, Radium 226, Radium 228) was conducted in 2015. Results were non-detect

Additional Information Regarding Water Quality Data

Below and on the next page, you will find additional information regarding some of the substances reported in the water quality data table. Information may include what the substance is and details on sampling.

Turbidity



Our microfiltration system is second to none in removing turbidity from our Lake Huron raw water source. **Turbidity** is defined as the cloudiness or haziness of water by individual particles that are generally invisible to the naked eye, similar to the smell of smoke in the air. The measurement of turbidity (in NTUs) is a key test of water quality, and we monitor it because it is a good indicator of the effectiveness of our filtration system. The higher this number is, the cloudier the water will appear. Having an average reading of 0.014 NTU in our filtered water shows that the plant is producing water with exceptional clarity.

Total Coliforms & E. coli

Water in the plant tap and distribution system is regularly tested for Total Coliforms and E coli. Total Coliforms are an indicator bacteria; by detecting their presence, it indicates that there are possible pathogens present, which are disease causing bacteria, in the water. E. coli is a type of coliform that is directly associated with fecal contamination and disease outbreaks. Water with coliform contamination may pose a special health risk for infants, young children, and people with severely compromised immune systems.

Finished water leaving the plant was tested daily in 2017 for Total Coliforms and E. coli. None of these samples tested positive because coliforms in the raw water are removed or destroyed through filtration and chlorination.

System-wide, 2,003 bacteriological samples were collected from the distribution system in 2017, and only 1 sample tested positive for Total Coliforms. Immediate retesting results were negative, and no other samples collected that month were positive, so there was no violation. None of the 2,003 samples collected in 2017 tested positive for E coli.

Chlorine

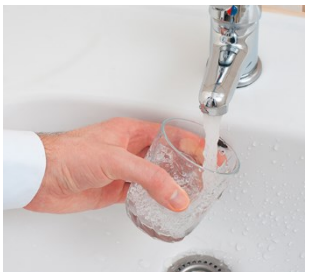
Although water leaving the plant has been shown to be coliform free, our goal is that water remains coliform free throughout the distribution system and at your tap. The way to accomplish this is to ensure that free chlorine, a disinfectant, is found throughout the system. Free chlorine levels were found in the distribution system ranging from 0.05 ppm to 1.27 ppm. The highest level of free chlorine allowed in drinking water is 4.0 ppm.

Total Trihalomethanes (TTHM) & Haloacetic Acids (HAA)

The Bay Area Water Treatment Plant uses Sodium Hypochlorite for chlorination as a disinfectant. While chlorination has made the U.S. water supply safe from illness produced by bacteria, viruses and parasites, it also produces byproducts. These disinfection byproducts include a group of chemicals known as Total Trihalomethanes (TTHMs) and Haloacetic Acids (HAAs).

The U.S. Environmental Protection Agency (EPA) has mandated public water systems check for TTHMs and HAAs calculated on a running 12 month average, or Locational Running Annual Average (LRAA). The MCL, based on LRAA for TTHMs in the water should be less than 80 parts per billion (ppb), and HAAs below 60 ppb, as established in the Disinfection Byproduct Rule (DBPR). We can proudly state that there were no TTHM or HAA violations in any of the communities we served in 2017.

Lead & Copper



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 private plumbing fixtures. 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 on the USEPA Web site: (**http://water.epa.gov/drink/info/lead**).

Where do we test for Lead & Copper?

Based on population served, a required number of samples in the distribution system are analyzed. The EPA has assembled a series of "tiers" for lead and copper sampling sites. The chart to the right depicts the three different tiers and what each tier represents. All of our samples for lead and copper were taken from "Tier 1" sites, representing the worse possible scenario for lead and copper contamination. Also, at least half of the required number of samples are taken from residences with lead service lines. The water being sampled for lead and copper monitoring must "rest" in residential plumbing for at least 6 hours, then a one liter sample is drawn from the faucet without any flushing.

