

# EPA Activities on Per- and Polyfluoroalkyl Substances (PFAS)

15th Annual EPA Drinking Water Workshop  
| August 28, 2018



# Outline



What are Per- and Polyfluoroalkyl Substances (PFAS)?

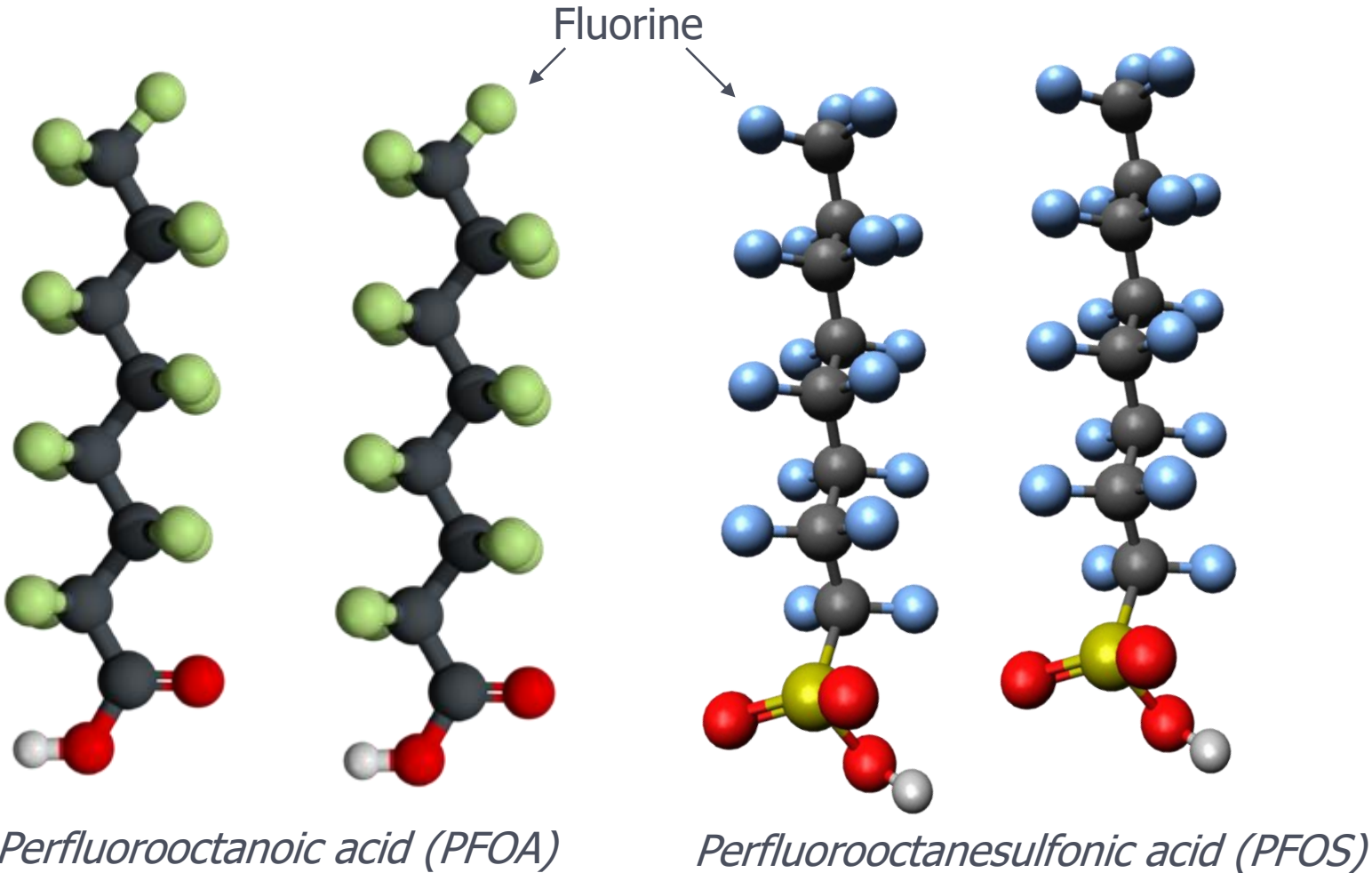


How are PFAS used?



What is EPA doing about it?

