Kelly Williams, Commissioner
Department of Public Works

A Word From the Commissioner

The City of Wilmington is committed to providing our consumers with clean and reliable drinking water. We understand that this is a stressful time for our community and for the households we serve due to the COVID-19 pandemic. Please know that we are here for you and are committed to taking all steps necessary to maintain safe, reliable water service. According to the U.S. Centers for Disease Control and Prevention (CDC): "Conventional water treatment methods that use filtration and disinfection, such as those in most municipal drinking water systems, should remove or inactivate the virus that causes COVID-19." The World Health Organization adds that the "presence of the COVID-19 virus has not been detected in drinking-water supplies and based on current evidence the risk to water supplies is low." You can learn more about how we treat our drinking water in the article "From Creek to Tap" located on **pages 10-11** of this report.

The U.S. Environmental Protection Agency (EPA) requires all water utilities to produce and distribute water quality reports on an annual basis. This report includes water quality information for the 2019 calendar year. In 2019, our Water Quality Laboratory conducted more than 5,000 samples to demonstrate that our water exceeds Safe Drinking Water Standards. The City of Wilmington is also a member of the Partnership for Safe Drinking Water, a voluntary program that commits the City Water Treatment Plants to adopting treatment techniques that improve performance above and beyond proposed regulatory levels.

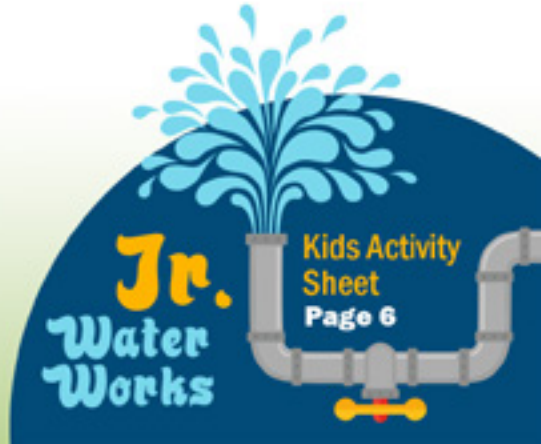
We are proud to bring you this year's Water Quality Report. I hope you find it helpful and informative. If you have questions don't hesitate to call or e-mail the appropriate personnel listed inside the report.

CITY OF WILMINGTON
WATER QUALITY REPORT 2019

Published by the City of Wilmington Department of Public Works Water Division

To ensure that tap water is safe to drink, the Environmental Protection Agency (EPA) prescribes regulations which limit the amount of certain contaminants in public water systems. The EPA requires the City of Wilmington, and all other water suppliers in the US, to report annually on specific details about testing for a number of contaminants in our water. Chemical and biological monitoring provide the data that helps suppliers, such as the City of Wilmington, make key water quality management decisions to ensure freshness and purity. This report, published in the spring of 2020, includes water quality information for the 2019 calendar year.

(Full report continues on page 2)



2019 WATER QUALITY REPORT

Sources Of Drinking Water

The sources of drinking water (both tap water and bottled water) include rivers, lakes, streams, ponds, reservoirs, springs, and wells. As water travels over the surface of the land or through the ground, it dissolves naturally-occurring minerals and, in some cases, radioactive material, and can pick up substances resulting from the presence of animals or from human activity.

Drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contaminants. The presence of contaminants does not necessarily indicate that water poses a health risk. More information about contaminants and potential health effects can be obtained by calling the EPA's Safe Drinking Water Hotline at **(800) 426-4791**. Contaminants that may be present in source water include:

- Microbial contaminants, such as viruses and bacteria, which may come from sewage treatment plants, septic systems, agricultural livestock operations, and wildlife.
- Inorganic contaminants, such as salts and metals, which can be naturally-occurring or result from urban storm water runoff, industrial or domestic wastewater discharges, oil and gas production, mining, or farming.
- Pesticides and herbicides, which may come from a variety of sources such as agriculture, urban storm water runoff, and residential uses.
- Organic chemical contaminants, including synthetic and volatile organic chemicals, which are by-products of industrial processes and petroleum production, and can also come from gas stations, urban storm water runoff, and septic systems.
- Radioactive contaminants, which can be naturally-occurring or be the result of oil and gas production and mining activities.

During disinfection, certain byproducts form as a result of chemical reactions between chlorine and naturally occurring organic matter in water. These are carefully controlled to keep disinfection effective and byproduct levels low.

If present, elevated levels of lead can cause serious health problems, especially for pregnant women and young children. For more information on Lead in drinking water see **pages 6-9** of this report.

In order to ensure that tap water is safe to drink, EPA prescribes regulations which limit the amount of certain contaminants in water provided by public water systems. The Food and Drug Administration (FDA) regulations establish limits for contaminants in bottled water which must provide the same protection for public health. 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 or 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. EPA/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)**.

The Division of Public Health, in conjunction with the Department of Natural Resources and Environmental Control (DNREC), has conducted source water assessments for nearly all community water systems in the state. The assessment may also be viewed at this website: **delawaresourcewater.org**.

