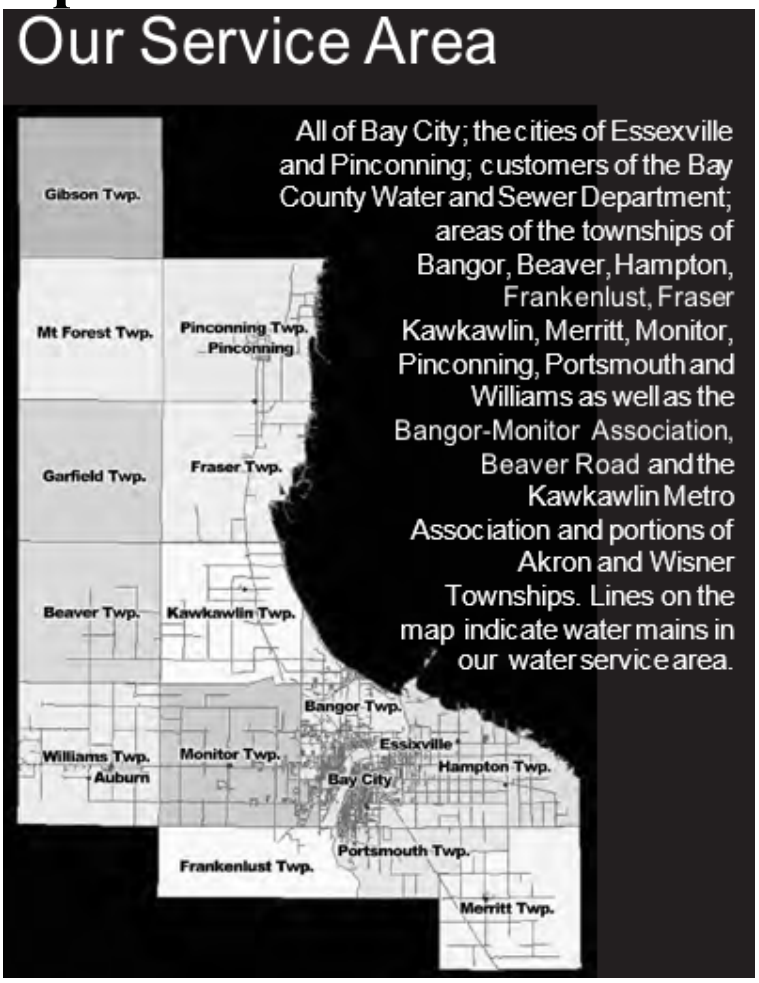
Bay Area Water System 2016 Quality Report

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, 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 2016, unless stated otherwise.



History

In the 1970's, the Bay City Municipal Water Treatment Plant located on Euclid Avenue near Lauria Road was put into operation. It was decommissioned in 2015 and replaced with the Bay Area Water Treatment Plant. Demolition of the old plant was started in the fall of 2016 and is expected to be completed in 2017.

The Bay Area Water Treatment Plant (BAWTP)

The new Bay Area Water Treatment Plant came to life on August 31, 2015 and began delivering outstanding water to nearly 100,000 people in 19 public water supply systems throughout the greater Bay County Area. This facility is the largest membrane filtration plant in the State of Michigan! Good quality raw water and state of the art membrane technology result in exceptional water being delivered to the homes and businesses in 3 cities, 12 townships, and 3 water associations.

