

Drinking Water Quality Report

2022 • Published in 2023

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

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

PWD's Public Water System Identification #PA1510001





Your water is locally sourced.

Water from our
rivers is treated
to the highest
standards.

ABOVE

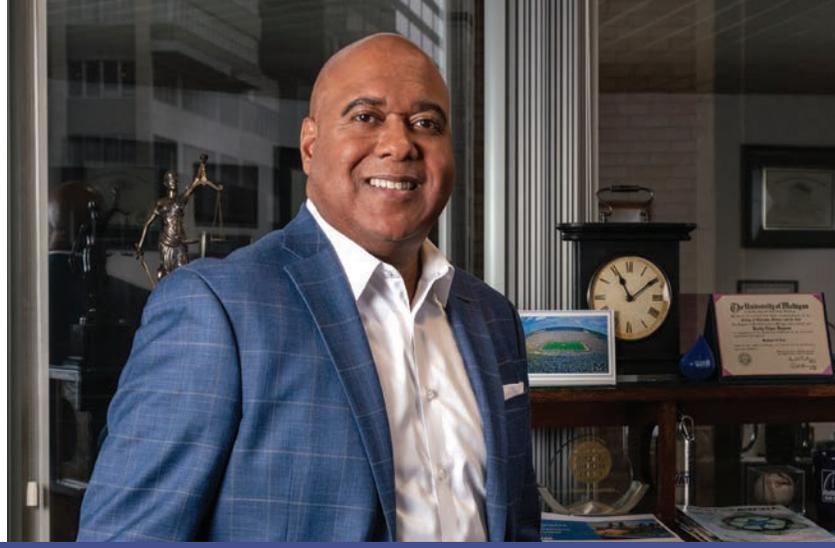
Water's journey begins in the creeks and streams of our watershed. We partner with local organizations who help protect the source of our drinking water.

BELOW

The Schuylkill River (pictured) and the Delaware River provide the water we treat at our Drinking Water Treatment Plants.



A message from the Commissioner



Delivering clean tap water is our top priority.

In March 2023, Philadelphia experienced a frightening reminder of just how valuable clean water is when a chemical spill occurred on the Delaware River just outside of the city.

Making sure we can rely on clean tap water is what drives the Philadelphia Water Department. It's why we have a longstanding and extensive water quality monitoring program that enabled us to determine with confidence that our water remained safe throughout the incident. It's also why we created and continually improve the **Delaware Valley Early Warning System**, which alerted the region of the spill and allowed Philadelphia to respond rapidly. **Read about that system on page 7.**

Our expert staff of scientists, engineers, and plant operators know our water and the rivers better than anyone, and they stepped up in this emergency. While the results from our sampling after the spill are not part of this annual report (*visit water.phila.gov/spill for that data*), the same science and expertise that protects our water and assures safety daily kept us safe following the March 2023 incident.

Every day, more than a million Philadelphia residents get clean, quality water from the Delaware River, with the rest of the city depending on the Schuylkill. We, of course, rely on this water for drinking, cooking, washing, and other essential daily activities.

In this report, you will find the results of the testing we do around the clock. Please read through these pages and learn about all we do to protect our city.

The employees of the Philadelphia Water Department live in Philadelphia, and we drink the water we deliver to our customers. We know how important clean tap water you can trust is, and we work to ensure it's available when you need it.

Sincerely,

Randy E. Hayman, Esq.
Water Commissioner

Contact Information

Philadelphia Water Department
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Public Water System ID #PA1510001

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Public Information Officer,
Public Affairs
(215) 380-9327



View this report online:
water.phila.gov/2022-quality

Sharing this report

Please share this report with all 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 and mail.

To receive a printed copy of this report, please email: waterquality@phila.gov.

People with special health concerns

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 and other immune system disorders, and some elderly people and infants can be particularly at risk from infections. These people should seek advice about drinking water from their health care providers.

U.S. Environmental Protection Agency (EPA)/Centers for Disease Control CDC guidelines on appropriate means to lessen the risk of drinking water contaminants are available from the Safe Drinking Water Hotline: (800) 426-4791.

Table of Contents

3	A message from the Commissioner
4	Sharing this report
4	People with special health concerns
5	How this document is organized

Part One: Source & Treatment

6	Philadelphia's source watersheds
7	Monitoring source water to promote health and safety
8	Drinking Water Treatment Plants and processes
9	A Closer Look: Hardness

Part Two: Delivery

10	A Closer Look: Residual Chlorine
11	25-year Water Revitalization Plan

Part Three: At Home

12	Your service line
12	Corrosion Control
12	Flushing your pipes
13	Talking about tap water
14	Lead in a property's plumbing
14	A Closer Look: Carefully monitoring lead
14	Lead Service Line replacement

2022 Data Tables & More

15	An Introduction to the results
16	What we test for and how
17– 21	2022 Data tables
22	Glossary
23	Top customer questions

back cover	Working together
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How this document is organized:

This story follows our water quality work from **source** and **treatment** through **delivery** to your home.



