

Mosaic of the PWSA distribution system at the Water Treatment Plant in Aspinwall

The Pittsburgh Water and Sewer Authority's Annual Drinking Water Quality Report 2019

PA Public Water Supply ID No. 5020038

Our mission is to provide you with a high quality, dependable, and ample supply of drinking water. We want you to understand the efforts we make to continually improve the water treatment process and to protect our water resources. We are committed to ensuring the quality of your water. If you have any questions about the report, please contact our Water Treatment Plant at 412.782.7552.

We want customers to be informed about their water. The Water Quality Report and additional information are available on our website; pgh2o.com. Additional copies may be obtained by calling Customer Service at 412.255.2423 and customers can be transferred to an interpreter by request if they speak a language other than English. If you want to learn more, please attend any of our regularly scheduled Board of Directors meetings typically held on the fourth Friday of every month at 1200 Penn Avenue, Pittsburgh, PA, 15222. More information can be found at pgh2o.com/about-us/board-board-meetings.

PWSA provides water and sewer service to more than 300,000 customers throughout the City of Pittsburgh and surrounding areas. We are the largest combined water and sewer authority in Pennsylvania producing an average of 70 million gallons of water daily. In addition, PWSA provides bulk water sales to Reserve Township, Fox Chapel Borough, and Aspinwall Borough, along with being interconnected to several other regional water systems for emergency purposes. The PWSA drinking water system contains approximately 965 miles of water lines, five reservoirs and 11 tanks with a storage capacity of 455 million gallons of water.

Este informe contiene información importante acerca de su agua potable. Haga que alguien lo traduzca para usted, ó hable con alguien que lo entienda. (This report contains important information about your drinking water. Have someone translate it for you, or speak with someone who understands it.)



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Where Does Your Water Come from and How is it Treated?

PWSA draws its water from the Allegheny River. We do not use ground or well water. On average, 70 million gallons of water are treated each day at our drinking water treatment plant. The plant is capable of producing over 100 million gallons of water per day. The treatment process takes three full days and consists of three separate stages:

STAGE 1: Clarification

River water passes through a process called “clarification,” in which silts and clays are removed. This stage involves the addition of treatment chemicals (coagulants) which form clumped particles called “floc,” which are then physically removed by gravity sedimentation.

STAGE 2: Filtration

The clarified water next passes slowly through anthracite and sand filters in order to remove the fine particles and microorganisms.