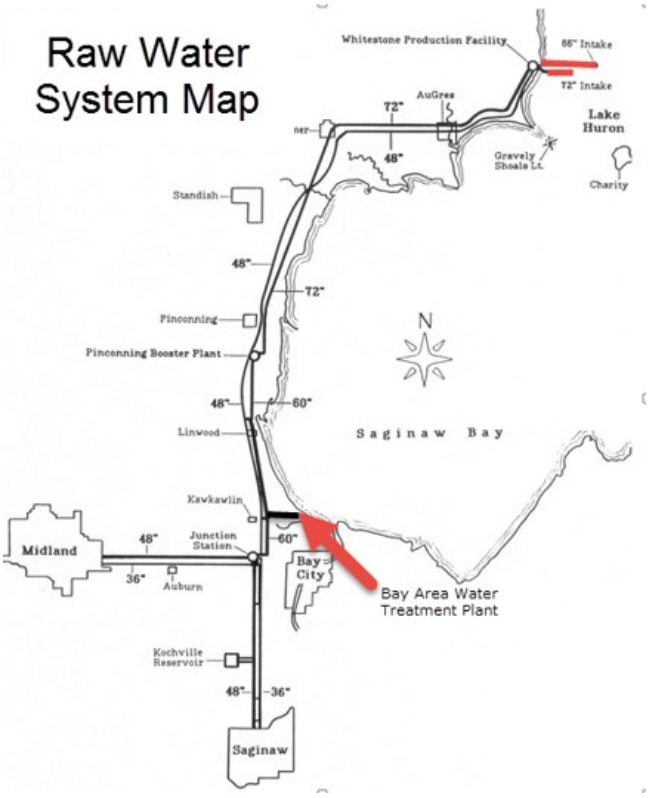
Source Water

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.

View from Whitestone Point



Source Water Assessment

Key to delivering high quality water from the BAWTP is high quality raw water purchased and supplied by the Saginaw-Midland Municipal Water Supply System (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. The intake is 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 (LT2)

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.

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. In October 2015, the Bay Area Water Treatment Plant began conducting monthly source water sampling for Cryptosporidium and Giardia. Of the 12 monthly untreated source water samples collected in 2016, only one sample showed any Cryptosporidium, and that was 1 Oocyst in a 10 L sample. Current test methods do not enable us to determine if these organisms are dead or if they are capable of causing disease. Symptoms of infection include nausea, diarrhea, and abdominal cramps. Most healthy individuals are able to overcome the disease in a few weeks. However, immune-compromised people have more difficulty and are at greater risk of developing severe, life threatening illness. Immuno-compromised individuals are encouraged to consult their doctor regarding appropriate precautions to take to prevent infection. Cryptosporidium must be ingested for it to cause disease, and may be passed through other means than drinking water. 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 out into the distribution system.

Water Contaminants

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. 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.

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 Data Tables

The data presented in the upcoming tables are from testing done in 2016, 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.

Key to the Detected Contaminant Tables		
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.
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	
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 (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	
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.

Results from Bay Area Water Treatment Plant Tap						
Contaminants	**MCLG**	**MCL**	**Average**	**Range**	**Violation**	**Typical Source**
Inorganic Contaminants						
Fluoride (ppm)	4.0	4.0	0.75	0.58-0.82	No	Erosion of natural deposits; Water additive which promotes strong teeth; Discharge from fertilizer and aluminum factories.
Nitrate (ppm)	10	10	0.15	ND-0.60	No	Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits.
Sodium (ppm)	NA	NA	6	ND-9	No	Erosion of natural deposits; Leaching.
Barium (ppm)	2.0	2.0	.01	.01	No	Discharge of drilling wastes; Discharge from metal refineries; Erosion of natural deposits.

Results from Bay Area Water Treatment Plant Tap						
Contaminants	**MCLG**	**MCL**	**Average**	**Range**	**Violation**	**Typical Source**
Volatile Organic Contaminants						
Xylenes (ppm)	10	10	NA	ND-Trace	No	Discharge from petroleum factories; Discharge from chemical factories.

Substances Not Regulated At the Tap			
Test run	**Average**	**Range**	**Definition of Substance**
pH	7.7	7.5-7.8	A measure of acidity and alkalinity.
Hardness (as CaCO3) (ppm)	104	90-134	A measure of the total concentration of calcium and magnesium ions.
Alkalinity (as CaCO3) (ppm)	82	74-102	A measure of the capacity of water to neutralize an acid.
Calcium (as CaCO3) (ppm)	83	64-118	Inorganic substances often found in water.
Sulfates (ppm)	13	11-15	
Chloride (ppm)	10	7-14	
Total Organic Carbon (TOC) (ppm)	1.41	1.16-2.02	Measure of organic concentration in water

