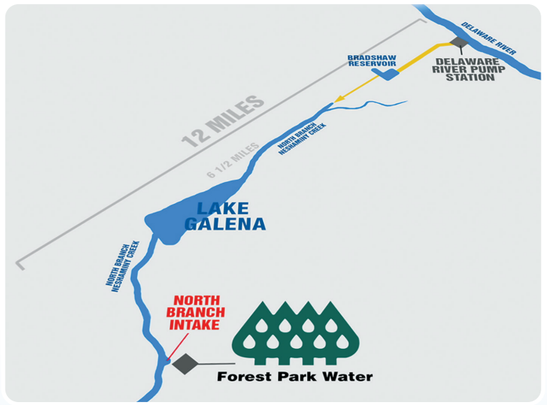
WHERE
THE WATER COMES FROM

Forest Park purifies water taken from the North Branch Neshaminy Creek just downstream of Lake Galena located in Bucks County. Since natural flows are insufficient to meet the demands of the facility, the supply is supplemented by water from the Delaware River that's pumped from the Point Pleasant Pump Station and discharged into the North Branch Neshaminy Creek. The Forest Park Water Operator efficiently manages the water supply by remotely controlling the Delaware River Pump Station and the water release gates at Lake Galena.



OUR
DEDICATED PEOPLE

Undoubtedly, our most valuable attribute is the dedicated team of professionals entrusted with the responsibility of providing a continuous supply of purified water to customers.

The Operations staff is highly trained and experienced in water treatment and plant operations. The responsibilities require a special blend of technical expertise and mechanical aptitude. Each operator maintains a Pennsylvania Water Works Operator License of the highest classification. Equally important are the specialized skills provided by our mechanical and electrical/controls staff. The reliable operation of the facility depends on their ability to maintain a tremendous amount of highly diversified equipment and respond to inevitable equipment failures.

Our management and administrative responsibilities are also unique due to the partnership between the water authorities. Unlike most water treatment plants, areas such as accounting, human resources and organizational management are handled by the Forest Park staff.

Simply stated, the success of Forest Park is ultimately attributed to the dedicated efforts and foresight of the people at Forest Park and each water authority.

AWARDS

AWWA Partnership For Safe Water participant since 1995.

AWWA Partnership For Safe Water Directors Award recipient since 2002. Forest Park Water received the 20-year Directors Award in 2022.

AWWA Partnership For Safe Water Presidents Award recipient since 2013. FPW is one of only six facilities in the U.S. to achieve the 10-year "President's Award" of recognition from the American Water Works Association's Partnership for Safe Water every year since 2013.

Area-Wide Optimization Award (AWOP) recipient, presented by the Pennsylvania Department of Environmental Protection (PADEP) every year since 2007.

Forest Park Water

A PARTNERSHIP NPWA North Penn Water Authority NWWA North Wales Water Authority

144 Park Avenue
P.O. Box 317
Chalfont, PA 18914

Forest Park Water

FULFILLING OUR MISSION

A PARTNERSHIP NPWA North Penn Water Authority NWWA North Wales Water Authority

ABOUT
FOREST PARK WATER AND THE VISION

Over 40 years ago, a plan to bring a much-needed supplemental water supply to Central Bucks County and Montgomery County was being considered. Ground water shortages in the 1960's, 70's and 80's resulted in dangerously low water supplies. Mandatory water restrictions became a routine part of life for Bucks and Montgomery County residents during summer months.

The region relied on a 100% groundwater system. Knowing that a groundwater supply would not keep up with the expected growth, North Penn and North Wales Water Authorities had to think outside the box to develop a plan to accommodate a rapidly growing population and their water needs. Thinking into the future, a surface water supply was the best option and from that, Forest Park Water was built.

The original plan for Forest Park Water was developed with the mission of providing a safe and clean supplemental water supply to the many local communities experiencing repeated cycles of drought and water restrictions. In May of 1983, construction of the Delaware River Pump Station was underway, making a surface water supply possible. Opposition to the project caused delays. It would take several years involving litigation, agreements and court orders before the Authorities were able to begin utilizing the surface water supply in 1989.

An interim treatment plant was constructed to meet the growing demand with the final plant being completed in 1994. The final plant was equipped with state-of-the-art technology, including carbon polishing and the use of ozone. In 2007, Forest Park Water was expanded to produce 40 million gallons of water a day. In 2019, Forest Park was expanded again to produce 43 million gallons of water a day with pressure membranes being added to the existing submerged membrane filtration system. Membranes are the most advanced filtration process available.

Forest Park Water continues to fulfill its mission as a regional water supplier.

HOW FOREST PARK WATER WORKS

Water treated at Forest Park begins at the Delaware River.

Water Diversion from the Delaware River

The process of producing drinking water begins at the Delaware River, where untreated, or "raw" water, is pumped by the Delaware River Pumping Station through a two-and-a-half mile transmission main to the Bradshaw Reservoir.

