

# Lead and Drinking Water

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May 2016



**PHILADELPHIA**  
**WATER**





# Philadelphia's Drinking Water Sources and Delivery System: Top Quality & Lead Free

1. We have great source water: Delaware & Schuylkill Rivers
2. We treat our water to protect customers with lead pipes
3. We are empowering customers with lead pipes to learn more + remove lead

# Philadelphia Water Takes Lead Seriously

- Our mission of providing top-quality water is a sacred bond connecting us with our 1.5 million customers, **and all of our treatment and testing is done to protect them.**
- Lead is harmful to everyone, and we believe **the best way of reducing the risk of exposure is to remove lead sources whenever possible**
- Because we cannot control plumbing in every home, **we use the best science possible to constantly treat and test drinking water in a way that effectively reduces exposure risks for those with lead pipes**



**For any questions  
about lead in  
your water:**

**Call our hotline  
at 215.685.6300**

Our staff will provide information on water testing, safety tips and replacement options.

# Why Is Philly Different from Flint

## PHILADELPHIA, PA

### Philadelphia has:

- ✓ An award winning source water program dedicated to protecting and preserving our established drinking water sources—the Delaware and Schuylkill Rivers
- ✓ **Maintained for decades and continues to implement a robust corrosion-control treatment to minimize lead levels in water for homes with lead pipes**
- ✓ Always made treatment decisions based on latest science and best practices
- ✓ Treatment facilities that have been operating for over a century, consistently providing top-quality drinking water. **Operated by people who drink Philadelphia water and live in Philadelphia**
- ✓ Conducted – and will continue to manage - a sampling program at customer taps in accordance with the requirements of the Environmental Protection Agency’s Lead and Copper Rule since 1992

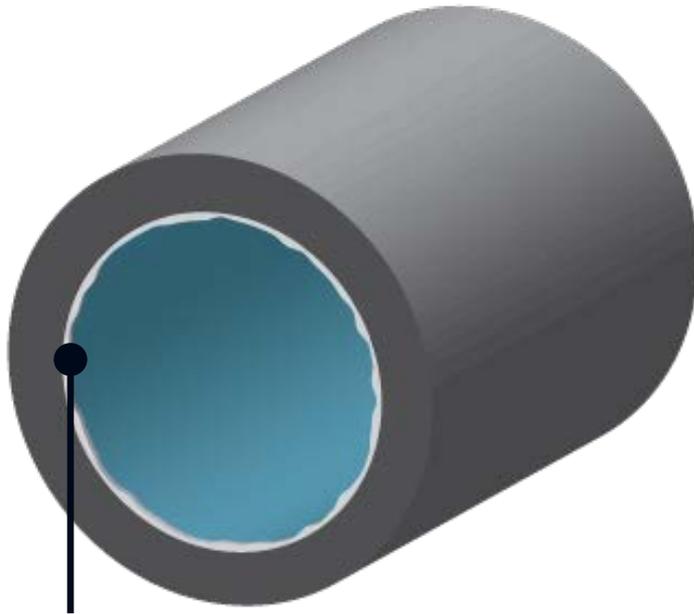
## FLINT, MI

### Flint:

- Switched drinking water source to the Flint River, **which had known problems and changed the chemistry of the water** they were delivering to homes
- **Did not perform any corrosion-control treatment** to minimize lead levels in homes with lead pipes
- Dismissed known science and best practices by not conducting a technical evaluation to determine the impacts of source water changes on water quality
- Did not comply with EPA’s Lead and Copper sampling program/reporting requirements

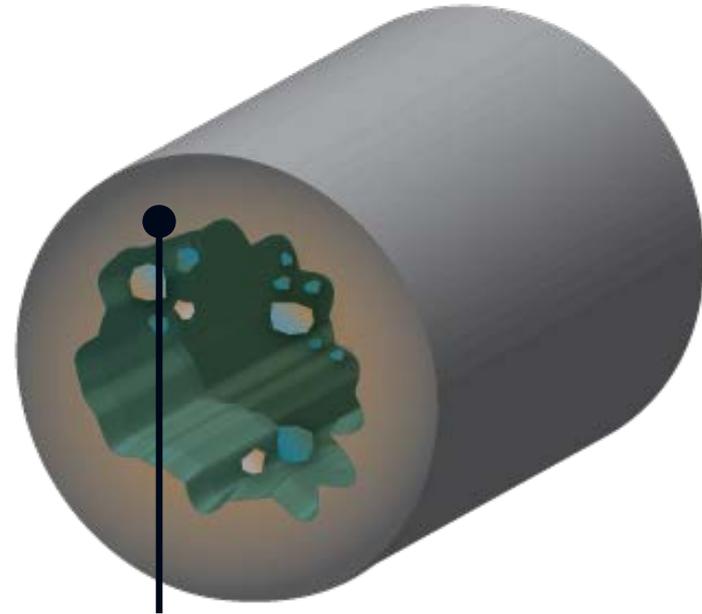
# Corrosion Control

## PHILADELPHIA



A protective layer of zinc orthophosphate forms to prevent pipe corrosion.

