



2016 Annual

Water Quality Report

Susquehanna
PWS ID: PA2580024

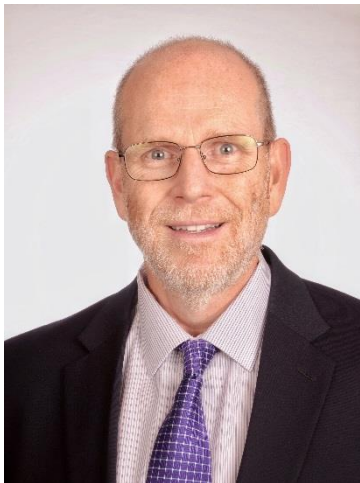


PENNSYLVANIA
AMERICAN WATER



Este informe contiene información importante acerca de su agua potable. Haga que alguien lo traduzca para usted, ó hable con alguien que lo entienda. (This report contains important information about your drinking water. Have someone translate it if needed.)

A Message from the Pennsylvania American Water President



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.

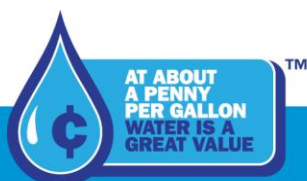
Water service from Pennsylvania American Water is an exceptional value when you consider the science, expertise, equipment and technology involved in bringing water from the source, treating it, and then delivering clean, safe water to your tap. What's more, our plant operators, water quality experts, 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

One surface water source, Comforts Lake, and one groundwater source, Hallstead Well #2, supply the Susquehanna and Hallstead service areas. Pennsylvania American Water maintains a treatment facility near Comforts Lake capable of producing a maximum of 1.2 million gallons of water per day (MGD). Hallstead Well #2 is capable of producing approximately 0.14 MGD to the Hallstead and Great Bend areas. 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 of the drinking water source for the Susquehanna surface water supply in 2002. The water source was considered most vulnerable to the following potential impacts: spills and runoff associated with roadways, propane storage tanks, and on-lot septic systems.

An assessment of the drinking water source for the Hallstead and Great Bend groundwater supply was completed and is currently under evaluation by DEP.

A summary of the completed surface water report may be viewed on the DEP website by following the link below. Additional information can also be obtained by calling the local office of the DEP at (570) 826-2511. PAW encourages you to take an active part in protecting your water supply by participating in local watershed activities as they occur in your area.

[Susquehanna System Source Water Assessment Link](#)

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. Pennsylvania American Water 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 the following site:

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



Does your water contain nitrates?

PAW's normal range of nitrate levels is below the MCL of 10 ppm. Nitrate enters the water supply from fertilizers used on farms and natural erosion of deposits in the watershed. Levels above 10 ppm are a health risk for infants under six months of age and can cause blue baby syndrome. Check with your physician if you have questions.

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. Hardness levels averaged 26 ppm or 1.5 grains per gallon of water and ranged from 17 ppm to 38 ppm, or about 1.0 to 2.2 grains per gallon of water. The water is classified as soft to slightly hard. Hardness levels from areas supplied by Hallstead Well #2 will typically average 113 ppm, or about 7 grains per gallon of water, which is classified as moderately hard.

How much sodium is in your water?

The sodium level for the Susquehanna Plant is approximately 13 ppm and approximately 49 ppm for Hallstead Well #2. Although the amount of sodium in drinking water is insignificant compared to the sodium normally consumed in the average diet, it does become a concern to people on low sodium diets recommending less than 20 ppm intake from drinking water. High levels of salt intake may be associated with hypertension in some individuals. To reduce the risks of adverse health effects due to sodium, consult a physician or registered dietitian to plan a healthy diet that reduces the sodium content in your total food intake.

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

Water produced by the treatment facilities averaged 7.1 pH units and ranged from 6.6 to 7.4 pH units. A pH of 7.0 is considered neutral, neither acidic nor basic.

Is there fluoride in your water?

PAW does not add fluoride to your water supply. The naturally occurring fluoride levels are low.

Partnership for Safe Drinking Water Program



In 2000 the PAW - Susquehanna system was awarded the prestigious Director's Award under the Partnership for Safe Water program. The program is administered by the U.S. Environmental Protection Agency, the Pennsylvania Department of Environmental Protection, and other water-related organizations. The award honors utilities for achieving operational excellence by voluntarily optimizing their treatment facility operations and adopting more stringent performance goals than those required by federal and state drinking water standards. We are proud to report that the Susquehanna System has met the voluntary goals of the program consistently for 16 continuous years.