STAGE 3: Disinfection

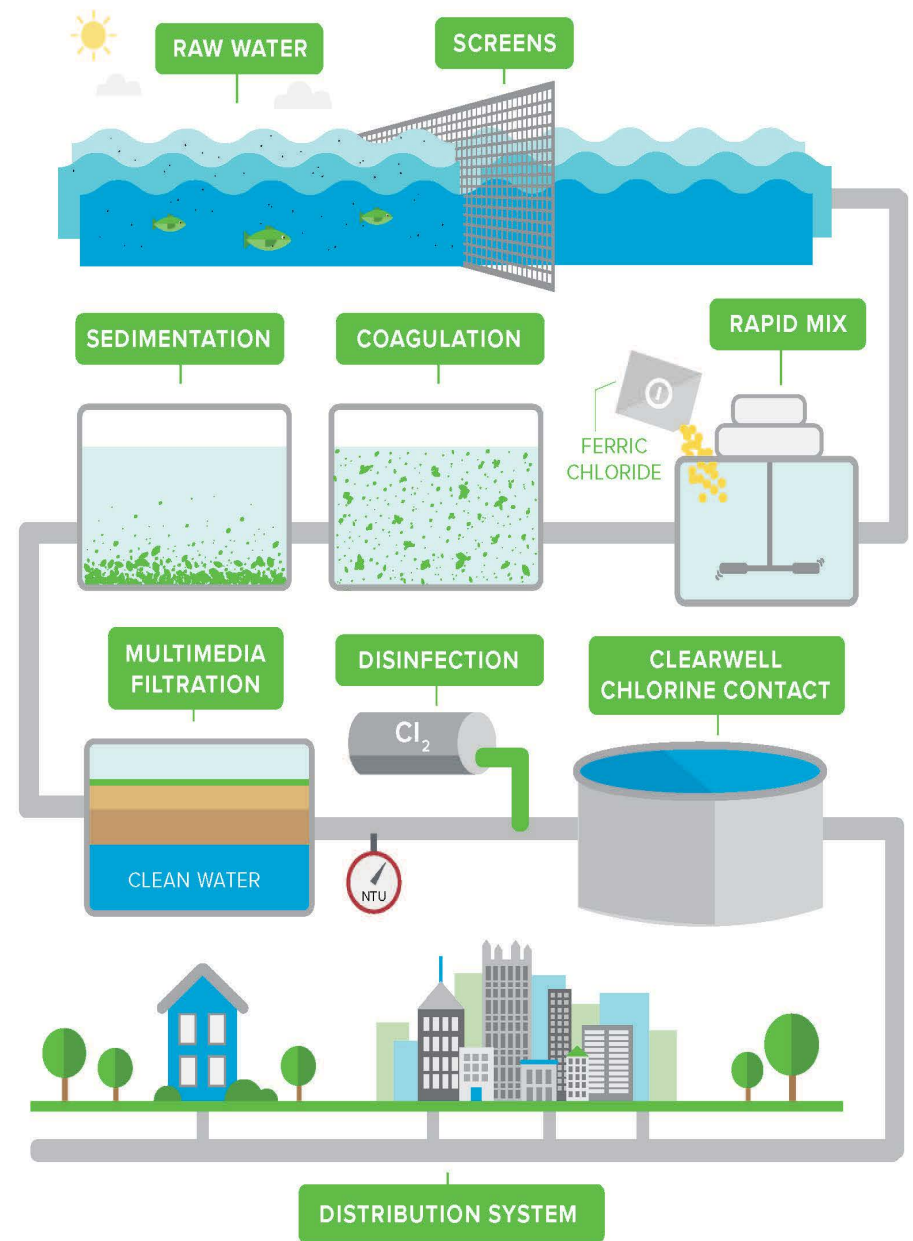
The filtered water is treated with chlorine to ensure removal of any harmful microorganisms. During this process, several additional chemicals are added to complete treatment. These include sodium carbonate to adjust the pH of the water and fluoride to prevent cavities.

Secondary Treatment of Reservoir Water

In addition to our primary water treatment plant located near Aspinwall, PWSA operates a secondary treatment plant known as the Microfiltration Plant in Highland Park.

All of the water stored in the open-air Highland Reservoir #1 is originally treated in our primary plant. Then, before the Highland Reservoir #1 water is distributed to the public, it is retreated in our secondary plant. This membrane filtration plant utilizes state-of-the-art microfiltration and chlorination to remove any impurities that may have entered the water during storage in the reservoir.

PGH₂O WATER TREATMENT PROCESS





Green stormwater project located on Hillcrest Street in Garfield

Stormwater

Stormwater pollution affects water quality. PWSA draws water from the Allegheny River. Anything that enters a storm sewer is ultimately released, untreated, into the rivers and streams. In addition to the Allegheny River being used as the source of our drinking water, it is also used for swimming, boating, and fishing.

The PWSA system is made up of sanitary, dedicated stormwater, and combined sewers. All new development is required to have separate storm sewers. As an older city, only about 25 percent of the system has separate storm sewers.

Residents can help prevent stormwater pollution by doing the following:

Dispose of trash properly.

Don't litter. You can help reduce cost and keep our rivers clean by properly disposing of waste.

Consider where you wash your car.

If you're washing your car in the driveway, all the soap is running into the street and may enter the storm sewers and eventually end up in the river.

Properly dispose of pet waste.

If pet waste is not properly disposed of during rain events, the bacteria may enter the storm sewers and eventually end up in the river.