Table 1: Water Quality Results - Detected Primary[1] Parameters at ENTRY POINTS to Distribution System

				Brandywine Filter Plant			Porter Filter Plant			
Contaminant	**Units**	**MCLG[2]**	**MCL[3] or TT[4][5]**	**Range of Levels Detected**	**Highest Detected Level**	**Violation**	**Range of Levels Detected**	**Highest Detected Level**	**Violation**	**Likely Source of Contamination**
Microbiological Indicators [6]										
Turbidity - Percentile	% of samples below 0.3	N/A	95% of monthly samples must be less than 0.3.	99 - 100	100	No	100 - 100	100	No	Soil runoff
Turbidity - Values	NTU		No sample must ever exceed 1.0.	0.025 - 0.146	0.146	No	0.032 - 0.172	0.172	No	Soil runoff
Inorganic Chemicals (Metals and Nutrients)										
Barium	ppm	2	2	0.0348 - 0.0348	0.0348	No[8]	0.0414 - 0.0414	0.0414	No[9]	Discharge of drilling wastes; Discharge from metal refineries; Erosion of natural deposits
Nickel	ppb	N/A	100	1.5 - 1.5	1.5	No[8]	2.0 - 2.0	2.0	No[9]	Discharge from industrial sources; erosion of natural deposits
Chromium	ppb	100	100	1.0 - 1.0	1.0	No[8]	1.9 - 1.9	1.9	No[9]	Discharge from steel and pulp mills; Erosion of national deposits
Fluoride	ppm	2	Delaware State MCL: 2 ppm[7]	0.02 - 1.20	1.20	No	0.19 - 1.18	1.18	No	Erosion of natural deposits; Water additive which promotes strong teeth; Discharge from fertilizer and aluminum factories
Nitrate	ppm	10	10	0.5 - 3.7	3.7	No	0.5 - 3.6	3.6	No	Runoff from fertilizer use; Leaching from septic tanks; Sewage; Erosion of natural deposits
Nitrite	ppm	1	1	0.001 - 0.011	0.011	No	0.002 - 0.008	0.008	No	Runoff from fertilizer use; Leaching from septic tanks; Sewage; Erosion of natural deposits
Disinfectants										
Chlorine	ppm	N/A	At least 0.3 residual entering Distribution System	0.67 - 3.0	3.0	No	1.36 - 3.1	3.1	No	Water additive used to control microbes
Disinfection Byproduct Precursors										
Total Organic Carbon	ppm	N/A		0.52 - 2.55	2.55	N/A	0.58 - 1.62	1.62	N/A	Naturally present in the environment. Total organic carbon (TOC) has no health effects. However TOC provides a medium for the formation of disinfection byproducts.
Total Organic Carbon	% Removal (Raw to Treated)	N/A	Must exceed 35% (25% in certain instances)	17% - 80%	80%	No[10]	31% - 67%	67%	No[10]	
Total Organic Carbon	Compliance Ratio (rolling annual avg)	N/A	Ratio of Actual to Required Removal - must be greater than or equal to 1	1.11 - 1.21	1.21	No	1.15 - 1.38	1.38	No	
Synthetic Organic Chemicals (pesticides, defoliants, fuel additives) - (2016 unless noted)										
Dalapon	ug/L	200	200	-	-	-	-	-	-	Runoff from herbicide on rights of way
Atrazine	ug/L	3	3	-	-	-	-	-	-	Runoff from herbicide on rights of way
Di (2-ethylhexyl) phthalate	ug/L	0	6	-	-	-	-	-	-	Discharge from plastic production
Hexachlorocyclopentadiene	ug/L	50	50	-	-	-	-	-	-	Runoff from herbicide on rights of way
Simazine	ug/L	4	4	-	-	-	-	-	-	Runoff from herbicide on rights of way

Table 2: Water Quality Results - Detected Primary[1] Parameters in Distribution System

Contaminant	Units	MCLG[2]	MCL[3] or TT[4][5]	Range of Levels Detected	Highest Detected Level	Violation	Likely Source of Contamination
Microbiological Indicators							
Total Coliform	% of samples positive each month	0%	5.0%	0.0 - 1.0	1.0	No	Bacteria that are naturally present in the environment. Used as an indicator of the presence of other potentially harmful bacteria.
Disinfectants							
Chlorine	ppm	MRDLG = 4.0[11]	MRDL = 4.0[12]	0.02 - 2.1[13]	2.1[13]	No	Water additive used to control microbes.
Disinfection Byproducts							
Total Trihalomethanes	ppb	No goal for the total	80	9 - 71[14]	56[15]	No	Byproduct of drinking water disinfection. Forms due to reaction of chlorine with total organic carbon. **Health effects:** Some people who drink water containing TTHMs in excess of the MCL over many years could experience problems with their liver, kidneys, or central nervous systems, and may have an increased risk of getting cancer.
Haloacetic Acids	ppb	No goal for the total	60	2 - 39[14]	36[15]	No	Byproduct of drinking water disinfection. Forms due to reaction of chlorine with total organic carbon.

Table 4: Radioactive Contaminants (2016 unless noted)

Radioactive Contaminants	Units	MCLG	MCL	Highest Detected Level	Range of Levels Detected	Violation	Likely Source of Contamination
Beta/photon emitters (2011)	pCi/L	0	50[17]	3.5	3.5 - 3.5	No	Decay of natural and man-made deposits.
Gross Alpha Particle Activity	pCi/L	0	3	0.44	0.44 - 0.44	No	Decay of natural and man-made deposits.
Radium-226	pCi/L	0	1	0.18	0.18 - 0.18	No	Decay of natural and man-made deposits.
Radium-228	pCi/L	0	1	0.31	0.31 - 0.31	No	Decay of natural and man-made deposits.

