



Warrington Township

**2015 WARRINGTON TOWNSHIP
WATER QUALITY REPORT**

PWSID# 1090070

Este informe contiene información muy importante sobre su agua potable. Tradúzcalo ó hable con alguien que lo entienda bien. (This report contains important information about your drinking water. Translate it, or speak with someone who understands it.)

Introduction

This report presents a summary of the quality of the public drinking water provided by Warrington Township during 2015. We have included details about the sources of your water, what it contains, and how the water quality compares to the standards set by the Pennsylvania Department of Environmental Protection (PADEP) and the Environmental Protection Agency (EPA) Safe Drinking Water Act (SDWA). The Warrington Township Board of Supervisors is committed to providing safe and reliable drinking water to our more than 21,000 customers. We feel that this information is important and that an informed customer is a public utility's best ally.

Where Does Your Water Come From

The western portion of the Township, from Folly Road to Upper State Road, and the Bradford Greene development along County Line Road, is served water that the Township purchases directly from the North Wales Water Authority (NWWA). This portion of the Township is underlain by the Lockatong geological formation, which does not support the development of large production groundwater wells. The water purchased from NWWA to supply the western district is a surface water supply that comes from the Forest Park Water Treatment Plant located in Chalfont. The Forest Park Water Treatment Plant is a state of the art facility that treats and pumps water delivered from the Point Pleasant pump station located on the Delaware River. The treatment process at Forest Park consists of flocculation, sedimentation, filtration, and pre and post ozone disinfection.

The eastern portion of the Township, from Valley Road to Elbow Lane, is served water from nine wells drilled 300 to 760 feet deep into the Stockton geological formation. The

wells are generally located along the Route 611 corridor that bisects the eastern part of the Township. The well water from four of the wells is treated using air strippers to remove organic contaminants. Chlorine is added at all the wells for disinfection prior to water entering the system. Wells 1, 2, and 6 were removed from service in October 2014 as a result of detection of perfluorinated chemicals in excess of the provisional health advisory levels issued by the Environmental Protection Agency.

The well water serving the eastern portion of the Township is considered hard (around 15½ grains/gallon) and the pH is generally neutral. Hard water is often indicated by a lack of suds forming when soap is agitated in water and by the formation of limescale in kettles and water heaters. Hard drinking water is generally not harmful to one's health; water softening is commonly used to reduce hard water's adverse effects.

The Township's eastern and western water systems are interconnected. The interconnection is controlled by a valve that allows water into the eastern end in the event of a fire or other emergency. The interconnection is also used as a supplemental source of supply during times of drought or for times when the well supplies are out of service for maintenance reasons. Because of this, eastern end customers can expect to occasionally receive a commingling of water from the western surface supply and the eastern groundwater supply.

Why We Monitor Your 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.

Contaminants that may be present in source water before it is treated 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 stormwater 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 agricultural, urban stormwater 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 stormwater runoff, and septic systems
- *Radioactive contaminants*, which can be naturally occurring or be the result of oil and gas production and mining activities.

In order to ensure that tap water is safe to drink, EPA and PADEP prescribes regulations which limit the amount of certain contaminants in water provided by public water systems. We treat and monitor our water according to their regulations. FDA and PADEP regulations establish limits for contaminants in bottled water which must provide the same protection for public health.

Drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contaminants. The presence of contaminants does not necessarily indicate that water poses a health risk. More information about contaminants and potential health effects can be obtained by calling the EPA's Safe Drinking Water Hotline at 1-800-426-4791.

Our 2015 Water Monitoring Results

During 2015, Warrington Township conducted over 600 tests for 90 possible drinking water contaminants. We only detected 14 of those contaminants, none of these occurrences were at levels higher than the State and Federal Drinking Water standards allow. Similar testing was also completed by NWWA and the Forest Park Treatment Plant. This arrangement results in some duplication of testing, but also provides more quality control.

Tables 1 and 2 summarize the results of monitoring in the Western and Eastern systems, respectively, for the year 2015. Dozens of other contaminants that were tested for, but not detected, are not listed. Unless otherwise noted, the data presented in the tables is from testing done from January 1, 2015 to December 31, 2015. This data does not include testing results of wells not in service during 2015. The PADEP requires us to monitor for certain contaminants less than once per year because the concentrations of these contaminants are not expected to vary significantly from year to year. Some of our data, though representative, are more than 1 year old.