The plant operator remotely controls the release of water from the reservoir into a pipe, which travels one mile before spilling into the North Branch Neshaminy Creek.

Water then travels about six and a half miles to Lake Galena. Lake Galena is surrounded by Peace Valley Park and was built in 1970 for flood control, drinking water supply and recreational use.

Plant operators adjust water diversion flows from the Delaware River to control the level of Lake Galena, to ensure a sufficient drinking water supply and to facilitate recreational activities.

Gates located in Lake Galena release water through the dam and back into the North Branch Neshaminy Creek where it flows approximately two miles to the Forest Park raw water intake.

Most treatment facilities are located on the banks of their primary water source, but Forest Park Water is unique for this part of the country in that the Delaware River water is diverted to the plant from miles away.

Raw Water Intake

The intake is comprised of an inflatable rubber dam and steel bar racks. The dam creates a water pool that allows water to flow by gravity through the bar rack intake and into the raw water pump station. Excess water flows over the rubber dam to maintain downstream creek flow. In addition to the intake bar racks, traveling screens capture leaves and debris before water enters the pump station.

Inflatable Rubber Dam

Pre-treatment Stage

As raw water enters the Forest Park Water Treatment Plant, it's pumped to the initial treatment stage. First, a coagulant is added to the water to promote the clumping together of particles such as dirt and organic matter, in a process called coagulation. Coagulant-treated water then enters a gentle mixing stage called flocculation, where smaller particle masses combine to form larger, visible clumps called "floc." The floc-laden water enters sedimentation basins where, with the aid of special inclined plates, the majority of the solids settle to the bottom before the water flows to the next stage.

Sedimentation Basin

Water exiting the sedimentation basins is called "clarified water." Clarified water flows to an advanced microfiltration stage where microscopic particles are filtered out by membranes with the addition of a new pressure system.

All Forest Park Water Operators have the highest license available in the state for water works operation. The technology is set up so that a single operator can handle the treatment plant around the clock all while being able to freely move around the plant.

Membrane Filtration

Membrane filtration is a more effective barrier than traditional media filters against the passage of microscopic particles, including potentially harmful pathogens. The entire membrane system consists of millions of hollow tube fibers that remove impurities larger than .1 microns, which is smaller than one human blood cell. The surface area of all the membrane fibers combined would cover just over 30 football fields. The filtered water flowing through each fiber flows into a common pipe and is pumped to the next stage. Membrane filtration is one of this plant's most notable features and is considered the filtration technology of the future.

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Ozone Treatment

After water flows through the membrane filters, ozone gas is added to the water. The primary benefit of ozone is its powerful disinfection potential. However, it also destroys taste and odor causing compounds typically found in surface water. Because ozone gas is short-lived, it must be generated onsite and applied immediately.

Ozone is a powerful disinfectant and destroys taste and odor causing compounds.

Carbon Treatment

The ozonated water gets pumped to granular activated carbon contactors where trace amounts of undesirable organic and chemical compounds are removed by adsorptive and biological mechanisms. This occurs as the water flows through a six-foot deep bed of carbon media.

Granular Activated Carbon, or GAC, Contactors remove trace amounts of undesirable compounds.

Final Treatment

In the final treatment stage, a corrosion inhibitor is added and pH is adjusted to prevent water from leaching metals from piping in home plumbing. Chlorine is also added to maintain disinfection throughout each water authority's system.

Delivery to Customers

Clean, sparkling water is collected in the plant's clearwell, which is a 2 million gallon underground reservoir.

The pump room helps deliver clean, safe water to NPWA and NWWA customers.

Finished water flows through massive pumps for delivery to each authority's distribution system, comprised of a complex network of piping, pump stations and storage tanks. Chlorine is added at various points throughout each authority's system to ensure clean and safe water. Ninety percent of water supplied to North Penn and North Wales customers is surface water that is treated at Forest Park Water. The remaining ten percent is ground water.

Each day, high quality, affordable water is delivered to more than 100,000 homes and businesses. Excellent water quality is assured through operational proficiency and diligent monitoring. We perform continuous monitoring using online instruments, routine process analysis by the Operator, and analysis by state certified laboratories. Water leaving Forest Park consistently surpasses all state and federal regulatory standards. Therefore, our customers enjoy with confidence the refreshing water flowing from their taps.

Timeline of Milestones

1960's-1970's Droughts and ground water shortages.

1983 Construction of the Delaware River Pump Station began.

1989 Interim Forest Park Water Treatment Plant built to meet the growing water needs.

1994 Forest Park Water Treatment Plant is completed to produce 20 million gallons of water a day.

2007 FPW expanded to produce 40 million gallons of water a day and retrofitted with Membrane Filtration, the treatment process of the future.

2014 Bucks County Water and Sewer signed a contract for 10 million gallons of water a day and a 17-mile transmission main was built going into lower Bucks County.

2019 FPW expanded to produce 43 million gallons of water a day.

Forest Park Water