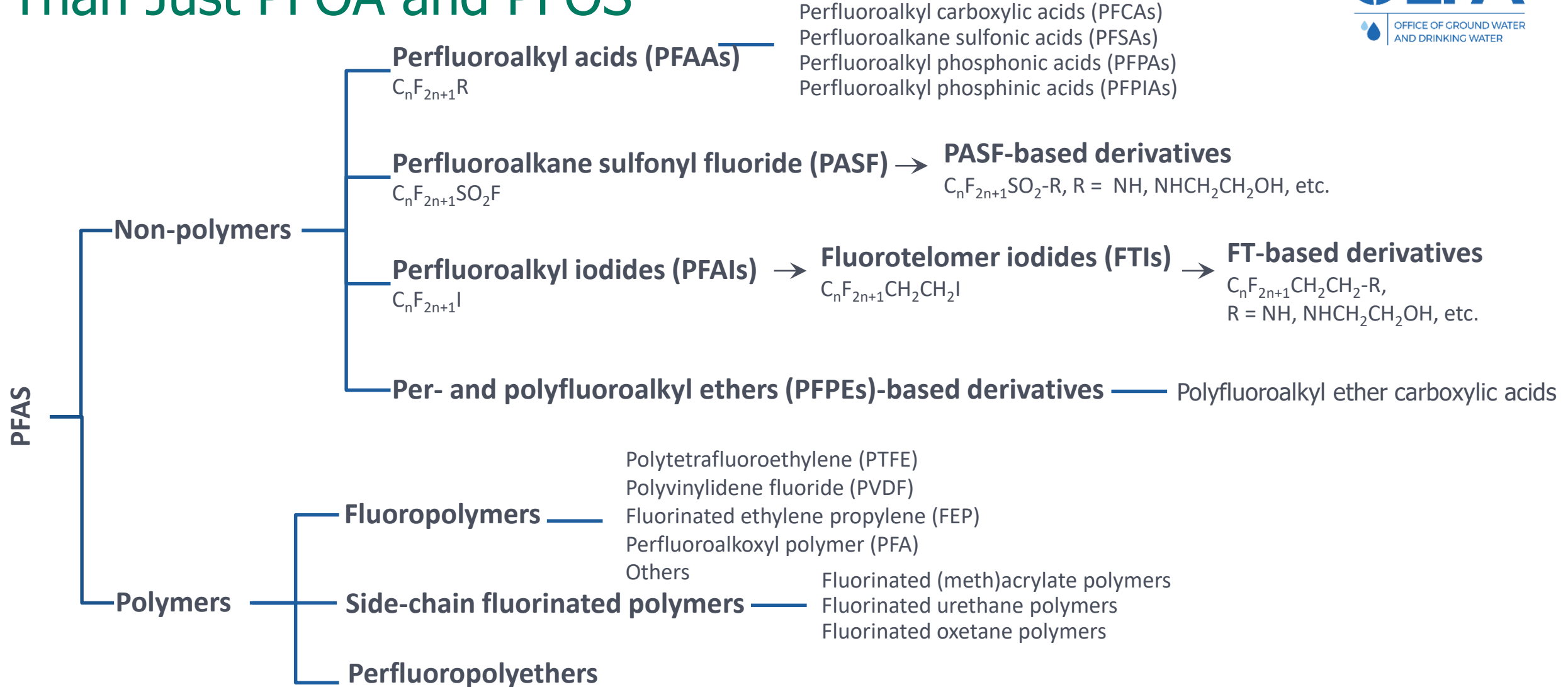
# Per- and Polyfluoroalkyl Substances (PFAS)



## A class of man-made chemicals

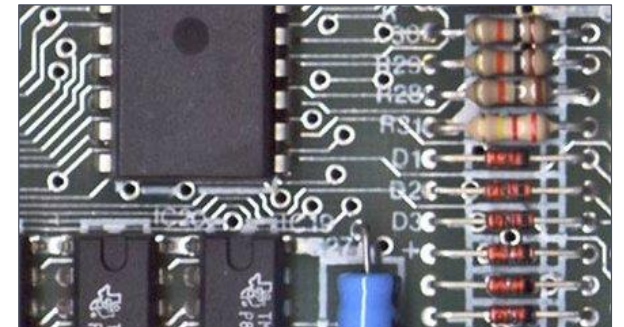
- Chains of carbon (C) atoms surrounded by fluorine (F) atoms
  - Water-repellent (hydrophobic)
  - Stable C-F bond
- Some PFAS include oxygen, hydrogen, sulfur and/or nitrogen atoms, creating a polar end

# PFAS: More Than Just PFOA and PFOS



# Used in Homes, Businesses & Industry

- Food contact surfaces such as cookware, pizza boxes, fast food wrappers, popcorn bags, etc.
- Polishes, waxes, and paints
- Stain repellants for carpets, clothing, upholstered furniture, etc.
- Cleaning products
- Dust suppression for chrome plating
- Electronics manufacturing
- Oil and mining for enhanced recovery
- Performance chemicals such as hydraulic fluid, fuel additives, etc.