Related Information

In 2001, the Township participated in the Unregulated Contaminants Monitoring Rule (UCMR) Program in which suppliers began a 3-year monitoring period for unregulated contaminants, including the gasoline additive MTBE. Although the EPA does not regulate MTBE, the Township recognized the potential threat of MTBE and began voluntarily sampling for it prior to 2001 in each well and at various locations in both the eastern and western distribution systems. MTBE has **never** been detected in the Township's water supply. In 2010, the Township participated in the UCMR-2 Program, and in 2014 and 2015, the Township participated in the UCMR-3 program, for each of which suppliers began a new 3-year monitoring period for additional unregulated contaminants. The UCMR-3 and its predecessors were designed to establish data for contaminants listed on EPA's Contaminant Candidate List for which EPA may establish future MCL's.

Based on concerns of contamination of Wells 1, 2, and 6 with perflourinated compounds believed to have originated from the Willow Grove Naval Air Station Joint Reserve

Base, these three wells were shut down in October 2014. The design and installation of treatment system to remove these perflourinated compounds from the public water has been funded by the federal government and the project is expected to be in service in 2017.

Related to our monitoring efforts, the Township has completed an assessment of the nine groundwater wells that supply the eastern distribution system. The study is part of Pennsylvania's Source Water Assessment and Protection (SWAP) Program. The assessment identified existing and potential sources of contamination located within a one-mile radius of each well and includes a detailed map showing the location of these sites within a half-mile radius of each well. This study was performed prior to the detection of perfluorinated compounds in the area. Overall, our sources have a high risk of significant contamination. The report is available for review at the Warrington Township Water and Sewer Department Office at 852 Easton Road.

Educational Information

While your drinking water meets EPA's standard for arsenic, it does contain low levels of arsenic. EPA's standard balances the current understanding of arsenic's possible health effects against the costs of removing arsenic from drinking water. EPA continues to research the health effects of low levels of arsenic, which is a mineral known to cause cancer in humans at high concentrations and is linked to other health effects such as skin damage and circulatory problems.

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. Warrington Township 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 www.epa.gov/safewater/lead.

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 and the Center for Disease Control (CDC) guidelines on appropriate means to lessen the risk of infection by Cryptosporidium and other microbial contaminants are available from the Safe Drinking Water Hotline at 1-800-426-4791 or visit the EPA website at www.epa.gov/safewater/dwhealth.

For More Information

Warrington Township Water and Sewer Department is staffed with State-certified water operators who work to provide top quality water to every tap. Information about the Township's water system and a full 2015 Water Quality Report prepared by NWWA for their system is available for review at the Warrington Township Water and Sewer Department Office. For more information about your water quality, please contact Christian Jones, Director of the Warrington Township Water and Sewer Department at (215) 343-1800 or log on to the Township's web site at www.warringtontownship.org.

The Warrington Township Board of Supervisors meets the second and fourth Tuesday of each month at 7:30 p.m. in the Warrington Township Municipal Building at 852 Easton Road. These meetings allow the public to voice any concerns or comments they may have pertaining to the public water or sewer systems. Please feel free to participate in these meetings.

Health Effects

About our 2014 gross alpha violation you should know that certain minerals are radioactive and may emit a form of radiation known as alpha radiation. Some people who drink water containing alpha emitters in excess of the MCL over many years may have an increased risk of getting cancer. Subsequent testing in 2015 indicates the gross alpha levels are decreasing and are below the MCL, however, the Township, in response to citizens requests, has voluntarily elected to close the affected well as a precautionary measure and will continue to sample the well while it is offline. If you want more information about gross alpha emitters or the violation, please call us at (215) 343-1800, or the State Drinking Water office at (484) 250-5900.

Other Violations

The Township failed to collect and analyze a sample at Entry Point 104 (Well 5) for the presence of arsenic in 2015. A sample was taken for that well in 2016 and result of the analysis was less than the maximum contaminant level. This report shall serve as public notice of the sampling violation.

Definitions and Abbreviations

These are the definitions of the terms and abbreviations used in Tables 1 and 2 on the inside of this folder:

- **MCL** (*Maximum Contaminant Level*): The highest level of a contaminant that is allowed in drinking water. MCL's are set as close to the MCLG's 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. MCLG's allow for a margin of safety.

- **MRDL** (*Maximum Residual Disinfectant Level*): 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.
- **MRDLG** (*Maximum Residual Disinfectant Level Goal*): The level of a 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 contaminants.
- **ppm** (*parts per million*): one part per million corresponds to one minute in two years, a single penny in \$10,000, one ounce to 31 tons, or 1 inch in 16 miles.
- **ppb** (*parts per billion*): one part per billion corresponds to one second in 32 years, a single penny in \$10 million, a pinch of salt to 10 tons of potato chips, or 1 inch in 16,000 miles.
- **pCi/l** (*picocuries per liter*): picocuries per liter is a measure of the radioactivity of water.
- **NTU** (*Nephelometric Turbidity Unit*): nephelometric turbidity unit is a measure of the clarity of water. Turbidity in excess of 5 NTU is just noticeable to the average person.
- **AL** (*Action Level*): the concentration of a contaminant, which, if exceeded, triggers treatment or other requirements, which a water system must follow.
- **TT** (*Treatment Technique*): a treatment technique is a required process intended to reduce the level of a contaminant in drinking water.

