



2024

Drinking Water Quality Report

WHOLESALE CUSTOMER EXCERPT

Published in 2025

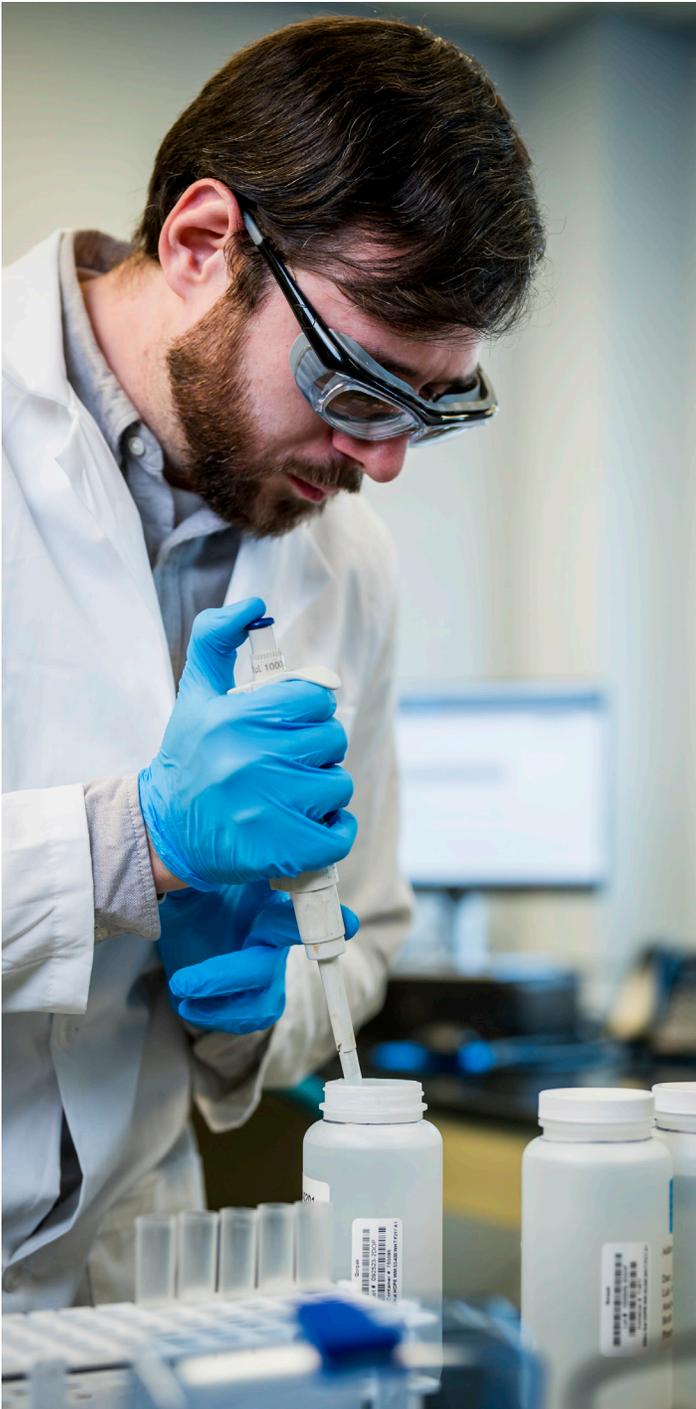
This report is produced for you as a requirement of the Federal Safe Drinking Water Act.

NOTE: Industrial and commercial customers, including hospitals, medical centers, and health clinics, please forward this report to your Environmental Compliance Manager.

PWD's Public Water System Identification #PA1510001



PWD staff monitors the aquatic health of our water sources.



▲ **PWD staff tests for lead and other metals in water samples.**

What's new in this report

New data tables

We now include results from our system-wide **PFAS** testing in this report. The Philadelphia Water Department (PWD) has been voluntarily sampling for PFAS since 2021.

➤ water.phila.gov/pfas

Service Line Material Map

We've developed a public map to show our records of service line materials for properties in Philadelphia.