# Sources of PFAS in the Environment



- Direct release of PFAS or PFAS products into the environment
  - Use of aqueous film forming foam (AFFF) in training and emergency response
  - Release from industrial facility
- Chrome plating and etching facilities
- Landfills and leachates from disposal of consumer and industrial products containing PFAS
- Wastewater treatment effluent and land application of biosolids

# Potential Reasons for Concern

- Known or suspected toxicity
- PFAS and/or breakdown products are persistent in the environment
- Persistence in biota vary greatly across PFASs and species
- Used by a variety of industries
- Found in a variety of consumer products
- Most people have been exposed to PFAS



# Dietary Exposure



- In areas where drinking water has been contaminated, ingestion is a primary route of exposure to PFAS.
- In some states, the consumption of certain types of fish and shellfish caught from contaminated bodies of water has led to public health advisories for some PFAS, particularly PFOS\*.
- Some States such as New Jersey, Michigan, and Minnesota have guidelines for PFAS that provisionally recommend maximum frequencies at which specific fish species caught in those water bodies can be eaten with no adverse effects on health.
- Communities living on subsistence economy may not have food habits that reflect those of the general population.

\*See summary: EPA 823-N-16-003, August 2016, *Fish and Shellfish Program Newsletter*



# EPA's Current PFAS Activities



- **Issues related to PFAS involve most EPA Programs and Regions**
- **Four broad goals:**
  - Fill data gaps related to human health toxicity to inform public concerns and risk mitigation
  - Establish validated methods for measuring many PFAS in different media
  - Reduce environmental exposures
  - Assure accurate and timely risk communications

# EPA's PFAS Coordinating Committee



- **EPA announced cross-Agency effort to address PFAS in December 2017**
- **Focus on near-term actions to support states, tribes and local communities, including:**
  - Fill data gaps related to toxicity of additional PFAS compounds
  - Develop analytical methods to expand the capacity for analysis of PFAS compounds in drinking water and other contaminated media
  - Provide treatability information for PFAS compounds in contaminated media
  - Expand tools for proactive risk communication with communities impacted by PFAS compounds
- **EPA's Office of Water is leading these efforts**
  - Includes members from EPA's air, chemicals, land, water, enforcement, and research offices as well as EPA regions to enhance cooperation with partners at the state and local level

# Current PFAS Activities in Water

- **Published Drinking Water Health Advisories (HA) in 2016 for PFOA and PFOS**
  - HAs are non-regulatory information for federal, state and local officials to consider when addressing drinking water contamination
  - Identified 0.07  $\mu\text{g/L}$  (70 ppt) as the HA level for PFOA and PFOS combined and provided information about treatment and monitoring



# Current PFAS Activities in Water



- **Evaluating PFOA and PFOS for regulatory determination under the Safe Drinking Water Act (SDWA)**
  - PFOA and PFOS are on the fourth Contaminant Candidate List (CCL 4) published in November 2016. OW is assessing PFOA and PFOS against the three SDWA regulatory determination criteria
    - *May have an adverse effect on the health of persons*
    - *Is known to occur or there is a substantial likelihood that it will occur in public water systems with a frequency and at levels of public health concern*
    - *In the sole judgment of the Administrator, regulating the contaminant presents a meaningful opportunity for health risk reductions for persons served by public water systems*
  - From 2013 to 2015, EPA collected nationally representative data on the occurrence of six PFAS in public water systems (including PFOA and PFOS)

# Current PFAS Activities for Waste Sites



- **EPA Federal Facility Superfund Program**
  - Actively engaged PFAS activities at 58 Federal Facility NPL Sites
  - It is anticipated that this number will grow since there are known or suspected contaminations of PFAS at many of the 140 DoD Federal Facility NPL Sites
  - PFAS detections in groundwater range from non-detect (based on analytical method limitations) or slightly exceeding the Drinking Water Health Advisory of 70 ppt (PFOA and PFOS combined) to 2,000,000 ppt
  - Drinking water has been potentially impacted at 22 of these Federal Facility NPL sites