Table 3: Detection of Unregulated Contaminants[16]

Chemical or Constituent	Units	Average	Range of Levels Detected	Likely Source of Contamination
Perfluorobutanesulfonic acid (PFBS)	ppt	2.3	2.2 - 2.4	Industrial discharges
Perfluoroheptanoic acid (PFHpA)	ppt	4.9	3.8 - 6	Industrial discharges
Perfluorohexanoic acid (PFHxA)	ppt	6.85	5.5 - 8.2	Industrial discharges
Perfluorononanoic acid (PFNA)	ppt	2.85	2.2 - 3.5	Industrial discharges
Perfluorooctanesulfonic acid (PFOS)	ppt	3.35	3.3 - 3.4	Industrial discharges
Perfluorooctanoic acid (PFOA)	ppt	8.15	7.1 - 9.2	Industrial discharges
Bromochloroacetic acid	ppb	4.01	0.82 - 6.1	Chlorination disinfection by-product
Bromodichloroacetic acid	ppb	3.62	1.3 - 5.1	Chlorination disinfection by-product
Chlorodibromoacetic acid	ppb	0.68	0.33 - 1.0	Chlorination disinfection by-product
Dibromoacetic acid	ppb	0.80	<0.30 -1.1	Chlorination disinfection by-product
Dichloroacetic acid	ppb	14.4	3 - 25.8	Chlorination disinfection by-product
Monobromoacetic acid	ppb	0.15	<0.30 - 0.57	Chlorination disinfection by-product
Monochloroacetic acid	ppb	6.27	<2.0 - 34.5	Chlorination disinfection by-product
Trichloroacetic acid	ppb	13.3	7.6 - 22.4	Chlorination disinfection by-product

For more information on Per-and Polyfluroalkyl-Substances visit
drinktap.org/Water-Info/Whats-in-My-Water/Per-and-Polyfluoroalkyl-Substances
For more information on Unregulated Contaminants visit
drinktap.org/Water-Info/Whats-in-My-Water/Unregulated-Contaminant-Monitoring-Rule-UCMR

Table 5: Secondary[18] Parameters and Other Parameters of Interest Detected in Water as it Enters Distribution System

			Brandywine Filter Plant			Porter Filter Plant			
Contaminant	Units	SMCL[18]	Average	Lowest	Highest	Average	Lowest	Highest	Source
Conventional Physical and Chemical Parameters									
pH	units	6.5 - 8.5	7.3	6.7	7.8	7.3	6.6	8.1	Waters with pH = 7.0 are neutral
Alkalinity	ppm as $CaCO_3$	N/A	60	39	78	55	42	73	Measure of buffering capcity of water or ability to neutralize an acid
Hardness	ppm as $CaCO_3$	N/A	108	33	150	115	92	162	Naturally occurring; Measures Calcium and Magnesium
Conductivity	µmhos/cm	N/A	357	194	847	372	260	561	General measure of mineral content
Sodium	ppm	N/A	30.5	30.5	30.5	24.5	24.5	24.5	Naturally occuring; Chemical additive to treat the water; Road salt application and run-off
Sulfate	ppm	250	23.4	23.4	23.4	17.1	17.1	17.1	Naturally occuring; Can cause objectionable taste and odor in water
Chloride	ppm	250	51	29	108	63	40	111	Naturally occurring; Chemical additive to treat the water; Road salt application and run-off
Metals									
Manganese	ppb	50	0.016	0.002	0.032	0.014	0.006	0.030	Naturally occurring; Can cause discoloration and objectionable taste in water
Zinc	ppm	5	0.10	0.06	0.15	0.09	0.05	0.02	Naturally occurring; Chemical additive to treat the water

Table 6: Lead and Copper

(based on 2017 sampling–testing is done every 3 years)

Contaminant	MCLG	Action Level (AL)[19]	90th Percentile	# Sites Over AL	Units	Violation	Likely Source of Contamination
Copper	1.3	1.3	0.247	0	ppm	No	Erosion of natural deposits; Leaching from wood preservatives; Corrosion of household plumbing systems
Lead	0	15	5.60	3	ppb	No	Corrosion of household plumbing systems; Erosion of natural deposits

KEY TO TABLES

[1] Primary parameters are contaminants that are regulated by a maximum contaminant level (MCL), because above this level consumption may adversely affect the health of a consumer.

[2] MCLG - Maximum Contaminant Level Goal is the level of a contaminant in drinking water below which there is no known or expected risk to health. MCLGs allow no margin of safety.

[3] MCL - Maximum Contaminant Level is 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.

[4] TT - Treatment Technique refers to the required process intended to reduce the level of a contaminant in drinking water. EPA's surface water treatment rules require systems to (1) disinfect their water and (2) filter their water such that the specific contaminant levels cited are met. Lead and copper are regulated by a Treatment Technique that requires systems to control the corrosiveness of their water. Total organic carbon is regulated by a Treatment Technique that requires systems operate with enhanced coagulation or enhanced softening to meet specified percent removals.

