

ANNUAL DRINKING WATER QUALITY REPORT 2021

PITTSBURGH WATER AND SEWER AUTHORITY



PWSA DELIVERS SAFE, HIGH QUALITY DRINKING WATER

We are proud to announce that our 2021 Water Quality Report shows a clean bill of health for the quality and safety of our drinking water. Our drinking water customers can have confidence in the safety and security of their water and rest assured that we are providing Pittsburgh residents and businesses with the highest quality water.

This annual report outlines our treatment process, the effectiveness of our water quality testing, and the sample results of the various contaminants found in our source drinking water – the Allegheny River. Each day, we test for approximately 100 different chemical and microbial constituents before, during, and after the treatment process and work tirelessly to maximize their reduction and removal from your drinking water.

We proactively test for both unregulated and regulated contaminants required by the Environmental Protection Agency and Pennsylvania Department of Environmental Protection. Our latest report shows that we are meeting or exceeding state and federal regulations.

Effective water quality testing is only one aspect of our work that determines the safety and reliability of our drinking water. The quality of your drinking water is also determined by our water treatment process and the infrastructure that distributes water to your tap.

Our **lead levels** remain firmly in compliance with federal regulatory standards following the addition of orthophosphate to our treatment process. We are now in the process of restoring the 125-million-gallon capacity **Highland II Reservoir**, originally constructed between 1897 and 1903, to meet water safety and regulatory requirements and create greater reliability within our distribution system.

Over the next several years, PWSA will implement its **Water Reliability Plan**, a series of once-in-a-generation projects that will modernize our water distribution system and provide customers with more secure and reliable water services. These projects, which culminate with the complete restoration of the Clearwell, a large, century-old storage and disinfection facility, will happen sequentially and work together to fortify our water system, add needed redundancy, and ensure an uninterrupted supply of quality water to our drinking water customers.

PWSA's 2021 Water Quality Report, also referred to as the Consumer Confidence Report, is a requirement of all water systems by the Environmental Protection Agency. It can be accessed online at pgh2o.com/2021WaterQuality.

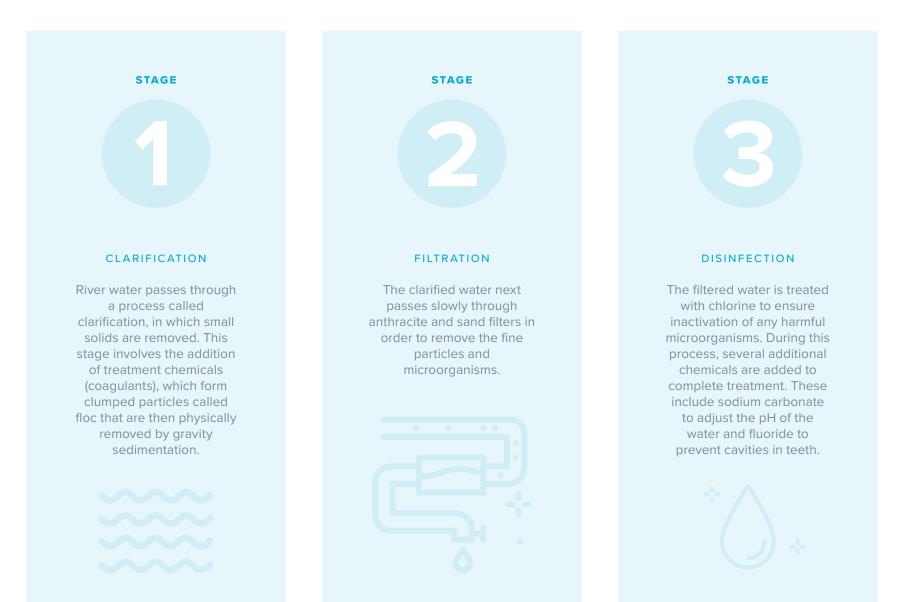
We encourage you to read the 2021 Water Quality Report. If you have questions or prefer to have a hard copy sent by mail, please call Customer Service at (412) 255-2423 (Press 1).



