

# Disclaimer

- **The contents of this presentation are solely the responsibility of the authors and do not necessarily represent the official views of the CDC**

# CDC PUBLIC HEALTH GRAND ROUNDS

## PFAS and Protecting Your Health



**Event ID: 4207262**

**November 19, 2019**



**U.S. Department of  
Health and Human Services**  
Centers for Disease  
Control and Prevention

# Continuing Education Information

## Continuing education: [www.cdc.gov/getce](http://www.cdc.gov/getce)

- After creating a TCEO account, click the “Search Courses” tab on the left and use “Public Health Grand Rounds” as a keyword search.
- All PHGR sessions eligible for CE should display, select the link for today’s session and then Continue button. **Course Access Code is PHGR10.**
- CE expires **December 19, 2019** for live and **December 19, 2021** for Web On Demand courses.
- Issues regarding CE and CDC Grand Rounds, email: [tceo@cdc.gov](mailto:tceo@cdc.gov)

# Disclosure Statement

**CDC, our planners, presenters, and their spouses/partners wish to disclose they have no financial interests or other relationships with the manufacturers of commercial products, suppliers of commercial services, or commercial supporters with the exceptions of Mrs. Amico who wishes to disclose that she is a co-founder of the “Testing for Pease” and Dr. Ducatman who wishes to disclose that he consulted for two communities seeking medical monitoring for PFAS exposures and that he is a member of external advising committee for a federally funded science team doing PFAS research. The planning committee reviewed content to ensure there is no bias.**

**Content will not include any discussion of the unlabeled use of a product or a product under investigational use.**

**CDC did not accept commercial support for this continuing educational activity.**

# Public Health Grand Rounds Resources

Send comments or questions to:  
**grandrounds@cdc.gov**

[youtube.com/user/  
CDCStreamingHealth](https://youtube.com/user/CDCStreamingHealth)

Access full  
PHGR sessions &  
Beyond the Data

[facebook.com/CDC](https://facebook.com/CDC)

Like CDC's Facebook  
page to stay  
informed on all  
things public health

Visit our website at: [www.cdc.gov/grand-rounds](http://www.cdc.gov/grand-rounds)

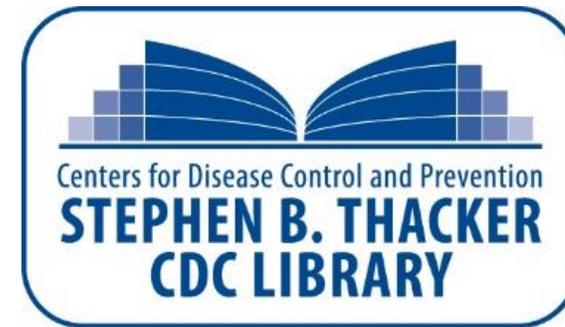
# Additional Resources

## Beyond The Data

“Take home” messages in a short video at:  
[cdc.gov/cdcgrandrounds/video-archive.htm](https://cdc.gov/cdcgrandrounds/video-archive.htm)



scienceclips  
CDC



Scientific publications about this topic at:  
[cdc.gov/library/sciclips](https://cdc.gov/library/sciclips)

Email [grandrounds@cdc.gov](mailto:grandrounds@cdc.gov) with any questions or for help locating the additional resources

# Today's Speakers and Contributors



**Rachel Rogers, PhD**



**Alan Ducatman, MD MS**



**Steve Sliver**



**Andrea Amico, MS**

## Acknowledgments

Heather Bair-Brake  
David Williamson  
Lori Launi  
Michelle Walker  
Brenda Holmes