[5] Unless otherwise indicated value given is a MCL.

[6] The state allows us to monitor for some contaminants less than once per year because the concentrations of these contaminants do not change frequently. Some of our data, though representative, are more than one year old. If this is the case, the sample year will be noted in the table.

[7] State limit is to not exceed 20 mg/L

[8] Collected in 2014.

[9] Collected in 2015.

[10] Total Organic Carbon compliance is calculated quarterly based on the running annual average of removal %.

[11] MRDLG - Maximum Residual Disinfectant Level Goal is the level of drinking water disinfectant below which there is no known or expected health risk. MRDLGs do not reflect the benefits of the use of disinfectants to control microbial contaminants.

[12] MRDL - Maximum Residual Disinfectant Level is the highest level of a disinfectant allowed in drinking water. There is convincing evidence that addition of a disinfectant is necessary for control of microbial contaminants.

[13] Cited value is the lowest and/or highest average of a minimum of 100 routine samples per month.

[14] Cited range is the range of all individual results in 2019.

[15] Cited value is the highest Locational Running Annual Average (LRAA). MCL is based on the LRAA, which is compiled to include data from previous quarters.

[16] Unregulated contaminant monitoring helps EPA to determine where certain contaminants occur and whether the Agency should consider regulating those contaminants in the future.

[17] The MCL for beta particles is 4 mrem/year. EPA considers 50 pCi/L to be the level of concern for beta particles.

[18] SMCL - Secondary Maximum Contaminant Level ppm: milligrams per liter or parts per million - or one ounce in 7,350 gallons of water ppb: micrograms per liter or parts per billion - or one ounce in 7,350,000 gallons of water

[19] AL - Action Level: The concentration of a contaminant, which, if exceeded, triggers treatment or other requirements which a water system must follow. ND: not detected

What about Lead?

Providing safe, reliable water supply is our top priority. Many customers ask questions concerning lead in the City of Wilmington's drinking water. Lead was a common material used in water systems until the 1950s and in household plumbing into the 1980s and is a powerful toxin that poses a serious health risk, particularly to developing fetuses, infants, and children. While water leaving the City's water treatment plants is not a source of lead, old lead service lines, lead soldered joints in household plumbing, brass fixtures, and fittings are potential sources of lead. In 1996 the City implemented a Corrosion Control strategy which utilizes the addition of a corrosion-inhibitor called Zinc Orthophosphate to the finished water. The inside of the water mains and service lines are coated with a protective layer to minimize the likelihood of lead leaching into drinking water.

In 1992, the EPA's Lead and Copper Rule was created. The City was required to identify homes containing either a lead service line or copper pipe with lead solder. The Lead and Copper Rule requires that City-wide sampling be done every three years from at least 50 targeted homes and that 90% of the samples collected have a concentration of lead of less than 15 parts per billion (ppb). The 15 ppb is considered an Action Level, which is an enforcement level set by the EPA for a harmful or toxic substance. This means that utilities must ensure that water from the customer's tap does not exceed this level in at least 90% of the homes sampled. The City's most recent sampling period occurred in 2017. Out of 51 homes, our 90th percentile value was only 5.6 ppb. Additionally, the City has never exceeded the Action Level (in 90% of the samples collected) and has always been in compliance with the EPA's Lead and Copper Rule.

If no part of your service line or plumbing contains lead, your household is likely not at risk. However, the only way to be certain is to have your water tested by a certified laboratory and have your plumbing inspected by a licensed plumber. The best way to protect your household is to remove all lead that comes into contact with drinking water. If you believe your home may have lead pipes or plumbing, there are immediate steps you can take to reduce exposure. They include running the tap for several minutes before use, using only cold water for cooking or drinking, cleaning faucet aerators, and purchasing a home filter certified for lead removal.

Please be aware that the City has a limited rebate program to assist customers with the replacement of their service lines. Additionally, free water tests for lead are, and have always been, available to customers upon request through the Water Quality Lab. At this time, the City's Water Quality Lab is required to complete their next Lead and Copper compliance sampling during the summer of 2020. **If you would like to participate in the Lead and Copper sampling, please call the Water Quality Lab ay (302) 571-5148.**