Use fertilizer sparingly.

During rain events, fertilizer runs down the street and may enter the storm sewers and eventually end up in the river. Don't fertilize before a rain storm.

Stop oil leaks immediately.

Leaking oil runs down the street and may enter the storm sewers and eventually end up in the river. Check for oil leaks regularly and dispose of oil properly.

Who Monitors and Ensures the Quality of Water?

PWSA continuously monitors your drinking water in accordance with Federal and State regulations.

On pages 6-10, the tables show our monitoring results for the period of January 1, 2019, to December 31, 2019. While we conducted more than 100,000 analyses for approximately 100 different chemical and microbial constituents last year, we only found detectable levels of the contaminants listed in the water quality tables. It should be noted that none of the test results exceeded federal or state maximum contaminant levels (MCLs).

Source Water Protection

PWSA's source water protection plan is approved by the Pennsylvania Department of Environmental Protection (PADEP). This report identifies the most likely sources of pollution affecting the Allegheny River.

These include accidental release of contaminants from industrial processes; cumulative impact of discharge from power plants; cumulative release of petroleum products from pipeline ruptures; stormwater runoff from lands adjacent to the river and Combined Sewer Overflows (CSOs). A summary of the Source Water Assessment is available on the PADEP website at dep.state.pa.us.

PWSA realizes the importance of protecting our source water and is actively involved with organizations that aid the Authority in accomplishing this goal. PWSA is a member of River Alert Information Network (RAIN), which is an early-warning spill detection monitoring network along the Allegheny, Monongahela, and their tributaries. For more information please visit their site at rainmatters.org. PWSA is also a member of the Ohio River Valley Water Sanitation Commission (ORSANCO) and is enrolled in their organic detection program. For more information please visit their site at orsanco.org.

Should You Be Concerned About Lead?

If present, elevated levels of lead can cause serious health problems, especially for pregnant women and young children. Lead found in drinking water is primarily from materials and components associated with water service lines and plumbing inside private property.

PWSA recently tested 168 pre-selected sites in its service area that have lead service lines or plumbing (Tier 1 sites). EPA has established an action level for lead of 15 parts per billion (ppb). This means that water providers must ensure that water from the customer's tap does not exceed this level in at least 90 percent of the homes sampled. The action level is the concentration of a contaminant which, if exceeded, triggers treatment or other requirements that include water quality parameter monitoring, corrosion control treatment, source water monitoring, public education, and lead service line replacement. An action level exceedance is not a violation. The 90th percentile results from the latest round of testing were 10.0 ppb, which is below the action level. According to EPA, there is no safe level of lead. Another set of tests will be completed by June 30, 2020. PWSA is responsible for providing high quality drinking water, but cannot control the variety of materials used in plumbing components in your home. More information on lead in drinking water can be found at lead.pgh2o.com.

Steps you can take to reduce exposure to lead in drinking water

- **Run your water to flush out lead.** If you haven't used your water for several hours, run your cold tap for at least one minute before cooking or drinking. Homes with longer lead water service lines may require flushing for a longer period of time.
- **Use cold water for cooking and preparing baby formula.** Do not cook with or drink water from the hot water tap. Do not use water from the hot water tap to make baby formula. Lead dissolves more easily in hot water.
- **Do not boil water to remove lead.** Boiling water will not reduce lead.
- **Look for alternative sources or treatment of water.** The The NSF Water Fact Kit includes specific information about filtering lead in drinking water at: nsf.org. Coupons for NSF-certified filters can be found at lead.pgh2o.com/resources/lead-filters-and-other-products.
- **Identify if your plumbing fixtures contain lead.** There are lead check swabs that can detect lead on plumbing surfaces, such as solder and pipes. These swabs can be purchased at plumbing and home improvement stores. Consider having lead-containing pipes and fixtures replaced, or use the precautions listed above.

