

Bay Area Water System 2021 Water Quality Report



SERVING:

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



The Bay Area Water Treatment Plant was awarded the American Water Works Association Regional Best Tasting Water Award at the 2021 AWWA Fall Regional Meeting.

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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 workers, plant operators, maintenance personnel, and supervisors throughout the Bay Area Water System and 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 2021. This information is a snapshot of the quality of water that we provided to you in 2021. Included are details about where your water comes from, what it contains, and how it compares to the United States Environmental Protection Agency (U.S. EPA) and state standards.

PFAS

Per- and polyfluoroalkyl substances (PFAS) are a large group of manmade 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, personal care products, 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.

PFAS can get into drinking water when products or wastes containing them are disposed of, used or spilled onto the ground or into lakes and rivers. Studies in animals 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.

Our water was tested for PFAS in both January and March 2021. **PFAS was not detected in either sample and has never been detected in plant tap samples collected prior to 2021.** Annual PFAS testing will continue in 2022.

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 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.
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- **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.
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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 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 AuGres 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 is from testing done in 2021, 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.

DEFINITIONS OF ABBREVIATED SYMBOLS

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.

Note on Test Results: 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 a small amount 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).

REGULATED PARAMETERS AT THE BAY AREA WATER TREATMENT PLANT TAP

Contaminants	MCL	MCLG	Result	Violation?	Typical Source
Fluoride (ppm) (a)	4	4	0.71	No	Erosion of natural deposits; Water additive which promotes strong teeth; Discharge from fertilizer and aluminum factories.
Barium (ppm)	2	2	0.016	No	Discharge of drilling wastes; Discharge from metal refineries; Erosion of natural deposits.
Sodium (ppm) (b)	NA	NA	5.2	No	Erosion of natural deposits.
Chromium, Total (ppb)	100	100	1.4	No	Discharge from steel and pulp mills; erosion of natural deposits.
Selenium, Total (ppb)	50	50	1.2	No	Discharge from petroleum and metal refineries; erosion of natural deposits; discharge from mines.

a) Level reported from annual regulatory sampling. The Plant also preforms daily sampling. Results for 2021 averaged 0.77 PPM, with a range of 0.72 PPM – 0.85 PPM.

b) Sodium is not a regulated contaminant but is required to be reported annually.

REGULATED PARAMETERS AT BAY AREA WATER TREATMENT PLANT FILTER EFFLUENT

	MCL	MCLG	Average	Range	Violation	Typical Source
Turbidity	TT(c)	0	0.023 NTU	0.021-0.037 NTU	None	Soil runoff.

c) 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 2021 were below 0.3NTU, indicating full compliance with turbidity standards in 2021.

REGULATED PARAMETERS IN THE DISTRIBUTION SYSTEM

Disinfectant & Disinfection By-Products

Substance	MRDL	MRDLG	Highest RAA	Range	Violation	Typical Source														
Free Chlorine (as Cl ₂) (PPM)	4	4	0.69	0.01-1.30	No	Water additive used to control microbes.														
Total Trihalomethanes (TTHM) & Haloacetic Acid (HAA5)						Typical Source: Byproduct of drinking water disinfection														
	Akron Twp.(d)	Bangor Twp.	Bangor Monitor	City of Bay City	Bay County Supply #1(e)	Beaver Rd. Assoc.	Beaver Twp.	City of Essesville	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																				
Highest TTHM LRAA	60	34	24	30	43	56	54	23	43	31	36	38	47	31	39	59	55	47	45	
Low	60	15	14	16	21	32	32	15	20	19	18	18	17	13	22	28	31	22	22	
High	60	39	28	39	63	54	65	27	60	56	56	48	62	48	51	66	56	56	55	
Violation?	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	
Highest HAA5 LRAA	21	24	23	30	28	27	27	22	32	23	27	28	26	26	31	29	25	25	24	
Low	21	1.3	12	12	15	13	19	12	17	15	17	16	16	14	18	18	14	20	20	
High	21	21	23	22	34	34	23	24	31	24	34	36	35	38	30	32	32	25	24	
Violation?	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	

d) Akron Township was only required to collect one TTHM and HAA5 sample in 2021.

e) Bay County Supply #1 includes parts of Frankenlust, Monitor, and Portsmouth Townships.

In 2021, 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, 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.