Contact Us

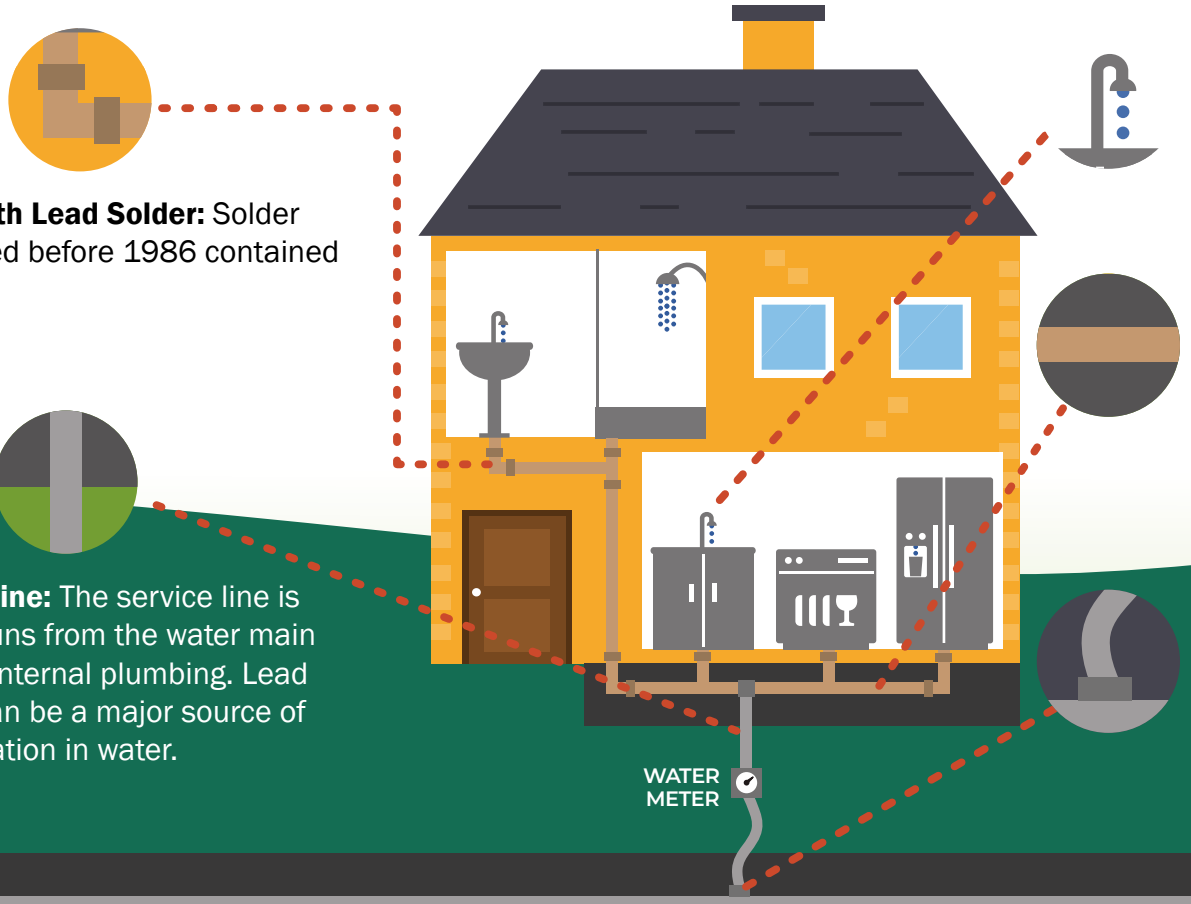
You can help us ensure the safety of our water supply by reporting any unusual or suspicious activity either on our waterways, near our reservoirs, water filtration plants, water towers, or pumping stations.

To report an incident or general water quality concerns, call the City Call Center at **(302) 576-3878**.

If you have questions about this report, call the Water Quality Laboratory at **(302) 571-4158**.

Weekends or after 5 P.M., **(302) 576-3878**.

Sources of LEAD in Drinking Water



Copper Pipe with Lead Solder: Solder made or installed before 1986 contained high lead levels.

Lead Service Line: The service line is the pipe that runs from the water main to the home's internal plumbing. Lead service lines can be a major source of lead contamination in water.

Faucets: Fixture sinside your home may contain lead.

Galvanized Pipe: Lead particles can attach to the surface of galvanized pipes. Over time, the particles can enter your drinking water, causing elevated lead levels.

Lead Goose Necks: Goose necks and pigtails are shorter pipes that connect the lead service line to the main.

FREQUENTLY ASKED QUESTIONS ABOUT LEAD IN WATER FROM PIPES AND PLUMBING

What is lead?

Lead is a common naturally occurring metallic element that can be found in air, soil, and water. It is also a powerful toxin that is harmful to human health. Lead was commonly used in gasoline and paint until the 1970s and is still sometimes found in products such as ceramics, batteries, ammunition, and cosmetics. Lead was used for centuries in plumbing because of its pliability and resistance to leaks; in fact, lead's chemical symbol, Pb, is derived from the Latin word for plumbing. In 1986, U.S. Congress amended the Safe Drinking Water Act to prohibit the use of pipes, solder, or flux that were not "lead free." At the time "lead free" was defined as solder and flux with no more than 0.2% lead and pipes with no more than 8%. In 2014, the maximum allowable lead content was reduced from not more than 8% to not more than a weighted average of 0.25% of the wetted surface of pipes, pipe fittings, plumbing fittings, and fixtures.

What is considered a safe level of lead in drinking water?

There is **no safe level** of lead in drinking water. The Lead and Copper Rule requires that 90% of the samples collected have a concentration of lead of less than 15 parts per billion (ppb). The 15 parts per billion is considered an Action Level. Exceeding the Action Level does not result in a violation; rather, the water purveyor is then required to educate its customers (through public notices and public education programs) about lead, and provide suggestions for minimizing exposure to lead. The City's samples have never exceeded the Action Level and thus have always met the regulatory requirements. In other words, 90% of the samples collected have always had lead levels of less than 15 parts per billion.

Why is lead a health risk?

