The Water Source Used by Trenton Water Works

Trenton Water Works serves a public community water system serving approximately 200,000 customers. This source water is drawn from Delaware River through an intake north of the Cohansey St. Bridge. The water is treated at the TWW Filtration plant on Route 29 S, and piped to the distribution system.

Trenton Water Works also has arrangements to purchase ground water from an adjacent system as needed.

Susceptibility Ratings for Trenton Water Works Sources

The table below details the susceptibility ratings for the six contaminant categories (and radionuclides) for each source in the system. The table provides the number of wells that failed (indicated by “F” for Failed, “L” for Low, or “H” for High for such contaminant category. For susceptibility ratings of purchased water, refer to the specific sources’ source water assessment report.

The eight contaminant categories are defined at the bottom of the opposite page. NJDEP considers all surface water highly susceptible to pathogens and therefore all adjacent water sources received a low rating.

The NJDEP found the following potential contaminant sources within the source water assessment area for the systems:

- Pathogens:
  - Agrobacterium, resident, urban, and commercial and industrial land use
  - Source treatment plant
  - Bacterial cysts, coliforms, and enteric viruses

- Pesticides:
  - Chlorpyrifos, Mane-manufactured chemicals used to control pests, weeds and fungus

- Microbial contaminants, such as viruses and bacteria, which may come from sewage treatment plants, septic systems, agricultural livestock operations, and wildlife

- Volatile Organic Compounds (VOCs): Man-made chemicals used as solvents, degreasers, and gasoline components. Examples include benzene, methylene chloride (MIB), and vinyl chloride

- Precursors
  - Precursors to disinfection by-products

- Byproduct
  - Byproduct of disinfection process

- Turbidity:
  - Turbidity has no health effects. However, turbidity can interfere with taste and odor control, and can allow some suspended solids to pass through the treatment process

- Radionuclides
  - Radionuclides may naturally occur in the environment and are not added intentionally to the source water

The sources of drinking water (both tap water and bottled water) include rivers, lakes, and streams. In Trenton Water Works, surface water sources include Delaware River water. The adjacent system consists of 25 water systems in New Jersey.

The sources of drinking water (both tap water and bottled water) include rivers, lakes, and streams. In Trenton Water Works, surface water sources include Delaware River water. The adjacent system consists of 25 water systems in New Jersey.

Susceptibility Ratings for Trenton Water Works Sources

<table>
<thead>
<tr>
<th>Contaminant Category</th>
<th>Source Water Assessment Area</th>
<th>Susceptibility Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pathogens</td>
<td></td>
<td>Low</td>
</tr>
<tr>
<td>Pesticides</td>
<td></td>
<td>Low</td>
</tr>
<tr>
<td>Microbial contaminants</td>
<td></td>
<td>Low</td>
</tr>
<tr>
<td>Volatile Organic Compounds</td>
<td></td>
<td>Low</td>
</tr>
<tr>
<td>Precursors</td>
<td></td>
<td>Low</td>
</tr>
<tr>
<td>Byproduct</td>
<td></td>
<td>Low</td>
</tr>
<tr>
<td>Turbidity</td>
<td></td>
<td>Low</td>
</tr>
<tr>
<td>Radionuclides</td>
<td></td>
<td>Low</td>
</tr>
</tbody>
</table>

Susceptibility Ratings for Trenton Water Works Sources

The susceptibility of the Delaware River to eight contaminant categories was evaluated. The Delaware River received a high susceptibility rating for pathogens, nitrates, nitrites, and disinfection by-products (DBPs), and a medium susceptibility rating for pesticides and volatile organic compounds (VOCs) and a low susceptibility rating for radionuclides and radon. All surface water sources in New Jersey are considered to be highly susceptible to pathogens and therefore all received a susceptibility rating of radionulide and radon.