Luis Luque  
Cheryl Everhart  
Paula Eriksen  
Chris Reh  
Cristina Cope

Christy Gaines  
Takudzwa Sayi  
Matt Karwowski  
Wilma Lopez  
Jamie Velasquez

Ana Pomales  
Jamie Rayman  
Brandy Scurlock  
Behetrin Mohammed  
Mina Zadeh

Susan McBreairty

# Upcoming Programs of Interest

**January 21, 2020**

**Public Health Grand Rounds**

**Pathogen Genomics**

**February 18, 2020**

**Public Health Grand Rounds**

**Measles**

# CDC PUBLIC HEALTH GRAND ROUNDS

## PFAS and Protecting Your Health



**Event ID: 4207262**

**November 19, 2019**



**U.S. Department of  
Health and Human Services**  
Centers for Disease  
Control and Prevention

# The Science of PFAS: Knowns and Unknowns



**Rachel D. Rogers, PhD**

*Environmental Health Scientist*

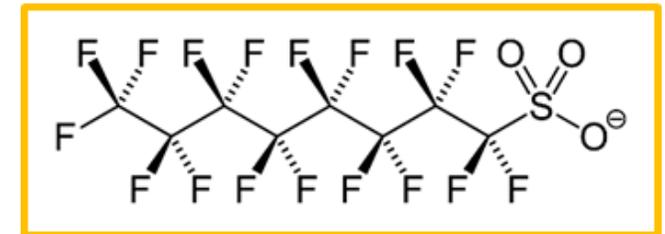
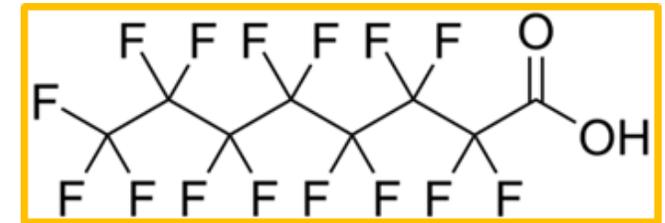
Agency for Toxic Substances and Disease Registry

# Outline

- **What are PFAS?**
- **History of Use**
- **Initial Investigations**
- **Federal Response**

# What are PFAS?

- **Stands for per- and polyfluoroalkyl Substances**
- **Carbon chain surrounded by fluorine atoms and acid group**
- **Many different PFAS species (>5,000)**
  - Pefluorocarboxylic acids (e.g., PFOA)
  - Perfluorosulfonates (e.g., PFOS)
- **Repel water and oil**
- **Act as surfactants and dispersants**
- **Persist in environment and in people's bodies**



# Sources of PFAS Exposure

- **Drinking contaminated water**
- **Eating fish caught from water contaminated by PFAS**
- **Accidentally swallowing contaminated soil or dust**
- **Eating food that was packaged in material that contains PFAS**
- **Using some consumer products**
  
- **Babies born to exposed mothers can be exposed during pregnancy and while breastfeeding.**
  - **Nursing mothers should continue to breastfeed.**

# History of PFAS Exposure and Health Studies

## 1930s-1950s

PFAS are first synthesized.  
Production for use in nonstick coatings and stain- and water-resistant products begins.

## 1980s

Preliminary PFAS toxicity studies in rodents suggest possibility of health effects.