Lead is a toxic metal that can cause immediate health effects at high doses and long-term health effects if it builds up in the body over many years. Lead can cause brain and kidney damage in addition to effects on the blood and vitamin D metabolism. Pregnant women and young children are particularly vulnerable because the physical and behavioral effects of lead occur at lower exposure levels in children than in adults. In children, low levels of exposure have been linked to central and peripheral nervous system damage, learning disabilities, shorter stature, impaired hearing, and impaired formation and function of blood cells. While people are more commonly exposed to lead through paint, soil, and dust, U.S. EPA estimates infants who consume mostly mixed formula can receive 40% to 60% of their exposure to lead from drinking water.

How do I know whether my drinking water contains lead?

Because it is colorless and tasteless, lead is not readily apparent in water. In fact, the only way to know for certain whether your drinking water contains lead is to have your water tested by a certified laboratory. Testing at the tap is the only way to measure the lead levels in your home. Contact the **Water Quality Lab (302) 571-5148** if you would like you water tested.

How does lead get into drinking water?

The most common source of lead is old lead service lines. A less common source of lead is brass fixtures and fittings and lead soldered joints in the household plumbing. The City's drinking water leaving the water treatment plants is not a source of lead. The City's water mains are not a source of lead. Water mains are generally made from either ductile iron, cast, or galvanized steel.

How much lead in water is too much?

Lead can be harmful even at very low levels and can accumulate in our bodies over time, so wherever possible steps should be taken to reduce or eliminate your household's exposure. While risks vary based on individual circumstances and the amount of water consumed, no concentration of lead is considered "safe." Households with pregnant women, infants, or young children are most vulnerable to the harmful effects of lead at low levels.

What can I do to reduce or eliminate lead from my drinking water?

The best way to remove risks of lead in water is to completely replace all sources of lead. But there are also steps you can take right away to reduce lead levels in your water.

1. **Run the Tap Before Use** – Lead levels are likely at their highest when water has been sitting in the pipe for several hours. Clear this water from your pipes by running the cold water for several minutes. This allows you to draw fresh water from the main. You can use this water on house plants or to flush toilets.

2. **Clean Aerators** – Aerators are small attachments at the tips of faucets which regulate the flow of water. They can accumulate small particles of lead in their screens. It's a good idea to remove your aerators at least monthly and clean them out.
3. **Use Cold Water for Cooking and Drinking** – Always cook and prepare baby formula with cold water, because hot water dissolves lead more quickly, resulting in higher levels in water.
4. **Filter the Water** – Many home water filters are effective at removing lead. If you purchase a filter, make sure it is certified for lead removal and that you maintain it properly. Find out more on filter certification at **nsf.org**.

Are there special steps I should take to protect my developing baby, infant, or young children?

Households with pregnant women, infants, or young children should be especially aware of the potential for lead exposure through drinking water. If you suspect there may be lead in your home plumbing, consider having your water tested at a certified laboratory. If lead is detected, consider purchasing a filter certified for lead removal or using an alternate source of water until the problem is corrected. Babies and young children are most vulnerable to the harmful effects of lead at low levels. U.S. EPA estimates infants who consume mostly mixed formula can receive 40% to 60% of their exposure to lead from drinking water.

Is it safe to shower in water that contains lead?

Because lead is not absorbed through the skin, bathing or showering in water containing lead is not considered a health risk.

What does the City of Wilmington do to protect my household from lead?

In order to prevent lead from dissolving into water from lead service lines or home plumbing, City of Wilmington adjusts the water's chemistry at the treatment plant. This process is known as corrosion control. The City adds Zinc Orthophosphate, a corrosion inhibitor, before the water leaves the treatment plant. This corrosion inhibitor coats the inside of water mains, as well as service lines and plumbing fixtures, with a protective layer to minimize the likelihood of lead leaching into the drinking water from potential lead sources such as lead service lines and some brass fixtures and fittings. Zinc orthophosphate addition is considered to be one of the most reliable forms of lead corrosion control. Although corrosion control can reduce risks, the best way to assure your home is safe from lead exposure through water is to remove the potential sources of lead.

How do I know if my home has a lead service line or lead plumbing?

You can hire a certified plumber or contact your utility to inspect both your service line and other materials in contact with your drinking water. Lead service lines are mostly in homes constructed before 1950. You may be able to determine on your own if your service line is made of lead. Service lines typically enter the home in the basement or crawl space. If the pipe is lead, it will have a dull finish that shines brightly when scratched with a key or coin. Using a magnet can also help you identify a lead pipe, because even a strong magnet will not cling to lead.

I'm in a new house. Am I at risk?

Very few homes constructed after 1950 have lead service lines, and those built after 1986 were required to use plumbing materials with substantially reduced lead content. If you are concerned, consider having your water tested by a certified laboratory, or contact your utility

Do all home filters and other water treatment devices remove lead?

No. If you purchase a water filter or home treatment device, make sure it is independently certified for lead removal and that you maintain it properly. Find out more on filter certification at **nsf.org**.

Can my pets drink water with lead?

Lead can impact animals the same way it does humans. Because domestic animals consume a relatively high volume of water relative to their body weight, pet owners with lead in their home plumbing may want to take precautions.

Is water the only source of lead in homes and businesses?