Part One: **Source & Treatment**

Philly's local water sources—and what we do to keep water safe

pages 6–9



Part Two: **Delivery**

Safe transit through the system

pages 10–11



Part Three: **At Home**

The final stretch to your tap

pages 12–14



2022 Data Tables & More

pages 15–23

Look for these quick guides throughout the report:

Charts and graphs let you see the data in a new way. ➤



Here's the story of why we do this test

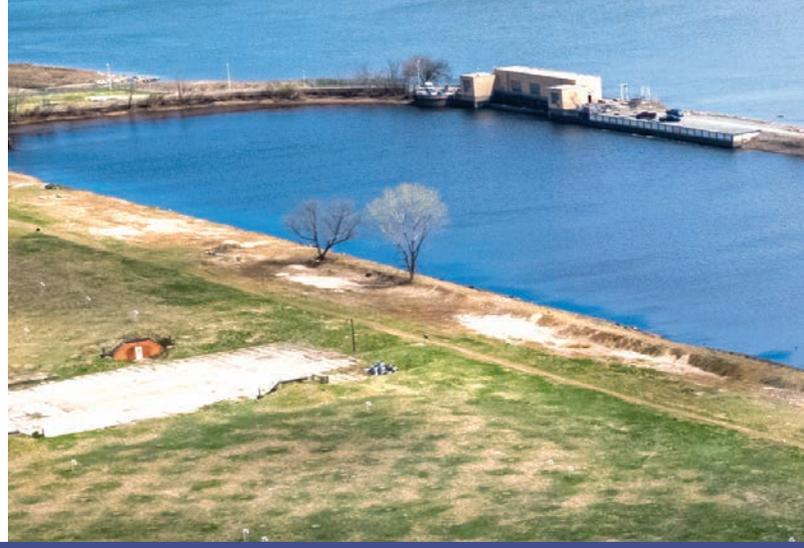
Handwritten notes explain how and why we do these tests. ◀

☑ **RESULT:**
All results are better than the recommended federal levels.

Look here for key takeaways. ◀

Part One

Source & Treatment



Your water begins in freshwater streams.

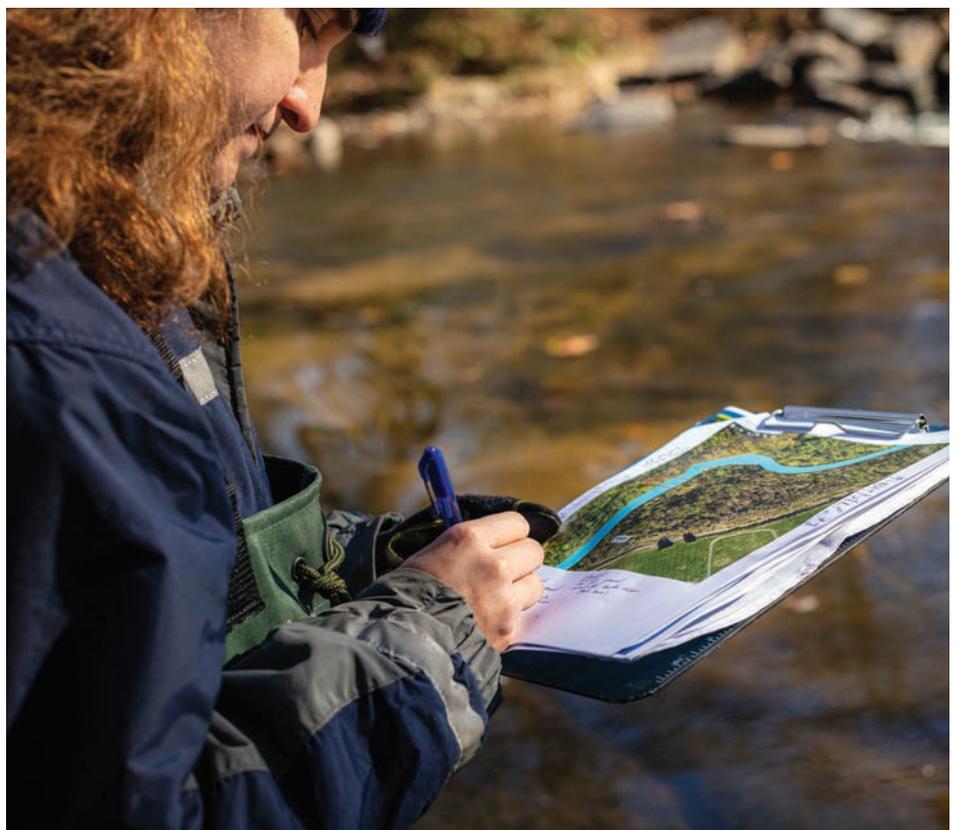
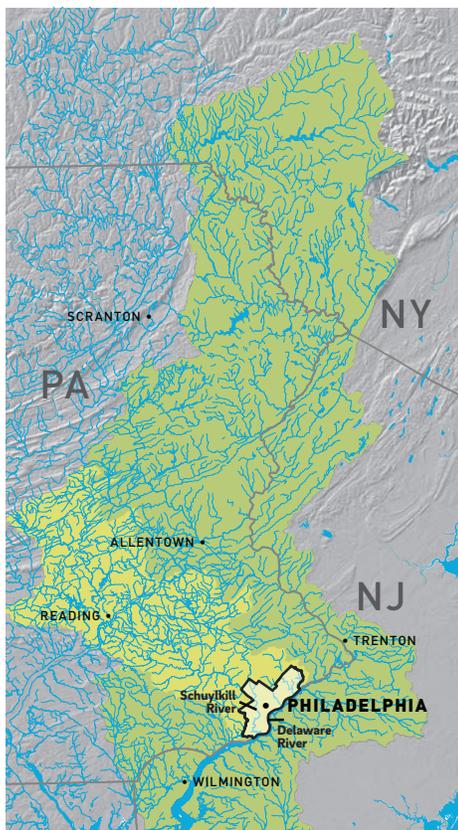
Philadelphia's water comes from the Delaware River Watershed. The watershed begins in New York State and extends 330 miles south to the mouth of the Delaware Bay. The Schuylkill River is part of the Delaware River Watershed.

Philadelphia source watersheds

- Delaware River Watershed
- Schuylkill River Watershed

Protection starts at the sources.

