

2018 Drinking Water Quality Report

Published Spring 2019

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

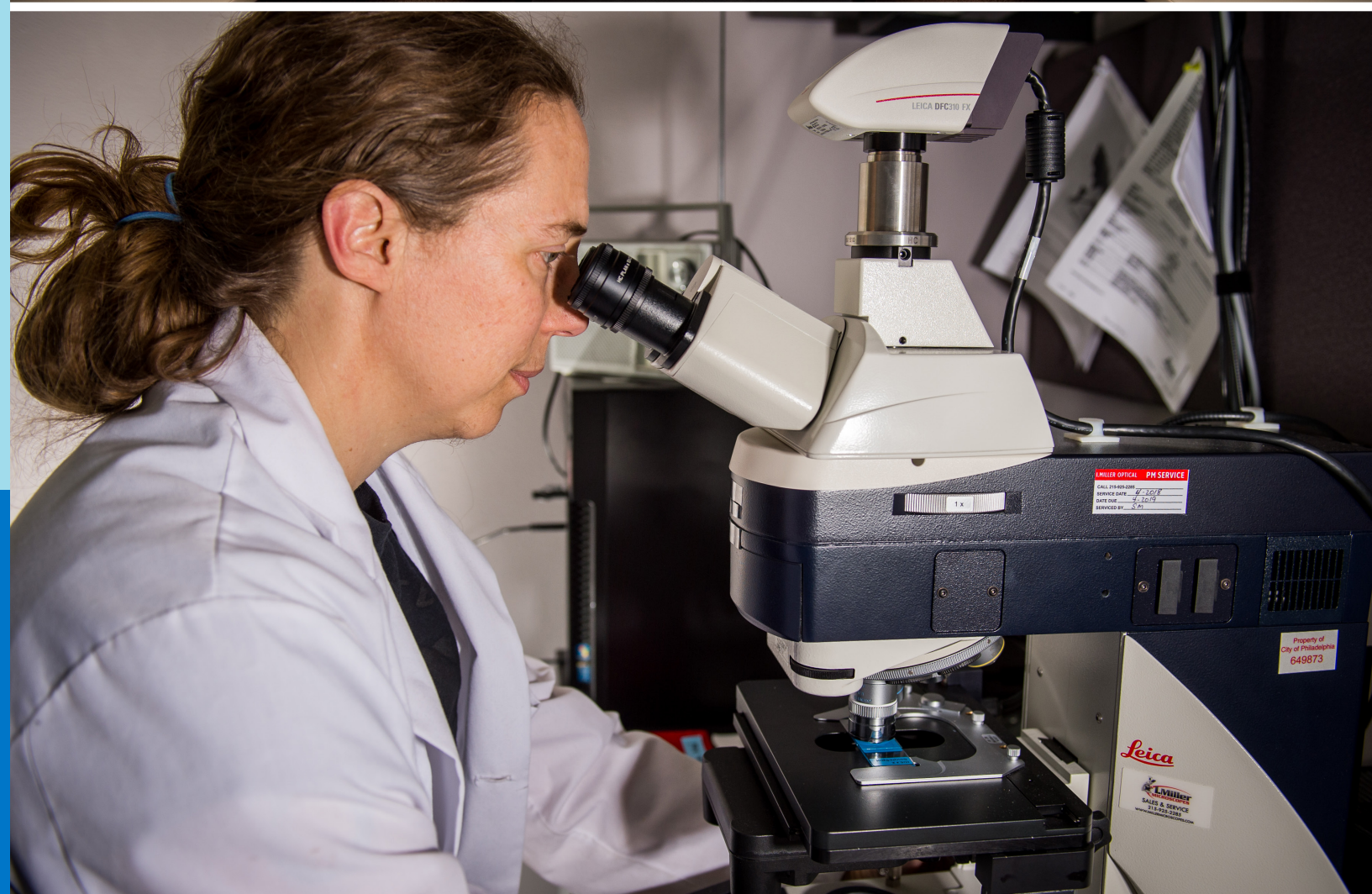
Note: Industrial and commercial customers, including hospitals, medical centers and health clinics, please forward this report to your Environmental Compliance Manager.

PWD's Public Water System
Identification #PA1510001

**PHILADELPHIA
WATER**
— DEPARTMENT —



We continue to deliver safe, reliable, high-quality drinking water from the river to the tap.



Our drinking water quality is better than standards set by the EPA.

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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.

Para obtener una copia del informe en Español sobre los resultados más recientes de la calidad del agua publicado por el Departamento de Agua de Philadelphia, llame al 215.685.6300.

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, some elderly 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 infection by Cryptosporidium and other microbial contaminants are available from the Safe Drinking Water Hotline: 800.426.4791.

A Message from the Philadelphia Water Department's Commissioner

Here at the Philadelphia Water Department, our staff of over 2,000 dedicated employees work hard to ensure that our water is clean, safe, reliable and affordable. It's an important job we take very seriously, and our annual Drinking Water Quality Report is a testament to that commitment.

Published in the spring of 2019, this report includes water quality information for the 2018 calendar year. The U.S. Environmental Protection Agency (EPA) requires all water utilities to produce and distribute water quality reports on an annual basis. We use this as an opportunity to present our programs and initiatives that preserve and protect our drinking water sources – the Schuylkill and Delaware rivers.



From the scientists and engineers in our labs and water treatment plants who test, monitor and treat our tap water 24/7, to the crews on the streets who maintain and repair the vital infrastructure necessary to carry it to homes and businesses, our water is better than what is required by the EPA. This report details those results and much more.

Please take the time to review the report and contact us if you have any questions or would like to learn more about volunteer opportunities to keep our water and waterways clean. We look forward to hearing from you.

Debra McCarty
Water Commissioner

The Philadelphia Water Department is an active member of:

American Water Resources Association

National Association of Clean Water Agencies

U.S. Water Alliance

American Water Works Association

Partnership for the Delaware Estuary

Water Environment Federation

Partnership for Safe Water

Schuylkill Action Network

The Water Research Foundation

American Public Works Association

Schuylkill River Restoration Fund

Association of Metropolitan Water Agencies

Tookany/Tacony-Frankford (TTF) Watershed Partnership

Where Does Philadelphia's Drinking Water Come From?

Philadelphia's water comes from the Schuylkill and Delaware rivers.

Each river contributes one-half of the City's overall supply and approximately 230 million gallons of high-quality drinking water is produced for our customers on a daily basis.

