

# WARWICK TOWNSHIP WATER & SEWER AUTHORITY



## 2016 Annual Water Quality Report

Warwick Township Water & Sewer Authority (WTWSA) is committed to providing our customers with the highest quality of water. We are pleased to provide you with our Annual Water Quality Report for the year 2016, which contains valuable information about your drinking water.

The attached reports are provided by our water suppliers (North Wales Water Authority and Aqua PA) and provide important information related to your water supply. Both Aqua PA and NWWA have multiple sources so all of the information provided in their reports may not be relevant to the Warwick Township Water & Sewer Authority system.

This report summarizes the water quality provided to you by WTWSA. We are pleased to report that our water had no violations and meets or exceeds all federal and state requirements.

Our constant goal is to provide to you a safe, dependable supply of water.

Our water system is designed and operated to deliver water to our customers' plumbing systems that complies with state and federal drinking water standards. This water is disinfected using chlorine, but it is not necessarily sterile. Customer's plumbing, including treatment devices, might remove, introduce or increase contaminants in tap water. All customers should properly operate and maintain internal plumbing systems. You can obtain additional information from the EPA's Safe Drinking Water Hotline at (800) 426-4791.

### ***SOURCE OF WATER – PSWID #1090127***

WTWSA water is surface water purchased from Aqua PA through multiple interconnections. In the summer of 2013, WTWSA completed an interconnection with the North Wales Water Authority (NWWA) to supply a cost effective and redundant supply of surface water to Warwick Township.

WTWSA has received many inquiries regarding the recent news articles on the contamination of several local water supplies. The contamination issues effect ground water sources (wells) in these municipalities and most have discontinued use of those sources.

WTWSA does not use ground water sources for its water supply. 100% of our water is purchased from Aqua Pennsylvania and the North Wales Water Authority that primarily use surface water and are unaffected by the perfluorinated compound contamination in the local water supply.

If you have a private drinking water well and require additional information about the safety of your water you may call the Pennsylvania Department of Environmental Protection at 484-250-5980.

### ***STANDARDS AND TESTING***

In order to ensure quality and potability of our treated water, WTWSA, NWWA and Aqua PA monitor for all regulated constituents as required by Federal and State laws, in addition to monitoring for unregulated substances, such as radon and microbial pathogens.

This report shows the actual water quality monitoring results for the year 2016 and is designed to inform our customers about the excellent water delivered to you over the past year. Although these results represent only the data of the detected substances, your water is tested for many other substances that were not detected and therefore not shown on this report.

## QUESTIONS

We want our customers to be informed about their water quality. If you have any questions about your water quality or the information in this report, please contact Dan Ervin, Superintendent, at 215-343-3584 during normal business hours (Monday-Thursday 8:00 a.m. to 4:00 p.m. and Friday 7:00 a.m. to 3:00 p.m.). To learn more about WTWSA, attend any of our regularly scheduled meetings usually the fourth Monday of the month at 7:00 p.m. in the WTWSA Meeting Room, 1733 Township Greene, Jamison PA.

## THE FUTURE

The WTWSA thanks you for the opportunity of providing your family with quality water. The Authority is proud of the outstanding water and service it provides to its customers by our State licensed water works operators. Executive Director Michael Sullivan wishes to assure you that the Board of Directors has taken the necessary steps to guarantee a safe and plentiful water supply for you, well into the future. We ask that all our customers help us protect our water sources, which are the heart of our community, our way of life and our children's future.

Este informe contiene informacion muy importante sobre su agua de beber. Traduzcalo o hable con alguien que lo entienda bien.

Your drinking water is routinely monitored for constituents according to Federal and State laws. The following table shows detected contaminants tested by WTWSA during 2016. It shows the weighted average as well as minimum and maximum observed levels. All drinking water, including bottled drinking water, may be reasonably expected to contain at least small amounts of some constituents. It is important to remember that the presence of these constituents does not necessarily pose a health risk.

