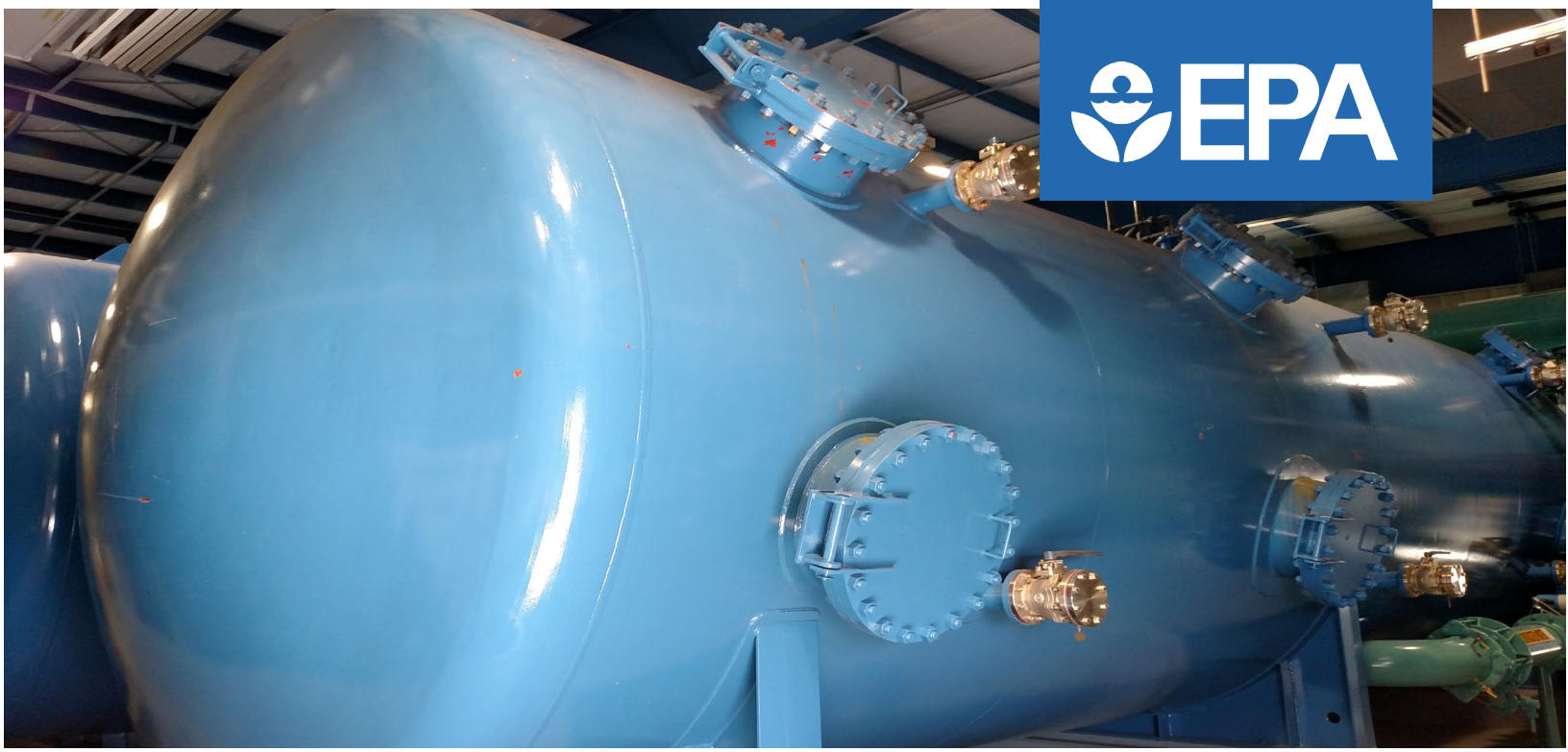

Addressing PFAS in Drinking Water with the Drinking Water State Revolving Fund

Communities may use the Drinking Water State Revolving Fund (DWSRF) to reduce this public health concern in their drinking water systems.