Rivers are surface water supplies. Philadelphia does not use groundwater.

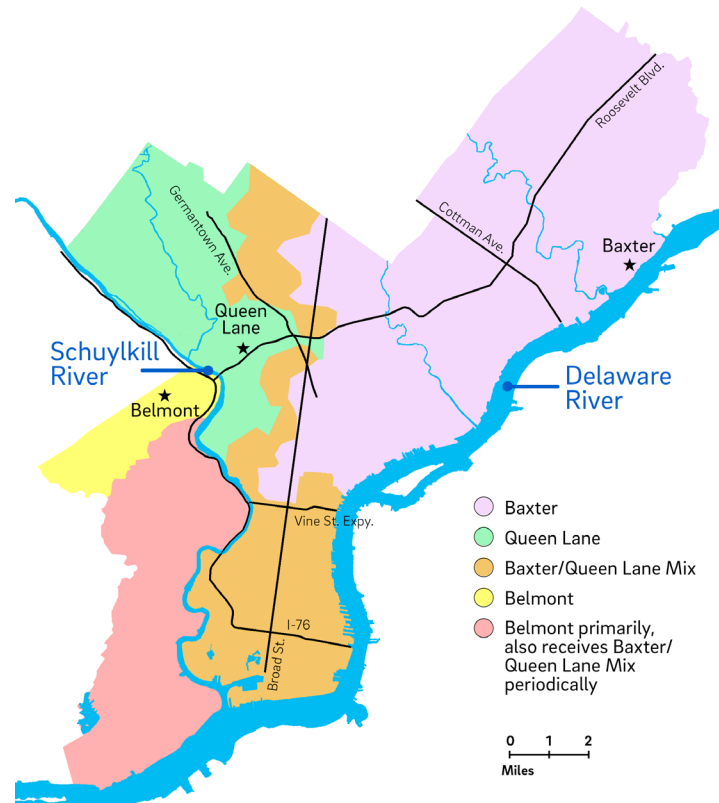
The Philadelphia Water Department (PWD) has three water treatment plants that process untreated river water. Depending on where you live, you receive drinking water from one of these three plants:

The Queen Lane Plant is located in East Falls and its water comes from the Schuylkill River.

The Belmont Plant is located in Wynnefield and its water also comes from the Schuylkill River.

The Baxter Plant is located in Torresdale and its water comes from the Delaware River.

PWD has three water intakes: two located on the Schuylkill river and one on the Delaware river.



Philadelphia is located in the Delaware River Watershed, which 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.

Safeguarding the Water You Drink

How Do Drinking Water Sources Become Polluted?

Across the nation, rivers, lakes, streams, ponds, reservoirs, springs and wells are sources of drinking water (both tap water and bottled water). Rain and melting snow travels over the surface of the land or through the ground, dissolving naturally occurring minerals and picking up substances resulting from animal and human activity and carrying these pollutants to our drinking water sources.

Contaminants that may be present in source water include:

- Microbial contaminants, such as viruses and bacteria, from sewage treatment plants, septic systems, agricultural livestock operations and wildlife.
- Inorganic contaminants, such as salts and metals can be naturally occurring or come from urban stormwater runoff (streets and parking lots), industrial or domestic wastewater discharges, oil and gas production, mining or farming.
- Pesticides and herbicides from a variety of sources such as agriculture, urban stormwater runoff and residential uses.
- Organic chemical contaminants, including synthetic and volatile organic chemicals, are byproducts of industrial processes and petroleum production. They can also come from gas stations, urban stormwater runoff and septic systems.
- Radioactive contaminants can be naturally occurring or can come from oil and gas production, mining activities or medical use.

At their sources, the Delaware and Schuylkill Rivers are generally clean. But as the rivers flow downstream, they pick up contaminants from many sources – stormwater runoff washes pollutants on the land into the rivers, and communities and industries discharge used water back into the rivers. Today, Philadelphia enjoys watersheds that are cleaner and healthier than they have been in well over a century. Although we have seen a dramatic improvement in the water quality of the City's two major rivers since the passage of the Federal Clean Water Act in the early 1970s, there is still more work that needs to be done to protect our drinking water sources from pollution.

In order to ensure that tap water is safe to drink, the EPA has regulations that limit the number of certain contaminants in water provided by water suppliers. The Food and Drug Administration establishes limits for contaminants in bottled water that must provide the same protection for public health.

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, 800.426.4791, or from their website: www.epa.gov/safewater.



Today, Philadelphia enjoys watersheds that are cleaner and healthier than they have been in well over a century.



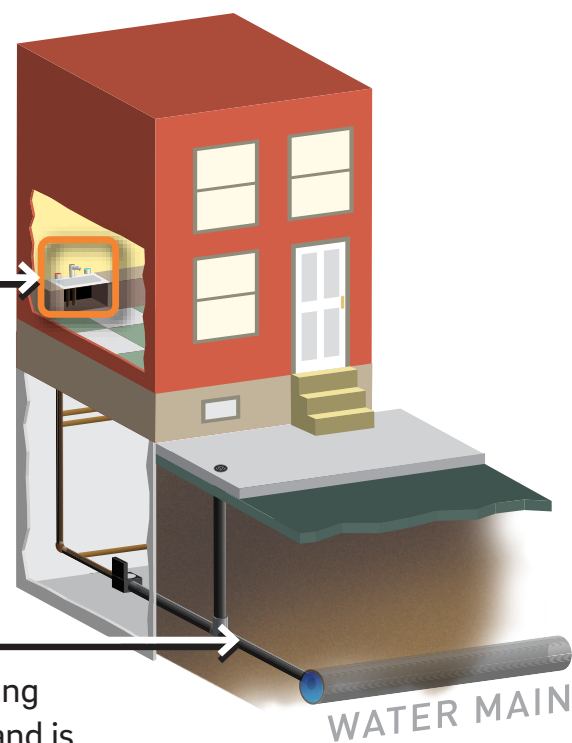
Lead in Drinking Water

The drinking water delivered to your home meets all state and federal water quality standards.

WHERE LEAD CAN GET INTO WATER

Older Fixtures & Valves:

Lead can be found in older brass fixtures and valves and in old solder, where pipes are joined.



Service Line:

This pipe connects home plumbing to the water main in the street, and is the responsibility of the homeowner.

Our water mains are not made of lead.

