

Maryland Environmental Service

PFAS TREATMENT SOLUTIONS AND MES SERVICES OVERVIEW

Ezgi Kurdoglu Heim

Project Engineer II

W/WW Engineering

**ENVIRONMENTAL
SOLUTIONS
FOR A BETTER
TOMORROW**



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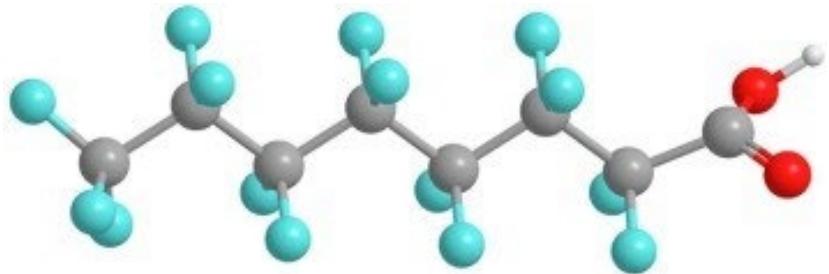
PER AND POLY FLUOROALKYL SUBSTANCES (PFAS) SOURCE



- Group of man-made chemicals resistant to heat, water and oil.
- Developed in 1940's
- Strong Carbon-Fluorine bond
- Thousands of compounds

EPA FINAL NATIONAL PRIMARY DRINKING WATER REGULATION

Compound	Final MCLG (non-enforceable)	Final MCL (enforceable levels)
PFOA	Zero	4.0 parts per trillion (ppt/ng/L)
PFOS	Zero	4.0 ppt
PFBS	N/A	N/A
PFHxS	10 ppt	10 ppt
PFNA	10 ppt	10 ppt
HFPO-DA (commonly known as GenX Chemicals)	10 ppt	10 ppt
Mixtures containing two or more of PFHxS, PFNA, HFPO-DA, and PFBS	1 (unitless) Hazard Index	1 (unitless) Hazard Index



initial monitoring by 2027

PFAS Treatment by 2029

Violations after 2029

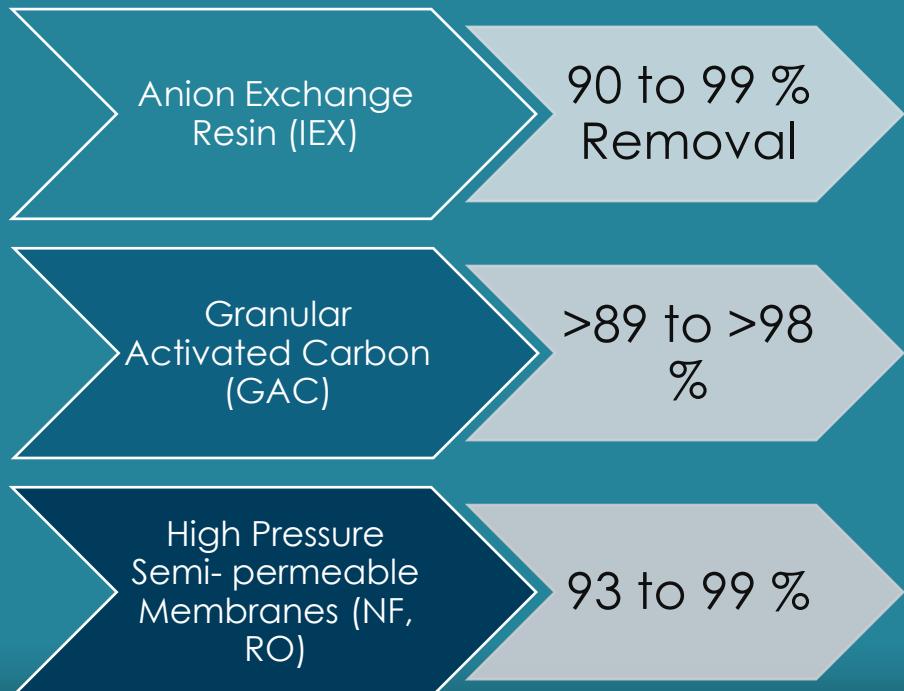
6-Inches in the 93 million mile journey to the sun



BEST AVAILABLE TECHNOLOGIES

Best Available Technologies and Small system compliance technologies for PFAS in drinking water
– Published in March 2024.

Effective Treatments



Ineffective Treatments

- Conventional Treatment
- Low Pressure Membranes
- Disinfection
- Oxidation

TECHNOLOGY SELECTION



**GRANULAR
ACTIVATED CARBON**

- ✓ Lower life cycle cost
- ✗ Bigger footprint



ION EXCHANGE RESIN

- ✓ Smaller footprint
- ✗ Higher life cycle cost
- ✗ Single use resin

- **Breakthrough rates vary** significantly based on water quality
- **No surrogate** – Regular PFAS sampling
- **Treatment Residuals** – Spent media can be regenerated or incinerated

REGULATIONS

- EPA has not designated POU and POE treatment systems as compliance options because the PFAS regulations require treatment to concentrations below current ANSI/NSF certification standards for these devices.
- MDE no longer requires pilot studies - only a demonstration study.
- The demonstration study can be accomplished using Rapid Small-Scale Column Tests (RSSCT). We can also use RSSCT data from other facilities for the demonstration

MARYLAND ENVIRONMENTAL SERVICE

- Established by the General Assembly in 1970
- Over 800 employees
- Operates more than 1,000 environmental projects across Maryland.
- Four Operating Groups
 - **Water and Wastewater**
 - Environmental Dredging and Restoration
 - Environmental Operations
 - Technical and Environmental Services

MES SERVICES OVERVIEW – WATER/WASTEWATER

- **Sampling and Monitoring**
- **Design & Engineering**
 - Conceptual, Preliminary, and Detailed Design
 - Prequalified A/E Shortlist
 - Site Assessments and Environmental Studies
 - Permitting and Regulatory Compliance
- **Bidding & Procurement**
 - Competitive, fair, and transparent bidding processes.
- **Construction Management**
- **Inspection Services**
- **Plant Operation Support**
- **Grant and Funding Assistance**

COLLABORATION AND EXPERTISE

KEY PARTNERSHIPS AND PROPOSALS

- **Department of Natural Resources (DNR)**
 - Sampling around MD at DNR wells (EPA 533 – 25 PFAS compounds)
 - Engaged in ongoing projects for DNR facilities managed by MES, showcasing our capability in operational support and project delivery.
- **County School Systems**
 - Provided proposals for multiple school system projects in Howard County.
 - Currently developing tailored proposals for Frederick County.
- **Town of Darlington**

GRANT AND FUNDING ASSISTANCE

MDE (Due in January)

Through its Water Quality and Drinking Water State Revolving Funds, MDE provides financial support with the option for loan principal forgiveness for eligible projects focused on PFAS in wastewater, stormwater, nonpoint source pollution, and drinking water.

EPA (Due in August)

The EPA's PFAS grant program under the Bipartisan Infrastructure Law (BIL) aims to support communities in reducing PFAS contamination in drinking water. To qualify for these grants, applicants must primarily serve small, rural, or disadvantaged communities that may not have the resources for extensive water treatment.

Thank you

Ezgi Kurdoglu Heim
Project Engineer II

Matthew Lapinsky
Managing Director Water/Wastewater



Address

259 Najoles Road, Millersville, MD, 21108



Email

mlapinsky@menv.com



Contact

410.729.8259