BACKGROUND

Per- and polyfluoroalkyl substances (PFAS) are a group of man-made chemicals that have been in use since the 1940s. Two of the most studied PFAS are perfluorooctanoic acid (PFOA) and perfluorooctane sulfonate (PFOS). PFAS are (or have been) found in a wide array of consumer products like cookware, food packaging, and stain and water repellants used in fabrics, carpets and outerwear.

PFAS manufacturing and processing facilities, and airports and military installations that use firefighting foams which contain PFAS, are some of the contributors of PFAS chemical releases into the air, soil, and water, including sources of drinking water.

Because of their widespread use and environmental persistence, most people have been exposed to PFAS chemicals. There is evidence that exposure to certain PFAS may lead to adverse health effects.

TREATING PFAS IN DRINKING WATER

EPA has found there are technologies that can remove PFAS from drinking water. These effective technologies include activated carbon treatment, ion exchange resins, and high pressure membranes, like nanofiltration or reverse osmosis.

Activated carbon is often used in a granular form called granular activated carbon (GAC). Ion exchange resins are like tiny powerful magnets that attract and hold the contaminated materials from passing through the water system. High pressure membranes are typically more than 90 percent effective at removing a wide range of PFAS.

Detailed treatment information:
https://www.epa.gov/sciencematters/reducing-pfas-drinking-water-treatment-technologies

EPA Treatability Database:
https://oaspub.epa.gov/tdb/pages/general/home.do

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DWSRF ASSISTANCE

The DWSRF can provide financial assistance to publicly-owned and privately-owned community water systems, as well as non-profit non-community water systems, for drinking water infrastructure projects. Projects must either facilitate the system's compliance with national primary drinking water regulations or significantly further the health protection objectives of the Safe Drinking Water Act. PFAS chemicals qualify as emerging contaminants, as well as synthetic organic chemicals (SOCs), and infrastructure needs related to addressing PFAS are eligible projects.

Each of the 50 states and Puerto Rico operates its own DWSRF program. They receive annual capitalization grants from the EPA, which in turn provide low-interest loans and other types of assistance to water systems. Repayments of DWSRF loans begin one year after project completion, with loan terms up to 30 years for most communities, or up to 40 years for disadvantaged communities.

Additionally, states may use a portion of their capitalization grant from the EPA as "set-aides" to help communities build the technical, managerial, and financial capacities of their systems. With an emphasis on small systems, these funds help ensure sustainable infrastructure and public health investments.

Treatment

DWSRF assistance can be used to fund equipment and upgrade treatment technologies, like building a new treatment plant or expanding an existing facility to add PFAS removal capability. Set-asides may be used for laboratory or testing equipment for research or contamination prevention.

Equipment and Training

Although routine/compliance monitoring is not eligible for DWSRF funding, equipment and training for system operators may be an eligible set-aside activity. This may include one-time monitoring at a system to show operators how to conduct the monitoring themselves. Additionally, states with a synthetic organic chemical monitoring waiver program in place can use set-aside funds to assist with special-purpose monitoring of synthetic organic chemicals, including PFAS, at local facilities that have not previously tested for them.