WATER TREATMENT

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, 66 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:



WATER TREATMENT

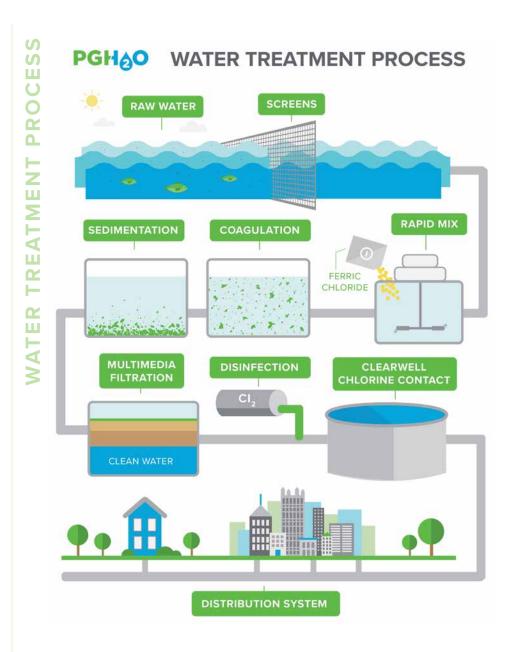
SECONDARY TREATMENT OF RESERVOIR WATER

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 microfiltration, UV light treatment, and chlorination to remove any impurities that may have entered the water during storage in the reservoir.





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:

Disposing of trash properly.

Using fertilizer sparingly.

Considering where you wash your car.

Stopping oil leaks immediately.

Properly disposing of pet waste.



Do not litter. You can help reduce cost and keep our rivers clean by properly disposing of waste.



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



If you are 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.



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.



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.

WATER QUALITY

PWSA continuously monitors your drinking water in accordance with Federal and State regulations. On the following pages, the tables show our monitoring results for the period of January 1, 2021, to December 31, 2021. 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.

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: depgreenport.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.

LEAD IN DRINKING WATER

LEAD LEVELS REMAIN BELOW EPA ACTION LEVEL

PWSA's most recent round of testing shows lead levels below the state and federal action level of 15 parts per billion (ppb), making this the third consecutive round of testing in which lead levels are in compliance. These results indicate the continued effectiveness of adding orthophosphate to our water treatment process. PWSA will continue to replace lead lines throughout the water system, but this will take time. Implementing an effective corrosion control reduces lead levels for all customers while this important work can be completed.

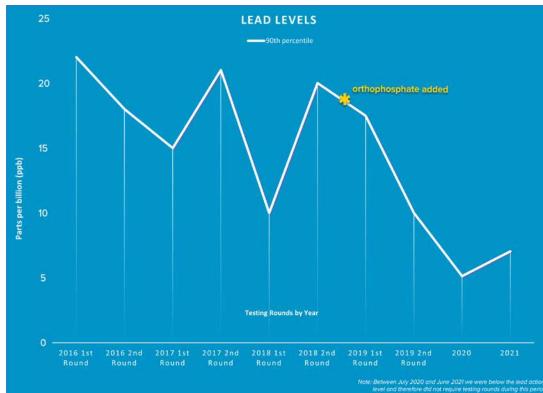
ORTHOPHOSPHATE EFFECTIVENESS IMPROVES OVER TIME



A protective layer of Orthophosphate forms to prevent pipe corrosion.

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

In April 2019, we began adding orthophosphate to reduce lead levels in drinking water while continuing to replace thousands of lead service lines. 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 successfully used in water systems across the country. Orthophosphate was selected by PWSA and approved by DEP after a comprehensive, year-long study of treatment alternatives. To read more about orthophosphate, visit www.lead.pgh2o.com/understanding-lead-and-water/orthophosphate.



The graph shows the consecutive rounds of regulatory lead compliance testing from 2016 to 2021. With the addition of orthophosphate in April 2019. we continue to see lead levels below the state and federal action level of 15ppb.

LEAD IN DRINKING WATER

LEAD SERVICE LINE REPLACEMENTS

PWSA's Community Lead Response is our dedicated program for lead line replacement, corrosion control optimization, and public education around lead in drinking water. Since its inception in 2016, the program has replaced more than 9,012 public lead service lines and 5,950 private lead service lines, exceeding state requirements. Even with shut-downs in the first half of 2020 due to the COVID-19 pandemic, PWSA project managers, Lead Help Desk Staff, and construction crews worked diligently to resume work and meet our goals.