We take a holistic approach, beginning with Philadelphia's water supply. We monitor waterways across the watershed and look for potential sources of contamination. We keep track of water availability and flow.





We take water from the Delaware River at one of our three treatment plants in Philadelphia.

Our wide range of tools for protecting water sources includes:

Research

- We study regional influences, such as natural gas drilling and global influences, like sea level rise.

Projects in the field

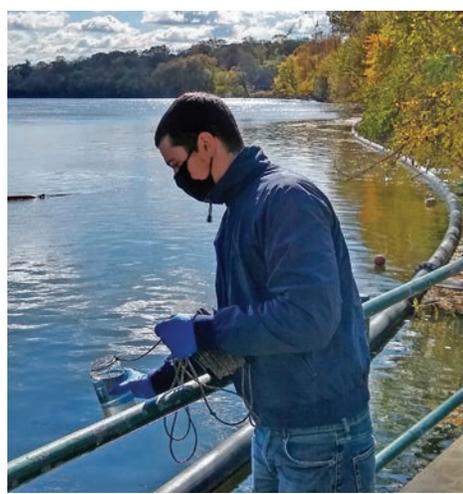
- We protect against stormwater and agricultural runoff.
- We monitor contaminants.

Partnerships

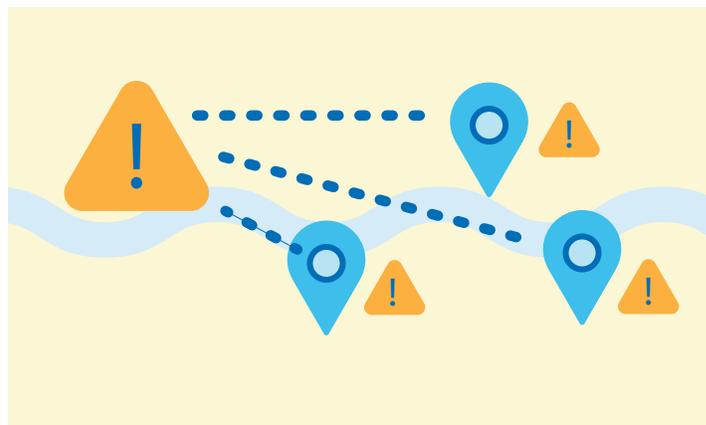
- We team up with organizations across the region to protect our entire watershed.

Monitoring source water to promote health and safety

Per- and polyfluoroalkyl substances (PFAS) are potentially harmful chemicals used in industry and many consumer products. We study PFAS in the city's rivers, creeks, and finished water.



Cryptosporidium, a microscopic organism sometimes found in freshwater, can cause illness in humans. We are one of the nation's leaders in *Cryptosporidium* research. We work closely with Philadelphia's Department of Public Health to ensure our tap water is free of *Cryptosporidium* and other organisms.



SPOTLIGHT:

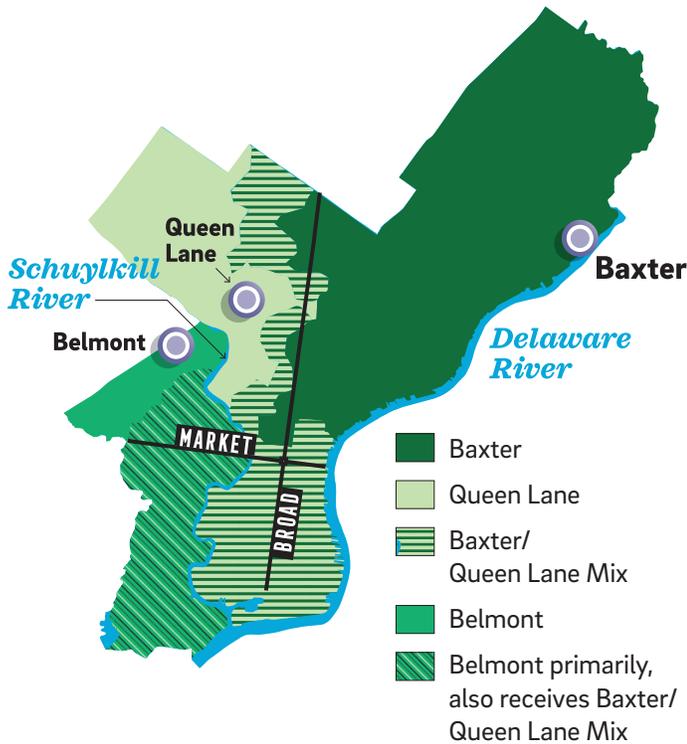
Delaware Valley Early Warning System (EWS)

Reducing emergency response times by communicating across the area.

Our drinking water is a resource shared by millions of people in towns and cities across the region. The Delaware Valley Early Warning System (EWS) protects drinking water by providing rapid notifications to organizations and utilities like PWD.

The web-based emergency communication system reports events like truck and freight accidents and chemical spills that may impact our source water.

Drinking Water Treatment Plants: An important early step in water's journey.



◀ **High-quality staff. High-quality results:**
The experts working at our treatment plants take pride in using water drawn from our local rivers. Hundreds of millions of gallons of top-quality drinking water are produced every day.

We have three drinking water treatment plants.

Baxter pulls water from the Delaware River. **Queen Lane** and **Belmont** pull from the Schuylkill. Each plant has a service area. Some areas in Philadelphia can receive a mix from multiple treatment plants. Use the map above to see where your water is treated.

Typical Treatment Process

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

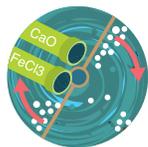
How long does it take? Our typical process can take days to complete.



Gravity settling
River water is pumped to reservoirs. The heaviest sediment settles.