## 2006

Eight major PFAS manufacturers begin to phase out PFOA and related compounds

## 1968

Evidence of PFAS in human serum first observed

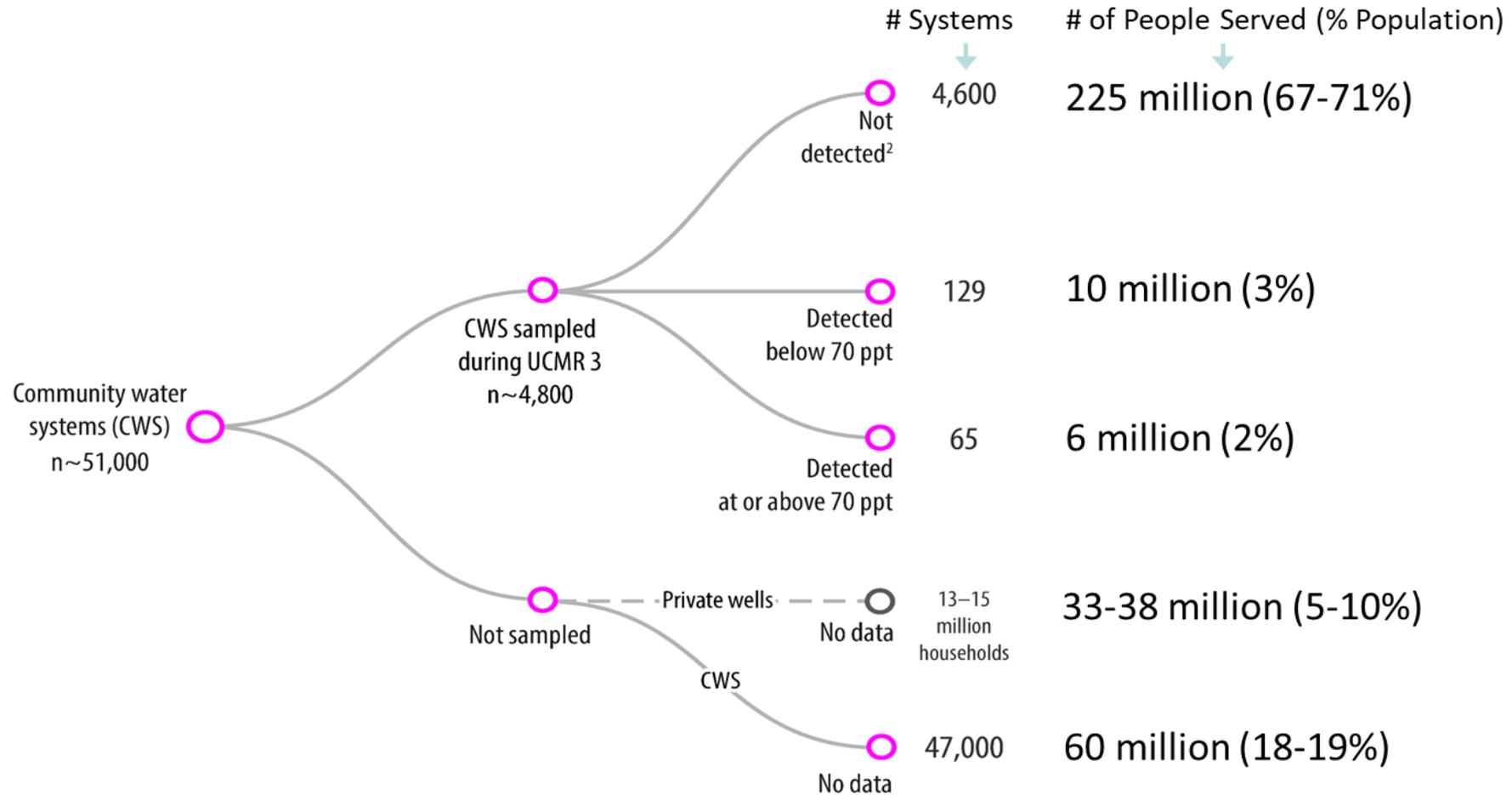
## 1999

PFAS detected in >98% of serum samples collected from the general U.S. population

# Initial Investigations – Public Drinking Water Testing

- **2013-2015: EPA measures PFAS in municipal water supplies via the UCMR3**
- **65 of about 4,600 systems tested have PFAS above EPA health advisory level**
  - Health advisory level in parts per trillion (PPT) = 70
- **Many drinking water supplies were not tested**