Undetected Contaminants

The following contaminants were monitored at the Bay Area Water Treatment Plant in 2016 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 Dichloropropene
1,1,1,2 Tetrachloroethane
1,1,1-Trichloroethane
1,1,2,2 Tetrachloroethane
1,1,2-Trichloroethane
1,1 Dichloroethylene
1,2,3 Trichlorobenzene
1,2,3 Trichloropropane
1,2,4 Trimethylbenzene
1,2,4-Trichlorobenzene
1,2 Dichlorobenzene
1,2-Dichloroethane
1,2-Dichloropropane
1,3 Dichlorobenzene
1,3 Dichloropropane
1,3,5 Trimethylbenzene
1,4 Dichlorobenzene
2,2 Dichloropropane
Antimony
Arsenic
Benzene
Beryllium
Bromoacetic acid
Bromobenzene
Bromochloromethane
Bromoform
Bromomethane
Cadmium
Carbon Tetrachloride
Chloroacetic acid
Chlorobenzene
Chloroethane
Chloromethane
Chromium
cis-1,2-Dichloroethylene
Cis-1,3 Dichloropropene
Cyanide
Dalapon
Dibromoacetic acid
Dibromomethane
Dichlorodifluoromethane
Dichloromethane
Ethylbenzene
Fluorotrichloromethane
Hexachlorobutadiene
Isopropylbenzene
Lead
Mercury
Methyl ethyl ketone
Methyl isobutyl ketone
Methyl-tert-butyl ether (MTBE)
Napthalene
n-Butylbenzene
Nickel
Nitrite [measured as Nitrogen]
n-Propylbenzene
o-Chlorotoluene
p-Chlorotoluene
p-Isopropyltoluene
sec-Butylbenzene
Selenium
Styrene
tert-Butylbenzene
Tetrachloroethylene
Tetrahydrofuran
Thallium
Toluene
trans-1,2-Dichloroethylene
Trans-1,3 Dichloropropene
Trichloroethylene
Vinyl Chloride

Plant Membrane Cartridge

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 is a key test of water quality. We monitor it because it is a good indicator of the effectiveness of our filtration system. Nephelometric Turbidity Units (NTU) are defined as the measurement of the lack of clarity in water. The higher this number is, the cloudier the water will appear.

Turbidity readings sampled from filtered water confluence						
Turbidity	**MCLG**	**TT**	**Average**	**Range**	**Violation**	**Typical Source**
Filter Confluence	none	(a)	.01 NTU	0.01 - 0.03 NTU	None	Soil runoff; suspended matter in surface water.

a. The treatment technique requires that all samples be below 1 NTU 100% of the time and below 0.3 NTU 95% of the time in a month. 100 % of samples in 2016 were below 0.3 NTU, indicating full compliance with turbidity standards in 2016.

Microbiological Contaminants

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. Pathogens can cause short-term effects, such as diarrhea, cramps, nausea, headaches, or other symptoms. E. coli is a disease causing coliform that normally inhabits the intestines of humans or warm blooded animals. 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 2016 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. 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. Below is a chart of the range of chlorine found in the system, along with the highest Running Annual Average, calculated quarterly, throughout the year.

Chlorine Levels Detected In The Distribution System						
Substance	**MRDLG**	**MRDL**	**Highest RAA**	**Range**	**Violation**	**Typical Source**
Free Chlorine (as Cl2) (PPM)	4	4	0.69	0.04-1.54	No	Water additive used to control microbes.

Regulations require that not more than 5% of the samples collected from our distribution system each month show the presence of Total Coliform. System-wide, 2,022 bacteriological samples were collected from the distribution system in 2016, and 3 samples tested positive for Total Coliform. Immediate retesting results were negative so there was no violation. None of the 2,022 samples tested positive for E coli. The table below shows "worst case" monthly totals for the period from Jan. 1st 2016 to Dec. 31st 2016.

Total Coliform Sampling from Distribution System					
Contaminant	**MCLG**	**MCL**	**Highest MCL**	**Violation**	**Typical Source**
Total Coliform (% positive samples per month)	0	5% per month	0.63 %	No	Naturally present in the environment.

% positive samples/month: Percent of samples taken monthly that were positive

Monitoring Requirements Not Met for Beaver 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 November 2016, 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, this violation **does 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.

Contaminant	Required sampling frequency	Number of samples taken	When samples should have been taken	Date sample was taken
Total Coliform Bacteria	2 samples per month	1	November 1 to November 30, 2016	December 2016

What happened? What is being done? We inadvertently missed taking a sample within this required sampling period. To ensure that this doesn't happen again, in March 2017 we hired a Water Quality Analyst. This person will be responsible for all distribution sampling and monitoring in our system.

