



NORTH PENN WATER AUTHORITY

2011 ANNUAL DRINKING WATER QUALITY REPORT

Este informe contiene información importante acerca de su agua potable. Haga que alguien lo traduzca para usted, ó hable con alguien que lo entienda.

Owners of multiple family dwellings, commercial businesses, public housing, or similar situations, are encouraged to post and/or distribute this report. Additional copies are available and can be obtained at North Penn Water Authority's operations center or by calling (215) 855-3617.

This report is also available online at www.northpennwater.org.

NPWA water meets or exceeds all State and Federal Safe Drinking Water Act standards.

North Penn Water Authority (NPWA) is pleased to present to you this year's Annual Drinking Water Quality Report. This brochure is a snapshot of last year's water quality. Included are details about where your water comes from, what it contains, and how it compares to Environmental Protection Agency (EPA) and Pennsylvania Department of Environmental Protection (PA DEP) state standards. We are committed to providing you with information because informed customers are our best allies. The Authority's staff of professionals is dedicated to

safe

quality

tested

economical

ensuring that our customers receive a safe, economical, and continuous supply of water.

In 2011, approximately 85% of the water that NPWA delivered to its customers was treated surface water from the Forest Park Water Treatment Plant located in Chalfont. NPWA operated 12 groundwater wells located throughout our service territory, in Bucks and Montgomery Counties.

NPWA routinely monitors for constituents in your drinking water according to Federal and State laws. These tables show the results of our monitoring for the period of **January 1 to December 31, 2011. These tables contain the most recent data used to assure compliance with Federal and State laws. All data is from 2011 unless otherwise indicated.**

While NPWA tests for over 100 contaminants to ensure water quality, only detected values of contaminants are included in the table of this report. A list of contaminants that NPWA monitors for but were not detected is in a separate portion of this report. The state allows us to monitor for some contaminants less than once per year because the concentrations of these contaminants do not change frequently. Some of our data, though representative, are more than one year old.



It is important for our valued customers to be informed about their water quality. If you have any questions about this report or regarding your water utility, please contact Marianne Morgan, Community Relations Coordinator, at **(215) 855-3617** or visit our website at www.northpennwater.org. If you want to learn more about NPWA, please attend any of our regularly scheduled Board of Directors meetings. Meetings are held on **the fourth Tuesday of every month at the Authority's operations center located near the intersection of Forty Foot and Allentown Roads, in Towamencin Township. Meetings begin at 7:30 p.m.**

HOW NPWA IS PROTECTING THE WATER YOU DRINK

In 2011, NPWA became the first water utility in Pennsylvania to join American Water Works Association's (AWWA) Distribution Optimization Program. This program is part of AWWA's Partnership for Safe Water whose objective is to identify opportunities for improvement in system operations and to empower system operators with knowledge to recognize and apply procedures that result in water quality and system reliability improvements. NPWA's participation in this voluntary program demonstrates our commitment to providing the best quality water to our customers.

To enhance water quality, NPWA performs an annual hydrant flushing program which takes place in the spring of each year. This flushing program helps improve water quality by removing any possible build-up of mineral deposits from the inside of water distribution pipes. NPWA also has an aggressive water main replacement program to improve the quality of water that we deliver to our customers. Old unlined cast iron mains, that can affect water quality and restrict flow, are replaced on a regular basis. These projects are scheduled when Penn DOT or our member municipalities are doing work on the roads to reduce inconvenience to the community.

The Authority has continued to work proactively to protect its sources of water. The North Branch Watershed Association (NBWA) provides educational speakers at meetings, performs riparian buffer plantings, stream cleanups and supports township and county endeavors to mark stream input locations on roadways and private areas. NBWA is dedicated to protecting the North Branch of the Neshaminy Creek, which provides approximately 85% of North Penn Water Authority's source water. Any individuals wishing to become involved in the North Branch Watershed Association may contact Marianne Morgan at the Authority at **215-855-3617** or Meghan Rogalus, Watershed Specialist at Bucks County Conservation District at **215-345-7577, ext. 107**.