Identify if your plumbing fixtures contain lead

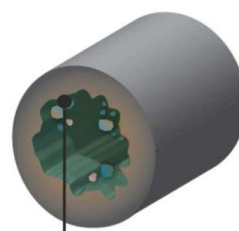
Consider having lead-containing pipes and fixtures replaced, and contact us at 412.255.8987 for information about coordinating removal of the PWSA-owned portion of the service line. We offer free private lead service line replacements for customers who are at or below 300 percent of the Federal Poverty Level. Funds for this program are available from a settlement of an enforcement action between PWSA and the PADEP. Customers can contact Dollar Energy Fund at 866.762.2348 to apply.

PWSA offers residential water customers a free test for lead. You can request a kit at pgh2o.com/leadform or call 412.255.8987. You may also contact private labs for testing. More information on testing can be found at our website at lead.pgh2o.com.

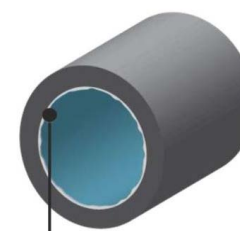
Orthophosphate and Lead Service Line Replacements

PWSA started applying the corrosion control additive orthophosphate to the drinking water in April 2019. Orthophosphate is a food-grade additive that forms a protective layer inside of lead service lines, creating a barrier between the lead pipes and the water flowing through them. It is approved by the Environmental Protection Agency (EPA) and used in water systems across the world. PWSA's water quality team completed extensive monitoring throughout the water distribution system to track orthophosphate's effectiveness and ensure consistent water quality during this treatment upgrade. We are pleased to see lower lead levels in our drinking water samples during the December 2019 round of testing.

While orthophosphate works throughout the distribution system to reduce lead levels, PWSA continues to replace lead lines free of charge. To date, over 7000 lead lines have been replaced and thousands of free lead test kits and filters have been distributed.



Lack of corrosion control allows lead to leach from pipes into water.



A protective layer of Orthophosphate forms to prevent pipe corrosion.

Orthophosphate has created a protective barrier in lead pipes to reduce lead levels in drinking water.

What Does PWSA Test for?

In general, the sources of all 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 or raw 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 stormwater 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 stormwater runoff, and residential uses.
- **Organic chemical contaminants** including synthetic and volatile organic chemicals, which are by-products of industrial processes and petroleum production, can come from gas stations, urban stormwater runoff, and septic systems.
- **Radioactive contaminants** which can be naturally-occurring or the result of oil and gas production and mining activities.

In order to assure that tap water is safe to drink, the EPA and PADEP regulate the amount of certain contaminants in water provided by public water systems. The Food and Drug Administration (FDA) and PADEP regulations establish limits for contaminants in bottled water, which must provide the same protection for public health.

PWSA tests for contaminants that may be present in the source water prior to treatment. Results of the tests enables PWSA to adjust the treatment process in order to maximize the reduction and removal of contaminants. Tests are also conducted during the treatment process and on the finished water. Additional samples for testing are collected on a regular basis from our storage facilities, various points in the distribution network, and customers' taps.

Drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contaminants. The presence of contaminants does not necessarily indicate that water poses a health risk. More information about contaminants and potential health effects can be obtained by calling the EPA's Safe Drinking Water Hotline at 1.800.426.4791.

Long Term Surface Water Enhancement Treatment Rule Round 2 (LT2)

Cryptosporidium is a microbial pathogen found in surface water throughout the U.S. Although filtration removes Cryptosporidium, the most commonly-used filtration methods cannot guarantee 100 percent removal. Our monitoring indicates the presence of these organisms in our source water. Current test methods do not allow us to determine if the organisms are dead or if they are capable of causing disease. Ingestion of Cryptosporidium may cause cryptosporidiosis, an abdominal infection. Symptoms of infection include nausea, diarrhea and abdominal cramps. Most healthy individuals can overcome the disease within a few weeks. However, immuno-compromised people are at greater risk of developing life-threatening illness. We encourage immuno-compromised individuals to consult their doctor regarding appropriate precautions to take to avoid infection. Cryptosporidium must be ingested to cause disease, and it may be spread through means other than drinking water.