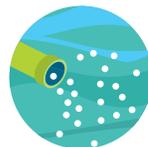
Disinfection
We add Sodium Hypochlorite to kill harmful organisms.



Coagulant, flocculation, and pH
Gentle mixing helps particles clump together. We also adjust the acidity.



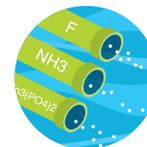
Additional settling
Clumps of particles settle and are removed.



Additional disinfection
We add Sodium Hypochlorite a second time to kill any remaining harmful organisms.



Filtration
Filters remove more microscopic particles.



Additional treatment
Ingredients like Fluoride, Zinc Phosphate, and Ammonia help keep water healthy and safe.



A CLOSER LOOK



Hardness

The hardness of water is determined by the minerals naturally dissolved in it.

Hardness can vary based on natural conditions – for example, a drought can impact hardness.

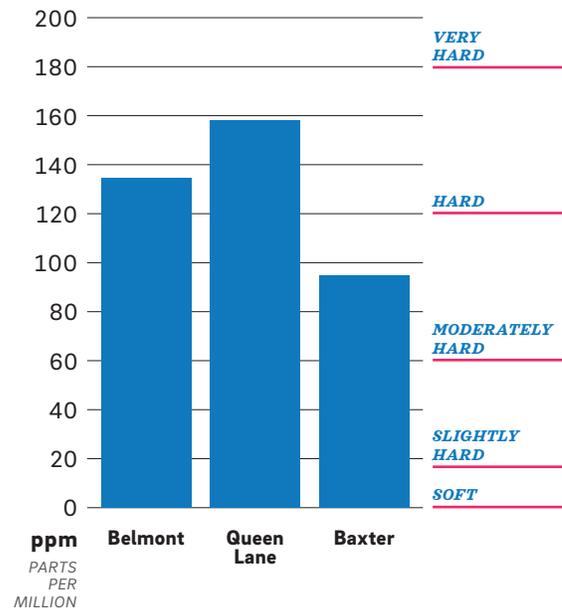
Hardness matters if you use your water for activities, such as brewing beer or keeping a home aquarium. Customers often ask about hardness when researching appliances like dishwashers.

Before water leaves the plant

We test our treated water for about 100 regulated contaminants, ranging from organisms like bacteria to chemicals like nitrate.

In 2022, we found no violations under state and federal regulations.

Most recent results



Final touches

Chlorine + Ammonia

Chlorine protects us from organisms found in untreated water that can cause disease. Ammonia is added to make the chlorine last longer and reduce the bleach-like smell.

Fluoride

All water contains some fluoride. We adjust the natural levels slightly to help protect your teeth against decay.

Zinc orthophosphate

Zinc orthophosphate is a compound that helps form a protective coating inside pipes. It prevents corrosion (or breaking down over time).

What this means for you

RESULT:

Philadelphia's water is moderately hard or hard, depending on which treatment plant serves your neighborhood.

Hardness matters if you use your water for activities like brewing beer or keeping a home aquarium.

Most customers don't need to monitor their water's hardness.

Part Two

Delivery



A safe path through the system

We have about 3,100 miles of water mains that deliver clean tap to customers. To ensure water stays safe as it moves from the plant to you, we take samples and monitor real-time water quality data 24/7.



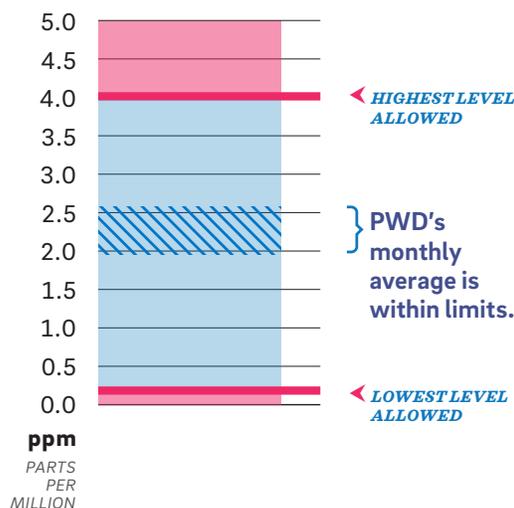
A CLOSER LOOK



Residual Chlorine

This test is done throughout the system. It checks that the chlorine added at plants remains at levels that keep water fresh and safe while staying within regulations.

Most recent results



What this means for you

✓ **RESULT:**
Better than standards.

We travel the city to collect samples of drinking water from fire and police stations, pumping stations, and more.

We do over 400 of these tests every month!



Large scale water mains help transport water from treatment plants to customers.

SPOTLIGHT:

Water Revitalization Plan

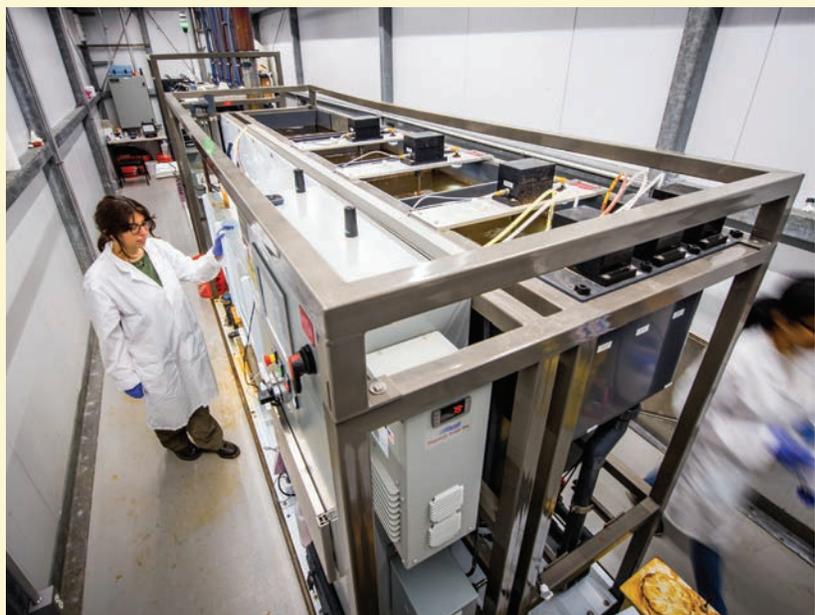
Philadelphia has a 25-year plan to strengthen our essential drinking water infrastructure.