In 2009, NPWA's Wellhead Protection (WHP) Program was approved by the PA DEP. The Authority's WHP Program meets the requirements for a local WHP program in accordance with the Pennsylvania Safe Drinking Water Regulations. The WHP program provides valuable information to the Authority such as: identifying the protection zone around each well,

identifying potential sources of contamination for each well, identifying the land areas around our wells, and the underground geologic layers, that are within the pumping zones of influence. This information will greatly assist the Authority in dealing with emergency response in case of a hazardous spill event that could threaten the well, so that remedial measures could be put in place. Also, implementation of contingency planning could involve revisions to local land use practices, if necessary, to protect the integrity of the groundwater supply.

A Source Water Assessment of our groundwater sources was completed in 2005 by the PA DEP. Most of the land that surrounds NPWA wells is highly developed commercial and residential areas, with a small

amount of forested or agricultural/undeveloped land. The Assessment has found that our groundwater sources are potentially most susceptible to transportation corridors, residential and agricultural activities, railroad transportation, auto repair shops, machine/metal working businesses, National Priorities List (NPL) sites, industrial wastewater disposal, golf courses, a recycling center and a print shop.

In 2003, a Source Water Assessment of the North Branch Neshaminy Creek Intake, which supplies water to the Forest Park Water Filtration Plant, was completed and prepared by Spotts, Steven & McCoy, Inc. for the 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. If you are interested in obtaining information concerning Source Water Assessments for the state, please contact the Authority or the state PA DEP at **484-250-5970** or you may obtain copies of these Assessments at www.dep.state.pa.us (**keyword: DEP source water**).



North Penn Water Authority serves over 32,000 customers in the following municipalities:

- | | |
|------------------------|-------------------------|
| Hatfield Borough | <i>and portions of:</i> |
| Lansdale Borough | East Rockhill Township |
| Sellersville Borough | Hilltown Township |
| Souderton Borough | Montgomery Township |
| Franconia Township | New Britain Borough |
| Hatfield Township | New Britain Township |
| Lower Salford Township | Salford Township |
| Skippack Township | Upper Gwynedd Township |
| Towamencin Township | Upper Salford Township |
| | West Rockhill Township |
| | Worcester Township |