➤ water.phila.gov/service-line

Lead Plumbing & Water Quality information

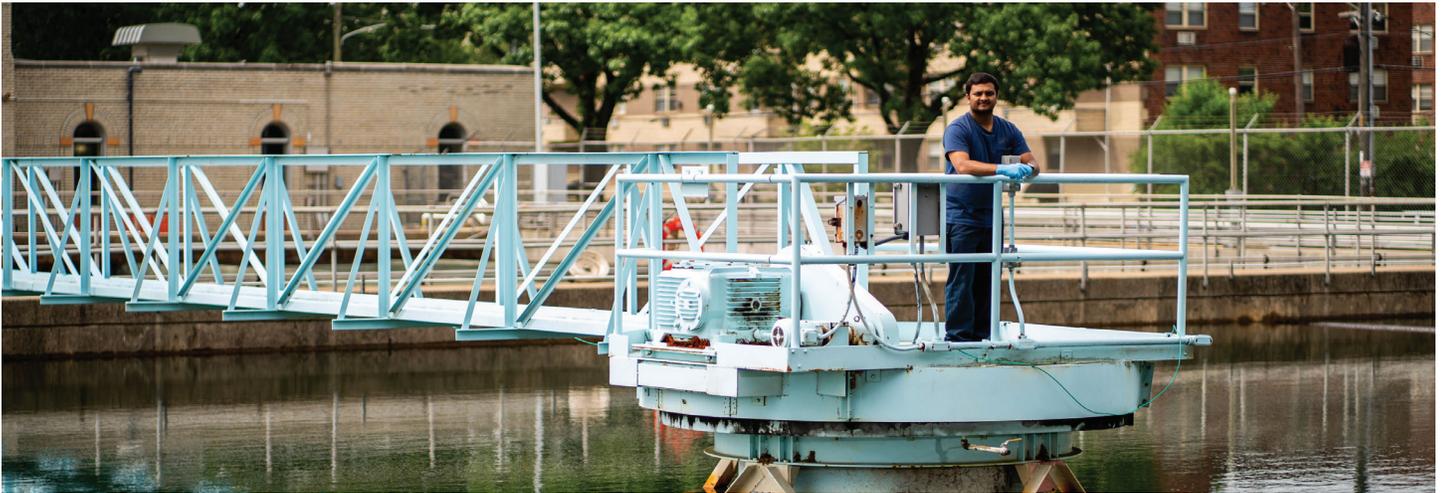
When lead is found in drinking water, it comes from plumbing.

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. PWD is responsible for providing high-quality drinking water and removing lead pipes, but cannot control the variety of materials used in plumbing components in your home. You share the responsibility for protecting yourself and your family from the lead in your home plumbing. You can take responsibility by identifying and removing lead materials within your home plumbing and taking steps to reduce your family's risk. Before drinking tap water, flush your pipes for several minutes by running your tap, taking a shower, doing laundry or a load of dishes. You can also use a filter certified by an American National Standards Institute accredited certifier to reduce lead in drinking water. If you are concerned about lead in your water and wish to have your water tested, contact PWD at (215) 685-6300.

Information on lead in drinking water, testing methods, and steps you can take to minimize exposure is available at:

<http://www.epa.gov/safewater/lead>.