# Initial Investigations – Public Drinking Water Testing



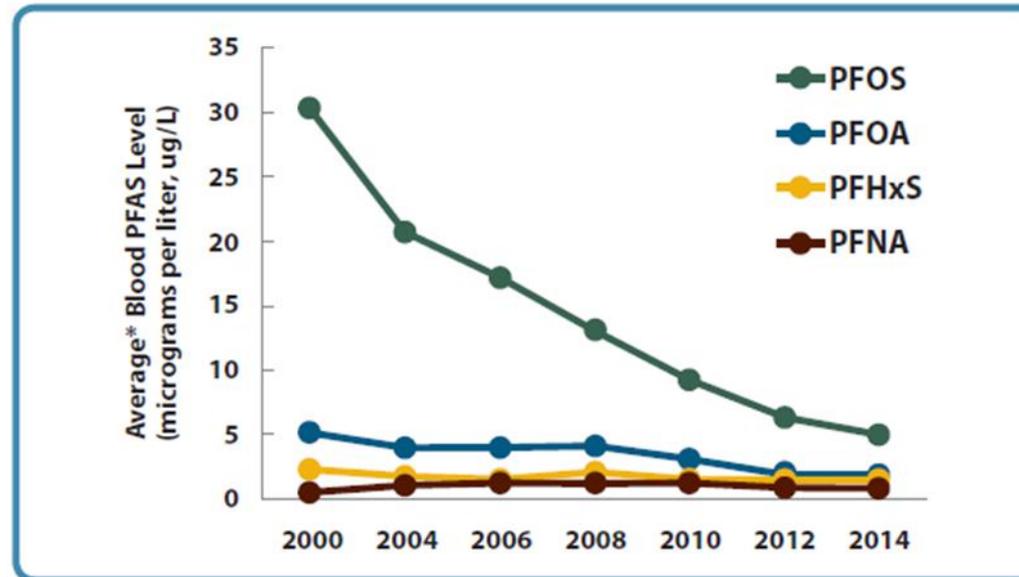
PPT: parts per trillion

# Initial Investigations - Biomonitoring

- **Since 1999, NHANES has measured blood PFAS in the U.S. population**
- **Most people have PFAS in their blood, especially PFOS and PFOA**
- **As use of some PFAS has declined, blood PFAS levels have gone down**