# Current PFAS Activities for Waste Sites



- **Office of Superfund Remediation and Technology Innovation (OSRTI)**
  - 29 known impacted non-Federal NPL sites
  - 100s of potential NPL sites (e.g., 100 metal plating sites, 300 landfills)
- **Regional Assistance**
  - OLEM offices hold site-specific consultations with EPA Regions on investigations of PFAS contamination
  - OSRTI/FFRRO provides ongoing technical assistance on PFAS issues and also coordinates with the Regions on their needs and priorities on PFAS issues
  - Develop cleanup recommendations for PFOA/PFOS contaminated groundwater

# Current PFAS Activities in Chemical Use

- **PFOA Stewardship Program**
  - Eight companies participated in the program and successfully eliminated production of PFOA
  - Resulted in phase-out of PFOA and related PFAS, including potential PFOA precursors, by these companies by the end of 2015
- **EPA's New Chemicals Program**
  - Since 2000 have reviewed hundreds of pre-market alternatives for PFOA and related chemicals
  - Most were approved with restrictions and data-generation requirements

# Current PFAS Activities in Chemical Use

- **Significant New Use Rule (SNUR)**
  - Proposed on January 21, 2015, to require manufacturers, importers, and processors of PFOA and related chemicals (including as part of articles), to notify EPA at least 90 days before starting or resuming new uses of these chemicals in any products
  - Notification provides EPA opportunity to conduct risk assessment/management for the new use
- **Gen X**
  - EPA is revising the GenX risk assessment originally done for its pre-market approval, based on data received by the company and other information arising from the NC situation

# Current PFAS Research Activities

- **Human Health/Toxicity**
  - Understand human health toxicity
  - Inform risk mitigation activities
  - Chemical library and high throughput toxicity testing
- **Analytical Methods**
  - Establish validated methods for measuring PFAS in different environmental media
- **Site Characterization/Exposure**
  - Develop sampling methods to characterize sources and contaminated sites
  - Identify and estimate human exposure to PFAS from different sources
- **Treatment/Remediation**
  - Identify/evaluate methods to reduce PFAS exposures
  - Identify/evaluate methods to treat and remediate drinking water and contaminated sites



# EPA's PFAS National Leadership Summit



- **Included representatives from over 40 states, tribes, and territories; 13 federal agencies; congressional staff; associations; industry groups; and non-governmental organizations.**
- **EPA provided the opportunity for the public to join in a portion of the meeting via streaming online and is asking the public to send written input to EPA**
  - visit <https://www.regulations.gov/> enter docket number: [OW-2018-0270](#)
- **During EPA's PFAS National Leadership Summit, participants worked together to:**
  - Share information on ongoing efforts to identify PFAS in communities and characterize risks from PFAS
  - Identify specific near-term actions, beyond those already underway, that are needed to address challenges currently facing states and local communities
  - Develop risk communication strategies that will help communities to address public concerns with PFAS



# EPA's PFAS Summit/Engagement



- **EPA announced four actions the Agency will take following the Summit:**
  - EPA will initiate steps to evaluate the need for a maximum contaminant level (MCL) for PFOA and PFOS.
  - EPA is beginning the necessary steps to propose designating PFOA and PFOS as “hazardous substances” through one of the available statutory mechanisms, including potentially CERCLA Section 102.
  - EPA is currently developing groundwater cleanup recommendations for PFOA and PFOS at contaminated sites and will complete this task by fall of this year.
  - EPA is taking action in close collaboration with our federal and state partners to develop toxicity values for GenX and PFBS by this summer.