WTWSA purchases 100% of your drinking water from Aqua Pennsylvania, Inc. and NWWA. Aqua, NWWA and WTWSA regularly test for more than 80 contaminants that are regulated by the U.S. Environmental Protection Agency (EPA). To monitor and ensure water quality, we collectively test for at least another 80 parameters. WTWSA encourages actions by individuals to protect water quality, including the responsible use of lawn care chemicals and the proper disposal of household hazardous waste, unused pharmaceuticals and health care products.

## CHEMICAL CONTAMINANTS TESTED FOR BY WTWSA

WTWSA Treated Water	Concentration			Ideal Goal	Federal/State Standard	
Contaminants	Average	Minimum	Maximum	MCLG	MCL	Major Sources in Drinking Water
Total Coliform Bacteria, % positive samples each month	0%	0%	0%	0%	5% of monthly samples	Naturally present in the environment

Lead And Copper	90 <sup>th</sup> Percentile	Total # of Samples	Samples Exceeding Action Level	Ideal Goal	Federal/State Standard	
Compound				MCLG	Action Level	Major Sources in Drinking Water
Copper, ppm, 2016	0.168	40	0	1.3	1.3	Corrosion of household plumbing systems; erosion of natural deposits; leaching from wood preservatives
Lead, ppb, 2016	0	40	0	0	15	Corrosion of household plumbing systems; erosion of natural deposits

WTWSA Treated Water Disinfectants & Disinfection Byproducts	Concentration			Ideal Goal	Federal/State Standard	
	Average	Minimum	Maximum	MCLG	MCL	Major Sources in Drinking Water
Chlorine, ppm, 2016	1.07	0.30	2.28	MRDLG = 4	MRDL = 4	Water additive used to control microbes
Haloacetic acids, ppb, 2016	.006	0	.014	NA	60	Byproduct of drinking water chlorination
Total Trihalomethanes, ppb 2016	.026	.014	.037	NA	80	Byproduct of drinking water chlorination

#### NOTES:

**Action Level (AL):** The concentration of a contaminant, which if exceeded, triggers treatment or other requirements which a water system must follow.

**Disinfection Byproducts Rule (DBP):** Beginning in 2003 under the DBP rule, haloacetic acids were regulated for the first time at 60 ppb, and the standard for total trihalomethanes was lowered to 80 ppb. Compliance with the MCL is based on running annual averages.

**Maximum Contaminant Level (MCL):** 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. Some levels are based on a running annual average.

**Maximum Contaminant Level Goal (MCLG):** 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.

**Maximum Residual Disinfectant Level (MRDL):** 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.

**Maximum Residual Disinfectant Level Goal (MRDLG)**

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.

**ND:** Not detected.

**NA:** Not applicable

**ppm:** A unit of concentration equal to one part per million.

**PWSID:** Public water supply identification number.

**Unregulated Contaminant Monitoring Rule:** During 2004, monitoring was conducted for a series of unregulated compounds. This is a federal program and results were reported to USEPA. None of these compounds were detected.

#### The following information is mandated by the EPA for inclusion in this report:

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 radioactive material, and can pick up substances resulting from the presence of animals or from human activity.

Contaminations 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, stormwater runoff, and residential uses.
- Organic chemical contaminants, including synthetic and volatile organics, which are by-products of industrial process 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.

Radon is not regulated in drinking water. It is a radioactive gas that you can't see, taste, or smell. Radon can move up through the ground and into a home. Radon can also get into indoor air when released from tap water. Compared to radon entering a home through soil, radon entering a home through tap water will in most cases be a small source of radon in indoor air.

In order to ensure that tap water is safe to drink, EPA prescribes regulations that limit the amount of certain contaminants in water provided by public water systems. FDA regulations establish limits for contaminations 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 Environmental Protection Agency's (EPA) Safe Drinking Water Hotline (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 some 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).