APPLY FOR FUNDING

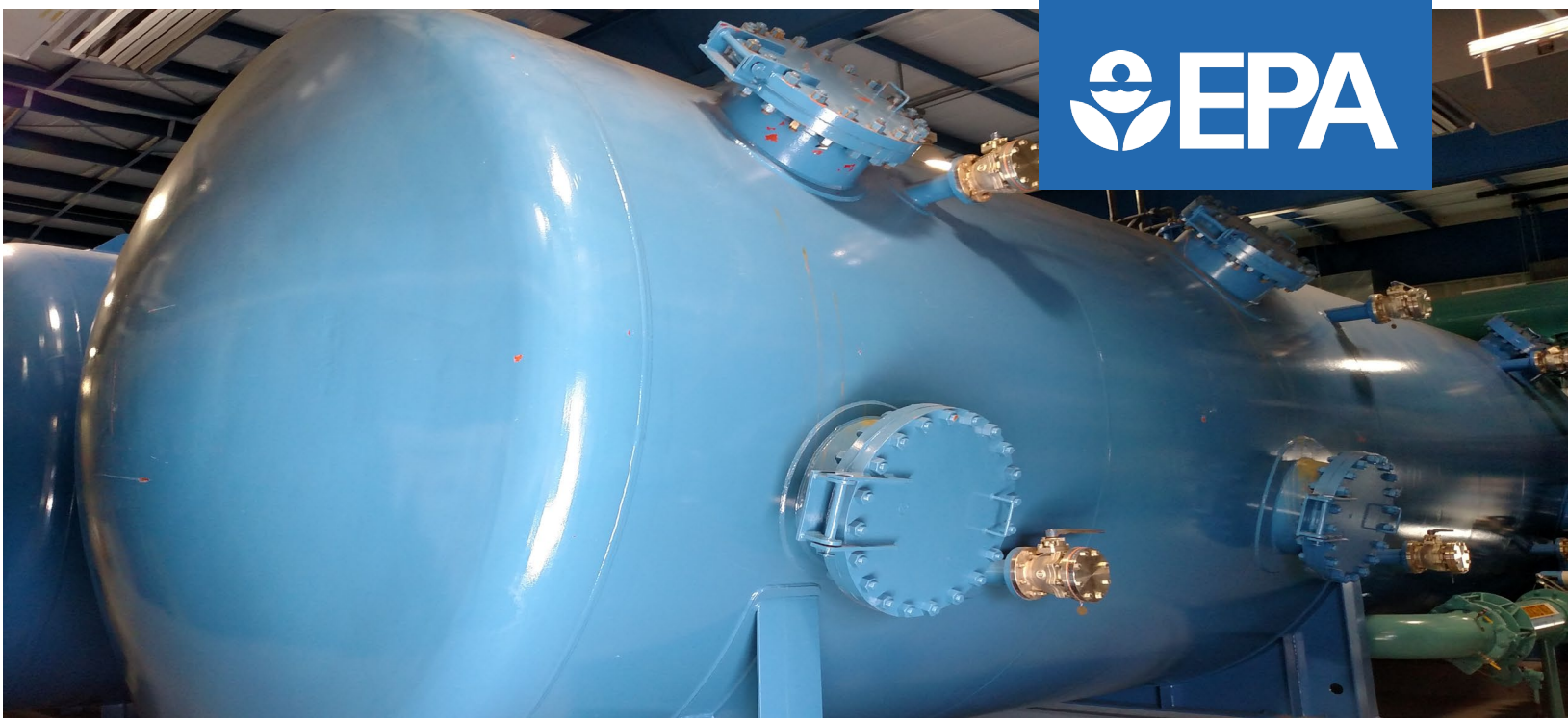
Water systems receive DWSRF assistance directly from state agencies. Each state has its own application procedure. Contact information for each state is posted at https://www.epa.gov/drinkingwatersrf/state-dwsrf-website-and-contacts.

Additional Resources

EPA Resources: https://www.epa.gov/pfas

Interstate Technology Regulatory Council: https://pfas-1.itrcweb.org/fact-sheets/

Sample Training for PFAS Sampling: http://www.newmoa.org/events/docs/228/PFAS_Sampling_Chiang_Aug2016.pdf



DWSRF Case Studies: PFAS in Drinking Water

How communities are using the Drinking Water State Revolving Fund (DWSRF) to address this public health concern in drinking water systems.

LITCHFIELD, NH

In Litchfield, New Hampshire, perfluorooctanoic acid (PFOA) was identified in 370 private wells. In response, the Pennichuck East Utility (PEU) used DWSRF funding to improve water supply capacity for the PEU water systems in Litchfield, Pelham, Windham, and Londonderry by interconnecting the Pennichuck Water Works distribution system on the west side of the Merrimack River in Merrimack, with the part of the water distribution system operated by PEU in Litchfield, on the east side of the river. This project improved the capacity of PEU and allowed those with PFOA detected in their wells to connect to the existing public water system. Construction began in April 2018. DWSRF assistance for this project totaled over $2.4 million.