The NJDEP found the following potential contaminant sources within the source water assessment areas:

- Pathogens:
  - Agrobacterium, resident, urban, and commercial and industrial land use
  - Source treatment plant
  - Bacterial cysts, coliforms, and enteric viruses

- Pesticides:
  - Chlorpyrifos, Mane-manufactured chemicals used to control pests, weeds and fungus

- Microbial contaminants, such as viruses and bacteria, which may come from sewage treatment plants, septic systems, agricultural livestock operations, and wildlife

- Volatile Organic Compounds (VOCs): Man-made chemicals used as solvents, degreasers, and gasoline components. Examples include benzene, methylene chloride (MIB), and vinyl chloride

- Precursors
  - Precursors to disinfection by-products

- Byproduct
  - Byproduct of disinfection process

- Turbidity:
  - Turbidity has no health effects. However, turbidity can interfere with taste and odor control, and can allow some suspended solids to pass through the treatment process

- Radionuclides
  - Radionuclides may naturally occur in the environment and are not added intentionally to the source water

The sources of drinking water (both tap water and bottled water) include rivers, lakes, and streams. In Trenton Water Works, surface water sources include Delaware River water. The adjacent system consists of 25 water systems in New Jersey.

The sources of drinking water (both tap water and bottled water) include rivers, lakes, and streams. In Trenton Water Works, surface water sources include Delaware River water. The adjacent system consists of 25 water systems in New Jersey.

Monitoring Requirements Not Met for Trenton Water Works:

Trenton Water Works has recommended installing Corrosion Control Treatment and will continue to replace at least 7% of lead service piping. The damaged turbine motor has been replaced. They have developed a more stringent sampling schedule to avoid future MCL violations. For more information, please contact the Water Filtration Plant Manager at the Laboratory at 609-980-3200 or Trenton Water Works, 533 Courtland Street, PO Box 526, Trenton, NJ 08604.

Potential Adverse Health Effects from the Violations:

Lead: Infants and children who drink water containing lead in excess of the action level could experience brain damage or other developmental. Children could show slight deficits in attention span and learning abilities. Adults who drink water containing lead could experience kidney or liver problems or high blood pressure.

Copper: Copper is a natural constituent of water, but some people who drink water containing copper in excess of the action level may experience gastrointestinal disturbances. Copper is a necessary trace element which is required by the human body to be present for various biological processes. Copper is also important for the functioning of the immune system.

Iron: Iron is an essential nutrient for the human body. Iron is needed for the production of red blood cells and is important for the functioning of the immune system.

Cyanides: Cyanides are toxic substances that can be harmful to humans when ingested. They can cause respiratory problems, cardiac abnormalities, and neurological damage.

Chlorine: Chlorine is a commonly used disinfectant in water treatment. It is used to kill bacteria, viruses, and parasites that can cause symptoms such as nausea, vomiting, and diarrhea.

Barium: Barium is a naturally occurring element that is used in various industries. It can cause health problems if ingested at high levels.

Bromate: Bromate is a byproduct of the disinfection process. It can cause health problems if ingested at high levels.

Sulfate: Sulfate is a naturally occurring mineral found in water. It can cause health problems if ingested at high levels.

Phosphate: Phosphate is a naturally occurring mineral found in water. It can cause health problems if ingested at high levels.

Fluoride: Fluoride is a naturally occurring mineral found in water. It can cause health problems if ingested at high levels.

Nitrate: Nitrate is a naturally occurring mineral found in water. It can cause health problems if ingested at high levels.

Nitrite: Nitrite is a naturally occurring mineral found in water. It can cause health problems if ingested at high levels.

Nitrosamines: Nitrosamines are byproducts of the disinfection process. They can cause health problems if ingested at high levels.

Ammonia: Ammonia is a naturally occurring mineral found in water. It can cause health problems if ingested at high levels.

Bacteria: Bacteria are microorganisms that can cause health problems if ingested. They can cause gastrointestinal problems, fever, and vomiting.

Viruses: Viruses are microorganisms that can cause health problems if ingested. They can cause gastrointestinal problems, fever, and vomiting.

Parasites: Parasites are microorganisms that can cause health problems if ingested. They can cause gastrointestinal problems, fever, and vomiting.

Turbidity: Turbidity is a measure of the cloudiness of water. It can cause health problems if ingested. It can cause gastrointestinal problems, fever, and vomiting.

Iron: Iron is an essential nutrient for the human body. Iron is needed for the production of red blood cells and is important for the functioning of the immune system.