Warwick Township Water & Sewer Authority  
1733 Township Greene: P.O. Box 315  
Jamison, PA 18929  
215-343-3584  
[wtwsa.org](http://wtwsa.org)



## 2016 Water Quality Report Main System, PWSID#: PA1460073

*Este informe contiene información muy importante sobre su agua potable. Tradúzcalo ó hable con alguien que lo entienda bien.*

**About Your Drinking Water-** Aqua Pennsylvania, Inc. (Aqua) is pleased to provide you with important information about your drinking water in this 2016 Consumer Confidence Report for the Main System (public water supply ID PA1460073). The report summarizes the quality of water Aqua provided in 2016 -- including details about water sources, what the water at your tap contains, and how it compares to standards set by regulatory agencies. Although the report lists only those regulated substances that were detected in your water, we test for more than what is reported. This report is only a summary of our testing during 2016. If you have any questions about the information in this report, please call 877.987.2782 or visit our website at [AquaAmerica.com](http://AquaAmerica.com).

**Sources of Supply --** Water for the Main System comes from eight surface water sources and a number of groundwater sites (wells). Source water assessments were completed in 2002 and 2003 for the Chester, Ridley, Crum, Pickering, Perkiomen, and Neshaminy creeks, the Schuylkill River, and wells in the Main System. The sources, overall, have a moderate risk of significant contamination. A status report of source water assessments is available on the Pennsylvania Department of Environmental Protection (DEP) website at [www.depweb.state.pa.us](http://www.depweb.state.pa.us) (DEP keyword "source water"). Complete reports were distributed to municipalities, water suppliers, local planning agencies, and DEP offices. Copies of the complete report are available for review at the DEP Southeast Regional Office, Records Management Unit, 484.250.5900.

The sources of drinking water (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 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 result from urban storm 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, stormwater runoff, and residential uses.
- Organic chemical contaminants, including synthetic and volatile organics, which are byproducts 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. Radon is not regulated in drinking water. It is a radioactive gas that you can not see, taste, or smell. Most radon enters homes directly from underground - not from the water supply. Radon can dissolve in water and can be released into air from tap water, but this is generally a small source of radon in indoor air.

To ensure that tap water is safe to drink, the Environmental Protection Agency (EPA) prescribes regulations that limit the amount of certain contaminants in water provided by public water systems. FDA 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 Environmental Protection Agency's (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 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 at 800.426.4791.

The following table lists contaminants that were detected during 2016 in your water system. The table provides the average for the sources used to supply the Main System, as well as minimum and maximum observed levels of regulated contaminants.

Contaminants	Average Detection	Range of Detections	MCL	MCLG	Sample Date	Violation Y/N	Major Sources in Drinking Water
Total Coliform Bacteria	0%	0 – 0.04%	TT	NA	2016	N	Naturally present in the environment
Values above are % positive samples each month. During the year, one (1) sample was positive for Total Coliform Bacteria. The highest number of positive total coliform samples in a month was one (1) in July 2016.							
<i>E. coli</i>	0	0 - 1	TT	0	2016	N	Human and animal fecal waste
There was 1 positive <i>E. coli</i> sample in July 2016. All of the check samples were negative for total coliform and <i>E. coli</i> .							
Turbidity, % meeting	100%	99.7 - 100.0%	TT	NA	2016	N	Soil runoff
Values above are % meeting plant performance level. The Treatment Technique (TT) requirement is 95% of samples < 0.3 NTU							
<b>Inorganic Contaminants</b>							
Barium, ppm	0.06	0.04 – 0.09	2	2	2016	N	Erosion of natural deposits
Chromium, ppb	2.4	1.2 – 6.0	100	100	2016	N	
Fluoride, ppm	0.09	ND - 0.5	2	2	2016	N	Erosion of natural deposits; water additive to promote strong teeth
Nitrate, ppm	3.4	1.0 – 5.0	10	10	2016	N	Runoff from fertilizer use; leaching from septic tanks, sewage; erosion of natural deposits
Selenium, ppb	0.57	ND – 2.3	50	50	2016	N	Erosion of natural deposits
<b>Radiological Contaminants</b>							
Gross alpha, pCi/L	1.8	ND – 8.14	15	0	2013, 2014	N	Erosion of natural deposits
Combined radium, pCi/L	0.2	ND - 1.4	5	0	2011, 2013, 2015	N	
Uranium, ppb	ND	ND - 7.6	30	0	2011, 2013	N	
<b>Disinfectant Residual</b> - Values below reflect results from routine monthly distribution sampling at multiple sites.							
Chloramines, ppm	2.0	1.5 – 2.5	MRDL = 4	MRDLG = 4	2016	N	Water additive used to control microbes
<b>Disinfection Byproducts</b> - For haloacetic acids and total trihalomethanes, average detection is the highest locational running annual average (LRAA) in the water system.							
Haloacetic acids, ppb	27.5	ND – 64.6	60	NA	2016	N	Byproduct of drinking water disinfection
Total Trihalomethanes, ppb	41.1	5.4 – 82.9	80	NA	2016	N	
<b>Volatile Organic Contaminants</b>							
Trichloroethylene, ppb	0.066	ND - 2.3	5	0	2016	N	Metal degreasing sites and other factories
Tetrachloroethylene, ppb	0.5	ND – 3.0	5	0	2016	N	Factories and dry cleaners