However, some homes built before 1950 may have service lines made from lead.

While lead was once a common building material, today we know lead is harmful to everyone.

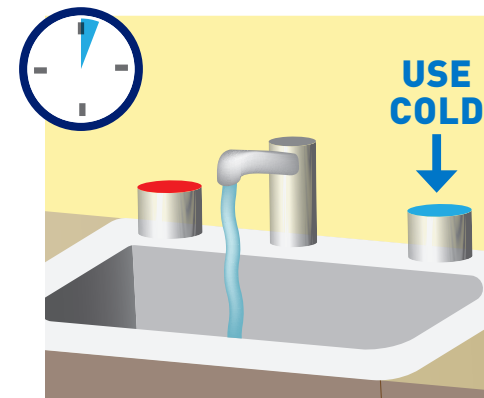
Pregnant women, infants, children under the age of six and adults with high blood pressure and kidney problems are at the most risk.

3 TIPS FOR EVERYONE

Whether you have lead pipes or not, all households should follow the tips below.

1 Daily Pipe Flushing

If you have not used your water for a few hours, turn on the cold water faucet at the sink that you drink from, and let the water run for three to five minutes.



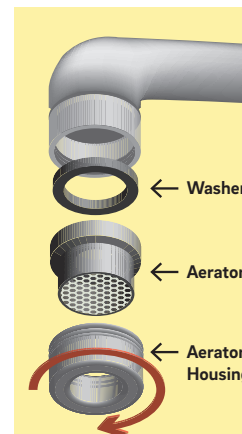
Why Flush? It's good to avoid drinking water that has been sitting in your home's pipes for several hours.

2 Always Use Cold!

Never drink hot water from the tap, or use that water for cooking. Water heaters aren't made for drinking water.

3 Check Your Aerators

Clean aerators (also called screens) yearly to remove debris from any taps used for drinking water.

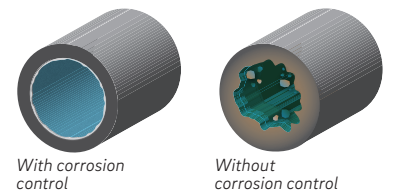


How We Manage Lead

We continuously monitor drinking water to make sure our treatment helps to keep lead out of water in buildings with lead plumbing. As a part of our testing efforts, we ask Philadelphia households with lead water pipes to participate in our free tap water sampling program.

Every three years, PWD samples at least 50 homes with lead plumbing and tests the water for lead levels. These samples are a required part of the EPA's Lead and Copper Rule, which was created in 1992 to make sure that our corrosion control treatment is working.

Philadelphia has a corrosion control program, mandated by federal law and optimized over the past two decades. It minimizes the release of lead from service lines, indoor pipes, fixtures, and solder by creating a coating designed to keep lead from leaching into the water.



To date, sampling results show that our treatment is controlling corrosion in our customers' plumbing.

Lead Testing

The Philadelphia Water Department conducted a regulatory lead testing program from June through September 2017. PWD consulted with the EPA and PA DEP on the design and timeline of the testing with the intent of going above and beyond existing sampling requirements. Results from the 2017 round of testing show Philadelphia is in compliance with the federal Lead and Copper Rule and can be found in the table on page 17. The next round of regulatory sampling will take place in 2019.

Concerned About Lead In Your Pipes?

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 on PWD's website at www.phila.gov/lead or from the Safe Drinking Water Hotline, 800.426.4791, or at: www.epa.gov/safewater/lead.

US EPA Guidance

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 high quality 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.

Lead in Drinking Water (Continued)

PWD continues to educate customers about lead in drinking water. Programs introduced in 2016 have helped customers replace lead service lines:



Service line replacement during water main replacement work

When the Philadelphia Water Department replaces a water main, we will also replace any lead service line from the main all the way to the customer's meter. This will be done at no cost to the customer, but permission is needed to complete this valuable service.

All customers on blocks where water main replacement is scheduled will receive a letter approximately six months before construction work begins. In addition to alerting customers about construction, this letter lets them know their service line will be inspected for lead. To date, 771 customers have had lead service lines replaced through this program.

If you think water main work is being done on your street and you did not get any notification about service lines or flushing, please call our Customer Contact Center at 215.685.6300.



Let's learn about lead: Community Organization Presentations

The Philadelphia

Water Department offers a 30-minute presentation about our programs and lead safety for Registered Community Organizations and civic associations. Our goal is to empower customers to address any issues with lead plumbing in their homes.

Educational materials, such as fact sheets and instructions for maintaining home plumbing, can be translated into a variety of languages to meet the needs of community members.

Since this program began, 60 Registered Community Organizations (RCOs) have participated in PWD's lead presentations. To schedule a presentation, interested organizations can call us at 215.685.6300 or email: waterinfo@phila.gov.



Updated website:

phila.gov/water/lead

Our website provides information about

all Philadelphia Water Department efforts to assist and educate customers about lead in drinking water. You will find:

1. Options for getting water tested
2. How to check for lead pipes
3. Daily flushing tips to ensure fresh water
4. Tips on maintaining household plumbing
5. The most recent lead sampling results



