North Wales Water Authority
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WATER QUALITY REPORT 2018

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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 2018 marked the 23rd 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.

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. 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 Street, in North Wales.

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.

SOURCES OF WATER

In 2018, approximately 95% 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 5% 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 Spots, 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.

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.

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.

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.

Every year the Authority receives a new set of monitoring requirements from the Pennsylvania Department of Environmental Protection (DEP) based on our pervious results and newly identified risks. As a result of these ever-evolving regulations, we focused on four specific areas in 2018.

Unregulated Contaminants Monitoring Rule 4

Under the 1996 amendments to the federal Safe Drinking Water Act (SDWA), the U.S. Environmental Protection Agency (US-EPA) is required once every five years to issue a new list of up to 30 unregulated contaminants for which some public water systems must monitor. The intent of this rule is to provide baseline occurrence data that the US-EPA can combine with other research to make decisions about future drinking water regulations. The Authority has participated in all previous rounds of this special monitoring and conducted the fourth round, also known as the Unregulated Contaminants Monitoring Rule 4, or UCMR 4, during 2018. Monitoring was performed on all sources, entry points and throughout the Authority's distribution system.

Disinfectants Requirements Rule

The Disinfection Requirements Rule (DRR) was introduced by the Pennsylvania Department of Environmental Protection (PA-DEP) during 2018 to further protect public health through a multi-barrier approach designed to guard against microbial contamination by ensuring the adequacy of treatment to inactivate microbial pathogens and ensure the integrity of drinking water distribution systems. The Authority implemented parts of this rule during 2018 which included the individual reporting of distribution system disinfectant residual data, development of a DRR sample-siting plan that included representative locations (including dead-ends, storage facilities, interconnections, areas of high water age, and mixing zones) and a weekly sample collection schedule. It also required the Authority to install additional sampling stations to better represent areas of the distribution system.

EPA Method 334.0 Compliance

PA-DEP has adopted the United States Environmental Protection Agency (US-EPA) Method 334.0: Determination of Residual Chlorine in Drinking Water. Method 334.0 is intended for use by drinking water facilities for compliance with daily monitoring and analysis of residual chlorine and serves as a quality control procedure used to ensure that results obtained are accurate and precise. Pennsylvania drinking water systems are required to follow Method 334.0 if they use handheld, on-line or benchtop analyzers for any chlorine residual reporting for compliance purposes. Water systems conducting compliance measurements for chlorine residuals need to ensure both the analyst(s) and equipment used are compliant with Method 334.0 quality control practices. All Authority personnel involved in obtaining chlorine residuals for compliance have completed the required Method 334.0 training during 2018.

Lead and Copper Program

The Authority's Lead and Copper Program is an ongoing monitoring issue that received special focus in 2018. We are continuously evaluating our system which includes an ongoing effort of locating and testing lead service lines. We have refocused our efforts on customer outreach, reorganizing ways we communicate with our customers to encourage them to agree to sample for lead and copper in their homes during the required monitoring period. We have made use of our main replacement data, our GIS network, and our customer information system to construct a solid foundation to further build our lead and copper monitoring sample site plan.