PWSA completed lead service line replacements through multiple methods in 2021, including neighborhood-based lead line replacements, water main replacement projects throughout our service area, and the lead service line reimbursement program. PWSA has adjusted its lead line removal strategy to a more holistic approach that replaces both lead services lines and the water main in the street. Through water main replacements, we can replace lead service lines as well as the aging water mains that serve them. For all these programs, PWSA used historical service line data, demographic information, and blood-lead levels from the Allegheny County Health Department to target sections of neighborhoods that indicated high concentrations of lead. With the passage of the Bipartisan Infrastructure Law, which includes increased funding for water infrastructure, we hope to continue these efforts – and more – and transform Pittsburgh's water system to protect public health and the environment.

PRIORITY LEAD SERVICE LINE REPLACEMENT PROJECT

PWSA unveiled a new lead line replacement program in April of 2022. The Priority Lead Line Replacement Project will replace lead service lines at daycare facilities that are found to have lead service lines. This program will also address lead line replacements at any locations with elevated lead samples taken via our sampling program.

For more information on this program, visit www.pgh2o.com/PriorityLSLR.



WHAT'S NEXT?

PWSA will continue to replace lead lines throughout the water service area via the water main replacement program and will continue to provide free water testing, pitchers and filters at homes with elevated lead, reimbursement for private lead line replacement, and a dedicated Lead Help Desk staff to answer questions and concerns.

Visit www.lead.pgh2o.com to request a free lead test kit, check for lead at your property on our lead map, or read past press releases on the Community Lead Response.

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.

ABBREVIATIONS & DEFINITIONS

When reviewing the tables and information on the following pages, reference this abbreviations and definitions list to understand the terms being used.

(ND) Non-Detect

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

(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 ontaminant allowed in drinking water. MLCs 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

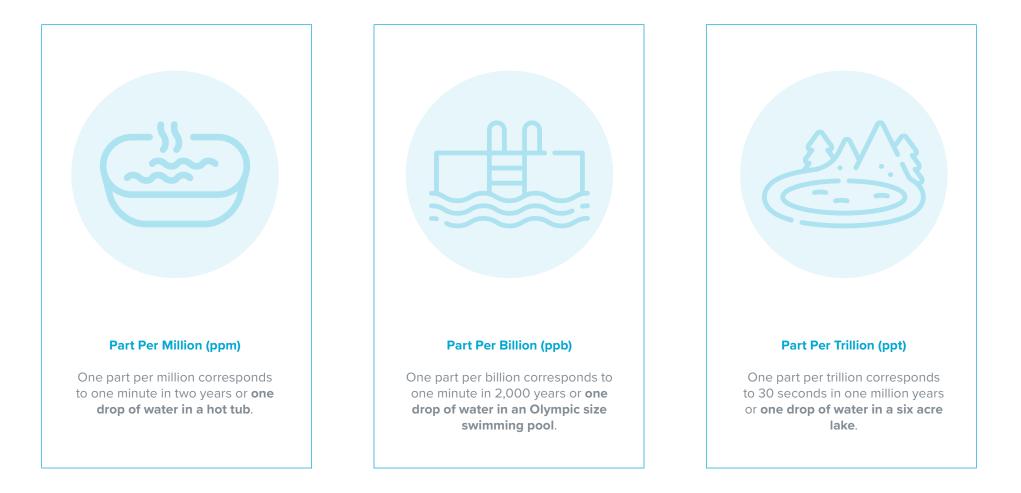
A Level 2 assessment is a very detailed study of the water system to identify potential problems and determine (if possible) why an E. coli MCL violation has occured and/or why total coliform bacteria have been found in our water system on muliple occasions.

Entry Point

The entry points (101, 102 and 104) refer to the Water Treatment Plant (WTP - 101) and Microfiltration Plant (MFP - 102 (Zone 5 Police Station) and 104 (New Highland Pump Station)) where water is monitored.

ABBREVIATIONS & DEFINITIONS

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WHAT ARE DRINKING WATER CONTAMINANTS?