Most of the Main System is supplied from surface water sources; however, radon is more prevalent in groundwater supplies. In 2016, the average concentration of radon in groundwater sources was 350 pCi/L. The highest level observed was 1,530 pCi/L in a groundwater supply. There is no federal or state standard for radon in drinking water.

*Cryptosporidium* is a microbial parasite found in waters throughout the United States. During monitoring of raw surface water sources (prior to treatment), 192 samples were collected in 2016. The average concentration of *Cryptosporidium* oocysts was not detected. The range of samples collected during 2016 was ND – 0.1 oocysts per liter. As a frame of reference, the lowest category of risk has been set by EPA as an average concentration of less than 0.075 per liter. Results from 2016 support the low risk category. Monitoring will continue through March 2017.

As a part of Aqua's commitment to ensuring the ongoing health and safety of our customers, we are proactively conducting regular testing of our water sources in areas of eastern Montgomery County impacted by groundwater contamination from perfluorooctanoic acid (PFOA) and perfluorooctanesulfonic acid (PFOS) originating from nearby military bases.

Aqua will routinely update its findings for PFOA and PFOS and share them on [WaterFacts.com](http://WaterFacts.com) so customers can stay informed. In addition, Aqua is diligently collecting samples from a broader geographic area to evaluate any regional impact and possible next steps. In the interim, please be assured that the water Aqua provides tests below the EPA's health advisory levels for PFOA/PFOS and is safe to drink.

## Notes:

**Action Level (AL):** The concentration of a contaminant which, if exceeded, triggers treatment or other requirements.

**Fluoride:** Fluoride might help prevent tooth decay for children but can be harmful in excess. Customers in the Main System receive water mostly from unfluoridated supplies, but some areas receive fluoridated water. Operational testing in the distribution system indicates that some customers in the Main System receive water with fluoride up to 0.76 ppm. For more information about fluoride in your tap water, call Aqua at 877.987.2782 or visit our website at [AquaAmerica.com](http://AquaAmerica.com). This information might be helpful to you, your pediatrician, or your dentist in determining whether fluoride supplements or treatment are appropriate.

**Maximum Contaminant Level (MCL):** 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.

**Maximum Contaminant Level Goal (MCLG):** 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.

**Maximum Residual Disinfectant Level (MRDL):** 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.

**Maximum Residual Disinfectant Level Goal (MRDLG):** 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.

**NA:** Not applicable.

**ND:** Not detected.

**Nitrate:** Nitrate in drinking water at levels above 10 ppm is a health risk for infants of less than six months of age. High nitrate levels in drinking water can cause blue baby syndrome. Nitrate levels may rise quickly for short periods of time because of rainfall or agricultural activity. If you are caring for an infant, you should ask advice from your health care provider.