## FLINT



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

HOW DO WE MAKE WATER DRINKABLE?

# The Rivers



## Step 1 of 8

Philadelphia's tap water comes from the Delaware and Schuylkill Rivers.

HOW DO WE MAKE WATER DRINKABLE?

# Gravity Settling



## Step 2 of 8

River water is pumped to reservoirs to allow sediment to settle.

HOW DO WE MAKE WATER DRINKABLE?

# Disinfection

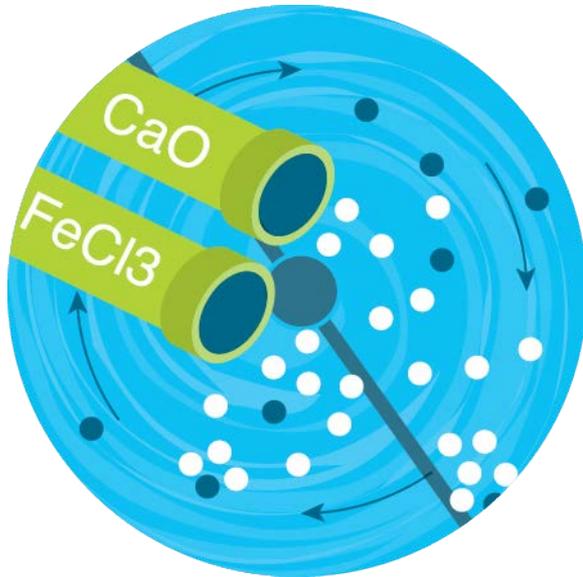


## Step 3 of 8

Sodium Hypochlorite is added to kill disease-causing organisms.

HOW DO WE MAKE WATER DRINKABLE?

# Coagulation & Flocculation



## Step 4 of 8

Chemicals are added to make fine suspended particles clump together. Gentle mixing of the water encourages this process. The clumps of particles are called "floc."

HOW DO WE MAKE WATER DRINKABLE?

# Gravity Settling



## Step 5 of 8

The newly formed "floc" settles by gravity and is removed from the bottom of the settling tank

HOW DO WE MAKE WATER DRINKABLE?

# Disinfection

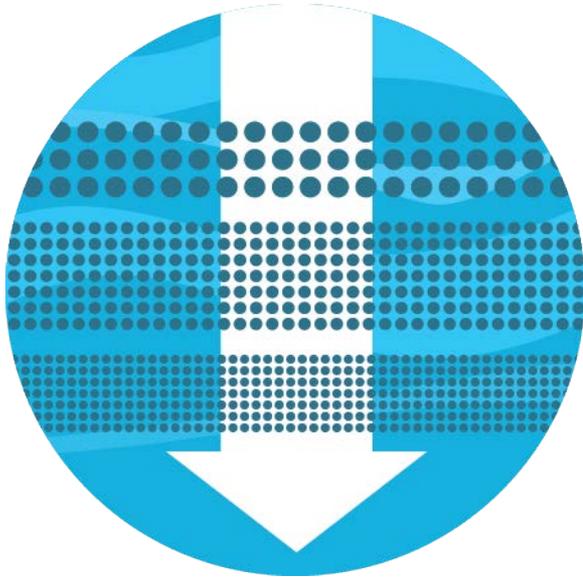


## Step 6 of 8

Sodium Hypochlorite is added a second time to kill any remaining disease-causing organisms.

HOW DO WE MAKE WATER DRINKABLE?