We need a system that can respond to events like natural disasters or emergencies.

New transmission mains will allow water service for the entire City from either river, if needed, for an indefinite period of time.

Dozens of projects are carefully coordinated. The sequence maximizes benefits for Philadelphians and reduces service interruptions and impacts.

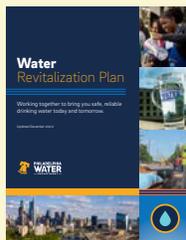
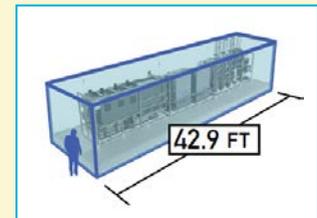
Working with communities is a key component of our plan. The plan's Stakeholder Advisory Group has a diverse roster of community members. They serve two-year terms helping to share plan information and progress.



PLAN SPOTLIGHT:
Mini Water Treatment Plants

Inside a container about the size of a trailer, PWD scientists test the methods planned for upgraded treatment plants.

Mini laboratories like this allow us to test treatment methods before we use them at a much larger scale.



Learn more:
water.phila.gov/revitalization

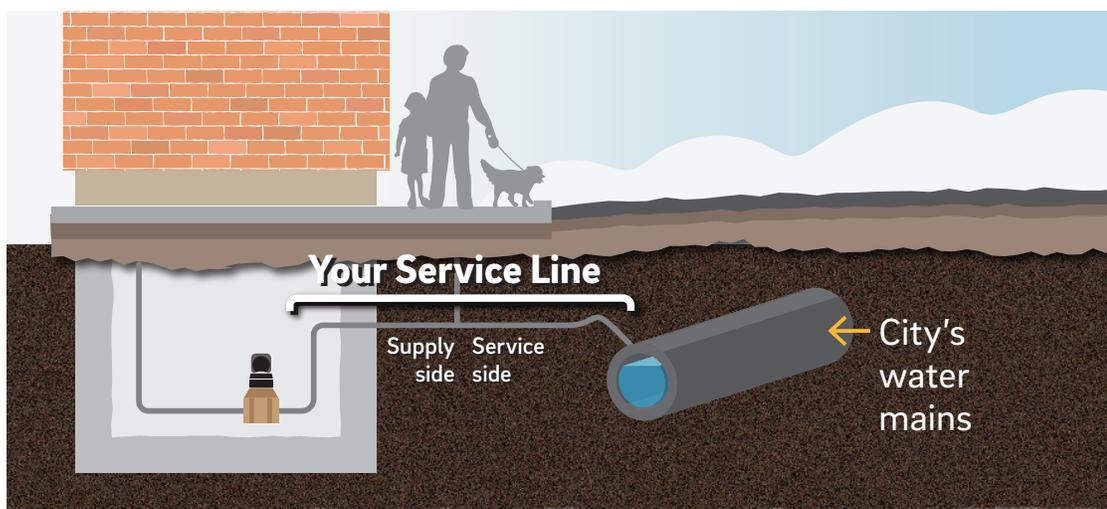


Part Three

At Home

Meet your service line

You and your property's plumbing play a role in keeping water safe.



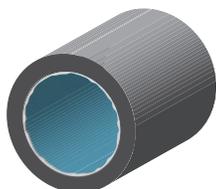
The service line is a **pipe** that carries clean water from the city's water mains into your home. It's a part of your property's plumbing, even though it's usually underground.

If you own your property, the service line is your responsibility.

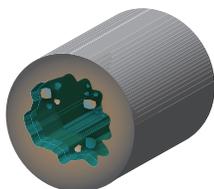
Corrosion Control

Reducing risks from lead in a property's plumbing

We treat water to prevent lead pipes from corroding. This is called **corrosion control**, and it prevents lead from dissolving into water. Tests at homes with lead plumbing show our treatment is working: corrosion controls keeps lead levels below state and federal limits.



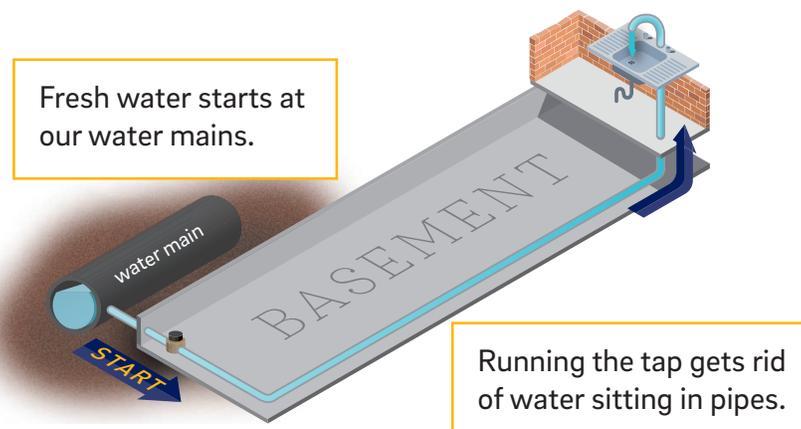
With corrosion control



Without corrosion control

What do we mean by "flushing your pipes"?