HELP Loan for Lead Service Line Replacement

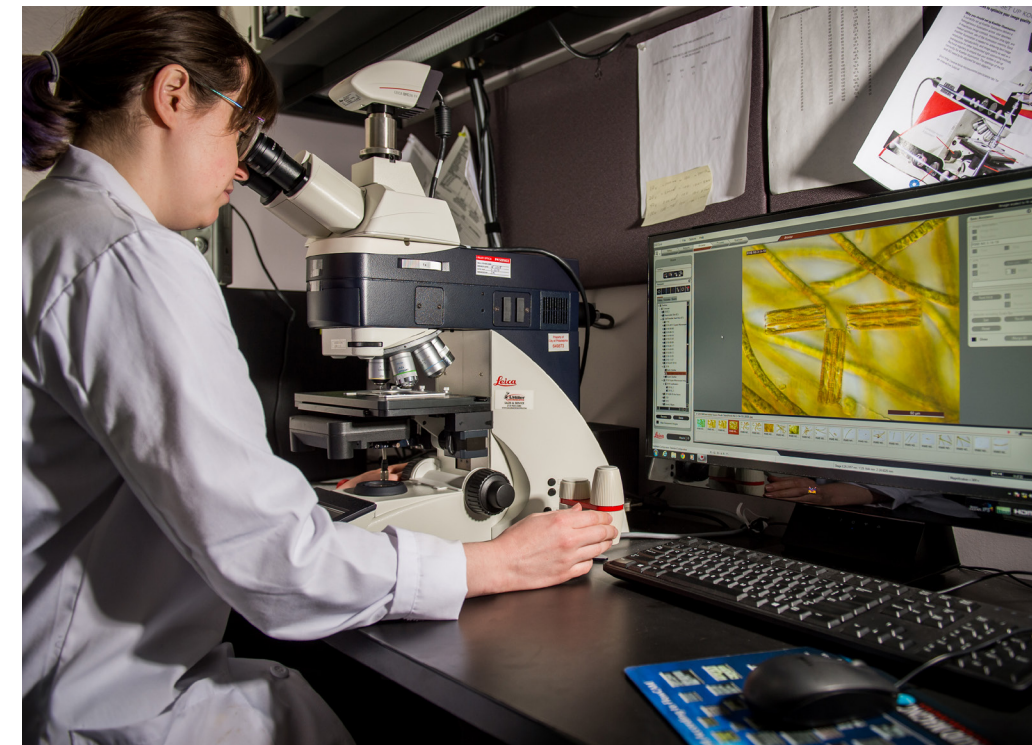
In the City of Philadelphia, water service lines are the responsibility of the homeowner. If you have a water service line made of lead and want to replace it, you may qualify for the Homeowner's Emergency Loan Program (HELP). HELP is a zero-interest loan for replacement of a lead service line, payable over a sixty-month (60) period.

To date, 189 Philadelphia residents have replaced their lead service lines with a HELP loan.

HELP Loan Eligibility Guidelines:

- The property must be a residential dwelling and cannot have any more than four units.
- The applicant cannot be delinquent on their monthly water bill(s) for more than two (2) billing cycles. If there is an arrearage, the payment agreement with the Water Revenue Bureau must be current for at least six (6) months.
- The property must have an operable water meter.

Partnership For Safe Water



The Philadelphia Water Department (PWD) consistently produces high quality drinking water, achieving Partnership for Safe Water quality standards that are far stricter than state and federal water quality regulatory requirements.

The Philadelphia Water Department voluntarily adopted the stricter water treatment quality goals, as a member of the Partnership for Safe Water in 1996. The average turbidity level (measure of water clarity) of Philadelphia's drinking water has been at or below 0.06 nephelometric turbidity units (NTU) since 1998.

The average turbidity of Philadelphia's drinking water in 2018 was 86 percent lower than the maximum level of 0.30 NTU allowed by state and federal regulations and was 57 percent less than the Partnership for Safe Water maximum turbidity goal of 0.10 NTU.

In 2013, the Baxter, Queen Lane and Belmont Water Treatment Plants were honored by the EPA and PADEP with the Partnership for Safe Water 15-Year Director's Award in recognition of the Philadelphia Water Department's (decade) long commitment to achieving and maintaining the highest possible drinking water quality.

The Water Department extended its participation in the Partnership for Safe Water initiative by becoming a charter member in the new Distribution System Optimization Program in 2015. This self-assessment initiative extends our focus from the treatment process to ensuring delivery of high quality water by maintaining distribution system integrity.

The Partnership for Safe Water is a voluntary optimization program conceived and initiated by the EPA, the American Water Works Association, the Association of Metropolitan Water Agencies and advocated by the Pennsylvania Department of Environmental Protection. Pennsylvania leads the nation in participation in this program and the Philadelphia Water Department is one of Pennsylvania's leaders.

CHLORINE 101



Why is chlorine used to disinfect the drinking water?

State and federal laws require the disinfection of all public water supplies. EPA and health agencies recognize that using chlorine is one of the most effective ways to protect public health from disease-causing organisms that can be found in rivers and streams. However, chlorine can chemically react with natural materials in rivers to form disinfection by products, such as trihalomethanes and haloacetic acids. We have been adjusting our treatment process over the years to reduce this chemical reaction, but we also ensure that the treated water that is distributed through the City's water mains to your homes has a "chlorine residual." This residual continues to protect your water against bacteria and other organisms on its journey to your home's tap. We use sodium hypochlorite, a safer form of chlorine similar to household bleach, to disinfect the water at our treatment plants.

Pharmaceuticals and Source Water

Pharmaceuticals get into drinking water because people use both prescription and over-the-counter medications. Only a portion of these substances is absorbed into the bloodstream. The rest is excreted by the body, making its way through wastewater treatment plants and back into the waterways that serve as our drinking water sources. Pharmaceuticals can also enter the waterways through the practice of improper disposal methods, such as flushing unused or expired medications down the toilet.

You can help keep unused pharmaceuticals out of the water supply by paying attention to how you dispose of unused medications. Look for take-back programs that may be established near you. The Drug Enforcement Agency (DEA) sponsors national take-back programs in coordination with State and local law enforcement agencies.

National take-back programs provide opportunities for the public to surrender expired, unwanted or unused pharmaceuticals and other medications to law enforcement officers for proper disposal. To find out about future take-back events, visit DEA's website at www.deadiversion.usdoj.gov/drug_disposal/takeback/.

How To Properly Dispose of Your Medications At Home!



Protect Your Info

Peel off the label, or cross out all your personal information with a marker.



Seal the Meds

Put the pills or liquids in another container, then cover with items like coffee grounds or kitty litter.



Trash It!

Toss sealed meds in your household trash.

▶ Learn more: www.vimeo.com/78005190

Cryptosporidium and Giardia

Cryptosporidium and Giardia are microscopic organisms found in rivers and lakes throughout the United States. If ingested, *Cryptosporidium* and *Giardia* can cause diarrhea and abdominal cramps. However, these are also symptoms of intestinal diseases caused by many bacteria, viruses and parasites.

Most healthy individuals can overcome such illnesses within a few weeks; however, immuno-compromised individuals are at a greater risk of developing a life-threatening illness and are encouraged to consult with their doctors about taking appropriate precautions to avoid infections.

PWD carefully monitors water treatment processes and works closely with the Philadelphia Department of Public Health to ensure that our tap water is free of pathogens. The Department of Public Health monitors confirmed reports of illness consistent with these pathogens and would contact PWD if there were any concerns that the drinking water may be contributing to illnesses.