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

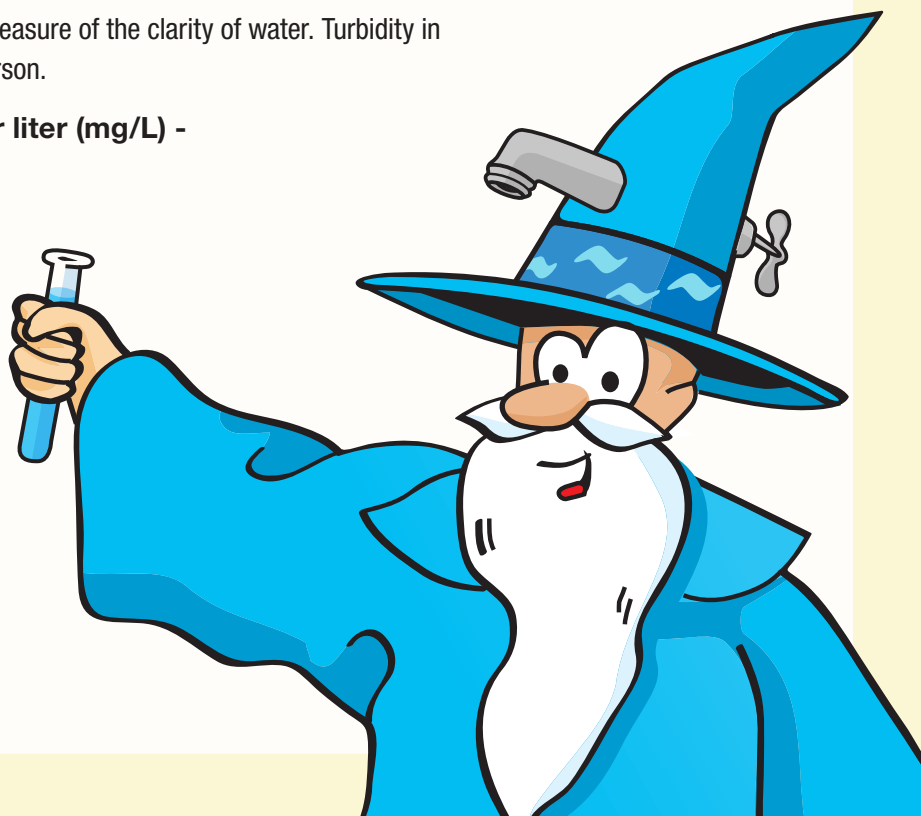

TABLE OF DETECTED SAMPLE RESULTS

NWWA PWS ID# 1460048

CHEMICAL CONTAMINANTS

Contaminant	MCL	MCLG	Level Detected	Range of Detections	Units	Sample Date	Violation Y/N	Sources of Contamination
Chlorine (in distribution system)	4.0	4.0	0.80	0.20-1.39	ppm	2018	No	Water additive used for disinfection.
Total Trihalomethanes (TTHM)	80	0	39.45	9.52-68.6	ppb	2018	No	By-products of drinking water disinfection.
Haloacetic Acids (HAA5)	60	0	16.94	6.4-40.5	ppb	2018	No	By-products of drinking water disinfection.
Bromate	10	0	2.8	2.2-3.3	ppb	2018	No	By-product of drinking water disinfection.
Nitrate (as Nitrogen)	10	10	2.56	0.359-3.96	ppm	2018	No	Runoff from fertilizer use; leaching from septic tanks; erosion of natural deposits.
Barium	2	2	0.274	0.023-0.476	ppm	2018	No	Discharge of drilling wastes; discharge from metal foundries; erosion of natural deposits.
Gross Alpha (adjusted)	15	0	.24	N/A	pCi/L	2017	No	Erosion of natural deposits.
Combined Radium (226 + 228)	5	0	2.67	2.51-2.84	pCi/L	2017	No	Erosion of natural deposits.
Combined Uranium	30	0	6.04	3.17-13.23	ppb	2017	No	Erosion of natural deposits.

ENTRY POINT DISINFECTANT RESIDUAL

Contaminant	Minimum Disinfectant Residual	Level Detected	Range of Detections	Units	Sample Date	Violation Y/N	Sources of Contamination
Chlorine	0.42	1.48	0.45-1.77	ppm	2018	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 (Sept 2017)	15	0	1.0	ppb	0 out of 33	No	Corrosion of household plumbing.
Copper (Sept 2017)	1.3	1.3	0.247	ppm	0 out of 33	No	Corrosion of household plumbing.

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.

TURBIDITY

Contaminant	MCL	MCLG	Level Detected	Range of Detections	Sample Date	Violation Y/N	Sources of Contamination
Turbidity*	TT=1 NTU for a single measurement	N/A	0.05	0.03-0.08	2018	No	Soil Runoff

* Turbidity is the measure of the clarity of water. 100% turbidity samples were below 0.1 NTU. 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 2018.

UNREGULATED CONTAMINANTS MONITORING RULE (UCMR4)*

Contaminant (Unit of Measurement)	Level Detected	Range of Detections
Manganese (ppb)	37.9	1.13-336.0
Quinoline (ppb)	0.0432	0-0.432
Chlorodibromoacetic Acid (ppb)	0.586	0.314-0.751
Dibromoacedic Acid (ppb)	0.358	0.314-0.751
Dichloroacetic Acid (ppb)	8.154	2.11-17.9
Monochloroacetic Acid (ppb)	0.740	0-4.42
Trichloroacetic Acid (ppb)	7.96	2.62-15.7

* Health Reference Level (HRL) = 300 ppb

* Environmental Source of Contamination
Naturally occurring element; commercially available in combination with other elements and minerals; used in steel production, fertilizer, batteries and fireworks; drinking water and wastewater treatment chemicals; essential nutrient.

* UCMR 4 Monitoring was performed in May, August and November of 2018

UNREGULATED CONTAMINANTS-PERFLUORINATED COMPOUNDS*

Contaminant (Unit of Measurement)	Level Detected	Range of Detections
Perfluorooctanesulfonic Acid (PFOS) (ppt)	1.5	0-2.3
Perfluorooctanoic Acid (PFOA) (ppt)	4.0	3.9-4.5

* The US-EPA Health Advisory Limit (HAL) is 70 parts per trillion (ppt) for individual or combined PFOA and PFOS. Data presented in the above table is from monthly monitoring of finished drinking water performed at the Forest Park Water Treatment Plant during 2018.

* Environmental Source of Contamination
Perfluorinated Compounds: Manmade chemicals used in fire-fighting foams, cleaners, cosmetics, greases and lubricants, paints, polishes, adhesives, and photographic films.

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