Special Information for Immuno-Compromised Individuals

Some people may be more vulnerable to contaminants in drinking water than others.

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 may be particularly at risk from infections.

These people should seek advice about drinking water from their health care providers. Environmental Protection Agency (EPA) and 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 Drinking Water Hotline at 1.800.426.4791.

TABLE 1: Detected Sample Results

A small amount of water was purchased from Pennsylvania American Water (PAW).

CHEMICAL CONTAMINANTS: WATER TREATMENT PLANT									
Contaminant	MCL in CCR Units	MCLG	Level Detected	Range of Detections	Units	Sample Date	Violation Y/N	Sources of Contamination	
Calcium	-	-	25	18-30	ppm	2019	-	-	
Fluoride	2*	4	0.77	-	ppm	2019	N	Water additive which promotes strong teeth	
Nitrate	10	10	0.66	0.53-0.79	ppm	2019	N	Runoff from fertilizer use; Leaching from septic tank sewage; Erosion of natural deposits	
Barium	2	2	0.034	-	ppm	5/30/19	N	-	
Orthophosphate	-	-	0.017	0-0.06	ppm	2019	N	-	
Nickel	-	-	0.0021	-	ppm	5/30/19	N	-	
PAW	Nitrate	10	10	0.95	-	ppm	2019	N	Runoff from fertilizer use; Leaching from septic tank sewage; Erosion of natural deposits
	Fluoride	2*	4	0.62	-	ppm	2019	-	Water additive which promotes strong teeth

*EPA's MCL for fluoride is 4 ppm. However, Pennsylvania has set a lower MCL to better protect human health.

Unregulated Contaminant Monitoring Rule 4 (UCMR4)

Unregulated contaminants are those for which EPA has not established drinking water standards. The purpose of unregulated contaminant monitoring is to assist EPA in determining the occurrence of unregulated contaminants in drinking water and whether future regulation is warranted. Any unregulated contaminants detected are reported in the following list. For additional information and data visit: epa.gov/dwucmr/fourth-unregulated-contaminant-monitoring-rule, or call the Safe Drinking Water Hotline at (800) 426-4791.

The Pittsburgh Water and Sewer Authority detects for:

CHEMICAL CONTAMINANTS: UCMR4 ALLEGHENY RIVER								
Contaminant	MCL in CCR Units	MCLG	Level Detected	Range of Detections	Units	Sample Date	Violation Y/N	Sources of Contamination
Bromide	-	-	36.2	25.6-46	ppb	2019	N/A	-
Total Organic Carbon	-	-	2.55	2.34-2.89	ppm	2019	N/A	Naturally present in the environment

CHEMICAL CONTAMINANTS: UCMR4 DISTRIBUTION								
Contaminant	MCL in CCR Units	MCLG	Level Detected	Range of Detections	Units	Sample Date	Violation Y/N	Sources of Contamination
HAA5	-	-	27.03	14.8-44.57	ppb	2019	-	-
HAA6 Br	-	-	8.43	4.59-12.9	ppb	2019	-	-
HAA 9	-	-	34.54	22.48-49.66	ppb	2019	-	-

Chemical Contaminants

CHEMICAL CONTAMINANTS: DISTRIBUTION SYSTEM								
Contaminant	MCL in CCR Units	MCLG	Level Detected	Range of Detections	Units	Sample Date	Violation Y/N	Sources of Contamination
Free Chlorine	4	MRDLG-4	1.10	0.76-1.10	ppm	2019	N	Water additive used to control microbes
Calcium	-	-	24	15-41	ppm	2019	N	-
HAA5	60	N/A	22	12-39	ppb	2019	N	By-product of drinking water disinfection
TTHM	80	N/A	55	17-115	ppb	2019	N	By-product of drinking water chlorination
Orthophosphate	-	-	1.72	0.62-2.31	ppm	2019	N	-

ENTRY POINT DISINFECTANT RESIDUAL								
Contaminant	Minimum Disinfectant Residual	Lowest Level Detected	Range of Detections	Units	Sample Date	Violation Y/N	Sources of Contamination	
Chlorine	0.20	0.73	0.73-1.20	ppm	2019	N	Water additive used to control microbes	
PAW* Chlorine	0.20	1.40	1.40-2.47	ppm	2019	N	Water additive used to control microbes	

*A small amount of water was purchased from Pennsylvania American Water (PAW).