No. In fact, lead in drinking water generally represents only about 20% of total exposure, according to the U.S. Centers for Disease Control and Prevention. However, drinking water can account for more than half of lead exposure in children because of their lower body weight. Additionally, because no level of lead is considered safe, completely eliminating potential sources of lead is strongly advised.

More information on lead in drinking water, and steps you can take to minimize exposure is available from the Safe Drinking Water Hotline **(800) 426-4791**, or at **epa.gov/safewater/lead**.

Jr. Water Works

From Creek to Tap:
What happens to your water before it gets to your home?

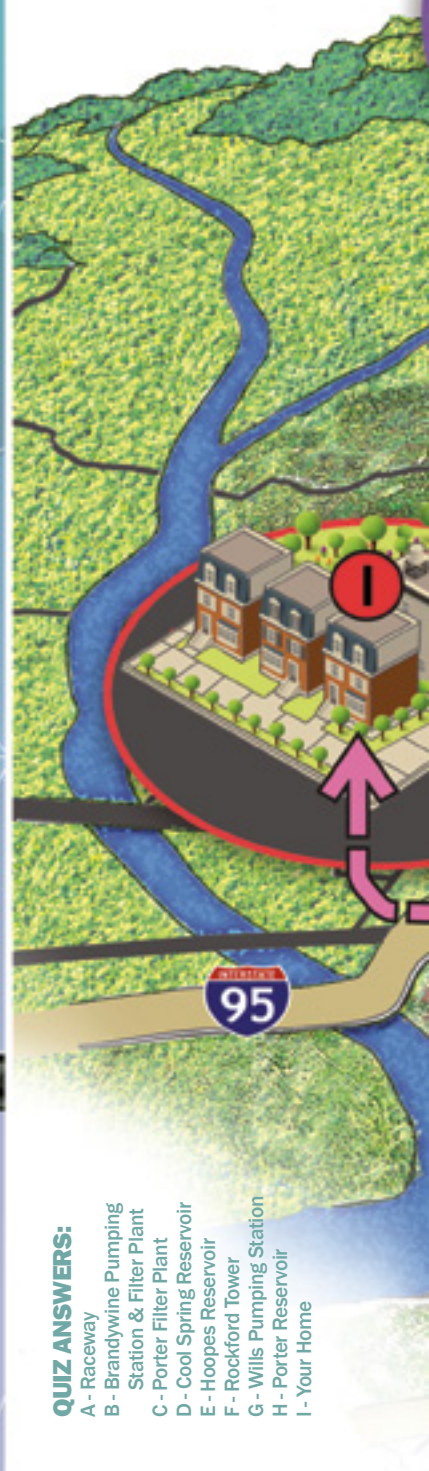
The Wilmington water system draws its water supply from Brandywine Creek. Untreated river water enters a **Raceway** on the south side of Brandywine Creek through a head gate and flows through a screen house, removing floating debris, to **Brandywine Pumping Station**. From there it is sent to one of two filter plants, the **Brandywine Filter Plant**, which is directly adjacent to the pumping station or the **Porter Filter Plant**, a few miles to the north on Concord Pike.

At the filter plants the water is treated using these procedures: coagulation, where an agent is added that attracts tiny impurities which clump together; settling, which removes the now larger and heavier impurities that settle to the bottom where they can be separated from the water; and filtration, where the water passes through sand or membrane filters which remove the remaining impurities. Finally, the water is chlorinated to disinfect and kill germs (such as viruses) leaving clean, potable (meaning safe to drink) water. The City of Wilmington also adds a corrosion inhibitor to the water to protect the water pipes and home plumbing systems. Fluoride is also added to the water to benefit public health.