# Between 1999–2014, Blood PFOA and PFOS Levels Declined

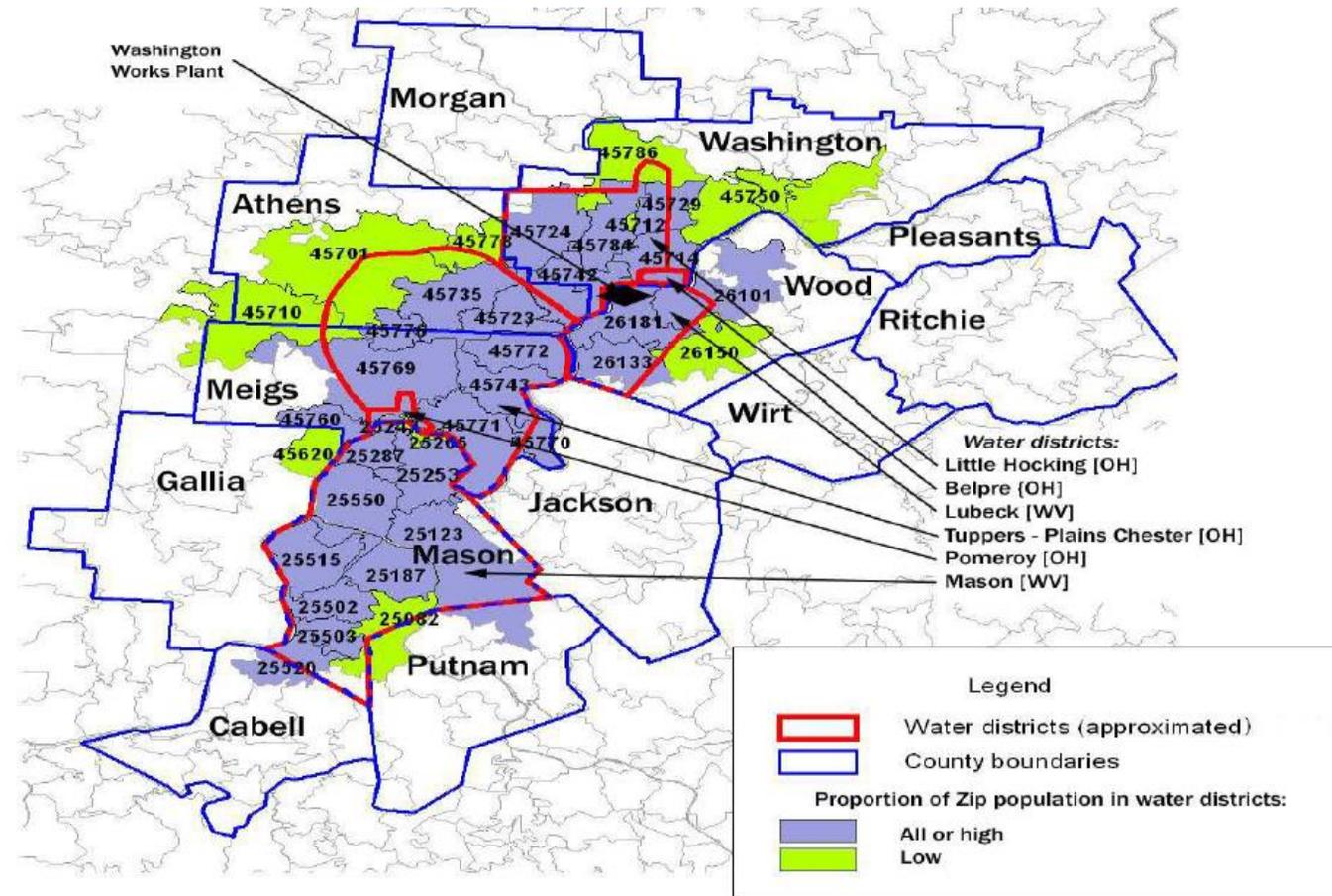
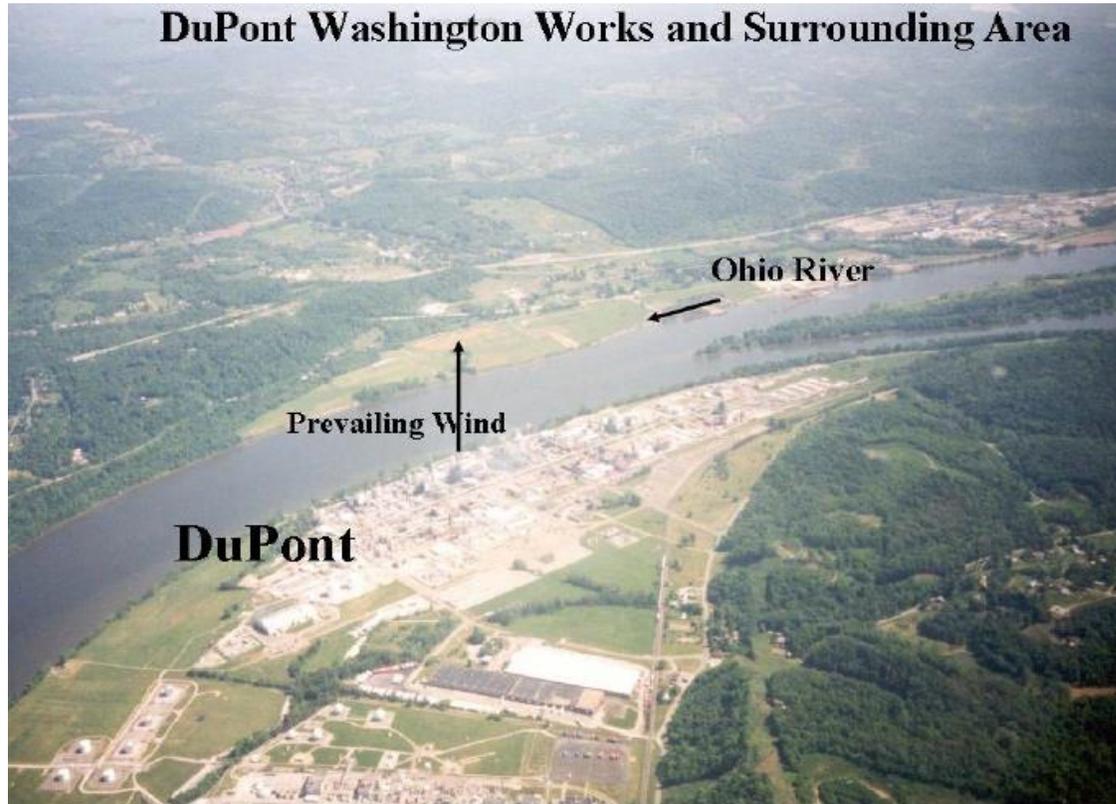
## Blood Levels of the Most Common PFAS in People in the United States from 2000-2014



