PEOPLE WITH SPECIAL HEALTH CONCERNS

Some people may be more vulnerable to contaminants in drinking water than the general population. These may include:

- persons with immune system disorders
- persons with organ transplants
- pregnant women
- infants and young children
- elderly people
- and women taking oral contraceptives

Health effects of lead in drinking water:

- lead can cause serious health problems especially for pregnant women and young children.
- lead poisoning can result in permanent damage to the brain and nervous system.
- lead poisoning can cause behavioral, development, and learning problems in young children.
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The source water for 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 discharge, 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.

Below is a list of contaminants which NPWA monitored for in 2013 but DID NOT DETECT:

**Inorganic Contaminants**
- Asbestos
- Mercury
- Inorganic Contaminants
- Cyanide
- Thallium
- Cadmium
- Selenium
- Beryllium
- Nitrite
- Antimony
- Nickel
- Simazine
- Pentachlorophenol
- Di(2-ethylhexyl) phthalate

**Synthetic Organic Contaminants**
- Benzene
- p-Dichlorobenzene
- 1,1-Dichloroethane
- Ethylbenzene
- Vinyl Chloride
- o-Dichlorobenzene
- Xylenes, total
- Di(2-ethylhexyl) phthalate
- Pentachlorophenol
- Simazine

**Microbiological Contaminants Monitored in Distribution System**
- E. coli

**Regulated Volatile Organic Contaminants**
- 1,1,1-Trichloroethane
- Carbon tetrachloride
- Styrene
- 1,1,2-Trichloroethane
- Chlorobenzene
- Toluene
- 1,1-Dichloroethane
- cis-1,2-Dichloroethylene
- trans-1,2-Dichloroethylene
- 1,2-Dichloroethylene
- Dichloromethane
- Trichloroethylene
- 1,2,4-Trichlorobenzene
- Dichloromethane
- Ethylbenzene
- Vinyl Chloride
- 1,2-Dichloropropane
- o-Dichlorobenzene
- p-Dichlorobenzene

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FOR 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 42 in Chalfont, Montgomery 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, located 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 reliably meet the more stringent federal and state water quality regulations that will be required 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.

In 2013, 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.

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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.

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North Penn Water Authority (NPWA) is pleased to present to you this annual report. This report was completed by Spotts, Steven & McCoy, Inc. for the Authority with funding from the Federal and State Safe Drinking Water Act programs. This report is also available online at www.northpennwater.org.

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

**HOW NPWA IS PROTECTING THE WATER YOU DRINK**

To enhance water quality, NPWA performs an annual hydraulic flushing program which takes place in the spring of each year. This flushing program cleans out the water distribution system and helps maintain 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.

In 2011, NPWA became the first water utility in Pennsylvania to join American Water Works Association’s (AWWA) Distribution System Optimization Program. This program is part of AWWA’s Partnership for Safe Water. The primary objective is to identify opportunities for improvement in system operations and to empower system operators with knowledge to recognize and apply those opportunities 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.

The Authority has continued to work proactively to protect its source 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 an important groundwater source. Some of our data, though contained in this report, may not be as current as Federal and State standards in other years. However, the quality of water that we deliver to our customers is of the highest quality. 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.

