



2016 Annual

Water Quality Report

Yardley
PWS ID: PA1090074



PENNSYLVANIA
AMERICAN WATER



This report contains important information about your drinking water. If you do not understand it, please have someone translate it for you.

Este informe contiene información importante acerca de su agua potable. Haga que alguien lo traduzca para usted, ó hable con alguien que lo entienda.

A Message from the Pennsylvania American Water President



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Dear Valued Customer:

On behalf of all Pennsylvania American Water employees, I am pleased to share some very good news about the quality of your drinking water. This annual Water Quality Report is based on testing results between January and December 2016, and as you read it, you will see that we continue to supply water that meets or surpasses all regulatory drinking water standards.

Water service from Pennsylvania American Water is an exceptional value when you consider the science, expertise, equipment and technology involved in bringing water from the source, treating it, and then delivering clean, safe water to your tap. What's more, our plant operators, water quality experts, engineers and maintenance crews work around the clock to make sure that quality water is always there when you need it.

Delivering reliable, high-quality water service also requires significant investment to replace and upgrade aging infrastructure. **In 2016 alone, we invested approximately \$309 million in system improvements across the Commonwealth.**

Water is essential for public health, fire protection, economic development and our overall quality of life. Every Pennsylvania American Water employee takes this responsibility very seriously and works hard to keep quality water flowing not only today but well into the future. Please take the time to carefully review this report about the source and quality of your drinking water. We hope you agree that your water service is worth every penny.

Sincerely,

Jeffrey L. McIntyre
President, Pennsylvania American Water



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WE CARE ABOUT WATER. IT'S WHAT WE DO.®

Our Mark of Excellence

With a history dating back to 1886, American Water is the largest and **most geographically diverse** U.S. publicly-traded water and wastewater utility company. The company employs more than **6,700** dedicated professionals who provide regulated and market-based drinking water, wastewater and other related services to an estimated **15** million people in **47** states and Ontario, Canada. More information can be found by visiting www.amwater.com.

Pennsylvania American Water, a subsidiary of American Water (NYSE: AWK), is the largest investor-owned water utility in the state, providing high-quality and reliable water and/or wastewater services to approximately 2.3 million people.

We are once again proud to present our annual water quality report. This edition covers all testing completed from January through December 2016. Over the years, we have dedicated ourselves to producing drinking water that meets or surpasses all state and federal drinking water standards. We continually strive to adopt new and better methods of delivering the best quality drinking water to you. As regulations and drinking water standards become more stringent, it is our commitment to you to ensure compliance with these standards in an expeditious and cost-effective manner, while maintaining our objective of providing quality drinking water at an affordable price. We are pleased to tell you that our compliance with all state and federal drinking water laws remains exemplary. To that end, we remain vigilant in meeting the challenges of source water protection, water conservation, and community education while continuing to serve the needs of all our water users.

For more information about this report, or for any questions relating to your drinking water, please feel free to call our Customer Service Department at 1-800-565-7292.

Source Water Information

The Yardley system obtains raw water from the Delaware River and four groundwater wells. The Yardley treatment facility is capable of producing six million gallons of water per day (MGD). The combined output of the four wells can yield 2.0 MGD. Pennsylvania American Water's College Avenue pumping station receives water from three wells and the Highland Drive pumping station receives water from one well. The water supply is distributed for residential, commercial, and industrial use.

Protecting Your Water Source

The Pennsylvania Department of Environmental Protection (DEP) and PAW completed an assessment for the drinking water sources for Pennsylvania American Water's Delaware River Intake in November 2002. It was found that contaminants can enter the water supply from a variety of sources such as storm water, agricultural activities within the watershed area, construction and abandoned industrial site runoff; acid mine drainage; discharge from septic systems and wastewater treatment plants; and railway tankers and oil pipelines. An update to this assessment was completed in 2015 through PA DEP's Source Water Protection Technical Assistance Program.

A copy of the completed Source Water Assessment may be viewed by following the link below or it can be obtained by calling PA DEP at (484) 250-5900.