➤ Learn more about Lead Plumbing & Water Quality: water.phila.gov/lead



About the Wholesale Customer Excerpt

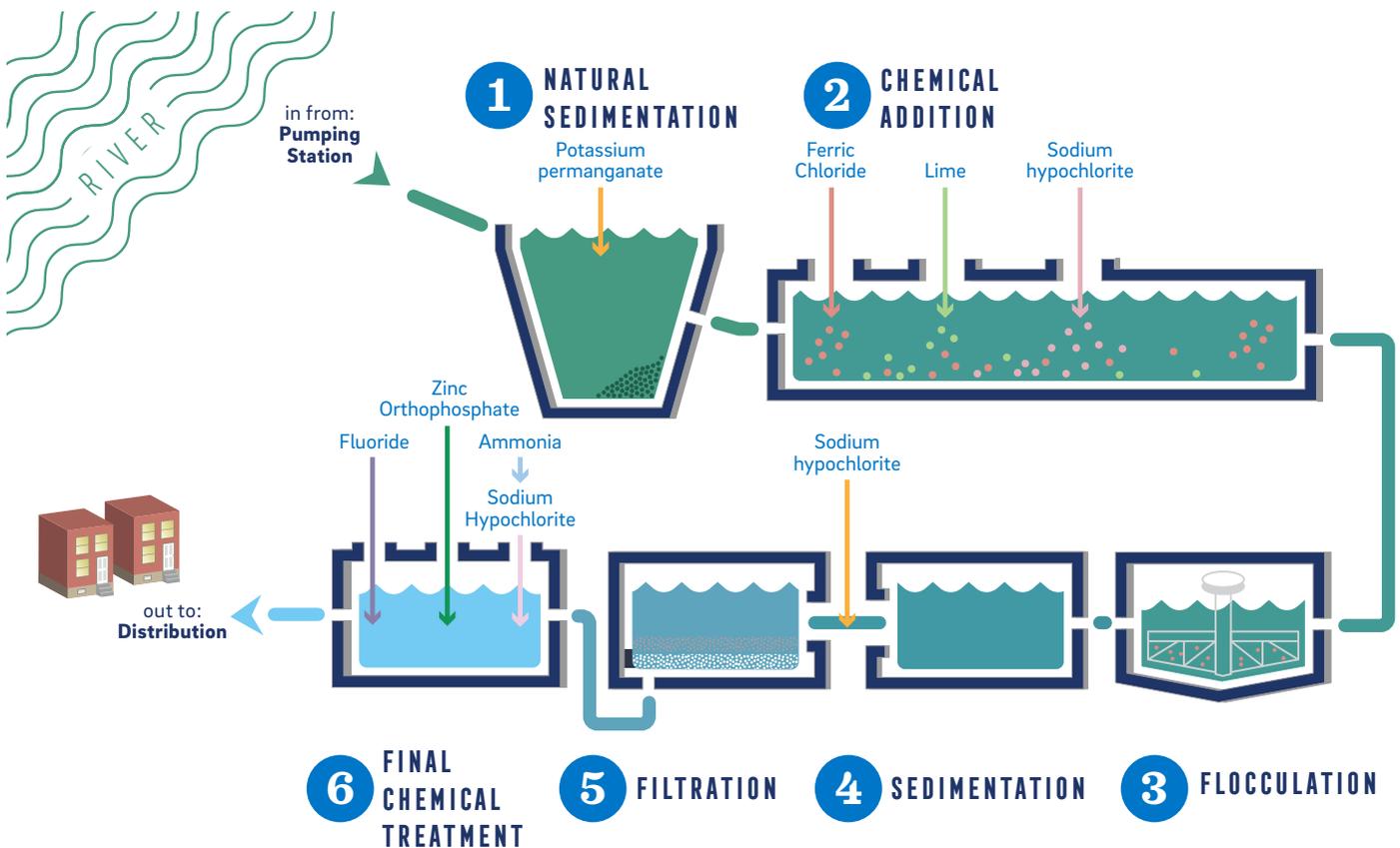
We share our data tables in this format for industrial/commercial customers and consecutive water systems.

Consecutive water systems are public water systems that obtain their water from another public water system and resell the water, provide treatment, or provide drinking water to an interstate carrier. The term does not include bottled water and bulk water systems.

▲ Water treatment facility in Philadelphia.

Typical Treatment Process

These are some of the stages water goes through during normal operating conditions.



Glossary

Here are definitions for some words and phrases we use in the report and in our data tables.

Action Level: The concentration of a contaminant which, if exceeded, triggers treatment or other requirements that a water system must follow. The action level is not based on one sample; instead, it is based on many samples.

Alkalinity: A measure of the water's ability to resist changes in the pH level and a good indicator of overall water quality. Although there is no health risk from alkalinity, we monitor it to check our treatment processes.

***E. coli* (Escherichia coli):** A type of coliform bacteria that is associated with human and animal fecal waste.

gpg (grains per gallon): A unit of water hardness. One grain per gallon is equal to 17.1 parts per million.

Level 1 Assessment: 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 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.

Locational Running Annual Average

(LRAA): We calculate the average of samples taken from each location every quarter (3 months), and then the average of the last four quarterly averages to get the LRAA.