The Philadelphia Water Department maintains an active source water protection program, is one of the nation's leaders in *Cryptosporidium* research, and was one of the first utilities in the U.S. to monitor for the parasite. We continue to fund local university research into *Cryptosporidium* in the environment, a study we have led for more than a decade. By better understanding the occurrence of *Cryptosporidium* in our watershed, PWD is taking a proactive approach to improving our rivers' water quality. Please refer to page 17 for results from 2017 *Cryptosporidium* monitoring.

Schuylkill & Delaware River Source Water Protection Plans

The Schuylkill and Delaware River Source Water Assessments and Protection Plans provide a comprehensive framework for a watershed-wide effort to protect the quality and quantity of Philadelphia's water supplies. The assessments identify and prioritize existing and potential sources of pollution while the plans outline several strategic approaches to reduce the impacts from these sources. Collectively, these documents serve as the foundation of the PWD Watershed Protection Program, a nationally recognized program that has been featured as an exemplary source water protection case study in AWWA industry guidance.

The comprehensive research and analyses completed as part of the Source Water Assessment and Protection Plans in the early 2000s identified the need for a regional partnership in the Schuylkill River Watershed to address priority contaminants through stakeholder workgroups. The resulting watershed partnership, the Schuylkill Action Network, celebrated its 15th year of successful collaborative protection efforts in 2018.

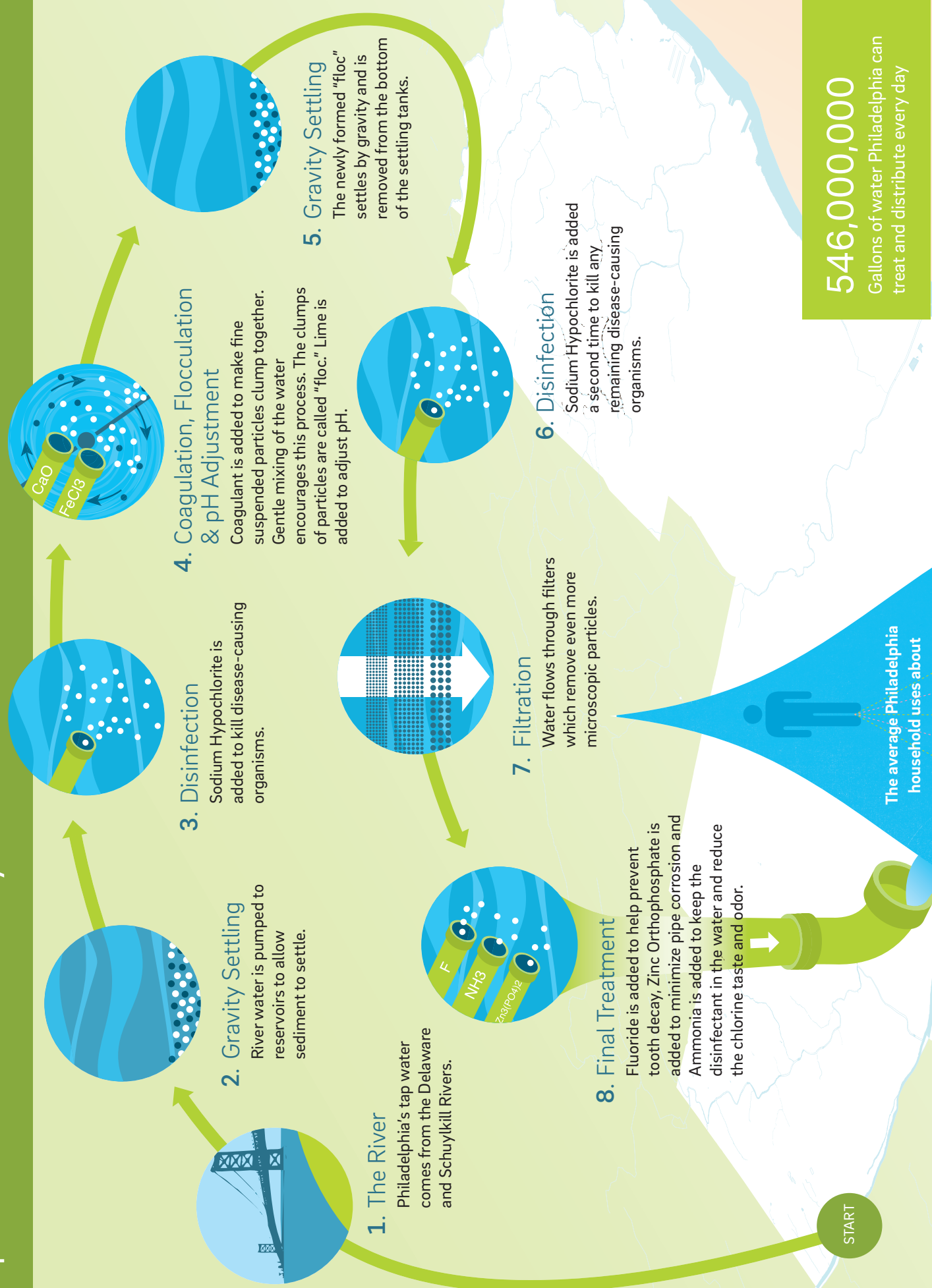
PWD established the Delaware Valley Early Warning System, a private, web-based emergency communication system, to address unanticipated sources of water pollution. We continue to improve upon the system's technological capabilities and launched a redesigned website with enhanced mobile compatibility in 2018.

The PWD Watershed Protection Program continues to collect, research and analyze data to gain a better understanding of the risks to Philadelphia's water supplies, which further refine protection priorities and planning needs.



How Do We Make Tap Water Safe and Healthy?

Like the majority of water utilities in the U.S., we use a multi-step treatment process at all three of our drinking water treatment plants. This Water Treatment Process diagram provides a brief description of drinking water treatment in Philadelphia.