DETECTED SAMPLE RESULTS

PWSID # 1460034

CONTAMINANTS – Tested at the Wells and Treatment Plant

Contaminant (Unit of Measure)	Violation Yes/No	Average Level Detected	Range Detected	MCLG	MCL	Major Sources in Drinking Water
Disinfectant Residuals and Disinfection By-products (DBPs)						
Bromate (ppb)	No	1.9	1.2 – 2.2	0	10	By-product of drinking water disinfection
Chlorine (ppm) (Leaving Treatment Plant)	No	1.10	0.85 - 1.22	MRDLG=4	MRDL=4	Water additive used to control microbes
Chlorine (ppm) (Leaving the Wells)	No	0.94	0 – 2.0	MRDLG=4	MRDL=4	Water additive used to control microbes
Inorganic Contaminants						
Arsenic (ppb)	No	2.2	0 – 8.1	0	10	Erosion of natural deposits; runoff from orchards; glass and electronics production wastes
Barium (ppm)	No	0.2	0 - 0.4	2	2	Discharge of drilling wastes; discharge from metal refineries; erosion of natural deposits
Fluoride (ppm)	No	0.08	0.05 - 0.11	2	2	Erosion of natural deposits; discharge from fertilizer and aluminum factories
Nickel (ppb)	No	0	0 - 0.8	100	100	Erosion of natural deposits; by-product of various industrial processes
Nitrate (ppm)	No	2.1	0.7 – 4.3	10	10	Runoff from fertilizer use; leaching from septic tanks; sewage; erosion of natural deposits
Radionuclides						
Alpha Emitters (pCi/L) ¹	No	5.9	1.0 – 18.6	0	15	Erosion of natural deposits
Uranium (µg/L)	No	5.3	1.5 – 10.4	0	30	Erosion of natural deposits
Synthetic Organic Contaminants (SOCs)						
Atrazine (ppb)	No	0	0 – 0.1	3	3	Runoff from herbicide used on row crops
Volatile Organic Contaminants (VOCs)						
Tetrachloroethylene (ppb)	No	0	0 – 0.7	0	5	Discharge from factories and dry cleaners
Trichloroethylene (ppb)	No	0	0 – 0.8	0	5	Discharge from metal degreasing sites and other factories
Performance Monitoring at the Treatment Plant						
Total Organic Carbon (% removal) ²	No	47.6 – 67.3 Removal Achieved	35 – 50 Removal Required	N/A	TT	Naturally present in the environment
Turbidity (NTU) ³	No	0.03	0.02 - 0.05	N/A	TT	Soil runoff
Unregulated Contaminants						
Metolachlor ESA (ppb) (March 2009 – April 2010 Results)	N/A	0	0 - 1.1	N/A	N/A	Degradation product of metolachlor which is a broad spectrum herbicide used for general weed control in non-crop areas; widely used on crops such as corn, cotton, peanuts, grass for seed production, nurseries, hedgerows/fencerows, and landscape plantings
N-Nitrosodiethylamine (NDEA) (ppb) (March 2009 – April 2010 Results)	N/A	0	0 – 0.0086	N/A	N/A	Nitrosamines can form as intermediates and byproducts in chemical synthesis and manufacture of rubber, leather, and plastics; can form spontaneously by reaction of precursor amines with nitrate and related compounds, or by action of nitrate-reducing bacteria
Radon (pCi/L) (2008 Results)	N/A	1421	0 - 5300	N/A	N/A	A gas that comes from the natural radioactive breakdown of uranium in the soil

¹One well had a result that exceeded the MCL. A follow-up sample was taken and results were below the MCL and the average result was within compliance. This well has been turned off permanently.

²100% of all samples met the required total organic carbon removal.

³Turbidity is a measure of the cloudiness of the water. We monitor it because it is a good indicator of the effectiveness of our filtration system. 100% of all samples were <0.1 NTU. As a member of the Partnership for Safe Drinking Water, our goal is to achieve <0.1 NTU. We accomplished this in 2011.

DISINFECTANT RESIDUALS AND DISINFECTION BY-PRODUCTS – Tested Throughout the Distribution System

Contaminant (Unit of Measure)	Violation Yes/No	Average Level Detected	Range Detected	MCLG	MCL	Major Sources in Drinking Water
Chlorine (ppm)	No	0.68	0.55 - 0.87	MRDLG=4	MRDL=4	Water additive used to control microbes
HAA5 [Haloacetic Acids] (ppb)	No	8.7	0 – 17.4	N/A	60	By-product of drinking water disinfection
TTHM [Total Trihalomethanes] (ppb)	No	22.2	7.2 – 42.6	N/A	80	By-product of drinking water disinfection

BACTERIA IN TAP WATER – Tested Throughout the Distribution System

Contaminant	Violation Yes/No	Highest % of Positive Samples	Monthly Range of Positive Samples	MCLG	MCL	Major Sources in Drinking Water
Total Coliform Bacteria	No	1.1	0 – 1.1	0	5% of monthly samples are positive	Naturally present in the environment

LEAD AND COPPER – Tested at Customers' Taps – Most recent tests were done in 2010

Contaminant (Unit of Measure)	Violation Yes/No	90th Percentile Result	Action Level (AL)	MCLG	# of Sites Above AL of Total Sites	Major Sources in Drinking Water
Copper (ppm)	No	0.702	1.3	1.3	1 out of 33	Corrosion of household plumbing systems
Lead (ppb)	No	0	15	0	1 out of 33	Corrosion of household plumbing systems