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 a 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 Disinfection Level): The highest level of disinfectant that is allowed in drinking water. The addition of a disinfectant is necessary for the control of microbial contaminants.

MRDLG (Maximum Residual Disinfection Level Goal): The level of a disinfectant in drinking water 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.

Minimum Residual Disinfectant Level: The minimum level of residual disinfectant required at the entry point to the distribution system.

NTU (nephelometric turbidity units): Turbidity is measured with an instrument called a nephelometer. Measurements are given in nephelometric turbidity units.

Pathogens: Bacteria, viruses, or other microorganisms that can cause disease.

pCi/L (Picocuries per liter): A measure of radioactivity.

PFAS: Human-made perfluoroalkyl and polyfluoroalkyl substances used in industrial applications and a wide range of consumer products. PFAS compounds are found around the world and are not solely in water.

ppm (parts per million): Denotes 1 part per 1,000,000 parts, which is equivalent to two-thirds of a gallon in an Olympic-sized swimming pool.

ppb (parts per billion): Denotes 1 part per 1,000,000,000 parts, which is equivalent to half a teaspoon in an Olympic-sized swimming pool.

µg/L (Microgram per liter): One microgram per liter is equal to one part per billion.

ppt (parts per trillion): Denotes 1 part per 1,000,000,000,000 parts, which is equivalent to one drop in 20 Olympic-sized swimming pools.

SMCL (Secondary Maximum Contaminant Level): Non-enforceable Federal water quality guidelines that are established for managing aesthetic and cosmetic conditions of water (e.g. taste, odor, color).

SOC (Synthetic Organic Chemical): Commercially made organic compounds, such as pesticides and herbicides.

Total Coliform: Coliforms are bacteria that are naturally present in the environment. Their presence in drinking water may indicate that other potentially harmful bacteria are also present.

THAAs (Total Haloacetic Acids): A group of chemicals known as disinfection byproducts. These form when a disinfectant reacts with naturally occurring organic and inorganic matter in the water.

TOC (Total Organic Carbon): A measure of the carbon content of organic matter. This measure is used to indicate the amount of organic material in the water that could potentially react with a disinfectant to form disinfection byproducts.

TTHMs (Total Trihalomethanes): A group of chemicals known as disinfection byproducts. These form when a disinfectant reacts with naturally occurring organic and inorganic matter in the water.

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

Turbidity: A measure of the clarity of water related to its particle content. Turbidity serves as an indicator for the effectiveness of the water treatment process. Low turbidity measurements, such as ours, show the significant removal of particles that are much smaller than can be seen by the naked eye.

VOC (Volatile Organic Chemicals): Organic chemicals that can be either man-made or naturally occurring. These include gases and volatile liquids.

WTP: Water Treatment Plant.

What we test for and how

Public drinking water systems monitor their treated drinking water for approximately 100 regulated contaminants. These regulatory parameters are defined within federal rules, such as the Revised Total Coliform Rule, Surface Water Treatment Rule, Disinfectants and Disinfection Byproducts Rules, Lead and Copper Rule, and the Radionuclides Rule.

We monitor for the regulated parameters listed below.

Any contaminants found are noted in the tables on the following pages.

Inorganic Chemicals

Antimony	Copper	Nitrate
Arsenic	Cyanide	Nitrite
Barium	Fluoride	Selenium
Beryllium	Lead	Thallium
Cadmium	Mercury	
Chromium	Nickel	

Synthetic Organic Chemicals

2,3,7,8-TCDD (Dioxin)	phthalate	Hexachlorobenzene
2,4-D, 2,4,5-TP (Silvex)	Dibromochloropropane	Hexachlorocyclopentadiene
Alachlor	Dinoseb	Lindane
Atrazine	Diquat	Methoxychlor
Benzopyrene	Endothall	Oxamyl
Carbofuran	Endrin	PCBs Total
Chlordane	Ethylene Dibromide	Pentachlorophenol
Dalapon	Glyphosate	Picloram
Di(ethylhexyl) adipate	Heptachlor	Simazine
Di(ethylhexyl)	Heptachlor epoxide	Toxaphene