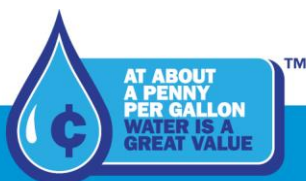
[Yardley Source Water Assessment Link](#)

We recognize that our best protection comes from customers, residents and businesses within our service area. That's why we've established a proactive public outreach program to help spread the word, including school education and community programs. Annual meetings are scheduled with stakeholders sharing our watershed with the focus on protecting our natural water supplies. Pennsylvania American Water encourages you to take an active part in protecting your water supply by participating in activities as they occur in your local area. If you are interested in learning more about Source Water Protection for your area, please contact the Water Quality Supervisor, Maile Fordham, at 610-292-3586.

Here are a few ideas about how you can help:

Don't Dump: Please be aware, anything you put on the ground, down the drain in your home or into a storm sewer can make its way directly into waterways that may be a source for public water systems. Contact your local county recycling program to find out how to properly dispose of household hazardous wastes, including unused prescription medicine.

Care for Your Car: Clean up oil spots left on driveways and parking lots by using cat litter or another absorbent material to soak up the spill and prevent polluting the environment. Sweep up the cat litter and put it in a sealed bag in the trash for disposal.



Other Water Quality Parameters of Interest

Is there lead in your water?

If present, elevated levels of lead can cause serious health problems, especially for pregnant women and young children. Lead in drinking water is primarily from materials and components associated with service lines and home plumbing. Yardley is responsible for providing high quality drinking water, but cannot control the variety of materials used in plumbing components. When your water has been sitting for several hours, you can minimize the potential for lead exposure by flushing your tap for 30 seconds to 2 minutes before using water for drinking or 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 or at:

[U.S. Environmental Protection Agency Web Page on Lead](#)

How hard is your water?

Hardness is a measure of the concentration of two minerals naturally present in water – calcium and magnesium. High hardness levels cause soap not to foam as easily as it would at lower levels. Historically hardness levels range from 41 ppm to 263 ppm, or 2 to 15 grains per gallon of water.

How much sodium is in your water?

The sodium level ranges from 17 to 35 ppm.

What is the pH (acidity) range of your water?

Water entering the distribution system averages 7.5 pH units. A pH of 7.0 is considered neutral, neither acidic nor basic.

Is there fluoride in your water?

Pennsylvania American Water does not add fluoride to your water.

Partnership for Safe Drinking Water Program

In 2016, the Yardley system continued their participation in the Partnership for Safe Water program sponsored by the U.S. Environmental Protection Agency (EPA), Pennsylvania Department of Environmental Protection (PA-DEP) and other water-related organizations. This voluntary national program assesses the performance of surface water filtration plants. The results of this evaluation are then used to improve operations, so that we continue to provide the highest quality water we can deliver at a reasonable cost.

How to Contact Us

Additional copies of this report can be printed directly from this site (www.amwater.com/ccr/yardley.pdf). Questions can be presented to our Customer Service Department at 1-800-565-7292. Added information can be gathered by viewing the following links on the Internet:

[Pennsylvania American Water Web Page](#)

[PA Department of Environmental Protection Web Page](#)

[U.S. Environmental Protection Agency Web Page](#)

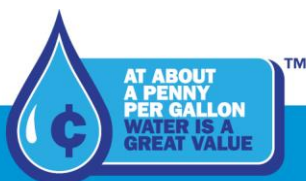
[Center for Disease Control and Prevention Web Page](#)

[American Water Works Association Web Page](#)

Safe Drinking Water Hotline: (800) 426-4791

Substances Expected to be in Drinking Water

In order to ensure that tap water is safe to drink, the U.S. Environmental Protection Agency (EPA) prescribes regulations which limit the amount of certain contaminants in water provided by public water systems. U.S. Food and Drug Administration (FDA) regulations also establish limits for contaminants in bottled water, which must provide the same protection for public health. Pennsylvania American Water's treatment processes are designed to reduce such substances to levels well below any health concern and the processes are controlled to provide maximum protection against microbial and viral pathogens which could be naturally present in surface and groundwater. 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 Safe Drinking Water Hotline at (800) 426-4791.