In the above tables you will find many terms and abbreviations you might not be familiar with. To help you better understand these terms, we've provided the following definitions:

- **Action Level (AL):** The concentration of a contaminant which, if exceeded, triggers treatment or other requirements which a water system must follow.
- **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 contamination.
- **Treatment Technique (TT):** A required process intended to reduce the level of a contaminant in drinking water.
- **N/A:** Not Applicable
- **NTU:** Nephelometric turbidity unit is a measure of the clarity of water. Turbidity in excess of 5 NTU is just noticeable to the average person.
- **pCi/L:** picocuries per liter (a measure of radioactivity in water)
- **ppb:** parts per billion, or micrograms per liter (µg/L)
- **ppm:** parts per million, or milligrams per liter (mg/L)



P.O. Box 1659 • Lansdale, PA 19446
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 This report is also available online at
www.northpennwater.org

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2011



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This report is being mailed to you as a requirement of the federal Safe Drinking Water Act.

PWSID#1460034

"A dedicated, professional workforce committed to providing the community with a safe, reliable, and economical water supply."

PEOPLE WITH SPECIAL HEALTH CONCERNS

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

HEALTH EFFECTS 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.

Nitrate in drinking water at levels above 10 ppm is a health risk for infants of less than 6 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.

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 Penn 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 EPA's Safe Drinking Water Hotline or at www.epa.gov/safewater/lead.

Radon was tested in our wells in 2008. There is no federally-enforced drinking water standard for radon. Radon is a radioactive gas that you can't see, taste, or smell. It is found throughout the U.S. Radon can move up through the ground and into a home through cracks and holes in the foundation. Radon can build up to high levels in all types of homes. Radon can also get into indoor air when released from tap water from showering, washing dishes, and other household activities. Compared to radon entering the home through soil, radon entering the home through tap water will in most cases be a small source of radon in indoor air. Radon is a



known human carcinogen. Breathing air containing radon can lead to lung cancer. Drinking water containing radon may also cause an increased risk of stomach cancer. If you are concerned about radon in your home, test the air in your home. Testing is inexpensive and easy. Fix your home if the level of radon in your air is 4 picocuries per liter of air (pCi/L) or higher. There are simple ways to fix a radon problem that aren't too costly. For additional information, contact EPA's Radon Hotline at **1-800-767-7236** or visit their website at www.epa.gov/radon for more information.

In our unregulated contaminant assessment monitoring performed **March 2009 – April 2010**, metolachlor ESA was detected in 1 out of 15 wells that were monitored. It was not detected in any of the four samples collected at the Forest Park Water Treatment Plant. Metolachlor ESA is a degradation product of metolachlor which is a broad spectrum herbicide used for general weed control in non-crop areas. It is also widely used on crops such as corn, cotton, peanuts, grass for seed production, nurseries, hedgerows/fencerows, and landscape plantings. N-nitrosodiethylamine (NDEA) was detected in 1 out of 4 samples collected at the Forest Park Water Treatment Plant. Nitrosamines can form as intermediates and byproducts in chemical synthesis and manufacture of rubber, leather, and plastics. Foods such as bacon and malt beverages can contain nitrosamines and there is evidence that they can form in the upper GI tract. Unregulated contaminant monitoring helps EPA to determine where certain contaminants occur and whether it needs to regulate those contaminants.

Cryptosporidium and *Giardia* are microbial pathogens found in surface water throughout the U.S. Monitoring of our source water (before treatment) at Forest Park Water (FPW) indicated the presence of *Cryptosporidium* in 1 out of 12 samples collected. *Giardia* was not detected in any of the 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

(CONTINUED ON NEXT PAGE)

HEALTH EFFECTS INFORMATION (CONTINUED)

abdominal cramps. Most healthy individuals can overcome the disease within a few weeks. However, immuno-compromised people are at greater risk of developing life-threatening illness. NPWA 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.