Volatile Organic Chemicals

Benzene	trans-1,2-Dichloroethylene	Toluene
Carbon Tetrachloride	Dichloromethane	1,2,4-Trichlorobenzene
1,2-Dichloroethane	1,2-Dichloropropane	1,1,1-Trichloroethane
o-Dichlorobenzene	Ethylbenzene	1,1,2-Trichloroethane
p-Dichlorobenzene	Monochlorobenzene	Trichloroethylene
1,1-Dichloroethylene	Styrene	o-Xylene
cis-1,2-Dichloroethylene	Tetrachloroethylene	m,p-Xylenes
		Vinyl Chloride

Radiological Contaminants

Uranium	Radium 226
Alpha Emitters	Radium 228

Perfluoroalkyl and Polyfluoroalkyl Substances

PFOA	PFBS
PFOS	PFHxS
PFNA	HFPO-DA (GenX)

Other factors that can impact drinking water



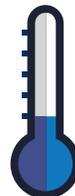
Appealing to Your Senses

We work to ensure your water looks, tastes, and smells the way it should.

To meet all water quality taste and odor guidelines, we test for the following: alkalinity, aluminum, chloride, color, hardness, iron, manganese, odor, pH, silver, sodium, sulfate, surfactants, total dissolved solids, turbidity, and zinc.



Temperature and Cloudiness



The temperature of the Schuylkill and Delaware Rivers varied seasonally in 2024 from approximately 34°–91° Fahrenheit. PWD does not treat the water for temperature.

Cloudiness in tap water most commonly happens in the winter, when the cold water from the water main is warmed up quickly in household plumbing. Cold water and water under pressure can hold more air than warmer water and water open to the atmosphere.

When really cold winter water comes out of your tap, it's simultaneously warming up and being relieved of the pressure it was under inside the water main and your plumbing. The milky white color is actually just tiny air bubbles. If you allow the glass to sit undisturbed for a few minutes, you will see it clear up gradually.

2024 Data tables

LEAD & COPPER – Tested at customers' taps. Testing is done every 3 years. Most recent tests were done in 2022.

	EPA's Action Level - for a representative sampling of customer homes	Ideal Goal (EPA's MCLG)	90% of PWD customers' homes were less than	Number of homes considered to have elevated levels	Range of Tap Sampling Results	Violation	Source
Lead	90% of homes must test less than 15 ppb	0 ppb	2.0 ppb	3 out of 104	0–102 ppb	No	Corrosion of household plumbing; Erosion of natural deposits
Copper	90% of homes must test less than 1.3 ppm	1.3 ppm	0.219 ppm	0 out of 104	0.006–0.399 ppm	No	Corrosion of household plumbing; Erosion of natural deposits; Leaching from wood preservatives

INORGANIC CHEMICALS (IOC) – PWD monitors for IOC more often than required by EPA.

Chemical	Highest Level Allowed (EPA's MCL)	Ideal Goal (EPA's MCLG)	Highest Result	Range of Test Results for the Year	Violation	Source
Antimony	0.006 ppm	0.006 ppm	0.0006 ppm	0–0.0006	No	Discharge from petroleum refineries; fire retardants; ceramics; electronics; solder
Barium	2 ppm	2 ppm	0.046 ppm	0.027–0.046 ppm	No	Discharges of drilling wastes; Discharge from metal refineries; Erosion of natural deposits
Chromium	100 ppb	100 ppb	2 ppb	0–2 ppb	No	Discharge from steel and pulp mills; Erosion of natural deposits
Fluoride	2 ppm*	2 ppm*	0.624 ppm	0.619–0.624 ppm	No	Erosion of natural deposits; Water additive which promotes strong teeth; Discharge from fertilizer and aluminum factories
Nitrate [^]	10 ppm	10 ppm	4.52 ppm	0.92–4.52 ppm	No	Runoff from fertilizer use; Leaching from septic tanks; Erosion of natural deposits

*EPA's MCL and MCLG is 4 ppm, but PADEP has set this lower MCL and MCLG which takes precedence.

[^]Nitrate in drinking water at levels above 10 ppm is a health risk for infants of less than six months of age. High nitrate levels in drinking water can cause blue baby syndrome. Nitrate levels may rise quickly for short periods of time because of rainfall or agricultural activity. If you are caring for an infant, you should ask for advice from your health care provider.