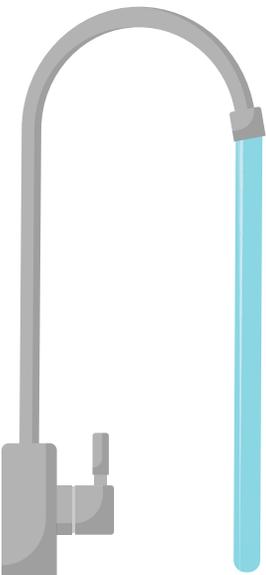
Flushing pushes the water that is sitting in pipes out and down your drain until fresh water comes through the tap. When pipes are disturbed during construction or repairs, they might require flushing.



Every home on your block relies on a service line to carry water from the main to the property.



Healthy home habit



If you haven't used water for 6 hours or more: **Run your cold water for 3–5 minutes.** This will flush out water that's been sitting in your pipes. It only costs a penny or two to ensure top-quality tap!

Talking about tap water

In neighborhoods across Philadelphia, our customers tell us what matters to them. When it comes to tap water, there's a lot to talk about!

For starters, some residents are surprised they can get great drinking water right at home for less than a penny per gallon.

In conversations, we hear loud and clear: **Safe drinking water is a top priority, and people are excited to learn more about water quality.**



If lead is detected in drinking water, it comes from a property's plumbing

A home's older fixtures & valves:

It could be in fixtures, valves, and solder.

Lead was prohibited from plumbing materials in 1986.

Service line:

This pipe connects a property's plumbing to the water main in the street.

Homes from 1950 or earlier may still have lead in sections of the service line.

A CLOSER LOOK

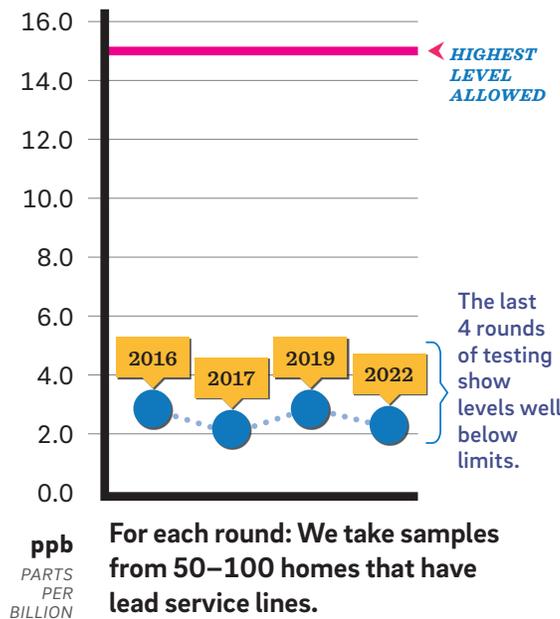
Carefully monitoring Lead

In addition to conducting regular tests in customer homes, every three years we complete a rigorous round of sampling for lead and copper.

We share the results with the EPA and the public.

The EPA requires that 90% of homes show lead levels less than 15 ppb.

Most recent results



What this means for you



The EPA is updating guidelines for sampling. This will impact future results. We support this effort to make sure sampling is accurate, and to help identify homes with lead plumbing.

RESULT: Lead levels are consistently lower than limits set by the EPA.

US EPA Guidance

The EPA requires public water providers like the Philadelphia Water Department to monitor drinking water for lead at customer taps. If lead levels are higher than 15 parts per billion (ppb) in more than 10% of taps sampled, water providers must inform customers and take steps to reduce lead in water.

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 material and components associated with service lines and home plumbing.

The Philadelphia Water Department is responsible for providing safe drinking water but cannot control the variety of materials used in plumbing components. If you haven't turned on your tap for several hours, you can minimize the potential for lead exposure by flushing your tap before using water for drinking and cooking. If you are concerned about lead in your water, you may wish to have your water tested. Information on lead in drinking water, testing methods, and steps you can take to minimize exposure is available from the Safe Drinking Water Hotline (800) 426-4791 or at: www.epa.gov/safewater/lead.



We offer a zero-interest loan for replacing lead service lines.

The Homeowners Emergency Loan Program (HELP) can cover the cost of a replacement.

➤ Learn more & apply: www.phila.gov/water/helploan

2022 Data tables & More



All of PWD's results are better than the required and recommended federal levels designed to protect public health.

This data shows how our process keeps your drinking water safe.

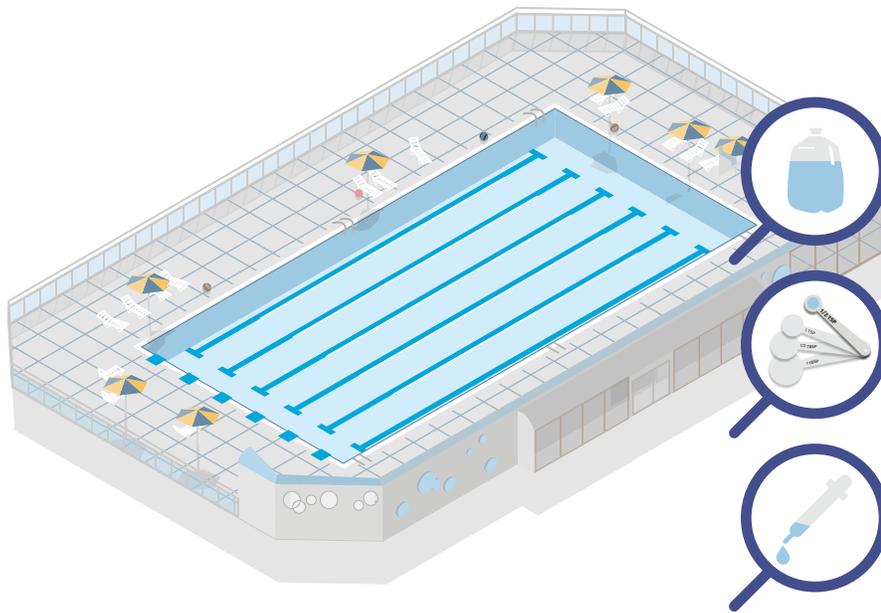
By reporting these results in these tables, we are meeting a requirement of the EPA.