EDUCATIONAL INFORMATION

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 land or through the ground, it dissolves naturally-occurring minerals and, in some cases, radioactive material, and can pick up substances resulting from the presence of animals or from human activity.

Contaminants that may be present in source water include:

- **Microbial contaminants**, such as viruses and bacteria, which may come from sewage treatment plants, septic systems, agricultural livestock operations and wildlife.
- **Inorganic contaminants**, such as salts and metals, which can be naturally-occurring or 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 be the result of oil and gas production and mining activities.

In order to ensure that tap water is safe to drink, EPA and PA DEP prescribe regulations which limit the amount of certain contaminants in water provided by public water systems. Food and Drug Administration (FDA) and PA DEP 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** or visiting their website at www.epa.gov/safewater.

Below is a list of contaminants which NPWA monitored for in 2011 but **DID NOT DETECT**:

Inorganic Contaminants	Microbiological Contaminants	Regulated Volatile Organic Contaminants		
Antimony	E. coli	1,1,1-Trichloroethane	p-Dichlorobenzene	Styrene
Beryllium		1,1-Dichloroethylene	Benzene	Toluene
Cadmium	Radionuclides	1,2,4-Trichlorobenzene	Carbon tetrachloride	trans-1,2-Dichloroethylene
Chromium	Radium 226	1,1,2-Trichloroethane	Chlorobenzene	Vinyl Chloride
Cyanide	Radium 228	o-Dichlorobenzene	cis-1,2-Dichloroethylene	Xylenes, total
		1,2-Dichloroethane	Dichloromethane	
		1,2-Dichloropropane	Ethylbenzene	
Unregulated Contaminants				
Methyl tertiary butyl ether (MTBE)				
Synthetic Organic Contaminants				
1,2-Dibromo-3-chloropropane	Di-2(ethylhexyl) adipate	Glyphosphate		Pentachlorophenol
2,4-D	Di-2(ethylhexyl) phthalate	Heptachlor		Picloram
2,4,5-TP (Silvex)	Dinoseb	Heptachlor Epoxide		PCBs (Polychlorinated biphenyls)
Alachlor	Dioxin (2,3,7,8-TCDD)	Hexachlorobenzene		Simazine
Benzo[a]pyrene	Diquat	Hexachlorocyclopentadiene		Toxaphene
Carbofuran	Endothall	Lindane		
Chlordane	Endrin	Methoxychlor		
Dalapon	Ethylene dibromide	Oxamyl (Vydate)		



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FOREST PARK WATER

The source of water that is treated at Forest Park Water, which is jointly owned by North Penn and North Wales Water Authorities, is the North Branch Neshaminy Creek. The North Branch Neshaminy Creek 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. Water released from Lake Galena flows down the Neshaminy Creek to where it is drawn into the Forest Park Water Treatment Plant, in Chalfont, Pennsylvania. In the summer months and times of low flow, water is pumped from the Delaware River at Point Pleasant and diverted into the North Branch Neshaminy Creek near Gardenville, Pennsylvania. This diversion controls the level of Lake Galena for recreational purposes, ensures a sufficient drinking water supply, and maintains baseflow in the stream.

Forest Park is a state of the art water treatment facility that combines conventional treatment processes with advanced techniques, which include ozone disinfection and membrane filtration. Membrane filtration is a leading-edge technology capable of consistently producing very high quality water and ensures the plant can safely meet the more stringent federal and state water quality regulations that will be required

in the near future. This combination of traditional and innovative water treatment allows Forest Park to produce the safest, highest quality water possible. In 2011, Forest Park Water received the prestigious Area Wide Optimization Program (AWOP) Award presented by the PA DEP. The award recognizes outstanding efforts toward optimizing turbidity removal performance. AWOP is a national filter plant optimization effort among 22 states, the EPA, and the Association of State Drinking Water Administrators. The AWOP Award and Forest Park Water's on-going participation in the "Partnership for Safe Water", a voluntary program administered by the American Water Works Association, demonstrate Forest Park Water's continuing commitment to operational excellence.