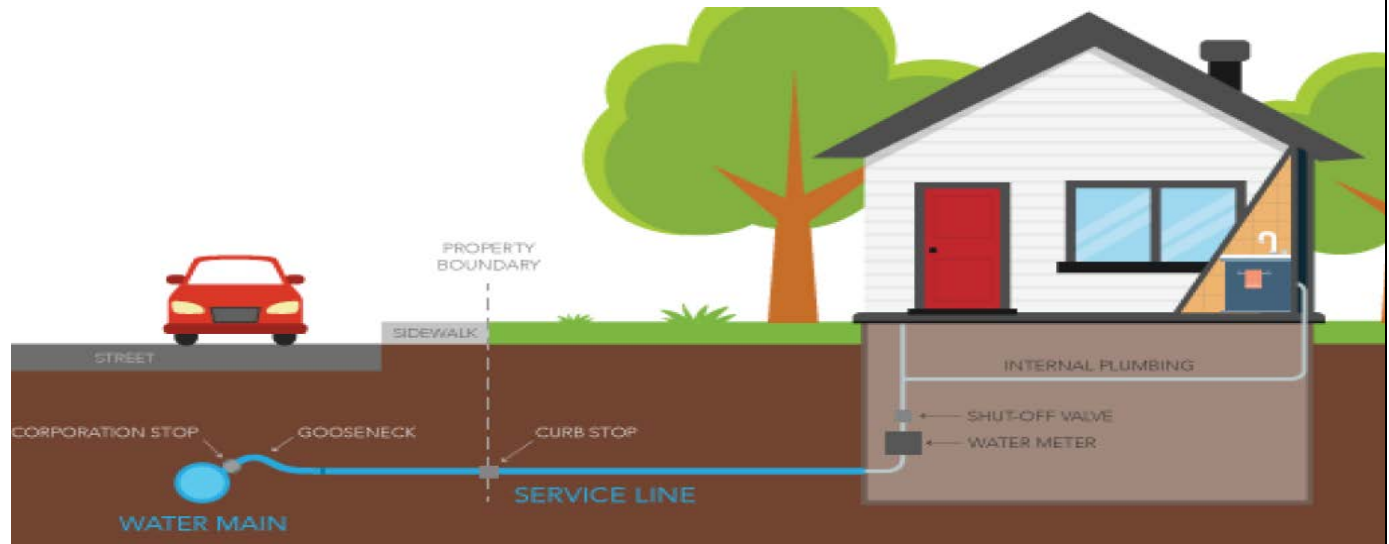
Lead & Copper(continued)

REGULATED PARAMETERS IN THE DISTRIBUTION SYSTEM							
LEAD AND COPPER RESULTS							
Your Community	Date Range/Year Sampled	LEAD, Action Level 15, MCLG 0			COPPER, Action Level 1.3, MCLG 1.3		
		Your Water (PPB) (f)	Range of Results	Number of Samples Above AL	Your Water (PPM) (f)	Range of Results	Number of Samples Above AL
Akron Twp.	June-Sept 2021	0	0-0	0	0.2	0.1-0.3	0
Bangor Twp.	June-Sept 2021	2	0-5	0	0.2	0.0-0.2	0
Bangor Monitor	June-Sept 2021	0	0-0	0	0.1	0.0-0.1	0
City of Bay City	June-Sept 2021	9	0-24	1	0.2	0.0-0.3	0
Bay County Supply #1	June-Sept 2021	5	0-8	0	0.1	0.0-0.2	0
Beaver Rd. Assoc.	June-Sept 2021	0	0-0	0	0.2	0.1-0.2	0
Beaver Twp.	June-Sept 2021	0	0-1	0	0.2	0.1-0.2	0
City of Essexville	June-Sept 2021	6	0-13	0	0.2	0.0-0.3	0
Fraser Twp.	June-Sept 2021	0	0-0	0	0.2	0.0-0.2	0
Hampton Twp.	June-Sept 2021	0	0-1	0	0.2	0.0-0.2	0
Kawkawlin Metro.	June-Sept 2021	0	0-0	0	0.2	0.0-0.2	0
Kawkawlin Twp.	June-Sept 2021	0	0-0	0	0.2	0.1-0.3	0
Merritt Twp.	June-Sept 2021	0	0-2	0	0.2	0.1-0.3	0
Monitor Twp.	June-Sept 2021	0	0-2	0	0.2	0.0-0.3	0
City of Pinconning	June-Sept 2021	0	0-3	0	0.1	0.0-0.1	0
Pinconning Twp.	June-Sept 2021	1	0-1	0	0.2	0.0-0.3	0
Portsmouth Twp.	June-Sept 2021	0	0-1	0	0.2	0.1-0.3	0
Williams Twp.	June-Sept 2021	0	0-0	0	0.2	0.0-0.2	0
Wisner Twp.	June-Sept 2021	0	0-0	0	0.2	0.0-0.2	0

f) 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.