Cryptosporidium

Cryptosporidium is a microbial pathogen found in surface water throughout the US. Although *Cryptosporidium* can be removed through commonly-used filtration methods, US EPA issued a new rule in January 2006 that requires systems with higher *Cryptosporidium* levels in their source water to provide additional treatment. In anticipation of this upcoming rule, the Yardley system sampled for *Cryptosporidium* in its raw water from July 2005 through June 2007. Sample results did not show a need to provide additional treatment. The second round of required sampling began in the 4th quarter of 2016. This monitoring will be completed in September 2018.

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 may 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 EPA's Safe Drinking Water Hotline (800) 426-4791.

The source of drinking water (both tap water and bottled water) includes 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.

Contaminants that may be present in source water include:

Microbial Contaminants, such as viruses and bacteria, may come from sewage treatment plants, septic systems, agricultural livestock operations, and wildlife.

Inorganic Contaminants, such as salts and metals, can be naturally occurring or may result from urban storm water runoff, industrial or domestic wastewater discharges, oil and gas production, mining, or farming.

Pesticides and Herbicides 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, may also come from gas stations, urban storm water runoff, and septic systems.

Radioactive Contaminants can be naturally occurring or may be the result of oil and gas production and mining activities.

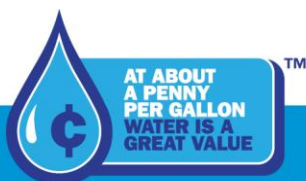
Chloramine Disinfection

Monochloramine is a PA DEP and EPA approved alternative disinfectant to free chlorine for water disinfection. Monochloramine minimizes the formation of regulated disinfection by-products and improves the taste and odor of your water. The Yardley water system has successfully used monochloramine treatment in its facility for many years. There are two groups of people who need to take special care with chloraminated water: kidney dialysis patients and fish owners. Monochloramine, like chlorine, must be removed from water used in the kidney dialysis process and from water that is used in fish tanks or ponds. Please consult with your physician on any health-related questions or local pet store on recommended disinfectant removal products.

How to Read This Table

Starting with a **Substance**, read across. **Year Sampled** is usually in 2016 or the year prior. **MCL** shows the highest level of substance (contaminant) allowed. **MCLG** is the goal level for that substance (goal may be set lower than what is allowed). **Highest Amount Detected** represents the measured amount (less is better). **Range** shows the highest and lowest amounts measured. A **Yes** under **Compliance Achieved** means the amount of the substance met government requirements. **Typical Source** shows where the substance usually originates.

Non-regulated substances are measured, but maximum allowed contaminant levels have not been established by the government. These contaminants are shown for your information.



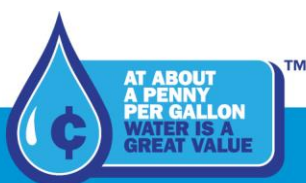
Definitions of Terms Used in This Report

- **AL (Action Level):** The concentration of a contaminant, which, if exceeded, triggers treatment or other requirements, which a water system must follow.
- **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.
- **Minimum Residual Disinfectant Level:** The minimum level of residual disinfectant required at the entry point to the distribution system.
- **MRDL (Maximum Residual Disinfectant Level):** The highest level of disinfectant allowed in drinking water. There is convincing evidence that addition of a disinfectant is necessary for control of microbial contaminants.
- **MRDLG (Maximum Residual Disinfectant Level Goal):** The level of drinking water disinfectant 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 contamination.
- **NA:** Not applicable
- **ND:** Not detected
- **NTU (Nephelometric Turbidity Units):** Measurement of the clarity, or turbidity, of the water.
- **pCi/L (picocuries per liter):** Measurement of the natural rate of disintegration of radioactive contaminants in water (also beta particles).
- **ppm (parts per million):** One part substance per million parts water, or milligrams per liter.
- **ppb (parts per billion):** One part substance per billion parts water, or micrograms per liter.
- **SS:** Single sample
- **TT (Treatment Technique):** A required process intended to reduce the level of a contaminant in drinking water.
- **%:** means percent
- **90th Percentile:** The highest concentration of lead or copper in tap water that is exceeded by 10 percent of the sites sampled during a monitoring period. This value is compared to the lead or copper action level (AL) to determine whether an AL has been exceeded.