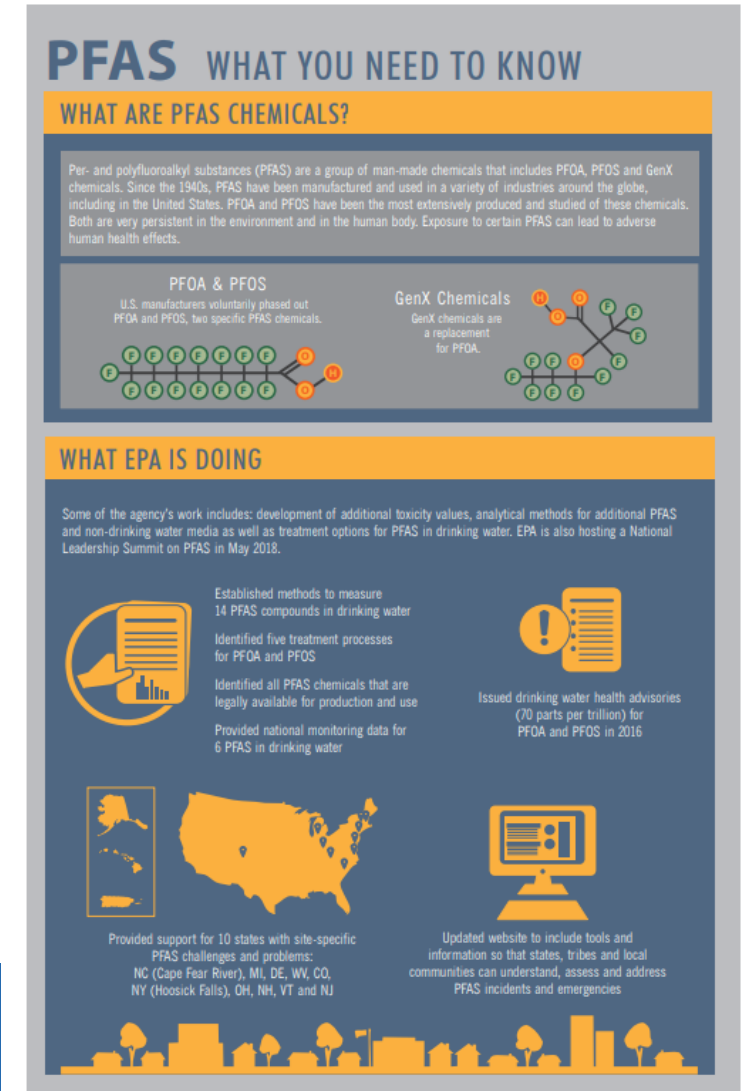
# EPA's PFAS Community Engagement



- **EPA's Community Engagement**
  - Following the Summit, EPA traveled to communities impacted by PFAS to further engage on ways the agency can best support work occurring at state, local and tribal levels
    - June 25-26: Portsmouth, NH
    - July 25: Horsham, PA
    - August 7-8: Colorado Springs, CO
    - August 14: Fayetteville, NC
    - September 5: Leavenworth, KS
- **EPA plans to develop a PFAS Management Plan using information gained from the Summit, community engagements, and public docket**

# Risk Communication

- **Case Studies**
  - In collaboration with ECOS and ASTHO, EPA worked with States to compile case studies of risk communication around PFAS
- **EPA's PFAS Website**
  - One central location for information on PFAS and EPA actions to address PFAS
  - Infographic on PFAS and PFAS factsheet
  - Links to state programs and site-specific resources
- **Risk Communication Strategy**
  - Part of PFAS National Management Plan to help states, tribes, and local officials communicate PFAS issues to the public



**PFAS WHAT YOU NEED TO KNOW**

**WHAT ARE PFAS CHEMICALS?**

Per- and polyfluoroalkyl substances (PFAS) are a group of man-made chemicals that includes PFOA, PFOS and GenX chemicals. Since the 1940s, PFAS have been manufactured and used in a variety of industries around the globe, including in the United States. PFOA and PFOS have been the most extensively produced and studied of these chemicals. Both are very persistent in the environment and in the human body. Exposure to certain PFAS can lead to adverse human health effects.

**PFOA & PFOS**  
U.S. manufacturers voluntarily phased out PFOA and PFOS, two specific PFAS chemicals.

**GenX Chemicals**  
GenX chemicals are a replacement for PFOA.

**WHAT EPA IS DOING**

Some of the agency's work includes: development of additional toxicity values, analytical methods for additional PFAS and non-drinking water media as well as treatment options for PFAS in drinking water. EPA is also hosting a National Leadership Summit on PFAS in May 2018.

- Established methods to measure 14 PFAS compounds in drinking water
- Identified five treatment processes for PFOA and PFOS
- Identified all PFAS chemicals that are legally available for production and use
- Provided national monitoring data for 6 PFAS in drinking water
- Issued drinking water health advisories (70 parts per trillion) for PFOA and PFOS in 2016
- Provided support for 10 states with site-specific PFAS challenges and problems: NC (Cape Fear River), MI, DE, WV, CO, NY (Hoosick Falls), OH, NH, VT and NJ
- Updated website to include tools and information so that states, tribes and local communities can understand, assess and address PFAS incidents and emergencies

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Input may be submitted to the public docket at:  
<https://regulations.gov>  
docket number: OW-2018-0270