Some contaminants may pose a health risk at certain levels to people with special health concerns. Others are used as indicators for treatment plant performance.

What's a "PPM"?

Many of these results are reported as "parts per million (ppm)" or "parts per billion (ppb)".

Here's what that looks like:



PPM vs. PPB vs. PPT

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.

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**.

For more abbreviations and their definitions, visit the Glossary on page 22.

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

Synthetic Organic Chemicals

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

Volatile Organic Chemicals

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

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 2022 from approximately 34°–88° 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.

2022 Data tables

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.

WATER TIP:

Parameters like these matter if you use your water for activities like brewing beer or keeping a home aquarium.

SODIUM IN TAP WATER			
	Baxter WTP One Year Average	Belmont WTP One Year Average	Queen Lane WTP One Year Average
Average (ppm)	24 ppm	46 ppm	41 ppm
Average (mg in 8 oz. glass of water)	6 mg	11 mg	10 mg
Range (ppm)	19–41 ppm	31–61 ppm	20–65 ppm
Range (mg in 8 oz. glass of water)	4–10 mg	7–14 mg	5–15 mg

HARDNESS IN TAP WATER			
	Baxter WTP One Year Average	Belmont WTP One Year Average	Queen Lane WTP One Year Average
Average	93 ppm or 5 gpg	134 ppm or 8 gpg	158 ppm or 9 gpg
Minimum	75 ppm or 4 gpg	100 ppm or 6 gpg	87 ppm or 5 gpg
Maximum	105 ppm or 6 gpg	170 ppm or 10 gpg	197 ppm or 11 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	40 ppm	71 ppm	71 ppm
Minimum	26 ppm	44 ppm	32 ppm
Maximum	52 ppm	101 ppm	93 ppm

Secondary Chemicals

EPA has established National Secondary Drinking Water Regulations (NSDWRs) that set non-mandatory water quality standards. 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	55–102 ppm	66–126 ppm	58–162 ppm	No
Copper	1.0 ppm	0.002–0.196 ppm	0.008–0.012 ppm	0.025–0.057 ppm	No
Fluoride	2 ppm**	0.76 ppm	0.81 ppm	0.74 ppm	No
Iron	0.3 ppm	0–0.026 ppm	0–0.011 ppm	0–0.011 ppm	No
pH	6.5–8.5	7.09–7.29	7.10–7.30	7.00–7.30	No
Sulfate	250 ppm	7.30–17.00 ppm	16.40–58.50 ppm	9.02–58.10 ppm	No
Total Dissolved Solids	500 ppm	150–256 ppm	216–374 ppm	194–416 ppm	No

PWD also monitored for Aluminum, Color, Manganese, and Silver in 2022; 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.

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	Violation	Source
Lead	90% of homes must test less than 15 ppb	0 ppb	2.0 ppb	3 out of 104	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	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	6 ppb	6 ppb	0.4 ppb	0–0.4 ppb	No	Discharge from petroleum refineries; fire retardants; ceramics; electronics; solder
Barium	2 ppm	2 ppm	0.052 ppm	0.028–0.052 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*	0.81 ppm	0.74–0.81 ppm	No	Erosion of natural deposits; Water additive which promotes strong teeth; Discharge from fertilizer and aluminum factories
Nitrate	10 ppm	10 ppm	4.10 ppm	0.85–4.10 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.

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	2.56 ppm	2.56–3.49 ppm	No	Water additive used to control microbes
Belmont WTP		1.83 ppm	1.83–2.90 ppm		
Queen Lane WTP		1.60 ppm	1.60–3.50 ppm		

TOTAL CHLORINE RESIDUAL – Tested throughout the Distribution System. Over 360 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	2.59 ppm	1.91–2.59 ppm	No	Water additive used to control microbes

TOTAL ORGANIC CARBON – Tested at Water Treatment Plants

Treatment Technique Requirement	Baxter WTP One Year Average	Belmont WTP One Year Average	Queen Lane WTP One Year Average	Violation	Source
Percent of Removal Required	25–45%	25–45%	25–45%	n/a	Naturally present in the environment.
Percent of Removal Achieved*	40–67%	32–64%	29–72%	No	
Number of Quarters out of Compliance*	0	0	0		

*PWD achieved TOC removal requirements in all quarters of 2022 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

Treatment Technique Requirement	Baxter WTP One Year Average	Belmont WTP One Year Average	Queen Lane WTP One Year Average	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	n/a	Soil runoff, river sediment
Highest single value for the year	0.096 NTU	0.100 NTU	0.141 NTU	No	

The turbidity of Philadelphia's water in 2022 was 86 percent below the maximum level of 0.3 NTU allowed by the State and Federal Regulations and was 57 percent below the Partnership for Safe Water turbidity goal of 0.1 NTU.