Copper: Copper is a natural constituent of water, but some people who drink water containing copper in excess of the action level may experience gastrointestinal disturbances. Copper is a necessary trace element which is required by the human body to be present for various biological processes. Copper is also important for the functioning of the immune system.

Iron: Iron is an essential nutrient for the human body. Iron is needed for the production of red blood cells and is important for the functioning of the immune system.

Copper: Copper is a natural constituent of water, but some people who drink water containing copper in excess of the action level may experience gastrointestinal disturbances. Copper is a necessary trace element which is required by the human body to be present for various biological processes. Copper is also important for the functioning of the immune system.

Iron: Iron is an essential nutrient for the human body. Iron is needed for the production of red blood cells and is important for the functioning of the immune system.

Copper: Copper is a natural constituent of water, but some people who drink water containing copper in excess of the action level may experience gastrointestinal disturbances. Copper is a necessary trace element which is required by the human body to be present for various biological processes. Copper is also important for the functioning of the immune system.

Iron: Iron is an essential nutrient for the human body. Iron is needed for the production of red blood cells and is important for the functioning of the immune system.

Copper: Copper is a natural constituent of water, but some people who drink water containing copper in excess of the action level may experience gastrointestinal disturbances. Copper is a necessary trace element which is required by the human body to be present for various biological processes. Copper is also important for the functioning of the immune system.

Iron: Iron is an essential nutrient for the human body. Iron is needed for the production of red blood cells and is important for the functioning of the immune system.

Copper: Copper is a natural constituent of water, but some people who drink water containing copper in excess of the action level may experience gastrointestinal disturbances. Copper is a necessary trace element which is required by the human body to be present for various biological processes. Copper is also important for the functioning of the immune system.

Iron: Iron is an essential nutrient for the human body. Iron is needed for the production of red blood cells and is important for the functioning of the immune system.
Drinking Water Quality Results

**BACTERIA**

Maximum Contaminant Level Goal (MCLG): The highest level of a contaminant that is allowed in drinking water. MCLs are set as close to the MCLGs as feasible using the available science and technology.

Maximum Contaminant Level (MCL): The level of a contaminant in drinking water below which there is no known or expected risk to health. MCLs allow for a small margin of safety.

Secondary Maximum Contaminant Level (SMCL): Any contaminant in drinking water to which no MCL has been established, for which an MCL is not appropriate, or which is not required to be removed by the treatment techniques required to achieve Compliance with the MCLs.

Unregulated Contaminant Rule (UCR): A regulatory action that assesses the potential risks associated with contaminants not currently regulated by drinking water regulations.

NJDEP standards: Standards established by the New Jersey Department of Environmental Protection for the protection of public health.

**Acronyms and Definitions**

<table>
<thead>
<tr>
<th>Acronym</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>MCLG</td>
<td>Maximum Contaminant Level Goal (MCLG)</td>
</tr>
<tr>
<td>MCL</td>
<td>Maximum Contaminant Level (MCL)</td>
</tr>
<tr>
<td>SMCL</td>
<td>Secondary Maximum Contaminant Level (SMCL)</td>
</tr>
<tr>
<td>UCR</td>
<td>Unregulated Contaminant Rule (UCR)</td>
</tr>
<tr>
<td>NJDEP</td>
<td>New Jersey Department of Environmental Protection</td>
</tr>
</tbody>
</table>

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

1. Total Coliforms (TC)
   - 0 positive samples out of 1,812 (0.099%)
   - Presence of coliform bacteria ≤ 5% of monthly samples

2. E. Coli (EC)
   - 0 routine sample and repeat sample of total coliforms positive ≤ MCL = 0

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

1. Lead and Copper Rule 3
   - Lead: 14 of 119
   - Copper: 7 of 103

2. Corrosion of household plumbing
   - Lead: 15
   - Copper: 10

**Chlorine Disinfection byproducts (DBPs):**

<table>
<thead>
<tr>
<th>Source</th>
<th>MCL</th>
<th>2017 Highest Level of Each DBP</th>
<th>2017 Range of Values</th>
<th>Violation (Y/N)</th>
</tr>
</thead>
<tbody>
<tr>
<td>MCL</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NTU</td>
<td></td>
<td>244 – 942.2</td>
<td>N/A</td>
<td>N</td>
</tr>
<tr>
<td>TTHM</td>
<td>10</td>
<td>344 – 88.5</td>
<td>N/A</td>
<td>N</td>
</tr>
</tbody>
</table>