For more information on this violation, please contact Mike Brown, Distribution Superintendent for the Bay County Department of Water & Sewer, at (989) 684-3883.

Please share this information with all other people who drink this water, especially those who may not have received this notice directly (for example, people in apartments, nursing homes, schools, and businesses). You can do this by posting this notice in a public place or distributing copies by hand or mail.

Total Trihalomethanes (TTHM) & Haloacetic Acids (HAA)

The Bay Area Water Treatment Plant uses chlorine as its disinfectant as did the former Bay City Municipal Water Treatment Plant. Chlorination has made the U.S. water supply safe from illness produced by bacteria, viruses and parasites. Fortunately, chlorine disinfection has almost completely eliminated risks of deadly waterborne diseases such as typhoid fever, cholera, and dysentery. However, the chlorination process has also produced 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). The EPA also states that "Some people who drink water containing trihalomethanes in excess of the MCL over many years may experience problems with their liver, kidneys, or central nervous system, and may have an increased risk of getting cancer. Some people who drink water containing haloacetic acids in excess of the MCL over many years may have an increased risk of getting cancer."

Citizens have the right to know about the quality of their drinking water. They should not only be aware of problems that may cause a concern for an immediate health problem, such as E. coli, but also of those problems that are a concern over many decades. We can proudly state that there were no TTHM or HAA violations in any of the communities we served in 2016.

Total Trihalomethane & Haloacetic Acid Test Results

Results from Bay Area Water Treatment Plant Tap in 2016		
Test run	**Average**	**Range**
Total Trihalomethanes (ppb)	33	14-60
Total Haloacetic Acids (five) (ppb)	15	7-21

The chart below depicts the highest locational running annual average (LRAA) in each community, along with the lowest and highest individual sample results from 2016.

	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	**74**	**58**	**43**	**47**	**57**	**55**	**62**	**65**	**51**	**72**	**49**	**50**	**62**	**32**	**78**	**69**	**59**	**54**	**58**
Low	74	27	20	17	24	19	20	26	22	35	20	21	26	14	34	36	27	24	23
High	74	86	72	57	55	64	64	57	72	69	56	56	66	47	53	70	57	64	62
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	**NA**	**23**	**20**	**19**	**18**	**20**	**26**	**28**	**26**	**27**	**19**	**24**	**20**	**20**	**25**	**27**	**20**	**25**	**32**
Low	30	9	13	11	10	9	13	14	9	21	10	10	10	12	16	15	8	11	16
High	30	31	34	25	24	24	37	42	35	44	23	33	27	28	29	34	27	32	29
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

TTHM MCL = 80 ppb HAA5 MCL = 60 ppb

Lead & Copper

There has been a lot of discussions in the news lately regarding lead contamination of drinking water. Tap water leaving the plant was tested for lead, and results showed that it was not detected. Lead and Copper testing was also performed under the regulations of the 1994 Federal "Lead and Copper Rule" (LCR). Based on population served, a required number of samples in the distribution system are analyzed.

Where do we test for Lead & Copper?

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. As you can see, our mission is to seek out areas of the distribution system which represent the highest level of lead exposure. The water being sampled for lead and copper monitoring must "rest" in residential plumbing for at least 6 hours, then a sample is drawn from the faucet without any flushing. The sample represents maximum contact time with the test water and the service line and faucet. A one liter sample is required.

	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 2016, we sampled 99 sites in the distribution systems in March and again in September. 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 than1300 ppb of copper. The chart below shows our March 2016 results:

Lead & Copper Monitoring (Sampled in the distribution system at individual taps, March 2016)