We are required to monitor your drinking water for specific contaminants on a regular basis. Results of regular monitoring are an indicator of whether or not your drinking water meets health standards. PWD continuously operates and monitors water quality from a total of 160 filters at three drinking water treatment plants. In calendar year 2022, on one occasion, continuous on-line turbidity monitoring was interrupted on one of our filters and therefore we cannot be sure of the quality of the drinking water from this filter during the interruption. On June 1st, 2022 Filter #31 at the Queen Lane Drinking Water Treatment Plant was found in service without turbidity monitoring for a period of 86 hours. The monitoring interruption was a result of an instrumentation calibration procedural error that left the unit in hold mode creating an artificial steady turbidity reading, until operators recognized the data trend was not responding on June 5th, 2022. During this single filter monitoring interruption, the combination flow from the plant filters at Queen Lane Drinking Water Treatment Plant was continuously sampled and monitored with no change in turbidity levels. No water quality emergency occurred due to the monitoring interruption, and this notice is for informational purposes only.

DISINFECTION BYPRODUCTS

	Highest Level Allowed (EPA's MCL) - One Year Average	Running Annual Average 2022*	System Wide Range of Results	Violation	Source
Total Trihalomethanes (TTHMs)	80 ppb	44 ppb	15–66 ppb	No	Byproduct of drinking water disinfection
Total Haloacetic Acids (THAAs)	60 ppb	49 ppb	15–76 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 2022.

UNREGULATED CONTAMINANT MONITORING (UCMR)¹

Chemical	Testing Period	Average	Range
Bromide ²	1/14/2020	0.034 ppm	0–0.052 ppm
Total Organic Carbon (TOC) ²	1/14/2020	2.27 ppm	2.19–2.34 ppm
HAA5 Total ³	1/14/2020	21.3 ppb	14.8–31.3 ppb
HAA6Br Total ⁴	1/14/2020	7.1 ppb	3.8–10.3 ppb
HAA9 Total ⁵	1/14/2020	28.2 ppb	23.6–35.5 ppb
Manganese	1/15/2020	0.55 ppb	0–0.95 ppb

¹ Unless otherwise noted, samples were collected from finished water sampling locations.

² Bromide and TOC represent source water samples.

³ HAA5 Total - Dibromoacetic Acid, Dichloroacetic Acid, Monobromoacetic Acid, Monochloroacetic Acid, and Trichloroacetic Acid

⁴ HAA6Br Total - Bromochloroacetic Acid, Bromodichloroacetic Acid, Dibromoacetic Acid, Dibromochloroacetic Acid, Monobromoacetic Acid, and Tribromoacetic Acid

⁵ HAA9 Total - Bromochloroacetic Acid, Bromodichloroacetic Acid, Chlorodibromoacetic Acid, Dibromoacetic Acid, Dichloroacetic Acid, Monobromoacetic Acid, Monochloroacetic Acid, Tribromoacetic Acid, and Trichloroacetic Acid

In 2020, 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 the EPA. The purpose of monitoring for these contaminants is to help the EPA decide whether the contaminants should have a standard. For more information concerning UCMR, visit these websites: <https://www.epa.gov/dwucmr/fourth-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:

1-Butanol, 2-Methoxyethanol, 2-Propen-1-ol, alpha-Hexachlorocyclohexane, anatoxin-a, Butylated Hydroxyanisole, Chlorpyrifos, Cylindrospermopsin, Dimethipin, Ethoprop, Germanium, Microcystin Total, Nodularin, o-Toluidine, Oxyfluorfen, Permethrin Total, Profenofos, Quinoline, Tebuconazole, Tribufos

Glossary

Here are definitions for some of the 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.

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, virus, or other microorganisms that can cause disease.

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

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.

Top customer questions



How do I get my water tested?

We offer free lead and copper tests for residential customers who have concerns about their water.

- To request an appointment
Call (215) 685-6300

How hard is Philadelphia's water?

Philadelphia's water is considered moderately hard. Hardness depends on the treatment plant that serves your area of the city.

- See *A Closer Look at Hardness*
Page 9

Why do water utilities add fluoride to water?

It's a natural element that helps prevent cavities. Philadelphia's Health Department (and dentists) recommend we add fluoride to a level that helps protect children's teeth.

Can I replace a lead service line?

Yes. If you don't want to contact a plumber directly, apply for our Homeowners Emergency Loan Program (HELP).

A zero-interest loan can cover the cost of replacement.

- Learn more & apply
www.phila.gov/water/helploan

Also: PWD will replace lead service lines for free if they are discovered during planned work on water mains.

Why does water have an earthy flavor sometimes?

Earthy or musty flavors occur naturally in drinking water and are among the most commonly reported worldwide. When certain algae-type organisms grow in our rivers, detectable levels of these odors can make their way into the treated drinking water.

These natural compounds have no known health effects at their natural levels, and are found in various foods.

We take steps to reduce their presence when detected.

Why does my tap water smell like a pool sometimes?

The smell of chlorine means your water is safe and treated to remove harmful organisms. You can reduce the smell by keeping a pitcher of fresh water in the refrigerator. This also reduces the earthy odor sometimes produced by algae in the rivers during spring.



Working together

You can help protect Philadelphia's water quality.

Keep trash out of our waterways.

Protect our rivers and streams by properly disposing of garbage and recyclable materials.

Don't flush anything but toilet paper.

Even "flushable" wipes can lead to clogs and backups affecting our homes and streets.

Always properly recycle or dispose of household hazardous wastes.

Don't flush them down the toilet or down the sink, and don't pour them into storm drains.

Stay informed

Sign up to receive water quality updates and more!



Get the latest news, useful information, and find out about upcoming events. Sign up for email and text alerts at water.phila.gov/signup.



PHILADELPHIA
WATER
— DEPARTMENT —

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