American Water Operations

We operate as regulated utilities in 14 U.S. states. Our primary operating assets include approximately:

- **80** surface water treatment plants
- **490** groundwater treatment plants
- **175** wastewater treatment plants
- **53,500** miles of transmission, distribution and collection mains and pipes
- **1,100** groundwater wells
- **1,700** water and wastewater pumping stations
- **1,100** treated water storage facilities
- **73** dams
# EPA’s Proposed PFAS Drinking Water Rule

<table>
<thead>
<tr>
<th>Compound</th>
<th>Proposed MCLG</th>
<th>Proposed MCL (enforceable levels)</th>
</tr>
</thead>
<tbody>
<tr>
<td>PFOA</td>
<td>zero</td>
<td>4.0 ppt*</td>
</tr>
<tr>
<td>PFOS</td>
<td>zero</td>
<td>4.0 ppt*</td>
</tr>
<tr>
<td>PFNA</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PFHxS</td>
<td>1.0 (unitless)</td>
<td>1.0 (unitless)</td>
</tr>
<tr>
<td>PFBS</td>
<td>Hazard Index</td>
<td>Hazard Index</td>
</tr>
<tr>
<td>HFPO-DA (commonly referred to as GenX Chemicals)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The Hazard Index is a tool used to evaluate potential health risks from exposure to chemical mixtures.

*ppt = parts per trillion (also expressed as ng/L)

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### What is a Hazard Index?

The Hazard Index is made up of a sum of fractions. Each fraction compares the level of each PFAS measured in the water to the level determined not to cause health effects (i.e., HBWC).

- GenX: 10 parts per trillion (ppt)
- PFBS: 2000 ppt
- PFNA: 10 ppt
- PFHxS: 9 ppt

\[ 10 + 2000 + 10 + 9 = \text{Hazard Index Value} \]

*All units in parts per trillion (ppt)
EPA’s Proposed PFAS Drinking Water Rule Timeline

- **March 14, 2023**: Draft Rule Proposed
- **March 29, 2023**: Published in the Federal Register
- **May 4, 2023**: EPA Public Hearing
- **May 30, 2023**: End of Public Comment Period
- **Late 2023/Early 2024**: Final Rule Target Publication
- **Publication Date + 3 years (2027)**: Compliance deadline
# PFAS Treatment Summary

## Technologies

<table>
<thead>
<tr>
<th>Technology</th>
<th>Advantages</th>
<th>Disadvantages</th>
</tr>
</thead>
</table>
| Granular Activated Carbon (GAC) | • Easy to use  
• Reactivation offers destruction of PFAS  
• Provides removal of other contaminants of emerging concern  
• Beneficial tool for “common” hazardous chemical spills  
• Taste and odor benefit | • Larger footprint than IX  
• Iron and manganese removal sometimes required upstream of GAC  
• (Generally) higher capital expenses than IX  
• More frequent replacement of GAC than IX (but much lower cost on a per pound basis) |
| Ion Exchange (IX)       | • Easy to use  
• Smaller footprint than GAC | • Pre-filtration usually required  
• Iron and manganese removal more often required upstream of IX than for GAC  
• Concern with fouling in surface water treatment  
• Dechlorination (as needed) to prevent NDMA  
• Disposal requires incineration for destruction of PFAS |
Projected PFAS Treatment Costs

Federal PFAS Drinking Water Rule Cost Headlines

- EPA estimates a total annualized national compliance cost of **$772 million to $1.2 billion** (20-year lifecycle, 3% and 7% discount rates, 2021 dollars)

- American Water Works Association (AWWA) estimates the total annualized national compliance cost of **$3.9 billion to $5.2 billion** (20-year lifecycle, 3% and 7% discount rates, 2022 dollars)
  - $47.4 billion initial capital cost
  - $726 million annual operating cost

- American Water’s internal estimates for PFAS treatment across our own footprint align closely to AWWA’s estimates (as scaled from AWWA’s national compliance cost estimates)
  - ~$1 billion initial capital investment for treatment at approximately 80 facilities across our footprint
  - ~$50 million annual operating cost

American Water is currently part of Multi-District Litigation against multiple PFAS manufacturers to support our view that the ultimate responsibility for the cleanup of these contaminants should fall to the polluters.

Source:
*Consider the Hidden Costs of PFAS Treatment*
AWWA OpFlow January/February 2021, Patricia Whitby, Rosa Yu, Erin Mackey https://doi.org/10.1002/opfl.1484