LEAD AND COPPER							
Contaminant	Action Level (AL)	MCLG	90th Percentile Value	Units	# of Sites Above AL of Total Sites	Violation Y/N	Sources of Contamination
Lead (Jan-Jun 2019)	15	0	17.49	ppb	20 out of 177	N	Corrosion of household plumbing; Erosion of natural deposits
Copper (Jan-Jun 2019)	1.3	1.3	0.086	ppm	0 out of 177	N	Corrosion of household plumbing; Erosion of natural deposits; Leaching from wood preservatives
Lead (Jul-Dec 2019)	15	0	10	ppb	6 out of 169	N	Corrosion of household plumbing; Erosion of natural deposits
Copper (Jul-Dec 2019)	1.3	1.3	0.135	ppm	0 out of 169	N	Corrosion of household plumbing systems; Erosion of natural deposits; Leaching from wood preservatives

Microbial Contaminants Tables

MICROBIAL: LT2 ALLEGHENY RIVER								
Contaminant	MCL in CCR Units	MCLG	Level Detected	Range of Detections	Units	Sample Date	Violation Y/N	Sources of Contamination
Cryptosporidium	-	-	0.190	-	Oocysts/L	2017	N/A	Naturally present in the environment

MICROBIAL (RELATED TO ASSESSMENTS/CORRECTIVE ACTIONS REGARDING TO POSITIVE RESULTS)					
Contaminants	TT	MCLG	Assessments/ Corrective Actions	Violation Y/N	Sources of Contamination
Total Coliform Bacteria	Any system that has failed to complete all the required assessments or correct all identified sanitary defects, is in violation of the treatment technique requirement	N/A	See detailed description under “Detected Contaminants Health Effects Language and Corrective Actions” section	N	Naturally present in the environment

MICROBIAL (RELATED TO E. COLI)					
Contaminants	MCL	MCLG	Positive Sample(s)	Violation Y/N	Sources of Contamination
<i>E. coli</i>	Routine and repeat samples are total coliform-positive and either is <i>E. coli</i> -positive or system fails to take repeat samples following <i>E. coli</i> -positive routine sample or system fails to analyze total coliform-positive repeat sample for <i>E. coli</i>	0	0	N	Human and animal fecal waste
Contaminants	TT	MCLG	Assessments/ Corrective Actions	Violation Y/N	Sources of Contamination
<i>E. coli</i>	Any system that has failed to complete all the required assessments or correct all identified sanitary defects, is in violation of the treatment technique requirement	N/A	See description under “Detected Contaminants Health Effects Language and Corrective Actions” section	N	Human and animal fecal waste

Contaminants Tables

A small amount of water was purchased from Pennsylvania American Water (PAW).

TURBIDITY							
Contaminant		MCL	MCLG	Level Detected	Sample Date	Violation Y/N	Source of Contamination
Turbidity		TT= 1 NTU for a single measurement	0	0.430	2/25/19	N	Soil runoff
		TT= at least 95% of monthly samples \leq 0.3 NTU		N/A	N/A	N	
PAW	Turbidity	TT= 1 NTU for a single measurement	0	0.12	2019	N	Soil runoff
		TT= at least 95% of monthly samples \leq 0.3 NTU		100%	N/A	N	