# Filtration

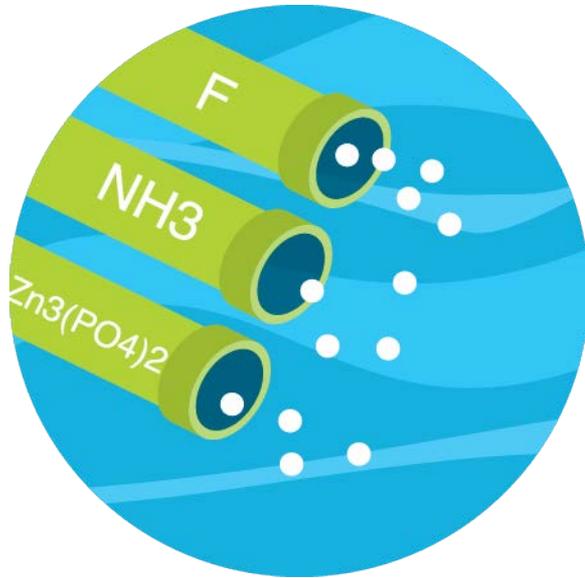


## Step 7 of 8

Water flows through filters which remove even more microscopic particles.

HOW DO WE MAKE WATER DRINKABLE?

# Final Treatment



## Step 8 of 8

Fluoride is added to help prevent tooth decay, Zinc Orthophosphate is added to minimize pipe corrosion and Ammonia is added to keep the disinfectant in the water and reduce the chlorine taste and odor.

# Philadelphia's Lead Sampling Program:

- 100% compliant with PADEP and EPA regulations
- We have been testing water from taps at high risk homes in accordance with Lead and Copper Rule for decades
- Philadelphia Water scientists are national leaders in lead sampling and treatment and work with the EPA to develop sampling regulations and best practices
- If we find a home with elevated levels in water, we work with customer to address plumbing issue



# Meeting the Lead Standard



Philadelphia's water quality continues to meet all State and Federal standards. The Philadelphia Water Department has once again met the lead standard in its most current round of sampling. To meet the lead standard, more than 90 percent of the sampled homes must have lead levels under the action level of 15 parts per billion\*\* (ppb).

Numbers and percentages of homes tested	2014 June to September	2011 June to September	2008 June to September	2005 June to September	2002 June to September	1999 June to September	1998 June to September	1997 July to December	1997 January to June	1992 <sup>†</sup> July to December	1992 <sup>†</sup> January to June
Homes Tested*	134	92	97	107	63	59	78	108	118	143	162
Homes with lead levels below the action level of 15 ppb**	127 homes (94.8%)	90 homes (97.8%)	94 homes (96.9%)	98 homes (91.6%)	57 homes (90.5%)	55 homes (93.2%)	73 homes (93.6%)	105 homes (97.2%)	108 homes (91.5%)	129 homes (90.2%)	137 homes (84.6%)
Homes with lead levels above the action level of 15 ppb**	7 homes (5.2%)	2 homes (2.2%)	3 homes (3.1%)	9 homes (8.4%)	6 homes (9.5%)	4 homes (6.8%)	5 homes (6.4%)	3 homes (2.8%)	10 homes (8.5%)	14 homes (9.8%)	25 homes (15.4%)
90% of tested homes <sup>‡</sup> were less than:	5 ppb	6 ppb	6 ppb	9 ppb	13 ppb	9 ppb	10 ppb	11 ppb	14 ppb	15 ppb	21 ppb

\* According to the Lead and Copper Rule, Philadelphia Water was required to test in 100 high-risk homes in 1992–1997 and in 50 high-risk homes in 1998–2014. Philadelphia Water tested for lead in more homes than required under the Lead and Copper Rule

\*\* Parts per Billion. Just how much is one part per billion? The world population is about 7 billion people. The next time you walk down the street, say "Hi" to seven people. That's one ppb.

† The 1992 results represent conditions before PW began optimized corrosion control treatment.

‡ EPA's action level for representative sampling of customers homes: 90% of homes must test less than 15 ppb

# No. 1 Lead Exposure for Kids: Old Lead Paint

## Health Experts:

Lead found in paint made before 1978, dust and dirt are the main sources of lead exposure in Phila. and other cities with lead issues