How to Contact Us

Additional copies of this report can be printed directly from this site www.amwater.com/ccr/susquehanna.pdf. Questions can be presented to our Customer Service Department at 1-800-565-7292. Additional information can be gathered from the following sources:

[Pennsylvania American Water Company Web Page](#)

[Pa. Department of Environmental Protection Web Site](#)

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

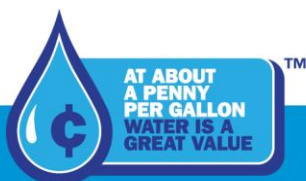
[Center for Disease Control](#)

[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.

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

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

How to Read This Table

Starting with a **Substance**, read across. **Year Sampled** is usually in 2016 or year prior. **MCL** shows the highest level of each 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** tells the highest and lowest amounts measured. A **Yes** under **Compliance Achieved** means the amount of the substance met government requirements. **Typical Source** tells where the substance usually originates.

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.

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.

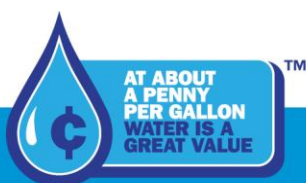
MRDLG (Maximum Residual Disinfectant Level Goal): The level of drinking water disinfectant below which there is no known or expected risk to health. MRDLGs do not reflect the benefits of the use of disinfectants to control microbial contamination.

NA: Not applicable.

ND: Not detected.

Entry Point: A point at which finished water representative of each source enters the distribution system.

NTU (Nephelometric Turbidity Units): Measurement of the clarity, or turbidity, of 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.

TT (Treatment Technique): A required process intended to reduce the level of a contaminant in drinking water.

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 and copper action level (AL) to determine whether the AL has been exceeded.

%: means percent.

<: means less than.

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 the U.S. EPA 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

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

Plant	Substance (units)	Year Sampled	MCL	MCLG	Highest Single Measurement	Lowest % of Measurements Meeting TT ¹	Compliance Achieved?	Typical Source
Susquehanna Plant	Turbidity (NTU) ¹	2016	TT	NA	0.11	100	Yes	Soil runoff

¹ All turbidity readings were below the Treatment Technique requirements for the Plant of not greater than 1 NTU for any single measurement and less than or equal to 0.3 NTU in 95% of all samples taken for compliance on a monthly basis. Treatment Technique requirements for turbidity are based on the type of treatment used at the treatment facility; Susquehanna Plant is classified as "Conventional Filtration". Turbidity serves as an indicator of the effectiveness of the filtration process.

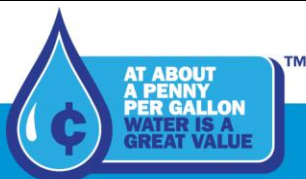
Total Organic Carbon (TOC) – A Measure of the Removal of TOC at the Treatment Facility

Plant	Substance (units)	Year Sampled	MCL	MCLG	Lowest Single Removal Efficiency	Range of Removal Efficiencies	Compliance Achieved?	Typical Source
Susquehanna Plant	TOC Removal Efficiency (%) ²	2016	TT	NA	35	35 – 43	Yes	Naturally present in the environment

² Treatment Technique requirements for TOC removal are related to the removal efficiency. Compliance is based on several criteria and is calculated on the quarterly running annual average of an assigned value determined by the removal efficiency, or alternative compliance criteria under certain circumstances. The average removal efficiency through the year was 39%. The lowest efficiency shown above occurred in January. Alternative compliance criteria were applicable throughout the year based on low raw and finished water TOC levels. If alternative criteria were not applicable, the removal efficiency required would have been 35%.