TABLE 1 - WARRINGTON TOWNSHIP WESTERN SYSTEM 2015 WATER MONITORING

Substance (Unit of Measurement)	Violation YES/NO	Level Detected	Range Detected	MCL	MCLG	Likely source of substance
Microbiological Contaminants:						
Total Coliform Bacteria	NO	0	N/A	more than 1 positive monthly sample	0	Naturally present in the environment
Fecal Coliform and E. Coli Bacteria	NO	0	N/A	a routine sample and repeat sample are total coliform positive, and one is also positive for fecal coliform or E. coli	0	Human and animal fecal waste
Turbidity (NTU)	NO	0.02	0.02 - 0.04	TT	N/A	Soil runoff (See Note 3)
Disinfectant & Disinfection By-products:						
Chlorine Residual (ppm)	NO	1.32	0.98 - 1.70	MRDL = 4	MRDLG = 4	Water additive used for disinfection
TTHM (total trihalomethanes) (ppb)	NO	12.09	8.59 - 19.6	80	0	By-product of drinking water chlorination
HAA-5 (haloacetic acids - five) (ppb)	NO	5.74	4.28 - 6.77	60	0	By-product of drinking water chlorination
Bromate (ppb)	NO	1.9	1.4 - 2.8	10	0	By-product of drinking water chlorination
Inorganic Contaminants:						
Barium (ppm)	NO	0.02	0.0 - 0.02	2	2	Erosion of natural deposits
Copper (ppm)	NO	0.54	0.03 - 0.58	AL = 1.3	1.3	Household plumbing systems (See Note 4)
Lead (ppb)	NO	0	0 - 0.004	AL = 15	0	Household plumbing systems (See Note 4)
Nitrate (as Nitrogen) (ppm)	NO	0.52	0.0 - 0.089	10	10	Runoff from fertilizer
Radioactive Contaminants:	NO	3 contaminants monitored in 2015 with none detected				
Volatile Organic Chemicals	NO	25 contaminants monitored in 2015 with none detected				
Synthetic Organic Chemicals	NO	31 contaminants monitored in 2015 with none detected				
Unregulated Contaminant Monitoring Rule (See Note 5)						
Chlorate (ppb)	N/A	126	93 - 190	N/A	N/A	Agricultural defoliant or desiccant, disinfection byproduct
Chromium-6 (ppb)	N/A	0.04	0 - 0.07	N/A	N/A	Naturally occurring element; used in making steel and other alloys
Molybdenum (ppb)	N/A	1	0 - 1.4	N/A	N/A	Naturally occurring element, used as a chemical reagent
Strontium (ppb)	N/A	113	93 - 130	N/A	N/A	Naturally occurring element, used in glass for cathode ray televisions
Vanadium (ppb)	N/A	0.1	0 - 0.3	N/A	N/A	Naturally occurring element used as chemical intermediate and catalyst

Notes: 1. Monitoring results provided by North Wales Water Authority unless otherwise noted. 2. All monitoring performed in 2015 unless otherwise noted.

3. Turbidity is a measure of the clarity of water and is a good indicator of the effectiveness of the filtration system. 4. Copper and lead levels represent 90th percentile of homes tested.

5. Unregulated contaminates are monitored for possible future regulation and do not currently have maximum contaminant levels. An additional 15 contaminants including Perfluorooctanesulfonic Acid (PFOS) and Perfluorooctanoic Acid (PFOA) were tested and not detected in the North Wales Water Authority supplied drinking water.