Water Quality Statement

We are pleased to report that during the past year, the water delivered to your home or business complied with all state and federal drinking water requirements. For your information, we have compiled a list in the table below showing what substances were detected in your drinking water during 2016. The Pennsylvania DEP allows us to monitor for some contaminants less than once per year because the concentration of the contaminants does not change frequently. Some of our data, though representative, are more than one year old. Although all of the substances listed below are under the Maximum Contaminant Levels (MCL) set by U.S. Environmental Protection Agency and the Pennsylvania DEP, we feel it is important that you know exactly what was detected and how much of each substance was present in the water.

Water Quality Results



WE CARE ABOUT WATER. IT'S WHAT WE DO.®

Turbidity – A Measure of the Clarity of the Water at the Treatment Facility

Plant	Substance (units)	Year Sampled	MCL	MCLG	Highest Single Measurement	Compliance Achieved	Typical Source
Yardley	Turbidity (NTU) ¹	2016	TT	NA	0.40	Yes	Soil runoff

¹All turbidity readings were below the treatment technique (TT) requirement of 0.3 NTU in 95% of all samples taken for compliance on a monthly basis. Treatment technique requirement was met.

Total Organic Carbon Removal - Measured at the Yardley Water Treatment Facility

Substance (units)	Year Sampled	TT	Range of Percent Removal Required	Range of Percent Removal Achieved	Compliance Achieved	Typical Source
Total Organic Carbon (TOC) (% removal) ²	2016	Meet EPA Removal Requirements	35	19 - 47	Yes	Naturally decaying of vegetation

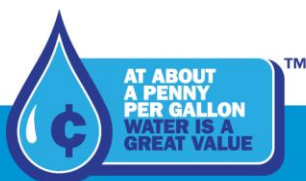
² Adequate removal of TOC may be necessary to control the unwanted formation of chlorinated by-products. Naturally occurring organic matter present in the source water can react with the disinfectants used at the treatment facility to form these by-products.

Entry Point Disinfection Residual - Measured on Water Leaving the Yardley Treatment Facilities

Location	Substance (units)	Year Sampled	Minimum Disinfectant Residual Level Required	Lowest Level Detected	Range Low - High	Compliance Achieved	Typical Source
Yardley Plant	Total Chlorine (ppm)	2016	0.2	0.4	0.4 – 3.2	Yes	Water additive used to control microbes
Highland Drive	Total Chlorine (ppm)	2016	0.4	0.6	0.6 – 4	Yes	Water additive used to control microbes
College Avenue	Total Chlorine (ppm)	2016	0.4	0.6	0.6 – 2.5	Yes	Water additive used to control microbes

Regulated Substances - Measured on Water Leaving the Yardley Treatment Facilities

Substance (units)	Year Sampled	MCL	MCLG	Amount Detected	Range Low - High	Compliance Achieved	Typical Source
Barium (ppm)	2015	2	2	0.3	ND – 0.5	Yes	Discharge of drilling wastes; discharge from metal refineries; Erosion of natural deposits
Nitrate (ppm)	2016	10	10	2.1	0.97 – 2.95	Yes	Runoff from fertilizer use; Leaching from septic tanks, Sewage plant discharge; Erosion of natural deposits
Total Chromium (ppb)	2015	100	100	0.3	ND – 0.5	Yes	Discharge from steel and pulp mills; erosion of natural deposits
Uranium (ppb)	2011	30	0	1.6	ND – 2.7	Yes	Erosion of natural deposits
Alpha Emitters (pCi/L)	2011	15	0	2.3	2.3 – 2.4	Yes	Erosion of natural deposits



Disinfectant Residual - Measured from Water in the Yardley Water Distribution System

Substance (units)	Year Sampled	MRDL	MRDLG	Highest Result	Range Low - High	Compliance Achieved	Typical Source
Total Chlorine Residual (ppm)	2016	4	4	1.5	0.8 – 1.5	Yes	Added as a disinfectant to the treatment process