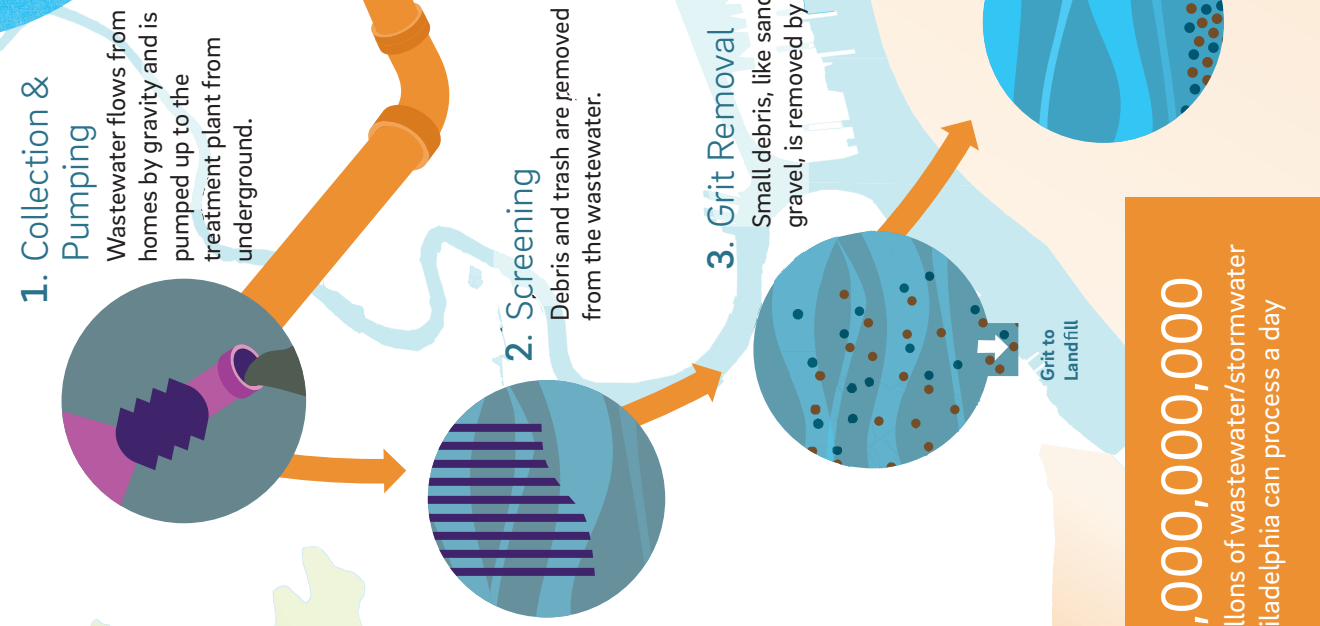
546,000,000
Gallons of water Philadelphia can treat and distribute every day

How Do We Process Wastewater?

After water is used, PWD is responsible for cleaning it before returning the water to the river. This is the Wastewater Treatment Process.

The average Philadelphia household uses about **125** gallons of water per day

- 3 Showers 61.6 gal.
- 1 Wash 25 gal.
- 1 Dishwasher Load 5 gal.
- 13 Faucet uses 20 gal.
- 22 Flushes 24.5 gal.
- 16 Glasses 1 gal.



1,000,000,000
Gallons of wastewater/stormwater Philadelphia can process a day

Monitoring Water Quality: What Do We Look For?

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. Tables on the following pages summarize monitoring results for parameters found at detectable levels. Please refer to the glossary of terms and abbreviations for more information.

Inorganic Chemicals:

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

Synthetic Organic Chemicals:

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

Picloram, Simazine, Toxaphene

Volatile Organic Chemicals:

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

Appealing to Your Senses

We also test for alkalinity, aluminum, chloride, color, hardness, iron, manganese, odor, pH, silver,

sodium, sulfate, surfactants, total dissolved solids and zinc to ensure that your water meets all water quality taste and odor guidelines. This is so your water looks, tastes and smells the way it should.

Temperature and Cloudiness

The temperature of the Schuylkill and Delaware Rivers varied seasonally in 2018 from approximately 34 degrees to 86 degrees Fahrenheit. The Philadelphia Water Department 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.

Parameters listed below 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)	25 ppm	44 ppm	39 ppm
Average (mg in 8 oz. glass of water)	6 mg	10 mg	9 mg
Range (ppm)	16 – 39 ppm	32 – 69 ppm	23 – 63 ppm
Range (mg in 8 oz. glass of water)	4 – 9 mg	8 – 16 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	125 ppm or 7 gpg	144 ppm or 8 gpg
Minimum	80 ppm or 5 gpg	93 ppm or 5 gpg	103 ppm or 6 gpg
Maximum	123 ppm or 7 gpg	196 ppm or 11 gpg	227 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 "medium" hard.

ALKALINITY IN TAP WATER			
	Baxter WTP One Year Average	Belmont WTP One Year Average	Queen Lane WTP One Year Average
Average	36 ppm	62 ppm	62 ppm
Minimum	28 ppm	49 ppm	32 ppm
Maximum	50 ppm	93 ppm	102 ppm

2018 Drinking Water Quality Results

Listed on pages 16–18 are our Drinking Water Quality Results for 2018. All results are better than the recommended federal levels designed to protect public health. By reporting these results in the tables below, we are meeting a requirement of the EPA. Please see the glossary on page 19 for definitions of abbreviations used in the tables. 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. For more information, please visit our website www.phila.gov/water, or call us at (215) 685-6300.

LEAD AND COPPER - Tested at Customers' Taps - Testing is done every 3 years. Most recent tests were done in 2017.						
	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 89	No	Corrosion of household plumbing; Erosion of natural deposits
Copper	90% of homes must test less than 1.3 ppm	1.3 ppm	0.23 ppm	1 out of 89	No	Corrosion of household plumbing; Erosion of natural deposits; Leaching from wood preservatives

CRYPTOSPORIDIUM - Tested at Source Water to Water Treatment Plants Prior to Treatment in 1/1/2017 – 3/31/2017				
Treatment Technique Requirement	Baxter WTP One Year Range	Belmont WTP One Year Range	Queen Lane WTP One Year Range	Source
Total Number of Samples Collected	6	6	6	Naturally present in the environment.
Number of <i>Cryptosporidium</i> Detected	15	2	6	
	0.250 count/L	0.033 count/L	0.100 count/L	

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.