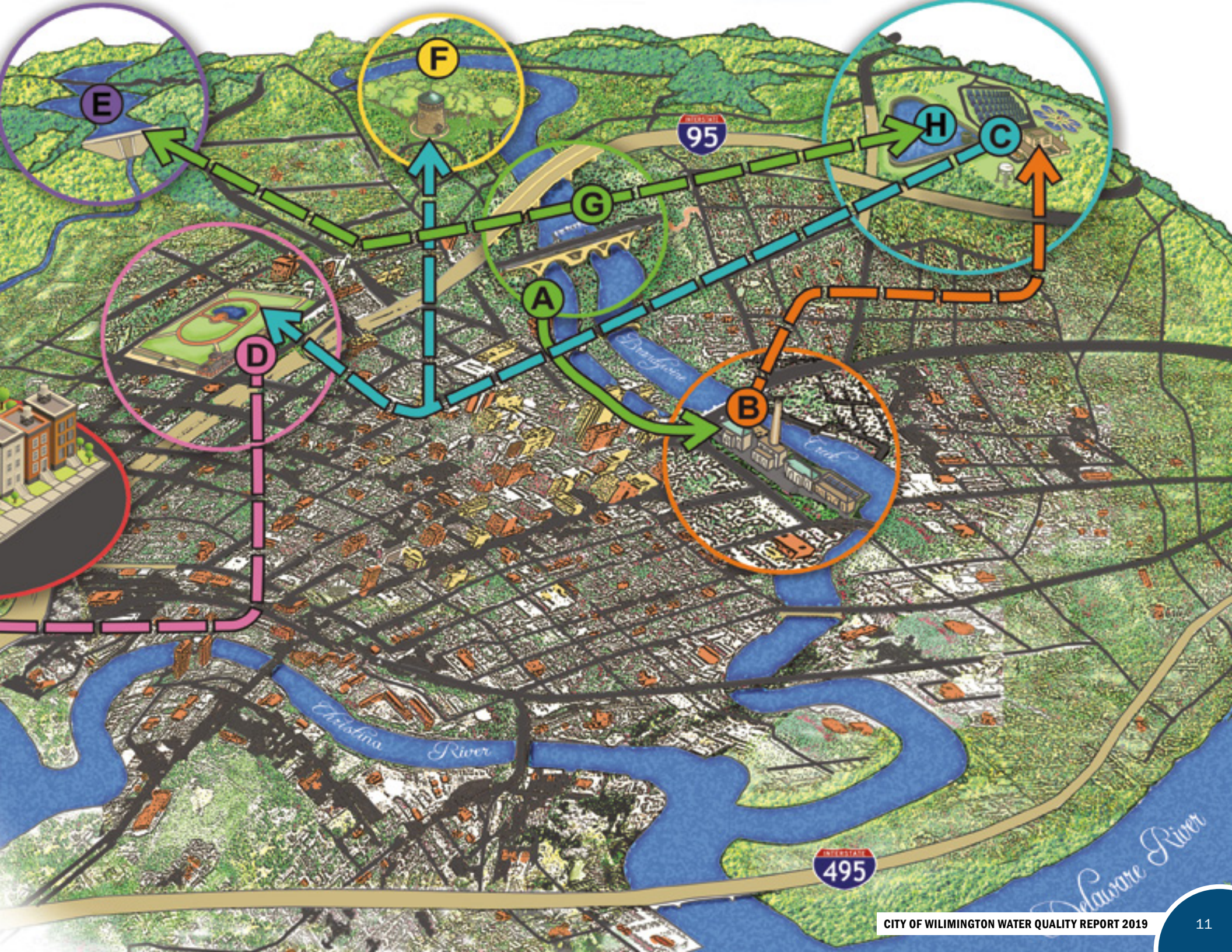
The water is then pumped from the filter plant through the underground mains to one of the water storage facilities (or can go directly into distribution to the homes and businesses of the City's customers). A water storage facility is a safe place to store water that is ready to be distributed to people who need it. Two examples of water storage facilities within the City are **Rockford Tower** and **Cool Spring Reservoir**. However, potable water is not the only kind of water that gets stored. In order to keep a healthy reserve of water to serve the City's water needs safely though any drought, untreated water is also pumped directly from the Brandywine Creek via **Wills Pumping Station**, to the **Porter Reservoir** and the **Hoopes Reservoir** where it can be kept in reserve and pumped to the filter plants for treatment as needed.

Now that you are an expert on how water gets from the creek to your tap, let's test your knowledge. This illustration shows all of the water treatment facilities we just learned about. Each one has a letter next to it. See if you can match the letter to the correct facility name by drawing lines connecting them together. You can check your answers in the lower left corner of the illustration (no peeking!).

A	**Brandywine Pumping Station & Filter Plant**
B	**Hoopes Reservoir**
C	**Rockford Tower**
D	**Raceway**
E	**Porter Filter Plant**
F	**Porter Reservoir**
G	**Wills Pumping Station**
H	**Your Home**
I	**Cool Spring Reservoir**



QUIZ ANSWERS:
A - Raceway
B - Brandywine Pumping Station & Filter Plant
C - Porter Filter Plant
D - Cool Spring Reservoir
E - Hoopes Reservoir
F - Rockford Tower
G - Wills Pumping Station
H - Porter Reservoir
I - Your Home


E
F
95
H
C
G
A
D
B
Brandywine
Creek
Christina River
495
Delaware River

Questions/Concerns?

If you have questions about the quality of your water or are experiencing an issue such as low water pressure, rusty/discolored water, or unusual taste and smell, please call our Call Center at (302) 576-3878 or the Water Quality Lab at (302) 571-4158. You will be asked a series of questions regarding your concern and then the appropriate Water Department personnel will be contacted to address your problem.
If you would like your water to be sampled, one of our Water Quality Specialists will call you to schedule a time that is convenient for you.

The City of Wilmington Water Department's Water Refill Station

In 2018 the City purchased a water station to provide free water at City sponsored festivals.

Kelly Williams, Commissioner
Department of Public Works
Louis L. Redding City/County Bldg.
800 French Street, Wilmington, DE 19801-3537

Velda Jones-Potter, City Treasurer

wilmingtonde.gov

An electronic version of this document is available at **ccrwilmingtonde.com.**

Una versión en español de este documento está disponible por correo, previa solicitud.

100% From well-managed forests

Michael S. Purzycki, Mayor

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The Honorable Loretta Walsh
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In accordance with Title VI of the Civil Rights Act of 1964, state and federal law, "no person or group shall be excluded from participation, denied any benefits, or subjected to discrimination on the basis of race, color, national origin, age, sex, religion, handicap, and/or disability." General complaints or inquiries should be directed to: Affirmative Action Officer (302) 576-2460, and persons with disabilities may contact 504 Coordinator (302) 576-2460, City of Wilmington, Personnel Department, 4th Floor, 800 French Street, Wilmington, Delaware 19801. TDD is available at (302) 571-4546.