PWD also monitored for Arsenic, Beryllium, Cadmium, Cyanide, Mercury, Nitrite, Selnium, and Thallium in 2024; all results were below respective parameter detection limits.

RADIOLOGICAL CONTAMINANTS						
	Highest Level Allowed (EPA's MCL)	Ideal Goal (EPA's MCLG)	Highest Result	Range of Test Results for the Year	Violation	Source
Alpha Emitters	15 pCi/L	0 pCi/L	5.32 pCi/L	0–5.32 pCi/L	No	Erosion of natural deposits

TOTAL CHLORINE RESIDUAL – Continuously monitored at Water Treatment Plants						
Sample Location	Minimum Disinfectant Residual Level Allowed	Lowest Level Detected	Yearly Range	Violation	Source	
Baxter WTP	0.2 ppm	2.24 ppm	2.24–3.55 ppm	No	Water additive used to control microbes	
Belmont WTP		1.85 ppm	1.85–2.86 ppm			
Queen Lane WTP		1.60 ppm	1.60–2.70 ppm			

TOTAL CHLORINE RESIDUAL – Tested throughout the Distribution System. Over 400 samples collected throughout the City every month.						
Sample Location	Maximum Disinfectant Residual Allowed	Highest Monthly Average	Monthly Average Range	Violation	Source	
Distribution System	4.0 ppm	2.33 ppm	1.73–2.33 ppm	No	Water additive used to control microbes	

BACTERIA IN TAP WATER – Tested throughout the Distribution System. Over 400 samples collected throughout the City each month						
	Highest Level Allowed (EPA's MCL)	Ideal Goal (EPA's MCL)	Highest Monthly % of Positive Samples	Monthly Range (% of Positive Samples)	Violation	Source
Total Coliform	No more than 5% of samples can test positive in a single month*	0	2.4%	0%–2.4%	No	Naturally present in the environment.
<i>E. coli</i>		0	0%	0%	No	Human or animal fecal waste.

*Every sample that is positive for total coliforms must also be analyzed for *E. coli*. If a system has two consecutive total coliform positive samples, and one is also positive for *E. coli*, then the system has an MCL violation. There were no MCL violations in 2024. There were no Level 1 or Level 2 assessments required under the Revised Total Coliform Rule in 2024.

TOTAL ORGANIC CARBON – Tested at Water Treatment Plants						
	Baxter WTP One Year Average	Belmont WTP One Year Average	Queen Lane WTP One Year Average	Violation	Source	
Percent of Removal Required	25–45%	15–35%	15–35%	No	Naturally present in the environment.	
Percent of Removal Achieved*	0–72%	23–62%	0–64%			
Number of Quarters out of Compliance*	0	0	0			

*PWD achieved TOC removal requirements in all quarters of 2024 at all WTPs. Compliance is based on a running annual average computed quarterly. The numbers shown represent a range of TOC results in weekly samples.

TURBIDITY, A MEASURE OF CLARITY – Tested at Water Treatment Plants					
	Baxter WTP	Belmont WTP	Queen Lane WTP	Violation	Source
Treatment Technique Requirement: <i>95% of samples must be at or below 0.300 NTU</i>	100% below 0.300 NTU	100% below 0.300 NTU	100% below 0.300 NTU	No	Soil runoff, river sediment
Highest single value for the year	0.104 NTU	0.097 NTU	0.103 NTU	No	

DISINFECTION BYPRODUCTS					
	Highest Level Allowed (EPA's MCL) - One Year Average	Running Annual Average 2024*	System-Wide Range of Results	Violation	Source
Total Trihalomethanes (TTHMs)	80 ppb	51 ppb	14–76 ppb	No	Byproduct of drinking water disinfection
Total Haloacetic Acids (THAAs)	60 ppb	43 ppb	16–52 ppb	No	Byproduct of drinking water disinfection

*Monitoring is conducted at 16 locations throughout the City of Philadelphia. This result is the highest locational running annual average in 2024.