**NTU:** Nephelometric turbidity unit (cloudiness of water).

**Turbidity:** Monitored as a measure of treatment efficiency for removal of particles. Plant Performance Level: 0.3 NTU.

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

**pCi/L, picoCuries/Liter:** A unit of concentration for radioactive contaminants.

**ppb:** A unit of concentration equal to one part per billion.

**ppm:** A unit of concentration equal to one part per million.

Our water systems are designed and operated to deliver water to our customers' plumbing systems that complies with state and federal drinking water standards. This water is disinfected using chlorine, but it is not necessarily sterile. Customers' plumbing, including treatment devices, might remove, introduce, or increase contaminants in tap water. All customers, and in particular operators of facilities like hotels and institutions serving susceptible populations (like hospitals and nursing homes), should properly operate and maintain the plumbing systems in these facilities. You can obtain additional information from the EPA's Safe Drinking Water Hotline at 800.426.4791.

Contaminants	Entry Point #	Minimum Residual Level Required	Lowest Level Detected	Range of Detections	Sample Date	Violation Y/N	Major Sources in Drinking Water
<b>Entry Point Disinfectant Residual</b>							
Chlorine, ppm	112, 115, 116, 117, 136, 138	0.2	0.55	0.55 – 3.65	2016	N	Water additive used to control microbes
	103, 107, 109, 111, 125, 132, 137, 139	0.4	0.01*	0.01 - 3.69	2016	N	
	105, 106, 110, 114, 126, 135	>0.4	0.01*	0.01 – 3.85	2016	N	

\*Disinfectant levels did not drop below the required minimum residual level for more than 4 hours.

<b>Total Organic Carbon (TOC)</b>						
Contaminant	Range of % Removal Required	Range of % removal achieved	Number of quarters out of compliance	Sample Date	Violation Y/N	Sources of Contamination
TOC	25 - 35	24 - 50	0	2016	N	Naturally present in the environment

<b>Lead and Copper Results</b>								
Lead and Copper	90th Percentile	Total Number of Samples	Samples Exceeding Action Level	Action Level	MCLG	Sample Date	Violation Y/N	Major Sources in Drinking Water
Copper, ppm	0.34	71	0	1.3	1.3	2016	N	Corrosion of household plumbing
Lead, ppb	2.8	71	1	15	0	2016	N	

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. Aqua 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 cold water tap for 30 seconds to 2 minutes before using water for drinking or cooking. If you are concerned about lead in your water, you might 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 at 800.426.4791 or [www.epa.gov/safewater/lead](http://www.epa.gov/safewater/lead).

The 1996 amendments to the Safe Drinking Water Act (SDWA) require that once every five years, the U.S. Environmental Protection Agency (EPA) issue a new list of no more than 30 unregulated contaminants to be monitored by public water systems (PWSs). The Unregulated Contaminant Monitoring Rule (UCMR) provides EPA and other interested parties with scientifically valid data on the occurrence of contaminants in drinking water. These data serve as a primary source of occurrence and exposure information that the agency uses to develop regulatory decisions. If a PWS monitoring for UCMR3 finds contaminants in its drinking water, it must provide the information to its customers in this annual water quality report. Below is a table of the results of our UCMR3 monitoring in 2013. All other contaminants tested during UCMR3 were Not Detected.

<b>Unregulated Contaminants Detected During 2013</b>			
Unregulated Contaminant	Average Detection	Range of Detections	MCL
1,1-Dichloroethane, ppb	ND	ND - 0.138	NA
1,4-Dioxane, ppb	0.195	ND - 1.51	NA
1,2,3-Trichloropropane, ppb	ND	ND - 0.169	NA
Chlorate, ppb	122	ND - 838	NA
Chromium, ppb	0.20	ND - 2.6	NA
Hexavalent chromium, ppb	0.28	ND - 2.6	NA
Molybdenum, ppb	ND	ND - 3.6	NA
Strontium, ppb	163	31 - 354	NA
Vanadium, ppb	0.46	ND - 1.2	NA





# NWWA

## Water Quality Report

# 2017



Water Quality Report 2017

 North Wales Water Authority  
200 West Walnut Street  
P.O. Box 1339  
North Wales, PA 19454-0339

## WHAT'S INSIDE...

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 muy importante sobre su agua beber. Tradúzcalo o hable con agulen que lo entienda bien.