	Sample Category	
Tier 1 Sites	1	Single family residence with lead service line.
	2	Single family residence with lead solder copper piping constructed after 1982.
	3	Single family residence with lead plumbing.
	4	Multiple family residence (MFR) with either lead service line, lead solder copper piping constructed after 1982, or lead plumbing (when MFR comprise at least 20 percent of the total service connections).
Tier 2 Sites	5	Buildings with lead service lines, lead solder copper piping constructed after 1982, or lead plumbing.
Tier 3 Sites	6	Single family residence with lead solder copper piping constructed before 1983.

In 2017, we sampled 99 sites in the distribution systems in March and 100 in September, for a total of 199 samples. These samples were taken and analyzed at an EPA approved laboratory. The LCR requires 90% of the samples must have levels less than 15 ppb of lead and less than 1300 ppb of copper. In March, the 90th Percentile for lead was 9 PPB, and copper was 300 PPB. Of the 99 samples tested for lead, 81 had results of 5 PPB or lower, and 56 of these results showed no detection of lead. In September, the 90th Percentile was 10 PPB and copper was 170 PPB (as reported on the chart on page 9). Of the 100 samples tested for lead, 82 had results of 5 PPB or lower, and 51 of these results showed no detection of lead.

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.

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 reacts with lead and copper to form compounds that have a strong tendency to stay in solid form and not dissolve into water.
If you have a lead service line, or you are not sure whether or not you have a lead service line, you should contact your city or township to discuss having the line replaced with a non-lead service. Also, removing any faucets or lead containing plumbing in your residence is critical to the elimination of lead in your drinking water.

Undetected Contaminants

The following contaminants were monitored at the Bay Area Water Treatment Plant in 2017 and were not detected in the water leaving the plant. Although it isn't a requirement to include this information in our report, we chose to include it to show all the substances we test for that were **NOT** found in your water.

1,1 Dichloroethane
1,1 Dichloroethylene
1,1 Dichloropropene
1,1,1 Trichloroethane
1,1,1,2 Tetrachloroethane
1,1,2 Trichloroethane
1,1,2,2 Tetrachloroethane
1,2 Dichlorobenzene
1,2 Dichloroethane
1,2 Dichloropropane
1,2,3 Trichlorobenzene
1,2,3 Trichloropropane
1,2,4 Trichlorobenzene
1,2,4 Trimethylbenzene
1,3 Dichlorobenzene
1,3 Dichloropropane
1,3,5 Trimethylbenzene
1,4 Dichlorobenzene
2,2 Dichloropropane
Antimony
Arsenic
Benzene
Beryllium
Bromobenzene
Bromochloromethane
Bromoform
Bromomethane
Cadmium
Carbon tetrachloride
Chlorobenzene
Chloroethane
Chloromethane
Chromium
cis-1,2 Dichloroethylene
cis-1,3 Dichloropropene
Cyanide-Available
Dibromomethane
Dichlorodifluoromethane
Dichloromethane
Ethylbenzene
Fluorotrichloromethane
Hexachlorobutadiene
Iron
Isopropylbenzene
Lead
m & p-Xylene
Mercury
Methyl ethyl ketone
Methyl isobutyl ketone
Methyl-tert-butyl ether (MTBE)
Naphthalene
n-Butylbenzene
n-Propylbenzene
Nickel
Nitrate as N
Nitrite as N
o-Chlorotoluene
o-Xylene
p-Chlorotoluene
p-Isopropyltoluene
sec-Butylbenzene
Selenium
Styrene
tert-Butylbenzene
Tetrachloroethylene
Tetrahydrofuran
Thallium
Toluene
Total Xylenes
trans-1,2 Dichloroethylene
trans-1,3 Dichloropropene
Trichloroethylene
Vinyl chloride

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

For more information please contact:

Contact Name: Mark D. Moers, 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/CCR2017.pdf