**Total Turbidity**

1. NTU: 0

2. Mill: T/T = N/T

3. 0.001

4. 1.33

**Disinfectant byproducts (HAA5):**

<table>
<thead>
<tr>
<th>Source</th>
<th>MCL</th>
<th>2017 Highest Level of Each HAA5</th>
<th>2017 Range of Values</th>
<th>Violation (Y/N)</th>
</tr>
</thead>
<tbody>
<tr>
<td>MCL</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NTU</td>
<td></td>
<td>0.001 – 1.33</td>
<td>99.95%</td>
<td>Y</td>
</tr>
</tbody>
</table>

**DISINFECTANT BYPRODUCTS (DBP) & STAGE 2**

<table>
<thead>
<tr>
<th>Sampling Sites 5 Sites</th>
<th>2017 Highest Level of Each DBP</th>
<th>2017 Range of Values</th>
<th>Violation (Y/N)</th>
</tr>
</thead>
<tbody>
<tr>
<td>MCL</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NTU</td>
<td>244 – 492.2</td>
<td>N/A</td>
<td>N</td>
</tr>
</tbody>
</table>

**Chlorine Residual**

<table>
<thead>
<tr>
<th>Source</th>
<th>MCL</th>
<th>2017 Highest Level of Chlorine Residual</th>
<th>2017 Range of Values</th>
<th>Violation (Y/N)</th>
</tr>
</thead>
<tbody>
<tr>
<td>MCL</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NTU</td>
<td>0.001 – 1.33</td>
<td>99.95%</td>
<td>Y</td>
<td></td>
</tr>
</tbody>
</table>

**Inorganic Compounds**

<table>
<thead>
<tr>
<th>Source</th>
<th>MCL</th>
<th>2017 Highiest Level of Each Inorganic Compound</th>
<th>2017 Range of Values</th>
<th>Violation (Y/N)</th>
</tr>
</thead>
<tbody>
<tr>
<td>MCL</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NTU</td>
<td>0.001 – 1.33</td>
<td>99.95%</td>
<td>Y</td>
<td></td>
</tr>
</tbody>
</table>

**Secondary Contaminants**

<table>
<thead>
<tr>
<th>Source</th>
<th>MCL</th>
<th>2017 Maximum Level of Each Secondary Contaminant</th>
<th>2017 Range of Values</th>
<th>Violation (Y/N)</th>
</tr>
</thead>
<tbody>
<tr>
<td>MCL</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NTU</td>
<td>0.001 – 1.33</td>
<td>99.95%</td>
<td>Y</td>
<td></td>
</tr>
</tbody>
</table>

**Other Notes:**

- Some people may be more vulnerable to contaminants in drinking water than the general population. Immuno-compromised persons such as persons with cancer or other immunosuppressive conditions 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. People who have, or may be pregnant, should ask advice about drinking water from their health care providers.

- Public water systems should achieve 100 percent compliance with standards; systems that do not meet these standards are required to develop and implement a corrective action plan.

- Some people who abuse alcohol are at greater risk from consuming water with lead.

**Drinking Water Sources:**

- Surface Water: Water to be used by a public water system that has its source in surface water, such as lakes, rivers, and streams.

- Groundwater: Water percolating through the earth to a natural source, such as a spring or well.

- Groundwater recharge: Water that enters the underground aquifer.

- Groundwater discharge: Water that leaves the underground aquifer due to springs or wells.

- Groundwater storage: Water that is stored in underground aquifers.

- Recycled Water: Water that has been treated to meet or exceed the same standards as surface water before being returned to the environment.

- Some contaminants, such as viruses, bacteria, and parasites, can be removed through treatment processes.

- The actual water quality can be different from the water quality at the water source due to a variety of factors.