PFAS – System Wide Range of Results								
Chemical	Highest Level Allowed (MCL)		Ideal Goal (MCLG)		Highest Result	System Wide Range of Results*	Violation [^]	Source
	EPA [†]	PA DEP	EPA [†]	PA DEP				
PFOA	4 ppt	14 ppt	0 ppt	8 ppt	7.3 ppt	2.5–7.3 ppt	No	Discharge from manufacturing facilities and runoff from land use activities.
PFOS	4 ppt	18 ppt	0 ppt	14 ppt	5.5 ppt	0–5.5 ppt	No	
PFNA	10 ppt	n/a	10 ppt	n/a	4.0 ppt	0–4 ppt	No	
PFBS [‡]	Hazard Index	n/a	Hazard Index	n/a	9.2 ppt	0–9.2 ppt	No	
PFHxS	10 ppt	n/a	10 ppt	n/a	1.9 ppt	0–1.9 ppt	No	
(HFPO-DA)/GenX	10 ppt	n/a	10 ppt	n/a	0 ppt	0 ppt	No	

* Samples were collected on 1/8/2024, 4/8/2024, 7/15/2024, 10/7/2024, 10/28/2024

[^] Compliance for 2024 was based on Running Annual Averages at each Water Treatment Plant compared to Pennsylvania Department of Environmental Protection’s (PA DEP) MCLs.

[†] Compliance with EPA MCLs and MCLGs begins in 2029

[‡] PFBS does not have an individual MCL but is included in Hazard Index calculation

For more information please see our website: water.phila.gov/PFAS

UNREGULATED CONTAMINANT MONITORING (UCMR)¹			
Chemical	Testing Period	Average	Range
PFOA	1/8/2024 – 10/7/2024	4.6 ppt	0 – 8.1 ppt
PFOS	1/8/2024 – 10/7/2024	3.6 ppt	0 – 6.0 ppt
PFHxA	1/8/2024 – 10/7/2024	5 ppt	0 – 9.1 ppt
PFPeA	1/8/2024 – 10/7/2024	4.9 ppt	0 – 9.9 ppt
PFBS	1/8/2024 – 10/7/2024	3.6 ppt	0 – 10.0 ppt
PFBA	1/8/2024 – 10/7/2024	2.3 ppt	0 – 7.6 ppt
PFNA	1/8/2024 – 10/7/2024	0.8 ppt	0 – 4.5 ppt
PFHpA	1/8/2024 – 10/7/2024	1 ppt	0 – 3.3 ppt

In 2024, PWD performed special monitoring as part of the Unregulated Contaminant Monitoring Rule (UCMR), a nationwide monitoring effort conducted by the EPA. Unregulated contaminants are those that do not yet have a drinking water standard set by EPA. The purpose of monitoring for these contaminants is to help EPA decide whether the contaminants should have a standard. For more information concerning UCMR visit these websites: <https://www.epa.gov/dwucmr/fifth-unregulated-contaminant-monitoring-rule> or <https://drinktap.org/Water-Info/Whats-in-My-Water/Unregulated-Contaminant-Monitoring-Rule-UCMR>

UNREGULATED CONTAMINANTS NOT DETECTED AT ANY OF THE SAMPLING LOCATIONS:
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS), 1H,1H, 2H, 2H-perfluorodecane sulfonic acid (8:2FTS), 1H,1H, 2H, 2H-perfluorohexane sulfonic acid (4:2FTS), 1H,1H, 2H, 2H-perfluorooctane sulfonic acid (6:2FTS), 4,8-dioxa-3H-perfluorononanoic acid (ADONA), 9-chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3ONS), hexafluoropropylene oxide dimer acid (HFPO-DA)(GenX), nonafluoro-3,6-dioxaheptanoic acid (NFDHA), perfluoro (2-ethoxyethane) sulfonic acid (PFEESA), perfluoro-3-methoxypropanoic acid (PFMPA), perfluoro-4-methoxybutanoic acid (PFMBA), perfluorodecanoic acid (PFDA), perfluorododecanoic acid (PFDoA), perfluoroheptanesulfonic acid (PFHpS), perfluorohexanesulfonic acid (PFHxS), perfluoropentanesulfonic acid (PFPeS), perfluoroundecanoic acid (PFUnA), N-ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA), N-methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA), perfluorotetradecanoic acid (PFTA), perfluorotridecanoic acid (PFTrDA), Lithium

Secondary chemicals

The EPA has established National Secondary Drinking Water Regulations (NSDWRs) that set non-mandatory water quality standards. The EPA does not enforce these "secondary maximum contaminant levels" (SMCLs). They are established as guidelines to assist public water systems in managing their drinking water for aesthetic considerations, such as taste, color, and odor. These contaminants are not considered to present a risk to human health at the SMCL.