PENNS GROVE, NJ

In Salem County, New Jersey, DWSRF funding was used to add treatment for PFOA to the New Jersey American Water system in the Borough of Penns Grove, which serves approximately 10,900 people. Granulated Activated Carbon (GAC) treatment was selected for the PFOA removal. The new treatment plant cost approximately $12.2 million to construct, plus annual operating and maintenance costs of $80,000. This project was completed in 2014. Testing shows that the GAC had still not reached its half-life after treating over 230 million gallons of water.

EPA Drinking Water Health Advisories for PFOA & PFOS:

https://www.epa.gov/sites/production/files/2016-06/documents/drinkingwaterhealthadvisories_pfoa_pfos_updated_5.31.16.pdf

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BLADES, DE

In 2018, the Town of Blades, Delaware, found perfluoroalkyl substance (PFAS) in its three wells. The water system serves approximately 1,200 people. The Town opted to add GAC to its treatment facility using an adsorption process. The facility had difficulty finding a suitable indoor location, therefore it was placed outside the treatment building, where they laid a new foundation and plumbing to accommodate the equipment. The facility has cited no problems with start-up or operations and almost immediately reached non-detect levels of PFAS in the finished drinking water. Due to the relatively low flows, the Town anticipates that the GAC will last four to five years before needing reactivation. This may be adjusted with future testing results if needed. The Town plans to add a second GAC bed (so that one is always in service) and intends to construct an insulated space for the equipment to prevent the exposed sampling ports from freezing in winter. The total cost of the first GAC filter, engineering, and installation are estimated at $200,000. Although this project was funded by the State of Delaware, similar projects would be eligible for DWSRF assistance.

BARNSTABLE, MA

In 2013, PFOS was identified in several wells in Barnstable, Massachusetts. To provide alternative drinking water to those customers affected, DWSRF funding was used to conduct a planning study which resulted in the recommendation to construct several permanent interconnections between the Hyannis Water System, the Barnstable Fire District, and the nearby communities of Centerville, Yarmouth, Osterville, and Marstons Mills. The Hyannis Water System provides drinking water to 7,500 customers. Construction began in September 2017. DWSRF assistance for this project totaled approximately $4.6 million, including approximately $40,000 in principal forgiveness.

PLAINFIELD TOWNSHIP, MI

Activities from a nearby industrial plant resulted in the presence of PFAS throughout Plainfield Township, Michigan, which has a population of approximately 28,800 people. In June 2018, the Township replaced two of the four existing sand and anthracite coal filters with GAC filters, resulting in no detectable PFAS in the finished water. When combined with the water from the two existing filters, the blended finished water detected 2.1 parts per trillion for PFOS with no detectable levels of PFOA. Using only the new filters, the plant can treat 9 million gallons per day, more than twice the Township's average day demand. The total project cost is estimated at $700,000. Although this project was funded by the State of Michigan, similar projects would be eligible for DWSRF assistance.

LOCAL ASSISTANCE SET-ASIDE USE IN MI

Starting in 2019, the State of Michigan will use DWSRF set-aside funds to address PFAS in drinking water. Michigan will use the Local Assistance Set-Aside to: 1) update and distribute technical guidance related to PFAS detections in surface water systems as needed, and 2) assist public water systems vulnerable to PFAS contamination, including providing information on treatment technologies. Education and training will help improve the local knowledge and capabilities of drinking water systems throughout Michigan, consequently leading to further capacity development.

APPLY FOR FUNDING

Water systems receive DWSRF assistance directly from state agencies. Each state has its own application procedure. Contact information for each state is posted at https://www.epa.gov/drinkingwatersrf/state-dwsrf-website-and-contacts.