In reference to drinking water, a contaminant is any physical, chemical, biological, or radiological substance or matter in water – *essentially anything other than water molecules*. Some contaminants may be harmful at certain levels while others are harmless. **The presence of contaminants in drinking water does not necessarily indicate a problem or health risk.**

DETECTED SAMPLE RESULTS

Chemical Contaminants: Entry Point into Drinking Water Distribution System

CONTAMINANT	ENTRY POINT	HIGHEST LEVEL ALLOWED (MCL)	IDEAL GOAL (MCLG)	LEVEL DETECTED	RANGE OF DETECTIONS	UNITS	SAMPLE DATE	VIOLATION Y/N	SOURCE OR PURPOSE OF CONTAMINANT
Calcium	101 102 104	-	-	28 29 30	23-34 26-34 27-35	ppm	2021	-	-
Fluoride	101 102	2*	4	0.80 0.77	-	ppm	05.25.21 05.25.21	Ν	Water additive that promotes strong teeth
Nitrate	101 102 104	10	10	0.49 0.42 0.48	0.37-0.71 0.33-0.47 -	ppm	2021 2021 11.02.21	Ν	Runoff from fertilizer use; leaching septic tank sewage; natural deposit erosion
Barium	101 102	2	2	0.027 0.028	-	ppm	05.25.21 05.25.21	Ν	-
Orthophosphate	101** 102 104	-	-	0.06 1.61 1.54	0.01-0.13 1.35-1.77 1.35-1.94	ppm	2021 2021 2021	Ν	Corrosion control additive
Nickel	102	-	-	0.0022	-	ppm	10.19.20	Ν	-
Copper	102	1.3	1.3	0.0053	-	ppm	12.20.16	Ν	-

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

** No corrosion control additive is dosed at this location (Entry Point 101).

UNREGULATED CONTAMINANT MONITORING RULE 4 (UCMR4)

Unregulated contaminants are contaminants that EPA has not established drinking water standards for. 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 on this page.

CHEMICAL CONTAMINANTS: UCMR4 ALLEGHENY RIVER

Sample Date: 2019

Bromide (ppb)	LOWEST AMOUNT DETECTED 25.6
REPORTED LEVEL	HIGHEST AMOUNT DETECTED 46
Total Organic	LOWEST AMOUNT DETECTED

Carbon (ppb)

REPORTED LEVEL

2.55

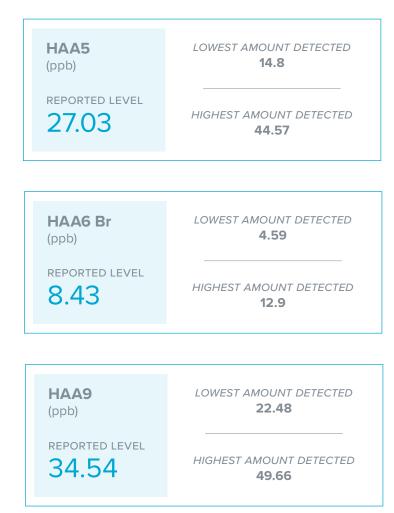
LOWEST AMOUNT DETECTED
2.34

HIGHEST AMOUNT DETECTED 2.89

NATURALLY PRESENT IN THE ENVIRONMENT

CHEMICAL CONTAMINANTS: UCMR4 DISTRIBUTION

Sample Date: 2019





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.

CHEMICAL CONTAMINANTS

Chemical Contaminants: Distribution System

CONTAMINANT	HIGHEST LEVEL ALLOWED (MCL)	IDEAL GOAL (MCLG)	LEVEL DETECTED	RANGE OF DETECTIONS	UNITS	SAMPLE DATE	VIOLATION Y/N	SOURCE OR PURPOSE OF CONTAMINANT
Free Chlorine	4	MRDLG-4	1.17	0.57-1.17	ppm	2021	Ν	Water additive used to control microbes
Calcium	-	-	27	0-36	ppm	2021	Ν	-
HAA5	60	N/A	23	8.7-41	ppb	2021	Ν	By-product of water disinfection
TTHM	80	N/A	62	12-138	ppb	2021	Ν	By-product of water disinfection
Orthophosphate	-	-	1.60	0.99-2.70	ppm	2021	Ν	Corrosion control additive

Entry Point Disinfectant Residual

CONTAMINANT	ENTRY POINT	MINIMUM DISINFECTANT RESIDUAL	LOWEST LEVEL DETECTED	RANGE OF DETECTIONS	UNITS	SAMPLE DATE	VIOLATION Y/N	SOURCE OR PURPOSE OF CONTAMINANT
Chlorine	101 102 104	0.20 0.20 0.20	0.49 0.60 0.42	0.49-1.24 0.60-1.19 0.42-1.21	ppm	2021	Ν	Water additive used to control microbes