BACTERIA IN TAP WATER - Tested throughout the Distribution System. Over 420 samples collected throughout the City every month.						
	Highest Level Allowed (EPA's MCL)	Ideal Goal (EPA's MCLG)	Highest Monthly % or Yearly Total of Positive Samples	Monthly Range (% or #)	Violation	Source
Total Coliform	5% of monthly samples are positive*	0	0.35%	0 – 0.35%	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 Level 1 and Level 2 assessments required under Revised Total Coliform Rule in 2018.*

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	0.3 ppb	0 – 0.3 ppb	No	Discharge from petroleum refineries; fire retardants; ceramics; electronics; solder
Barium	2 ppm	2 ppm	0.056 ppm	0.029 – 0.056 ppm	No	Discharges of drilling wastes; Discharge from metals refineries; Erosion of natural deposits
Chromium	100 ppb	100 ppb	1 ppb	0 – 1 ppb	No	Discharge from steel and pulp mills; Erosion of natural deposits
Fluoride	2 ppm*	2 ppm*	0.72 ppm	0.66 – 0.72 ppm	No	Erosion of natural deposits; Water additive which promotes strong teeth; Discharge from fertilizer and aluminum factories
Nitrate	10 ppm	10 ppm	5.04 ppm	0.80 – 5.04 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.*

2018 Drinking Water Quality Results (Continued)

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	2.13 ppm	2.13 – 3.44 ppm	No	Water additive used to control microbes
Belmont WTP		1.53 ppm	1.53 – 2.79 ppm		
Queen Lane WTP		1.85 ppm	1.85 – 3.14 ppm		

TOTAL CHLORINE RESIDUAL - Tested throughout the Distribution System. Over 420 samples collected throughout the City each month.

Sample Location	Maximum Disinfectant Residual Level Allowed	Highest Monthly Average	Monthly Average Range	Violation	Source
Distribution System	4.0 ppm	2.43 ppm	1.55 – 2.43 ppm	No	Water additive used to control microbes

TOTAL ORGANIC CARBON - Tested at Water Treatment Plants.

Treatment Technique Requirement	Baxter WTP One Year Range	Belmont WTP One Year Range	Queen Lane WTP One Year Range	Violation	Source
Percent of Removal Required	25 – 45%	25 – 45%	25 – 45%	n/a	Naturally present in the environment
Percent of Removal Achieved	0 – 79%	0 – 77%	24 – 74%	No	
Number of Quarters out of Compliance	0	0	0		

*PWD achieved TOC removal requirements in all quarters of 2018 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: 95% of samples must be at or below 0.300 NTU	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	0.094 NTU	0.085 NTU	0.077 NTU	No	

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 2018, 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 4/9/2018 Filter #4 at the Queen Lane Plant was found in service without turbidity monitoring for a period of 49 hours and 42 minutes. The monitoring interruption was as 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 Wednesday April 11, 2018. During this single filter monitoring interruption, the combination flow from the plant filters at Queen Lane 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 BY-PRODUCTS

	Highest Level Allowed (EPA's MCL) - One Year Average	Maximum Locational Running Annual Average 2018*	System Wide Range of Results	Violation	Source
Total Trihalomethanes (TTHMs)	80 ppb	49 ppb	12 – 145 ppb	No	By-product of drinking water disinfection
Total Haloacetic Acids (THAAs)	60 ppb	44 ppb	10 – 93 ppb		

*Monitoring is conducted at 16 locations throughout the City of Philadelphia. This result is the highest locational running annual average in 2018.

Glossary

Some of the words we use in the following charts may not be familiar to you. Here are definitions of technical and other terms.

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.

mg/L (Milligrams per liter): One milligram per liter is equal to one part per million.

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.

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

2018 Look Back: Green City, Clean Waters Entering Year 8

This June will mark the start of *Green City, Clean Waters'* eighth year.

And as we approach that milestone, we're recognizing some of the partnerships—big and small—that help us connect people to that infrastructure.

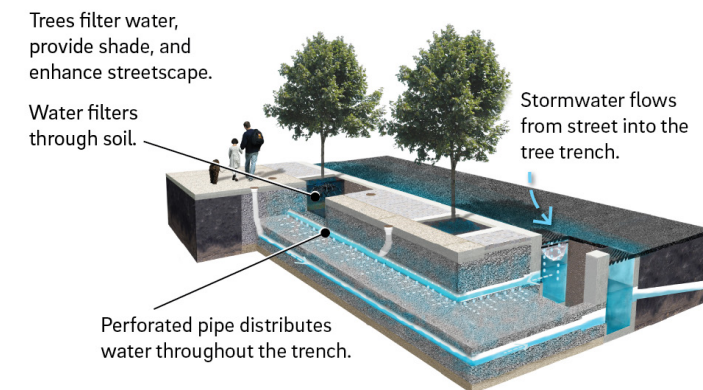
In our 2018 report summarizing progress, we proudly noted two nonprofits who officially joined our **Soak It Up Adoption** team, a *Green City, Clean Waters* cornerstone: the **Make the World Better Foundation** and **Centennial Parkside Community Development Corp.**

To understand why our growing list of partners means so much to us, it helps to know what makes *Green City, Clean Waters* special.

The *Green City, Clean Waters* plan—a primarily “green-first” approach to stormwater runoff and sewer overflow problem vexing more than 800 U.S. communities—was designed to fulfill our responsibility to protect Philadelphia’s rivers and streams in a way that has the biggest positive impact on our neighborhoods.

Under *Green City, Clean Waters*, we’re reducing the volume of stormwater that flows into our sewers by building **green stormwater infrastructure**, or what we often refer to as “green tools”—systems like rain gardens and specialized street trees connected to underground runoff storage.

HOW STREET TREES WORK



We’ve installed **thousands** of individual green tools in our neighborhoods. Along with other improvements, those systems help us keep billions of gallons of polluted water out of local rivers and creeks.

Each green tool is part of the neighborhood it serves, playing a visible role as above-ground infrastructure and adding to healthier, more vibrant urban landscapes.

SOAK IT UP ADOPTION

Each one of those green tools also needs to be cared for, and that is where Soak It Up Adoption (SIUA) partners come in.

Using small SIUA grants for supplies and materials, local groups organize cleanups to remove litter from green infrastructure sites. If something is damaged, plants are dying, or a green tool doesn’t seem to be working right, Soak It Up teams report back to us.

Adoption partners collected over **66,500 pounds of trash last year**—about what it’d take an average person 25 years to generate!—and helped nearly **1,700 neighbors** learn more about green infrastructure.



As of early 2019, 17 diverse organizations have Soak it Up Adoption teams.

Make the World Better, founded by former Eagles star Connor Barwin, is a unique addition: they raised hundreds of thousands of dollars for two *Green City, Clean Waters*-focused makeovers at Parks and Recreation sites before joining SIUA.