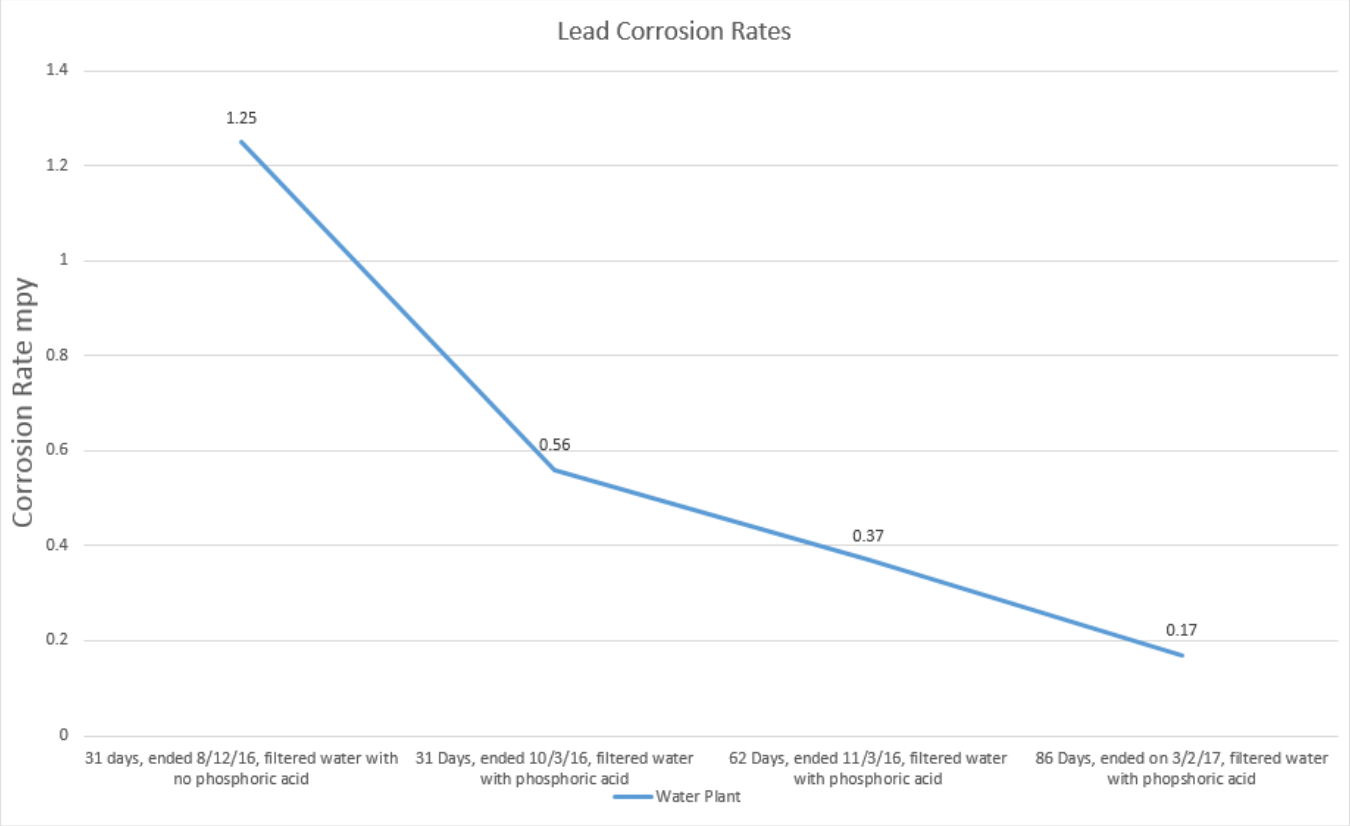
Parameter	Units	Action Level (AL)	90th Percentile Value	Exceeds Action Level?	Violation	Possible Sources
Lead	PPB	15	12	**No**	**NONE**	Corrosion of household plumbing systems.
Copper	PPB	1300	410	**No**	**NONE**	Corrosion of household plumbing systems.

Seven of the 99 sites tested were above the lead action level, while no samples were above the copper action level. Of the 99 samples tested for lead, 73 had results of 5 PPB or lower, and 35 of these results were Non Detect.

Even though the results showed that 90% of samples coming in were below the action level, plant staff started investigating ways to reduce lead levels further. Research consisted of reviewing the EPA's Optimal Corrosion Control Manual, entering our water quality parameters into a computer corrosion control modeling tool, and having conversations with both corrosion control experts and other water plants with similar water to ours. The verdict was that we should change our corrosion control chemical from an ortho/polyphosphate blend to phosphoric acid and increase the level of orthophosphate in the water. Over time, Orthophosphate builds up on lead and copper lines providing a barrier between the lead/copper and your water. The DEQ approved this corrosion control change in May and it was implemented in June 2016.