TABLE 2 - WARRINGTON TOWNSHIP EASTERN SYSTEM 2015 WATER MONITORING

Substance (Unit of Measurement)	Violation YES/NO	Level Detected	Range Detected	MCL	MCLG	Likely source of substance
Microbiological Contaminants:						
Total Coliform Bacteria	NO	0	N/A	more than 1 positive monthly sample	0	Naturally present in the environment
Fecal Coliform and E. Coli Bacteria	NO	0	N/A	a routine sample and repeat sample are total coliform positive, and one is also positive for fecal coliform or E. coli	0	Human and animal fecal waste
Disinfectant & Disinfection By-products:						
Chlorine Residual (ppm)	NO	0.49	0.31 - 0.69	MRDL = 4	MRDLG = 4	Water additive used for disinfection
TTHM (total trihalomethanes) (ppb)	NO	19.5	2.4 - 48.4	80	0	By-product of drinking water chlorination
HAA-5 (haloacetic acids - five) (ppb)	NO	4.23	0 - 9.83	60	0	By-product of drinking water chlorination
Inorganic Contaminants:						
Arsenic (ppb) 2012	YES ²	8.75	0.9 - 8.75	10	N/A	Erosion of natural deposits
Barium (ppm) 2012	NO	0.481	0.096 - 0.481	2	2	Erosion of natural deposits
Chromium (ppb) 2012	NO	19.1	1.8 - 19.1	100	100	Erosion of natural deposits
Copper (ppm) ³ 2013	NO	0.516	0.04 - 0.83	AL = 1.3	1.3	Household plumbing systems (See Notes 2 & 3)
Lead (ppb) ³ 2013	NO	4.01	0.09 - 5.60	AL = 15	0	Household plumbing systems (See Notes 2 & 3)
Mercury (ppb) 2012	NO	0.028	0 - 0.028	2	2	Erosion of natural deposits, runoff from landfill and cropland
Nitrate (as Nitrogen) (ppm)	NO	2.82	0.53 - 2.82	10	10	Runoff from fertilizer
Nickel (ppb) 2012	NO	2.1	1.2 - 2.1	100	100	Erosion of natural deposits
Selenium (ppb)	NO	3.3	1.9 - 3.3	50	50	Erosion of natural deposits
Volatile Organic Chemicals						
Tetrachloroethylene (ppb)	NO	0.26	n/d - 0.9	5	0	Discharge from factories and dry cleaning
Synthetic Organic Chemicals						
Di(2-Ethylhexyl) Phthalate (ppb)	NO	1.06	0.89 - 1.17	6	0	Discharge from rubber and chemical factories
Radioactive Contaminants:						
Gross Alpha (pCi/L) 2014	YES ⁵	17.89	1.98 - 26.1	15	0	Erosion of natural deposits
Combined Radium - 226/228 (pCi/L) 2014	NO	1.17	0.51 - 1.17	5	0	Erosion of natural deposits
Uranium	NO	10	9.9 - 10.2	30	0	Erosion of natural deposits
Unregulated Contaminant Monitoring Rule⁶						
1,1-dichloroethane (ppb)	N/A	0.06	0 - 0.060	N/A	N/A	Halogenated alkane; used as a solvent
1,4-dioxane (ppb)	N/A	0.12	0 - 0.12	N/A	N/A	Cyclic aliphatic ether; used as a solvent or solvent stabilizer
Chlorate (ppb)	N/A	68	0 - 68	N/A	N/A	Agricultural defoliant or desiccant; disinfection byproduct
Chlorodifluoromethane (HCFC-22) (ppb)	N/A	0.11	0 - 0.11	N/A	N/A	Chlorofluorocarbon; occurs as a gas; used as a refrigerant
Chromium (ppb)	N/A	0.36	0 - 0.36	N/A	N/A	Steel and pulp mills; erosion of natural deposits
Chromium-6 (ppb)	N/A	0.32	0 - 0.32	N/A	N/A	Natural element used in making steel and other alloys
Molybdenum (ppb)	N/A	11	0 - 11.0	N/A	N/A	Natural element used as a chemical reagent
Perfluoroheptanoic Acid (PFHpA) (ppb)	N/A	0.012	0 - 0.012	N/A	N/A	Used to make products stain, grease, heat and water resistant
Perfluorohexanesulfonic Acid (PFHxS) (ppb)	N/A	0.057	0 - 0.057	N/A	N/A	Used to make products stain, grease, heat and water resistant
Perfluorooctanesulfonic Acid (PFOS) (ppb)	N/A	0.094	0 - 0.094	N/A	N/A	Surfactant or emulsifier; used in fire-fighting foam
Perfluorooctanoic Acid (PFOA) (ppb)	N/A	0.029	0 - 0.029	N/A	N/A	Surfactant or emulsifier; used in fire-fighting foam
Strontium (ppm)	N/A	3.4	0.88 - 3.4	N/A	N/A	Natural element used in glass for cathode ray televisions
Vanadium (ppb)	N/A	3	1.1 - 3.0	N/A	N/A	Natural element used as chemical intermediate and catalyst
Notes: 1. All monitoring results from Warrington Township System are for year 2015 unless otherwise noted. 2. A violation occurred based on failure to collect and analyze a sample in the required timeframe. Subsequent testing found the sample to be below the MCL. 3. Copper and lead levels represent 90th percentile of homes tested by Warrington Township in 2013. None of the homes monitored exceed the Action Level (AL)						
4. n/d = not detected 5. Notifications regarding these violations in 2014 were sent to customers per PADEP requirements.						
6. Unregulated contaminants are those for which the EPA has not established drinking water standards. The purpose of unregulated monitoring is to assist EPA in determining the occurrence of unregulated contaminants in drinking water and whether further regulation is warranted. N/A = not applicable						