\* Average = geometric mean

**Data Source:** Centers for Disease Control and Prevention. Fourth Report on Human Exposure to Environmental Chemicals, Updated Tables, (January 2017). Atlanta, GA: U.S. Department of Health and Human Services, Centers for Disease Control and Prevention.

# Initial Investigations of Possible Health Effects: C8 Science Panel



Point source of PFOA contamination

PFOA-Affected Water Districts

# Initial Investigations of Possible Health Effects: C8 Science Panel

## **The legal settlement (2005):**

- **Filtration of water in affected districts**
- **“C8 Science Panel” created to evaluate links of PFOA to disease**
- **“C8 Health Project” to monitor PFOA and other PFAS exposure and clinical effects (laboratory tests)**

# Initial Investigations of Possible Health Effects: C8 Science Panel

## ➤ 2005-2006: C8 Science Panel

- Epidemiological study of around 69,000 people living near DuPont Washington Works plant in West Virginia
- Gathered information through interviews, questionnaires, and blood sampling
- Assessed “probable links” between exposure to PFOA and health effects
- Focus groups and townhall meetings
- An extraordinary amount of logistics



C8 Science Panel: Kyle Steenland, Tony Fletcher, David Savitz



Paul Brooks, project lead and community physician

# Probable Links Between PFOA Exposure and Health Effects

- **High cholesterol**
- **Ulcerative colitis**
- **Thyroid disease**
- **Testicular cancer**
- **Kidney cancer**
- **Pregnancy-induced hypertension**

# Federal Response

## January 2009

EPA's Office of Water established provisional health advisories to assess potential risk from short-term exposure via drinking water.

## August 2015

ATSDR released draft Toxicological Profile for perfluoroalkyls.

## August 2017

PFOA, PFOS, PFNA, and PFHxS joined ATSDR's Substance Priority List.

## April 2018 - present

NCEH and ATSDR continue to investigate the relationship between PFAS and human health and provide resources to communities.

## May 2012

EPA required all community water systems serving >10,000 customers to monitor for PFCs twice in a 12-month period during 2013-2015.

## May 2016

EPA issued Lifetime Health Advisory of 70 ppt for PFOA and PFOS, individually or combined.

## March 2018

CDC/ATSDR receives funding to conduct PFAS exposure assessments and a multisite health study.