This report includes information about where your water comes from, what it contains and how it compares with the standards mandated by the U.S. Environmental Protection Agency and the Pennsylvania Department of Environmental Protection. You are being provided a copy of this report in compliance with the Safe Drinking Water Act. Landlords, businesses, schools and other property owners are strongly encouraged to share this water quality report with their tenants and employees.

For free additional copies or more information about your water and this report, call the North Wales Water Authority at 215-699-4836.

### OUR COMMITMENT TO QUALITY

The North Wales Water Authority takes great pride in delivering water of the highest quality to our customers. We are proud to report that 2016 marked the 21st consecutive year the Authority exceeded all state and federal Safe Drinking Water Act requirements.

We want you to learn as much as you can about your tap water. This report is designed to help you learn about the science behind your water. It explains where your water comes from, how it is monitored and it outlines which regulated substances were detected in the water supply over the last year. To view a list of all substances that were monitored, visit our website at [nwwater.com/go/quality](http://nwwater.com/go/quality).

To learn about the water treatment process at our Forest Park Water (FPW) facility, we encourage you to visit our website at [nwwater.com/go/videos](http://nwwater.com/go/videos). You'll be able to follow the path of your drinking water from the Delaware River all the way to FPW. You'll be able to tour the facility and learn about the sophisticated treatment processes, all from the comfort of your home.

We are also available to talk to your group. You may request a visit by calling our office at 215-699-4836 or filling out a form on our website.

If you'd like to learn more about NWWA, please attend any of our regularly scheduled Board of Directors meetings. The Board meets on the 2nd and 4th Wednesdays of each month at 5:00 p.m. at the Authority office at 200 W. Walnut St., in North Wales.

### SOURCES OF WATER

In 2016, approximately 90% of the water that NWWA delivered to its customers was treated surface water from the Forest Park Water Treatment Plant. The source of water that is treated at Forest Park is the North Branch Neshaminy Creek. The North Branch originates as a small stream near Route 413 in Central Bucks County. The creek then flows into Lake Galena, which is the reservoir for Forest Park. Water

released from Lake Galena flows down the North Branch to where it is then drawn into the Forest Park Water Treatment Plant, in Chalfont, Pennsylvania. At times throughout the year, water is pumped from the Delaware River at Point Pleasant and diverted into the North Branch near Gardenville, Pennsylvania. This diversion controls the level of Lake Galena for recreational and storm water retention purposes, ensures a sufficient drinking water supply, and maintains baseflow in the stream. The remaining 10% of water came from 13 groundwater supply wells that NWWA operates. These wells are located throughout our service territory. The water from these wells is chlorinated before it is delivered to our customers' homes.

In June 2011, a Source Water Assessment of the North Branch Neshaminy Creek Intake, which supplies water to the Forest Park Water Treatment Plant, was completed by Spotts, Steven & McCoy, Inc. for the Pennsylvania Department of Environmental Protection (PA-DEP). The Assessment found that the North Branch Neshaminy Creek Intake is potentially most susceptible to point sources of pollution from auto repair shops, wastewater treatment plants, boating, quarries, on-lot septic systems and gas stations. Non-point sources of potential contamination include major transportation corridors and runoff from areas of urban development, livestock farming, and industrial parks. The most serious potential sources are related to accidental release of a variety of materials along transportation corridors and high nutrients from Lake Galena. The Forest Park Water Treatment Plant has the capability to treat a wide array of contaminants and minimize any negative impacts from such sources. Regular and frequent monitoring of the water supply allows us to identify any concerns and remediate any problems in a timely manner. Contingency plans and emergency response plans are in place to deal with any release of contaminants or accidental occurrences that could compromise the integrity of your drinking water quality. A Source Water Assessment of our groundwater sources was also completed in June 2011 by Spotts, Steven & McCoy, Inc. Most of the land that surrounds NWWA wells is highly developed residential areas. The Assessment has found that our groundwater sources are potentially most susceptible to transportation corridors, residential activities, railroad transportation, wastewater disposal, and golf courses. Summary reports of the Assessments are available on the Source Water Assessment Summary Reports eLibrary web page: <http://www.elibrary.dep.state.pa.us/dsweb/View/Collection-10045>. Complete reports were distributed to municipalities, water suppliers, local planning agencies and PA-DEP offices. Copies of the complete reports are available for review at the PA DEP Southeast Regional Office, Records Management Unit at 484-250-5910.