Most of our groups are more like **Centennial Parkside CDC**—smaller, localized nonprofits serving their communities.

With *Green City, Clean Waters* always expanding, organizations of all sizes will be key to helping us connect PWD customers with the green investments all around them.

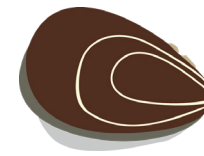
Are you part of a group that might want to join Soak It Up?

Learn more at: water.phila.gov/adoption

Fairmount Water Works Interpretive Center

Housed in one of Philadelphia’s most recognizable landmarks, the Fairmount Water Works Interpretive Center (FWWIC) opened in 2003 and is dedicated to fostering stewardship of shared water resources by encouraging informed decisions about the use of land and water. What makes the Center unique is its location at the river’s edge and in the center of the nation’s fifth largest city.

FWWIC traces the history of the Schuylkill River and illustrates its complicated relationship with human civilization. Visitors enjoy interactive, user-friendly exhibits and programs about water in our world, and a groundbreaking freshwater mussel hatchery.



Programs for all ages include architectural walking and river tours, hands-on science programs for families, and school and summer programs for pre-K to college age students.

FWWIC has attracted approximately 50,000 visitors per year during the last two years consisting of school children, adult groups, professional groups, and tourists, in addition to the general public.

FWWIC’s work is elevated by valuable strategic partnerships with entities such as the School District of Philadelphia, the Partnership for the Delaware Estuary, the University of Pennsylvania Institute for Environmental Studies, and the Academy of Natural Sciences of Drexel University.

Planning grants with the William Penn Foundation and the Pew Center for Arts & Heritage are in progress, and a newly-reconstituted Fund for the Water Works board is providing guidance and support for the next phase of innovation and expansion, including more than 11,000 square feet of underutilized space in the historic landmark.



Clean Water Begins and Ends With You!

Don't Pollute!

Water that enters our storm drains often flows directly to our local streams and rivers. Do your part to help protect our waterways:

- Always recycle or dispose of household hazardous wastes properly.
- Don't pour motor oil, antifreeze or other toxic materials down storm drains, which connect to the city's sewer system.
- Don't flush paint thinners, insect sprays, herbicides and other harmful chemicals down the toilet or put them down the sink.



Contact the Streets Department to get a schedule of their Household Hazardous Materials Drop-off Events where you can dispose of these materials safely without polluting your drinking water supply.

We welcome your ideas and opinions



We participate in nearly 200 public and community events a year, including presentations made at schools, on-

going educational programs and other environmental celebrations. We offer ways for individuals, families, students, seniors, community groups and others to participate in learning about protecting water.

Contact us

Philadelphia Water Department
1101 Market Street, 6th Floor
Philadelphia, PA 19107-2994

Customer Contact Center:
215.685.6300
waterinfo@phila.gov

Important Telephone Numbers & Websites

Delaware River and Schuylkill River Source Water Assessments
<https://phillyh2o.info/watersheds-plans-reports>

Fairmount Water Works
215.685.0723
www.fairmountwaterworks.org

Philadelphia Streets Department
215.686.5560
www.philadelphiastreet.com

Philadelphia Water Department
215.685.6300
www.phila.gov/water

RiverCast
www.phillyrivercast.org

Schuylkill Action Network
800.445.4935
www.schuylkillwaters.org

U.S Environmental Protection Agency Safe Drinking Water Hotline
800.426.4791
www.epa.gov/water

Get Involved

If you would like to help protect your water supply or watershed, please call the Philadelphia Water Department at 215.685.6300, visit our website at www.phila.gov/water, or see Table 2 on page 23.

Situation	Who to Call	Phone
Dead Fish	Fish & Boat Commission PADEP	717.626.0228 484.250.5900
Illegal Dumping & Related Pollution Activities	PADEP PWD	484.250.5900 215.685.6300
Sewage Spills	PADEP PWD	484.250.5900 215.685.6300
Oil & Gas Spills/Accidents	PADEP PWD	484.250.5900 215.685.6300

Organization	Activity Type	Phone	Website
Environmental Alliance for Senior Involvement	A, C, E, P, T	203.779.0024	www.easi.org
Friends of Fox Chase Farms	A, C, E, P	215.728.7900	www.foxchasefarm.org
Friends of the Manayunk Canal	A, C, E, P, T	N/A	www.manayunkcanal.org
Friends of Pennypack Park	A, C, E, P, T	215.934.PARK (7875)	www.friendsofpennypackpark.org
Friends of the Wissahickon	A, C, E, P, T	215.247.0417	www.fow.org
Lower Merion Conservancy	A, C, E, P, T	610.645.9030	www.lmconservancy.org
Partnership for the Delaware Estuary	A, B, C, E, P, S, T	800.445.4935	www.delawareestuary.org
Philadelphia Anglers Club	A, C, E, F	N/A	www.philadelphiaanglersclub.com
Philadelphia Canoe Club	F, R	215.487.9674	www.philacanoec.org
Schuylkill Action Network	A, B, C, E, L, P, T	302.655.4990 x121	www.schuylkillwaters.org
Schuylkill Banks	B, E, L	N/A	www.schuylkillbanks.org
Schuylkill Center for Environmental Education	A, B, C, E, P, T	215.482.7300	www.schuylkillcenter.org
Senior Environment Corps	A, C, E, P, T	215.848.7722	www.centerinthepark.org
Tookany/Tacony-Frankford (TTF) Watershed Partnership	A, C, E, P, T	215.744.1853	www.ttfwatershed.org
U.S. Water Alliance	A, B, E	415.921.9010	www.uswateralliance.org
Wissahickon Restoration Volunteers	A, C, E, P, T	215.798.0044	www.wissahickonrestorationvolunteers.org
Wissahickon Valley Watershed Association	A, C, E, P, T	215.646.8866	www.wvwa.org

Activity Types

- A:** Environmental activism
- B:** Business-related protection and educational activities
- C:** Clean-up of trash and litter
- E:** Environmental education
- F:** Fishing or fish recreation activities
- L:** Land conservation and management
- P:** Planting trees and streambank repair/protection
- R:** Rowing, canoeing and related boating activities
- S:** Storm drain marking
- T:** Water quality testing



PHILADELPHIA
WATER
— DEPARTMENT —

Philadelphia Water Department

1101 Market Street

Philadelphia, PA 19107

215.685.6300

www.phila.gov/water