PFNA: Perfluorononanoic acid

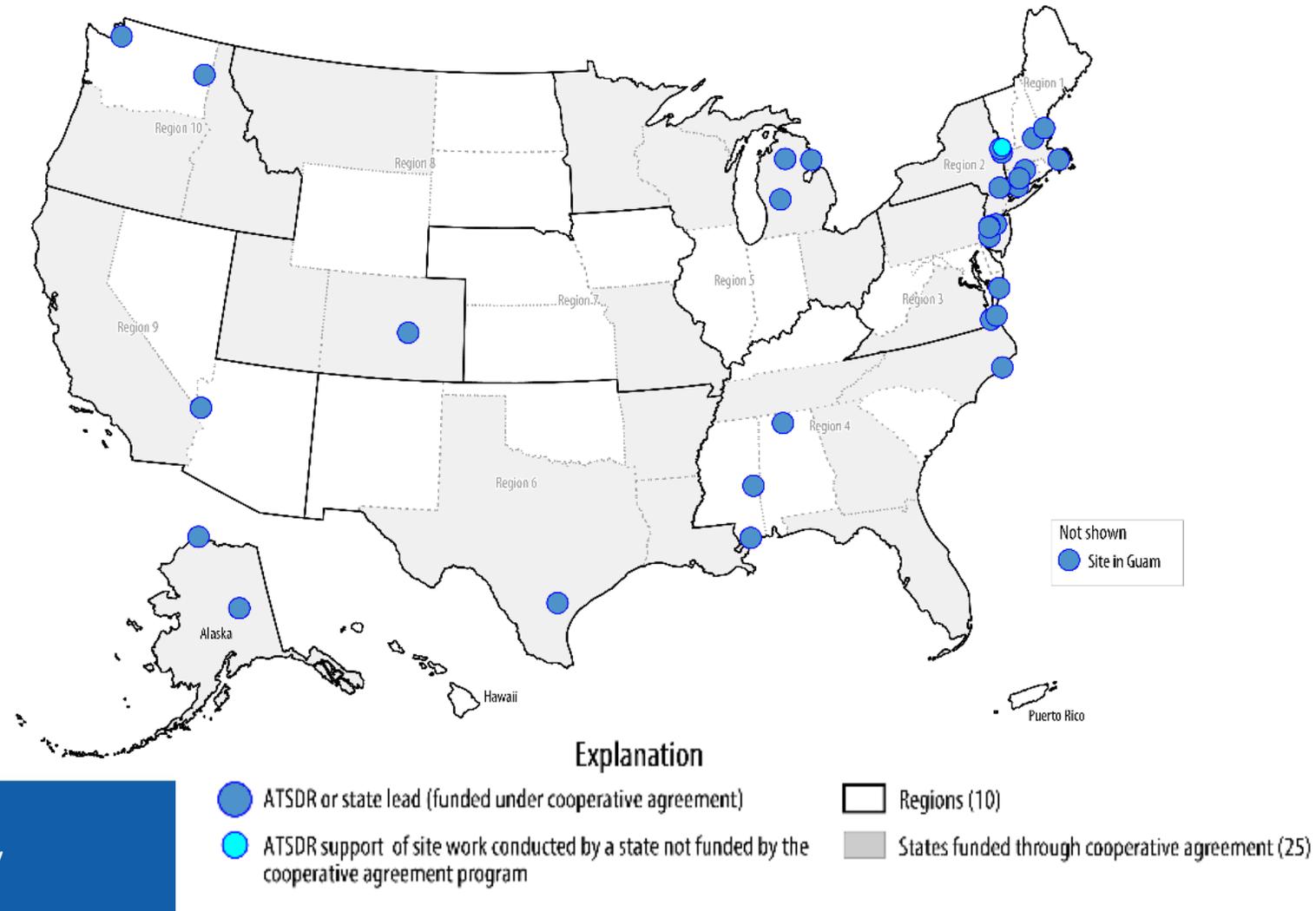
PFHxS: Perfluorohexanesulphonic acid

PFC: perfluorinated chemicals

# Federal Response: Support to Communities

➤ **ATSDR has conducted or supported work at more than 40 sites**

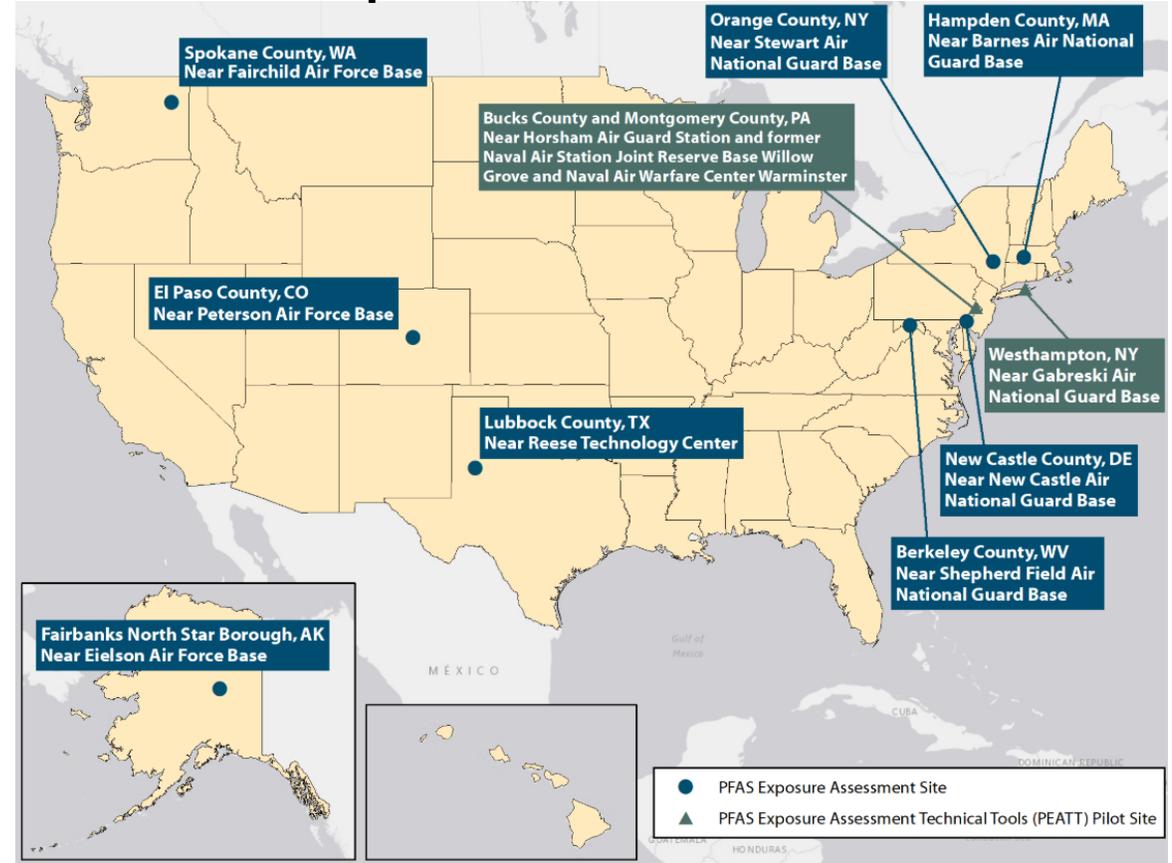
ATSDR involvement at sites with per- and polyfluoroalkyl substances (PFAS)



