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TRACK 2: Program Challenges

# PFAS/PFOS: They are *EVERY*where

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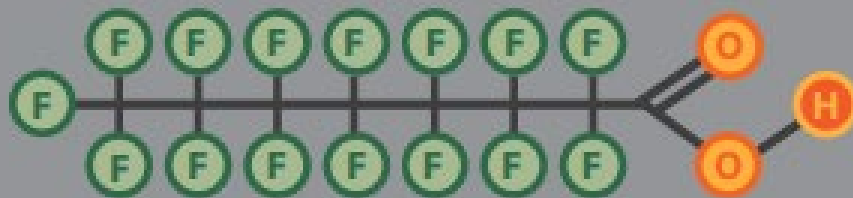
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# WHAT ARE PFAS?

- Synthetic chemicals: PFOA, PFOS, GenX and over 4000 other have been manufactured and used in a variety of industries worldwide since the 1940s (OECD 2018, Guelfo et al. 2018).
  - Perfluorooctanoic Acid (PFOA)
  - Perfluorooctane Sulfonate (PFOS).

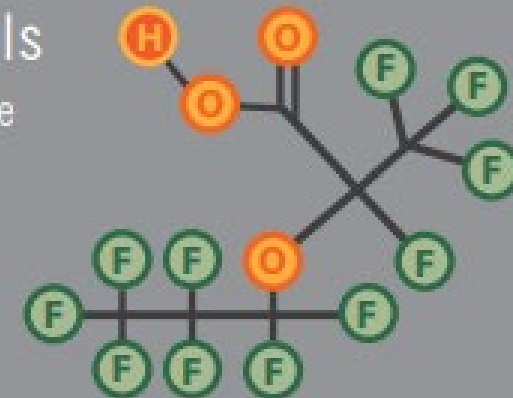
## PFOA & PFOS

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



## GenX Chemicals

GenX chemicals are a replacement for PFOA.



# WHERE DO I FIND PFAS?

Many PFAS are:

- **chemically and thermally stable**
- carbon-fluorine bonds
- demonstrated resistance to heat, water, & oil

Therefore, used in or as:

- firefighting foams,
- chemical processing,
- building/construction materials,
- aerospace,
- Electronics and semiconductor industries
- automotive industries,
- stain- and water-resistant coatings (e.g., carpets and rain repellent clothing), food packaging,
- waxes and cleaners



# HOW AM I EXPOSED TO PFAS

## Primary Contact Routes

- Consuming food that came into contact with PFAS-containing products (e.g., some microwaveable popcorn bags and grease-resistant papers/e.g., pizza boxes);
- Contact with stain- and water-repellent textiles (e.g., carpet, clothing and footwear),
- Cooking in nonstick products (e.g., cookware), polishes, waxes, paints, and cleaning products;
- Dust from commercial household products
- Employment in Manufacturing facility that makes or uses PFAS



## Exposure due to Contaminations

- Consuming plants and meat from animals/fish that have accumulated PFAS;
- Drinking water exposed from a specific facility (e.g., manufacturer, processor, landfill, wastewater treatment, or facilities using PFAS-containing firefighting foams);
- In utero fetal exposure, early childhood exposure via breastmilk from mothers exposed to PFAS.

# PREVIOUS EPA WORK ON PFAS

## **Toxic Substances Control Act [TSCA]**

- 2006 PFOA Stewardship Program –

8 major chemical companies eliminated the use of PFOA and PFOA-related chemicals and as emissions from their facilities as of 2015

Arkema

BASF (Ciba)

Daikin

Dupont

Asahi

Clariant

3M / Dyneon

Solvay Solexis

- Various significant new use rules (SNURs) to guard against the unreviewed reintroduction and new use,
- Although no longer manufactured in US, consumer goods can be imported

# PREVIOUS EPA WORK ON PFAS

(CONTINUED)

## **Safe Drinking Water Act [SDWA]**

- 4<sup>th</sup> Contaminant Candidate List (USEPA 2018c): Included PFOA and PFOS  
Worked with states and public water systems to characterize the occurrence of six PFAS in the nation's drinking water
- Unregulated Contaminant Monitoring Rule (UCMR), published in 2012  
Included 6 contaminants that are suspected to be present in drinking water and do not have standards set under the SDWA  
From 2013-2015, collected data:
  - PFOA, PFOS, PFBS, PFNA, PFHxS, and perfluoroheptanoic acid (PFHpA).
  - Nearly 5,000 public water systems across the nation (accounting for approximately 80% of the U.S. population served by public water systems) (USEPA 2016c).