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 2021, Bay City replaced 300 lead services and Essexville replaced 103.

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
Akron Township	96	0	0
Bangor Township	5,267	7	1,400
Bangor-Monitor Metropolitan Water District	1,247	0	85
City of Bay City	14,596	3,976	1,034
Bay Co. Supply #1 (Frankenlust, Monitor, & Portsmouth Twps.)	3,537	10	462
Beaver Rd. Water Association	280	0	0
Beaver Township	458	0	0
City of Essexville	1,605	229	68
Fraser Township	527	0	0
Hampton Township	2,992	1	2,753
Kawkawlin Metro	428	0	380
Kawkawlin Township	1,228	0	0
Merritt Township	573	0	0
Monitor Township	2,208	0	0
City of Pinconning	661	0	539
Pinconning Township	599	0	0
Portsmouth Township	223	0	0
Williams Township	2,097	0	0
Wisner Township	243	0	0

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 US EPA's 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.



Bay City State Park, Bangor Township

Additional Monitoring

WATER QUALITY TEST RESULTS FROM THE BAY AREA WATER PLANT TAP			
Testing Done	Average	Range	Definition of Substance
pH	7.7	7.5-7.8	A measure of acidity and alkalinity.
Hardness (as CaCO ₃) (ppm)	102	84-124	A measure of the total concentration of calcium and magnesium ions.
Alkalinity (as CaCO ₃) (ppm)	79	70-89	A measure of the capacity of water to neutralize an acid.
Calcium (as CaCO ₃) (ppm)	72	62-85	Inorganic substances often found in water.
Sulfates (ppm)	10	6-14	
Chloride (ppm)	10	8-15	
Conductivity (uS/cm)	235	216-273	A measure of the ability to carry an electrical current.
Orthophosphate-PO ₄ (ppm)	3.39	3.26-3.50	Corrosion inhibitor added to water to prevent corrosion of plumbing materials.



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.

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

This entire water quality report is also available at: www.baycodws.org/ccr2021.pdf

Want up to date news about your water and the Bay County DWS? Consider signing up for our quarterly newsletter. For more info, please visit www.baycodws.org/newsletters.



Addendum to the Bay Area Water System Water Quality Report 2021

Treatment Technique Violation – Introduction of an Uncertified Chemical

In 2021 our water system violated a drinking water standard. Although this was not an emergency, as our customers, you have the right to know what happened, what you should do, and what we did to correct this situation.

In accordance with State of Michigan drinking water rules, all chemicals that may come in contact with water intended for use in a public water supply shall meet American National Standards Institute/National Sanitation Foundation (ANSI/NSF) Standard 60. Phosphoric acid is routinely fed into drinking water as a means to reduce corrosion of lead and other metals contained in plumbing materials. An internal investigation determined that phosphoric acid not certified to the ANS/NSF 60 standard was delivered to the water treatment plant and added to the water supply.

What should I do?

There is nothing you need to do at this time. You do not need to boil your water or take other actions. We are providing this notification, as required by the Michigan Department of Environment, Great Lakes, and Energy (EGLE).

What does this mean?

This is not an emergency. If it had been an emergency, you would have been notified within 24 hours. The uncertified product that was fed serves the same purpose as ANSI/NSF Standard 60 certified phosphoric acid.

Water test results taken during the time the uncertified product was being fed confirm the water was well within normal drinking water standards. Test results are available at www.baycodws.org/water-testing/

Because the phosphoric acid was uncertified when added to the water supply, we are required to inform our water customers by way of this public notice.

What happened? What was done?

The Bay Area Water Treatment Plant received a lesser grade phosphoric acid from our chemical supplier. Although the same chemical in name, it was not certified as an ANSI/NSF Standard 60 chemical, which is specific for water supply use.

The uncertified product was first introduced in May of 2021, and plant staff noted the discrepancy on August 31, 2021. Plant staff immediately notified EGLE of the situation. To minimize interruptions in water quality, EGLE directed staff to continue feeding the uncertified phosphoric acid and to replace it with an ANSI/NSF Standard 60 certified phosphoric acid immediately. ANSI/NSF Standard 60 certified phosphoric acid was purchased and began feeding the next day, September 1, 2021.

We have enacted protocols to verify all chemicals used at the plant meet the required standards. These protocols will help prevent this from occurring again the in the future.

If you have questions or would like more information, contact us at (989)684-3883 or bawtp@baycodws.org. *Please share this information with all the 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.*