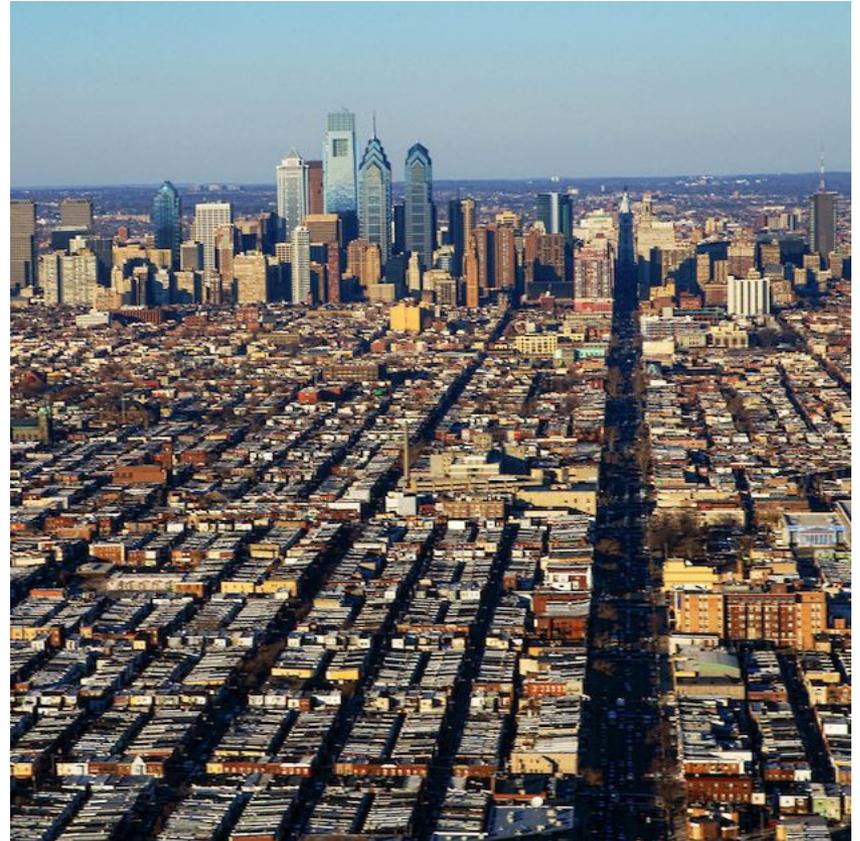
Phila. Dept. of Public Health works to find lead sources and educate families about toxic paint and dust, the most common source by far when high blood levels are found



# Phila. Homes Most Likely to Have Lead Pipes

## How many homes have lead service lines in Philadelphia?

- We estimate about 10% of homes have service lines made from lead
- Usually found in **un-renovated, pre-1950 homes**
- Lead can also be found in older brass fixtures and valves and in old solder, where pipes are joined.
- **Most Service Lines:** Homeowners' pipes are usually copper, galvanized steel or plastic.



# Where Can Lead be Found in Home Plumbing?

The City's water main system is lead free. However, some homes may have a **water service line**, (running from the water main to homes) that is made of lead.

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



## Water Service Line:

Homeowners' pipes may be made of lead, copper, galvanized steel or plastic.

## Possible Pipe Materials



Lead



Copper



Galvanized Steel



Plastic

# Checking your Water Service Line for Lead

The City's water main system is lead free. However, the water service line running from the water main to your home may be made of lead.

1. Find the water meter in your basement. Look at the pipe that comes through the outside wall of your home and connects to your meter.
2. Carefully scratch the pipe (like you would a lottery ticket) with a key or a coin. Do not use a knife or other sharp tool. Take care not to make a hole in the pipe. If the scratch turns a shiny silver color, it could be lead or steel.

**NOTE:** If pipe is painted, use sandpaper to expose the metal first.

3. Place the magnet on the pipe. If a magnet sticks, it is a steel pipe.

## Other ways you can check for lead:

- **Lead test kits can be purchased at your local hardware or home improvement store.** These kits are used to test what the pipe is made from—not the water inside. Look for an EPA recognized kit.
- **A licensed and insured plumber can inspect your pipes and other plumbing for lead.** Replacing an older brass faucet or valve may be a simple way to reduce the lead.



## You will need:

- Key or a coin
- Strong refrigerator magnet

# Checking your Water Service Line for Lead



**Copper Pipe with Pennies**



**Lead Pipe Test – Red Dot Appears**



**Lead Pipe Test – Screwdriver Scratch**

# Daily cleaning tips to rinse lead from your home's drinking water lines

## IMPORTANT HEALTH INFORMATION FOR HOMEOWNERS WITH LEAD PLUMBING:



### Instructions for Daily Rinsing

Run cold water from your tap for at least three minutes. This will give you fresh water from the City water main that is safe for drinking, cooking, making baby formula, feeding your pets, making ice, or watering vegetable gardens.

**TIP:** You can also bring in fresh water from the City water main by taking a shower, washing dishes, using the clothes washer, or flushing the toilets first.