TABLE OF DETECTED SAMPLE RESULTS

NWWA PWS ID# 1460048

Chemical Contaminants								
Contaminant	MCL	MCLG	Level Detected	Range of Detections	Units	Sample Data	Violation Y/N	Sources of Contamination
Chlorine (in distribution system)	4.0	4.0	0.75	0.20-1.37	ppm	2016	No	Water additive used for disinfection.
Total Trihalomethanes (TTHM)	80	0	26.8	7.4-46.2	ppb	2016	No	By-products of drinking water disinfection.
Haloacetic Acids (HAA5)	60	0	9.55	3.58-19.3	ppb	2016	No	By-products of drinking water disinfection.
Bromate	10	0	2.9	1.8-3.8	ppb	2016	No	By-product of drinking water disinfection.
Nitrate (as Nitrogen)	10	10	2.08	0.0-3.91	ppm	2016	No	Runoff from fertilizer use; leaching from septic tanks; erosion of natural deposits.
Barium	2	2	0.02	0.0-0.02	ppm	2016	No	Discharge of drilling wastes; discharge from metal foundries; erosion of natural deposits.
Combined Uranium	30	0	1.95	0.0-9.45	ppb	2014	No	Erosion of natural deposits.

Entry Point Disinfectant Residual								
Contaminant	Minimum Disinfectant Residual	Level Detected	Range of Detections	Units	Sample Data	Violation Y/N	Sources of Contamination	
Chlorine	0.40	0.88	0.42-1.76	ppm	2016	No	Water additive used to control microbes.	

Lead and Copper							
Contaminant	Action Level (AL)	MCLG	90th Percentile Value	Units	# of Sites Above AL of Total Sites	Violation Y/N	Sources of Contamination
Lead (June 2016)	15	0	5.0	ppb	0 out of 33	No	Corrosion of household plumbing.
Copper (June 2016)	1.3	1.3	0.420	ppm	0 out of 33	No	Corrosion of household plumbing.

Naturally occurring levels of lead and copper in the source water are non-detectable. This table represents the level detected in the 90th percentile of homes monitored in accordance with the US-EPA Lead and Copper Rule. None of the homes monitored exceeded the Action Levels (AL).

Turbidity							
Contaminant	MCL	MCLG	Level Detected	Range of Detections	Sample Data	Violation Y/N	Sources of Contamination
Turbidity*	TT=1 NTU for a single measurement	N/A	0.02	0.01-0.04	2016	No	Soil runoff.
Turbidity	TT=at least 95% of monthly samples <0.3 NTU	N/A	100%	N/A	2016	No	Soil runoff.

Turbidity is the measure of the clarity of water. As a member of the Partnership for Safe Drinking Water, our goal is to maintain turbidity levels below 0.1 NTU. This was achieved throughout 2016.