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<table>
<thead>
<tr>
<th>Contaminant (Unit of Measure)</th>
<th>Violation %/No</th>
<th>Average Level Detected</th>
<th>Range Detected</th>
<th>MCLG</th>
<th>MCL</th>
<th>Major Sources in Drinking Water</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bromate (ppb)</td>
<td>No</td>
<td>0.4 – 4.1</td>
<td>10</td>
<td></td>
<td></td>
<td>Runoff of irrigation and pulp mills; erosion of natural deposits</td>
</tr>
<tr>
<td>Chromium (ppm)</td>
<td>Yes/No</td>
<td>0.02 – 0.4</td>
<td>2</td>
<td></td>
<td></td>
<td>Discharge from steel and pulp mills; erosion of natural deposits</td>
</tr>
<tr>
<td>Fluoride (ppm)</td>
<td>No</td>
<td>100 – 100</td>
<td>100</td>
<td></td>
<td></td>
<td>Discharge of sewage and fertilizers; leaching from metal mines; erosion of natural deposits</td>
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<tr>
<td>Nitrate (ppm)</td>
<td>Yes/No</td>
<td>15 – 4.1</td>
<td>10</td>
<td></td>
<td></td>
<td>Runoff from fertilizer use; leaching from septic tanks; erosion of natural deposits</td>
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<tr>
<td>Radionuclides</td>
<td>Yes/No</td>
<td>0.03 – 0.03</td>
<td>3</td>
<td></td>
<td></td>
<td>Discharge of fertilizer; leaching from septic tanks; erosion of natural deposits</td>
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</tbody>
</table>

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:

- **Maximum Contaminant Level Goal (MCLG)**: The level of a drinking water disinfectant below which there is no known or expected risk to health. MCLGs do not reflect the benefits of the use of disinfectants to control microbial contamination.
- **Maximum Contaminant Level Goal (MCLG)**: The level of a contaminant that is allowed in drinking water. There is no known or expected risk to health. MCLGs allow for a margin of safety.
- **Maximum Contaminant Level Goal (MCLG)**: The highest level of a contaminant that is allowed in drinking water. There is no known or expected risk to health. MCLs allow for a margin of safety.
- **Maximum Residual Disinfectant Level Goal (MRDLG)**: The level of a drinking water disinfectant below which there is no known or expected risk to health. MCLDGs do not reflect the benefits of the use of disinfectants to control microbial contamination.

### Synthetic Organic Contaminants (SOCs)
- **Chlorine (ppm)**: 0.68 – 0.83
- **Barium (ppm)**: 0 – 0.4
- **Lead (ppb)**: 0 – 15
- **Tetrachloroethylene (ppb)**: 0 – 0.6
- **Bromate (ppb)**: 1.4 – 1.6

### Inorganic Contaminants
- **Chlorine (ppm)**: 0.2 – 0.4
- **Barium (ppm)**: 0 – 0.4
- **Lead (ppb)**: 0 – 3.9
- **Metolachlor ESA (ppb)**: 0 – 1.1
- **Unregulated Contaminants**:
  - **Total Coliform Bacteria**: 0.93
  - **Nitrate (ppm)**: 0.15 – 4.1
  - **Total Chlorine Bacteria**: 0.93
  - **Total Trihalomethanes**: 23.0 – 41.1
  - **Bacterial In Tap Water**: 0.93

### Performance Monitoring at the Treatment Plant
- **Synthetic Organic Contaminants (SOCs)**: Most recent tests were done in 2011 – 2013
- **Inorganic Contaminants**: Most recent tests were done in 2012 – 2013
- **Radionuclides**: Major Sources in Drinking Water

### Performance Monitoring at the Treatment Plant
- **Total Coliform Bacteria**: Naturally present in the environment

### Lead and Copper
- **Copper (ppm)**: 0.390 – 1.3
- **Lead (ppb)**: 0.390 – 1.3

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 in drinking water below which there is no known or expected risk to health. If a water system fails to meet an AL, they must notify the Public Health Division and will be required to take action to correct the violation.

- **Major Sources in Drinking Water**
  - Chlorine (ppm): Naturally present in the environment
  - Barium (ppm): Naturally present in the environment
  - Lead (ppb): Naturally present in the environment
  - Metolachlor ESA (ppb): Naturally present in the environment
  - Tetrachloroethylene (ppb): Naturally present in the environment
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- **Performance Monitoring at the Treatment Plant**
  - **Synthetic Organic Contaminants (SOCs)**: Most recent tests were done in 2011 – 2013
  - **Inorganic Contaminants**: Most recent tests were done in 2012 – 2013
  - **Radionuclides**: Major Sources in Drinking Water
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