Best Time of Day?	How often?	For how long?	When to stop?
<ul style="list-style-type: none"><li>• First thing in the morning</li><li>• After you come home from work, if no one has used the water all day</li></ul>	<ul style="list-style-type: none"><li>• Before using water for any cooking or drinking</li><li>• If no one has used the water for six hours or more</li></ul>	At least 3 – 5 minutes	This ongoing maintenance is good to do regularly, but especially important in any homes that still have lead pipes

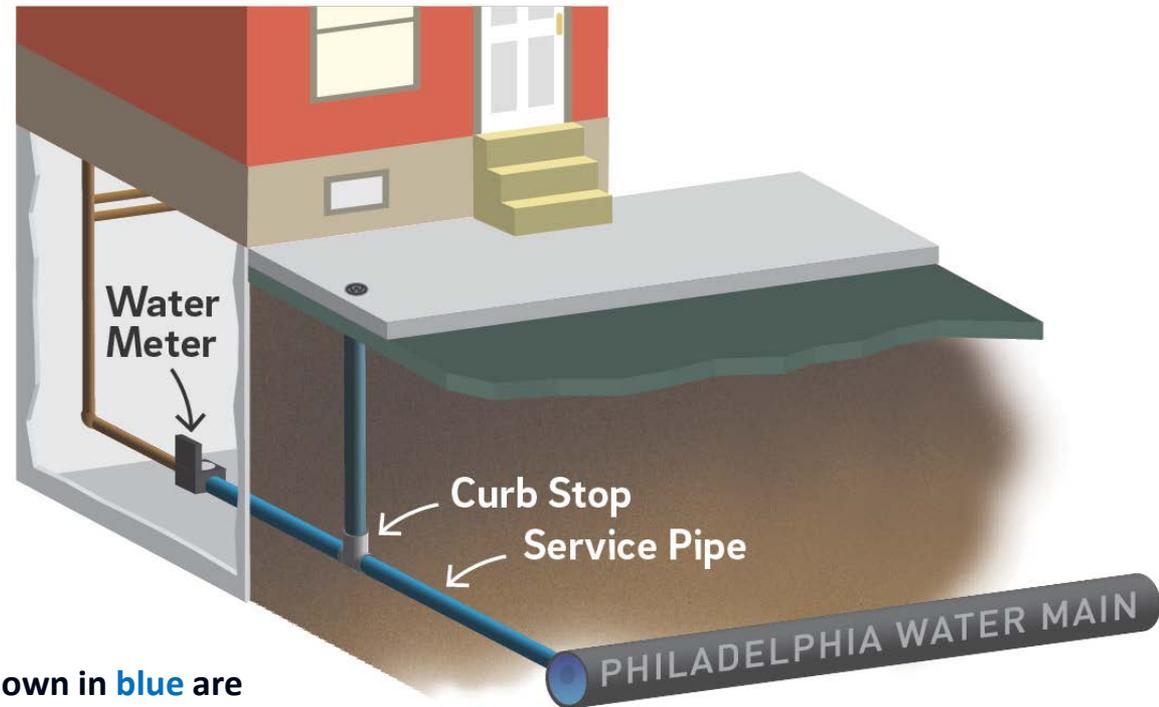
# New Programs in 2016-17 to Empower Customers

- Improving education about risks + getting more people to take part in citywide, in-home water sampling program
- Developing a financial incentive for homeowners with lead service lines and/or lead solder who sign up for in-home sampling
- Building an address-based database to inventory lead service lines as they are found
- **Free replacement of full lead service lines** as water mains are replaced: customer must give permission!
- Developing a zero-interest loan program **making it more affordable for customers to replace lead service lines** on blocks where main replacement is not planned
- Creating “one-stop” page at [www.Phila.gov/water/lead](http://www.Phila.gov/water/lead) for customers with lead pipes or those concerned about lead

# Replacement of Service Pipe During Water Main Construction

## Drinking Water Pipes

Customer maintains all pipes inside and outside their home, up to the water main.



Pipes shown in **blue** are maintained by homeowner, but will be replaced by Philadelphia Water at no charge

# Volunteers Needed!



**We are sampling water from homes with lead plumbing in 2017.**

**Find out if your home is qualified:**

*Sign up for more information after the presentation, call 215.685.6300, or visit [www.phila.gov/water/lead](http://www.phila.gov/water/lead)*

# Questions?

May 2016



**PHILADELPHIA**  
**WATER**  
EST. 1801