SECONDARY MCLS: AESTHETIC IMPACTS IN TAP WATER

	EPA's SMCL	Baxter WTP One Year Range	Belmont WTP One Year Range	Queen Lane WTP One Year Range	Violation*
Chloride	250 ppm	28–124 ppm	57–133 ppm	61–161 ppm	No
Copper	1.0 ppm	0.057–0.101 ppm	0.008–0.018 ppm	0.033–0.051 ppm	No
Fluoride	2 ppm [^]	0.62 ppm	0.62 ppm	0.62 ppm	No
Iron	0.3 ppm	0–0.014 ppm	0–0.020 ppm	0–0.023 ppm	No
pH	6.5–8.5	7.01–7.29	7.10–7.30	7.11–7.25	No
Sulfate	250 ppm	0.00–23.40 ppm	18.20–62.00 ppm	12.60–61.30 ppm	No
Total Dissolved Solids	500 ppm	137–309 ppm	198–398 ppm	216–471 ppm	No

PWD also monitored for Aluminum, Color, Manganese, and Silver in 2024; all results were below respective parameter detection limits.

* Individual results are averaged monthly and compliance is based on running annual average.

[^] EPA's MCL and MCLG is 4 ppm, but PADEP has set this lower MCL and MCLG which takes precedence.

Sources of Secondary Chemicals

Chloride	Copper	Fluoride	Iron	pH	Sulfate	Total Dissolved Solids
Main component of many salts, may increase in winter months; Erosion of natural minerals; Used in the water treatment process in the form of ferric chloride.	Corrosion of copper pipes in premise plumbing; Erosion of natural deposits.	Erosion of natural deposits; Water additive that promotes strong teeth; Discharge from fertilizer and aluminum factories.	Corrosion of iron water mains and premise plumbing; Erosion of natural minerals; Used in the water treatment process in the form of ferric chloride.	Adjusted during the water treatment process.	Erosion of natural minerals; Runoff from mining operations.	Erosion of natural minerals; May increase during winter months due to road salt runoff or during drought conditions.

Sodium, Hardness, and Alkalinity in tap water

The parameters listed on this page are not part of EPA's requirements and are provided for information purposes.

SODIUM IN TAP WATER			
	Baxter WTP One Year Average	Belmont WTP One Year Average	Queen Lane WTP One Year Average
Average (ppm)	23 ppm	47 ppm	41 ppm
Average (mg in 8 oz. glass of water)	5 mg	11 mg	10 mg
Range (ppm)	17–33 ppm	30–67 ppm	21–66 ppm
Range (mg in 8 oz. glass of water)	4–8 mg	7–16 mg	5–16 mg

HARDNESS IN TAP WATER			
	Baxter WTP One Year Average	Belmont WTP One Year Average	Queen Lane WTP One Year Average
Average	98 ppm or 6 gpg	152 ppm or 9 gpg	168 ppm or 10 gpg
Minimum	81 ppm or 5 gpg	114 ppm or 7 gpg	99 ppm or 6 gpg
Maximum	113 ppm or 7 gpg	206 ppm or 12 gpg	220 ppm or 13 gpg

Hardness defines the quantity of minerals, such as calcium and magnesium, in water. These minerals react with soap to form insoluble precipitates and can affect common household chores, such as cooking and washing. Philadelphia's water is considered "moderately hard" or "hard" depending on your service area.

ALKALINITY IN TAP WATER			
	Baxter WTP One Year Average	Belmont WTP One Year Average	Queen Lane WTP One Year Average
Average	41 ppm	75 ppm	72 ppm
Minimum	26 ppm	47 ppm	42 ppm
Maximum	53 ppm	105 ppm	103 ppm

Photography

JPG Photo & Video



Philadelphia Water Department
1101 Market Street
Philadelphia, PA 19107
(215) 685-6300
water.phila.gov