Lifetime Health Advisories for two PFAS (PFOA and PFOS) released in 2016

# PREVIOUS EPA WORK ON PFAS

(CONTINUED)

## **Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA)**

- Currently, PFOA and PFOS are considered CERCLA pollutants or contaminants (not hazardous substances)
  - => federal response/cleanup authority exists
- Initiated regulatory development process to designate PFOA and PFOS as CERCLA “hazardous substances”
  - => extends CERCLA orders, cost recovery authorities to address affected communities

## **Agency for Toxic Substances and Disease Registry (ATSDR)**

- Released draft toxicological profiles for multiple PFAS, including Minimal Risk Levels (MRLs): PFOA, PFOS, PFHxS, and PFNA
- When finalized, serve as screening tools to determine areas and populations potentially at risk for exposure, can be used as a mechanism to identify hazardous waste sites that are not expected to cause adverse health effects (ATSDR 2018a).

# BACKGROUND ON PFAS ACTION PLAN DEVELOPMENT

- May 2018: EPA convened a two-day National Leadership Summit
  - More than 200 federal, state, and local leaders from across the country
- Summer of 2018: Community Engagement Events
  - Exeter, New Hampshire,
  - Horsham, Pennsylvania,
  - Colorado Springs, Colorado,
  - Fayetteville, North Carolina, and
  - Leavenworth, Kansas
  - Kalamazoo, Michigan (roundtable)
  - Spokane, Washington (tribal representatives)
- Approximately 120,000 comments submitted to the public docket.



# EPA'S PER- AND POLYFLUOROALKYL SUBSTANCES (PFAS) ACTION PLAN

Issued February 14, 2019

- Demonstrates the agency's critical national leadership by providing both **short-term solutions** and **long-term strategies** to address this important issue.
- Provides a **multi-media, multi-program, national research, and risk communication plan** to address this emerging environmental challenge.
- Responds to the **extensive public input** the agency has received over the past year during the PFAS National Leadership Summit, multiple community engagements, and through the public docket.

EPA is taking a proactive, cross-agency approach to addressing PFAS.

[https://www.epa.gov/sites/production/files/2019-02/documents/pfas\\_action\\_plan\\_021319\\_508compliant\\_1.pdf](https://www.epa.gov/sites/production/files/2019-02/documents/pfas_action_plan_021319_508compliant_1.pdf)

# HUMAN HEALTH ADVISORIES AND IMPACT INFORMATION

[HTTPS://WWW.EPA.GOV/GROUND-WATER-AND-DRINKING-WATER/DRINKING-WATER-HEALTH-ADVISORIES-PFOA-AND-PFOS](https://www.epa.gov/ground-water-and-drinking-water/drinking-water-health-advisories-pfoa-and-pfos)

## PFAS Exposure and Occurrence

- Developed a [laboratory method](#) for measuring PFOS, PFOA and 12 other PFAS in drinking water (EPA Method 537) - 2008
- Conducted monitoring for PFAS in drinking water under the third [UCMR](#) - 2012
- Released EPA's [Drinking Water Health Advisories for PFOS/PFOA](#) - 2016
- Expanded the current drinking water [Method 537 to include GenX chemicals and additional PFAS](#) (537.1) - 2018

## Human Health Impacts of PFAS

- Provided provisional [Peer Reviewed Toxicity Values for PFBS](#) for use in site decision making – 2014
- Developed draft [human health toxicity values for GenX and PFBS](#) - comment period ended January 2019
- Ongoing: Identified the universe of PFAS currently being manufactured and used
- Ongoing: Posted on [HERO](#) – Health and Environmental Research Online:
  - [scientific literature on PFAS toxicity](#)
  - [data obtained under TSCA authority for GenX chemicals](#) (acid and salt)

# ONGOING EFFORTS TO REDUCE PFAS EXPOSURES

- Outlined drinking water treatment processes for [PFOA/PFOS](#) in drinking water in EPA's [Drinking Water Treatability Database](#) for multiple PFAS (May 2018 + Ongoing)
- [Developing groundwater cleanup recommendations for PFOA/PFOS](#) - public comment open April – June 2019
- Continuing site-specific technical assistance to identify and reduce PFAS exposures
- Proposed rulemaking:  
“Designation of Perfluorooctanoic Acid (PFOA) and Perfluorooctanesulfonic Acid (PFOS) as CERCLA Hazardous Substances”
- Advanced Notice of Potential Rulemaking
  - Addition of Certain PFAS Chemicals to Toxics Release Inventory

NEXT:

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