Shortly after the corrosion control chemical and dosage were changed, plant staff started doing corrosion studies through coupon testing. Lead coupons were put in a pipe rack and water flowed over these coupons for a series of days. Weighing these coupons before and after the test gives the corrosion rate in Mils Penetration Per Year, or MPY. The higher this number, the more corrosion has taken place.

Looking at the graph below, the first reading was a 31 day test on our filtered water without phosphoric acid added to it. The next 3 readings were on our filtered water with phosphoric acid added to it. As you can see, phosphoric acid appears to help drop corrosion rates, and the longer our water with phosphoric acid in it is in contact with the coupons, the less corrosion takes place.



The sampling of 99 sites in the distribution system for lead and copper was again performed in September 2016. Below are the results:

Lead & Copper Monitoring (Sampled in the distribution system at individual taps, September 2016)

Parameter	Units	Action Level (AL)	90th Percentile Value	Exceeds Action Level?	Violation	Possible Sources
Lead	PPB	15	14	**No**	**NONE**	Corrosion of household plumbing systems.
Copper	PPB	1300	280	**No**	**NONE**	Corrosion of household plumbing systems.

Even though we changed our corrosion control, the 90th percentile went up from 12 to 14 ppb, with 7 sites above the lead action level. Of the 99 samples tested for lead, 70 had results of 5 PPB or lower, and 40 of these results were Non Detect. Water in the distribution system is warmer in September than it is in March, and it's possible that this warmer water caused higher levels. Also, as previously discussed, it takes time for orthophosphate to fully coat plumbing, and we may not have fully achieved this in the three months since the change in chemical was made.

In March 2017, we did another round of testing. Even though sampling was done in 2017, we decided to include results in this 2016 report to keep you informed. The lead 90th percentile dropped from 14 PPB in September 2016 to 9 PPB, with only 1 sample above the lead action level. Of the 99 samples tested for lead, 81 had results of 5 PPB or lower, and 56 of these results were Non Detect. Results were also lower than they were in March 2016. This evidence suggests that the corrosion control being implemented at the plant is having a positive effect on lowering lead levels.

Lead & Copper Monitoring (Sampled in the distribution system at individual taps, March 2017)

Parameter	Units	Action Level (AL)	90th Percentile Value	Exceeds Action Level?	Violation	Possible Sources
Lead	PPB	15	9	**No**	**NONE**	Corrosion of household plumbing systems.
Copper	PPB	1300	300	**No**	**NONE**	Corrosion of household plumbing systems.

More Information on Lead and 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/safewater/lead**)

As long as there are lead services and lead containing fixtures in our water system, there will be traces of lead detected during testing. 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.

The Third Unregulated Contaminant Monitoring Rule (UCMR 3)

Once every five years, the U.S. Environmental Protection Agency (EPA) issues a new list of up to 30 unregulated contaminants to be monitored by public water systems. The EPA then randomly selects water systems throughout the country and requires them to sample for these contaminants. This monitoring provides the EPA and other interested parties with scientifically valid data on the occurrence of contaminants in drinking water. Information collected through the monitoring of these contaminants/chemicals will help to ensure that future decisions on drinking water standards are based on sound science. Listed here are the substances <u>detected</u> in the water systems that were required to be sampled. Results were from September 2015, as these results were not available at the time the 2015 Consumer Confidence Report was issued.

Kawkawlin Twp. September 2015 Sampling	**Distribution Entry Point**	**Distribution System Max Residence**
Substance	**Reported Value**	**Reported Value**
Chlorate (ppb)	86	53.294
chromium-6 (hexavalent chromium) (ppb)	.12	.144
strontium (ppb)	90.701	90.514
vanadium (ppb)	.207	<.2

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
City of Pinconning	3rd Tuesday	5:00 pm	City Hall, 208 Manitou
Bay County Road Comm/DWS	2rd 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
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.	2nd & 4th Monday	7:00 pm	Township Hall, 2483 Midland Rd.
Pinconning Twp.	2nd Tuesday	4:00 pm	Township Hall, 1751 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

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/CCR2016.pdf