CHEMICAL CONTAMINANTS

Lead and Copper

CONTAMINANT	ACTION LEVEL (AL)	IDEAL GOAL (MCLG)	90™ Percentile Value	UNITS	# OF SITES ABOVE AL OF TOTAL SITES	VIOLATION Y/N	SOURCE OR PURPOSE OF CONTAMINANT
Lead 2021	15	0	7.05	ppb	7 of 136	Ν	Household plumbing corrosion; natural deposit erosion
Copper 2021	1.3	1.3	0.108	ppm	0 of 136	Ν	Household plumbing corrosion; natural deposit erosion; leaching from wood preservatives



MICROBIAL CONTAMINANTS

Microbial: LT2 Allegheny River

CONTAMINANT	HIGHEST LEVEL ALLOWED (MCL)	IDEAL GOAL (MCLG)	LEVEL DETECTED	RANGE OF DETECTIONS	UNITS	SAMPLE DATE	VIOLATION Y/N	SOURCE OR PURPOSE OF CONTAMINANT
Cryptosporidium	-	-	0.190	-	Oocysts/L	2017	-	Naturally present in the environment

CONTAMINANTS

Turbidity

CONTAMINANT	HIGHEST LEVEL ALLOWED (MCL)	IDEAL GOAL (MCLG)	LEVEL DETECTED	SAMPLE DATE	VIOLATION Y/N	SOURCE OR PURPOSE OF CONTAMINANT
Turbidity	TT = 1 NTU for a single measurement	Ο	0.135	07.20.21	Ν	Soil runoff
	TT = at least 95% of monthly samples ≤ 0.3 NTU		100%	N/A	Ν	
MFP	TT = 1 NTU for a single measurement	0	0.080	03.05.21	Ν	Soil runoff
	TT = at least 95% of monthly samples ≤ 0.3 NTU		100%	N/A	Ν	

Total Organic Carbon (TOC)

CONTAMINANT	% removal required (MCL)	IDEAL GOAL (MCLG)	RANGE OF % REMOVAL ACHIEVED	# OF QUARTERS OUT OF COMPLIANCE	VIOLATION Y/N	SOURCE OF CONTAMINANT
ТОС	TT = 35%	N/A	37%-41%	0	Ν	Naturally present in the environment

VIOLATIONS

Monitoring Requirements Not Met for the Pittsburgh Water and Sewer Authority. During December 28, 2021 we failed to monitor the following contaminants and therefore cannot be sure of the quality of our drinking water at that time.

CONTAMINANT	Free chlorine
REQUIRED SAMPLING FREQUENCY	210
NUMBER OF SAMPLES TAKEN	269
WHEN ALL SAMPLES SHOULD HAVE BEEN TAKEN	Free Chlorine sample required with each of the 270 coliform samples collected in December 2021
WHEN SAMPLES WERE OR WILL BE TAKEN	Free Chlorine was next measured at that site on 1/3/2022 and was 0.63 mg/L

CONTAMINANT	Total Chlorine
REQUIRED SAMPLING FREQUENCY	210
NUMBER OF SAMPLES TAKEN	269
WHEN ALL SAMPLES SHOULD HAVE BEEN TAKEN	Total Chlorine sample required with each of the 270 coliform samples collected in December 2021
WHEN SAMPLES WERE OR WILL BE TAKEN	Total Chlorine was next measured at that site on 1/3/2022 and was 0.68 mg/L

What happened? What was done? When will it be resolved?

PWSA routinely collects more samples than are required by regulation to assure the quality of the drinking water. In December 2021 PWSA collected 59 more chlorine samples than were required for the month. On December 28, 2021 a PWSA sampler failed to collect the required free and total chlorine measurement while collecting a coliform sample at one sample site. A coliform sample was analyzed and reported by our contract lab for the sample site and was negative. Chlorine measurements were completed at the site on January 3, 2022. In addition, PWSA and our contract laboratory have reviewed chain of custody and sample acceptance procedure to ensure that all required analyses are collected at each sample site.

For more information regarding this notice, please contact: Pittsburgh Water and Sewer Authority at 412-255-2423 x5

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/update-contact-info 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.