TOTAL ORGANIC CARBON (TOC)						
Contaminant		Range of % Removal Required	Range of percent removal achieved	Number of quarters out of compliance	Violation Y/N	Sources of Contamination
TOC		35%	45%-47%	0	N	Naturally present in the environment
PAW	TOC	25%-35%	18%-30%	0	N	Naturally present in the environment

A Source Water Assessment of PWSA's intake water (located on the Allegheny River) was completed in 2010 by the PADEP. The Assessment has found that our source water is potentially most susceptible to road deicing materials, accidental spills along railroad tracks, and leaks from submerged pipelines and storage tanks. Overall, the Allegheny River Watershed has a moderate risk of significant contamination. Summary reports are available on the PADEP website at: dep.greenport.state.pa.us/eLibrary/GetFolder?FolderID=4492 and then selecting "Pittsburgh Water and Sewer Authority.pdf" file in the list or by writing to the PADEP at 400 Waterfront Dr., Pittsburgh, PA 15222. Complete reports were distributed to municipalities, water supplier, local planning agencies and PADEP regional Office, Records management Unit at 412.442.4217.

Other Violations

PWSA received a violation for failing to take two sets of water quality parameter distribution samples from 25 sites every 6 months. PWSA collected 2 samples from 24 of the 25 distribution sites from June 1, 2019 to December 31, 2019, but collected only one sample from one of the sites.

Abbreviations & Definitions

(ND) Non-Detect

Laboratory analysis indicates that the contaminant is not present at a detectable level.

(ppm or mg/L) Parts Per Million or Milligrams Per Liter

One part per million corresponds to one minute in two years or a single penny in \$10,000.

(ppb or µg/L) Parts Per Billion or Micrograms Per Liter

One part per billion corresponds to one minute in 2000 years or a single penny in \$10,000,000.

(Mrem/year) Millirems Per Year

A measure of radiation absorbed by the body.

(pCi/L) Picocuries Per Liter

A measure of radioactivity.

(NTU) Nephelometric Turbidity Unit

Measurement of the clarity of water. Turbidity in excess of 5 NTU becomes just barely noticeable to the average person.

(AL) Action Level

The concentration of a contaminant which, if exceeded, triggers treatment or other requirements which a water system must follow.

(TT) Treatment Technique

A required process intended to reduce the level of a contaminant in drinking water.

(N/A) Non-Applicable

Does not apply.

(MCLG) Maximum Contaminant Level Goal

The level of a contaminant in drinking water below which there is no known or expected risk to health. MCLGs allow for a margin of safety.

(MCL) Maximum Contaminant Level

The highest level of a contaminant allowed in drinking water. MCLs are set as close to the MCLGs as feasible, using the best available treatment technology.

(MRDLG) Maximum Residual Disinfectant Level Goal

The level of 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.

(MRDL) Maximum Residual Disinfectant Level

The highest level of a disinfectant allowed in drinking water. There is convincing evidence that addition of a disinfectant is necessary for control of microbial contaminants.

(MinRDL) Minimum Residual Disinfectant Level

The minimum level of residual disinfectant required at the entry point to the distribution system.

Level 1 Assessment

A Level 1 assessment is a study of the water system to identify potential problems and determine (if possible) why total coliform bacteria have been found in our water system.

Level 2 Assessment

A Level 2 assessment is a very detailed study of the water system to identify potential problems and determine (if possible) why an *E. coli* MCL violation has occurred and/or why total coliform bacteria have been found in our water system on multiple occasions.



What Do the Results Mean?

We are proud that your drinking water meets or surpasses all Federal and State requirements. We have learned through our monitoring and testing that some constituents have been detected but are below the recommended minimum contaminant level (MCL) and therefore meet the regulatory requirements.

Stay Informed

Update your contact information and stay informed. It's important that your contact information is up to date so that we can notify you about planned construction, water emergencies, extended water outages, and provide other safety information. PWSA encourages all customers to provide updated contact information by going to our website at pgh2o.com/pay or by calling PWSA Customer Service at 412.255.2423 (press 5). This information ensures that we are able to make direct contact in the event of an emergency.