Other Regulated Compounds - Measured from Water in the Yardley Water Distribution System

Substance (units)	Year Sampled	MCL	MCLG	Results ³	Range ⁴ Low - High	Compliance Achieved	Typical Source
Total Trihalomethanes (ppb)	2016	80	NA	36	18 – 82	Yes	By-product of drinking water chlorination
Haloacetic Acids (HAA5) (ppb)	2016	60	NA	24	3 – 56	Yes	By-product of drinking water chlorination

³ Highest localized running annual average for individual sample points

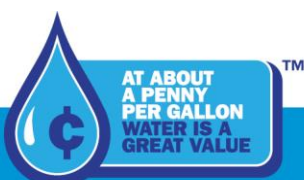
⁴ Range represents sampling at individual sample points

Bacterial Test Results - Measured from Yardley Water Distribution System

Substance	Year Sampled	MCL	MCLG	Highest Monthly Percentage of Positive Samples	Compliance Achieved	Typical Source
Total Coliform Bacteria	2016	No more than 5.0% of the monthly samples can be positive	Zero bacteria	0	Yes	Naturally present in the environment

Lead and Copper Results: Tap Water Test Results from the Yardley Water Distribution system

Substance (units)	Year Sampled	Action Level	MCLG	Number of Samples Taken	90th Percentile	Number of Samples that Exceeded Action Level	Compliance Achieved	Typical Source
Lead (ppb)	2016	15	0	30	6	1	Yes	Corrosion of household plumbing systems; Erosion of natural deposits
Copper (ppm)	2016	1.3	1.3	30	0.089	0	Yes	Corrosion of household plumbing systems; Erosion of natural deposits



Unregulated Substances – Measured on Water Leaving the Treatment Facility and in the Distribution System

Substance (units)	Year Sampled	MCL / MCLG	Sample Location	Average Amount Detected	Range Low - High	Use or Environmental Source
Chlorate (ppb)	2015	Not Regulated	Treatment Facility	111	ND - 380	Agricultural defoliant or desiccant; disinfection byproduct; and used in production of chlorine dioxide
			Distribution System	46	ND - 97	
Chromium 6 or Hexavalent Chromium (ppb)	2015	Not Regulated	Treatment Facility	0.09	0.07 - 0.11	Naturally-occurring element; used in making steel and other alloys; chromium-3 or -6 forms are used for chrome plating, dyes and pigments, leather tanning, and wood preservation
			Distribution System	0.09	0.07 – 0.10	
Strontium (ppb)	2015	Not Regulated	Treatment Facility	300	58 - 717	Naturally-occurring element; historically, commercial use of strontium has been in the faceplate glass of cathode-ray tube televisions to block x-ray emissions
			Distribution System	112	69 - 197	
Vanadium (ppb)	2015	Not Regulated	Treatment Facility	0.6	ND – 1.1	Naturally-occurring elemental metal; used as vanadium pentoxide which is a chemical intermediate and a catalyst
			Distribution System	0.2	ND – 0.3	
Molybdenum (ppb)	2015	Not Regulated	Treatment Facility	2.8	ND – 8.1	Naturally-occurring element found in ores and present in plants, animals and bacteria; commonly used form molybdenum trioxide used as a chemical reagent

There's a lot more to your water bill than just water.

When you turn on the tap, it's easy to see what your water bill buys. What's not as easy to see is what it takes to bring that water to your home. The miles of pipeline hidden below the ground. The facilities that draw water from the source. The plant where it's treated and tested. The scientists, engineers, and maintenance crews working around the clock to make sure that water is always there when you need it. Your water payments are helping to build a better tomorrow by supporting needed improvements that will keep water flowing for all of us—today and well into the future. All for about a penny a gallon.

AT ABOUT A PENNY PER GALLON WATER IS A GREAT VALUE™

WE CARE ABOUT WATER. IT'S WHAT WE DO. FIND OUT WHY YOU SHOULD, TOO, at amwater.com.

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