Disinfectant Residual – Measured on the Water Leaving the Treatment Facility

Plant	Substance (units)	Year Sampled	MRDL	MRDL G	Lowest Amount Detected	Range Low - High	Compliance Achieved?	Typical Source
Susquehanna Plant	Chlorine Residual (ppm)	2016	4	4	0.79	0.79 – 2.71	Yes	Added as a disinfectant to the treatment process



Groundwater Disinfectant Residual – Measured on the Water Leaving the Treatment Facility

Plant	Substance (units)	Year Sampled	DEP Approved Minimum Disinfectant Residual	Range of Detections ³	Below Required Minimum for More Than 4 Hours	Compliance Achieved?	Typical Source
Hallstead Well	Chlorine Residual (ppm) ³	2016	0.30	0.40 – 1.65	No	Yes	Water additive used to control microbes

Regulated Substances – Measured on the Water Leaving the Treatment Facilities

Substance (units)	Year Sampled	MCLG	MCL	Highest Amount Detected	Range Low - High	Compliance Achieved?	Typical Source
Nitrate (ppm)	2016	10	10	0.9	0.03 – 0.9	Yes	Runoff from fertilizer use; Leaching from septic tanks; Sewage; Erosion of natural deposits

Bacterial Results – Measured in the Water from the Distribution System

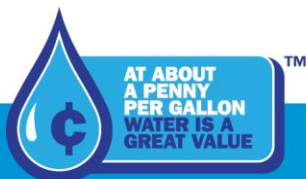
Substance	Year Sampled	MCLG	MCL	Highest Number of Positive Samples per Month	Compliance Achieved?	Typical Source
Total Coliform Bacteria ³	2016	Zero bacteria	1 positive sample during the month	0	Yes	Naturally present in the environment
		TT	NA	0	Yes	

³ The original Total Coliform Rule (TCR) effective during the first quarter of 2016 specified both an MCL and an MCLG. The Revised Total Coliform Rule (RTC) specified Treatment Technique requirements and became effective on April 1st, 2016. These are based on several criteria depending on the presence of coliform bacteria or E. coli in a series of samples. Depending on the type of bacteria and the samples affected, different types of assessment and corrective actions are required. Coliform and/or E. coli bacteria were not detected in any samples collected during 2016.

Tap Water Samples: Lead and Copper Results – Measured in the Distribution System

Substance (units)	Year Sampled	Action Level	MCLG	Number of Samples	90th Percentile	Number of Samples Above Action Level	Compliance Achieved?	Typical Source
Lead (ppb) ⁴	2016	15	0	20	<1	0	Yes	Corrosion of household plumbing systems; Erosion of natural deposits
Copper (ppm) ⁴	2016	1.3	1.3	20	0.12	0	Yes	Corrosion of household plumbing systems; Erosion of natural deposits; Leaching from wood preservatives

⁴AL (action level) applies and is based on the 90th percentile value of all samples collected for compliance within the distribution system; 90% of all samples must be equal to or lower than the AL. All sample results were below the established AL for both Lead and Copper.



Disinfectant Residual – Measured on the Water in the Distribution System

Substance (units)	Year Sampled	MRDL	MRDLG	Results	Range Low - High	Compliance Achieved?	Typical Source
Distribution Chlorine (ppm) ⁵	2016	4	4	1.73	1.54 – 1.98	Yes	Water additive used to control microbes

⁵ MRDL (maximum residual disinfectant level) applies and is based on a Running Annual Average calculated quarterly. Routine samples were collected monthly with the results from all locations averaged each month. The monthly average results were then used to calculate a Running Annual Average each quarter. The Result shown represents the highest running annual average calculated quarterly for compliance during the entire year. This occurred during the fourth quarter of the year; the calculations used to determine compliance include values from 2015. The range represents the range of monthly average results reported for compliance during 2016.

Disinfection Byproducts Rule 2 Compounds (Measured in the Distribution System)

Substance (units)	Year Sampled	MCLG	MCL	Results	Range (Low - High)	Compliance Achieved?	Typical Source
Total Trihalomethanes (TTHM) (ppb) ⁶	2016	NA	80	60.8	22.5 – 104.9	Yes	By-product of drinking water chlorination
Haloacetic Acids (HAA5) (ppb) ⁶	2016	NA	60	48.2	25.6 – 66	Yes	By-product of drinking water chlorination

⁷ MCL (maximum contaminant level) applies and is based on a Locational Running Annual Average (LRAA) calculated quarterly. Under the Disinfection Byproducts Rule 2 (DBPR2) sample sets are collected each quarter and the levels detected at each location are averaged for each location individually on a running annual basis. Compliance is based on the resulting running annual average at each individual location. The Result represents the highest LRAA for each contaminant during the year; the calculations used to determine compliance through the year include values from 2015. The highest TTHM and HAA5 LRAA results both occurred during the third quarter. The Range represents individual sample results for all locations from all four quarters. The DBPR2 became effective in the fourth quarter of 2013.

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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