CRYPTOSPORIDIUM AND GIARDIA

Cryptosporidium and Giardia are microbial pathogens found in surface water throughout the U.S. Monitoring of our source water (before treatment) at Forest Park indicated the presence of Cryptosporidium in 6 out of 12 samples collected. Giardia was detected in 7 out of 12 samples collected. FPW treatment processes are designed to remove or inactivate Cryptosporidium and Giardia cysts with a high level of certainty. Current available test methods do not allow us to determine if the organisms are dead or if they are capable of causing disease. Symptoms of infection include nausea, diarrhea, and abdominal cramps. Most healthy individuals can overcome the disease within a few weeks. However, immuno-compromised people, infants and small children, and the elderly are at greater risk of developing life-threatening illness. NWWA encourages immuno-compromised individuals to consult their doctor regarding appropriate precautions to take to avoid infection. Cryptosporidium and Giardia must be ingested to cause disease, and it may be spread through means other than drinking water.

HOW CAN I LEARN MORE ABOUT MY DRINKING WATER?

More information may be obtained from the following:

Environmental Protection Agency • Safe Drinking Water Hotline: 1-800-426-4791 • www.epa.gov/your-drinking-water  
Pennsylvania Department of Environmental Protection • Bureau of Water Standards and Facility Regulations 717-772-4018 • www.depweb.state.pa.us  
American Water Works Association • 1-800-926-7337 • www.awwa.org

TABLE DEFINITIONS

Our water quality table contains terms and abbreviations you might not be familiar with. The following definitions may help you better understand the table.

**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.

**MinRDL - 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 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 contamination.

**Nephelometric Turbidity Unit (NTU)** - a measure of the clarity of water. Turbidity in excess of 5 NTU is just noticeable to the average person.

**Parts per million (ppm) or Milligrams per liter (mg/L)** - one part per million corresponds to one minute in two years or a single penny in \$10,000.

**Parts per billion (ppb) or Micrograms per liter (ug/L)** - one part per billion corresponds to one minute in 2,000 years or a single penny in \$10,000,000.

**Picocuries per liter (pCi/L)** - a measure of the radioactivity in water.

**TT - Treatment Technique** - a required process intended to reduce the level of a contaminant in drinking water.

SUBSTANCES EXPECTED TO BE IN DRINKING WATER:

As water travels over the surface of the land or through the ground, it dissolves naturally occurring minerals. In addition, water can pick up substances resulting from the presence of animals or from human activity. Substances 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 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 agriculture, 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 the result of oil and gas production and mining activities.

However, water treatment significantly reduces the level of these substances in drinking water.

SHOULD I TAKE SPECIAL PRECAUTIONS?

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. More information about contaminants and potential health effects can be obtained by calling the Environmental Protection Agency’s Safe Drinking Water Hotline at: 1-800-426-4791 or visit the EPA Web site: [www.epa.gov/your-drinking-water](http://www.epa.gov/your-drinking-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. North Wales Water Authority 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](http://www.epa.gov/safewater/lead).

CUSTOMERS WITH SPECIAL NEEDS

The North Wales Water Authority maintains a list of customers who have an essential need for an uninterrupted supply of water (such as in dialysis treatments). If you have health conditions that require a continual supply of water in your home, please contact our Water Quality Department at 215-699-4836.

MONITORING YOUR WATER

In order to ensure that tap water is safe to drink, the EPA prescribes regulations which limit the amount of certain contaminants that may be in water provided by public water systems. Food & Drug Administration regulations establish limits for contaminants in bottled water which must provide the same protection for public health.

The North Wales Water Authority routinely monitors for constituents in your drinking water in accordance with federal and state laws. The tables in this report show the results of our monitoring for the period of January 1st to December 31st, 2016. All drinking water, including bottled drinking water, may be reasonably expected to contain at least small amounts of some constituents. It’s important to remember that the presence of these constituents does not necessarily pose a health risk.

Every year the Authority receives a new set of monitoring requirements from the Pennsylvania Department of Environmental Protection (DEP) based on our previous results. Individual and groups of contaminants may be required to be monitored continually, daily, weekly, monthly, quarterly, annually, etc. Currently, the Authority monitors for over 100 contaminants at ten entry points and throughout the distribution system. For a complete listing of all the contaminants that we test for, please visit our website at [www.nwwater.com](http://www.nwwater.com).