# Federal Response: Support to Communities

- **CDC/ATSDR PFAS Exposure Assessments**
- **CDC/ATSDR Multisite Health Study**
- **20+ ongoing CDC/ATSDR PFAS projects**

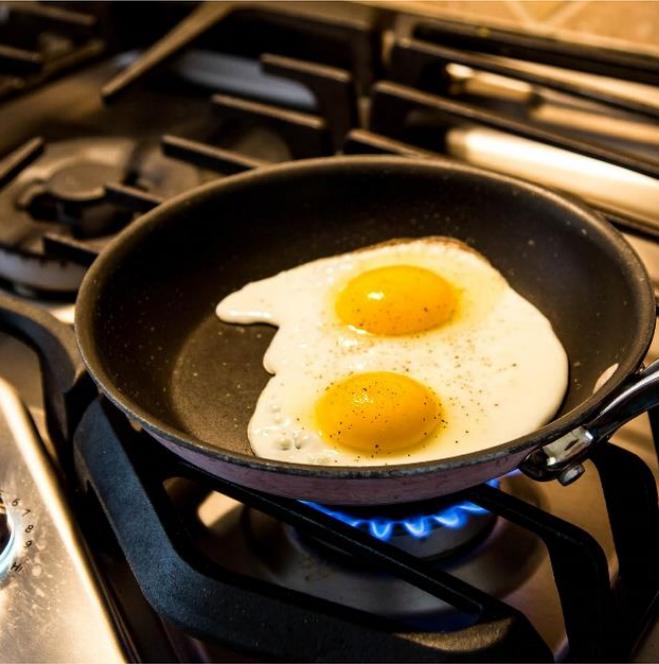
## PFAS Exposure Assessment Sites



# PFAS Public Health Challenges

- **Growing community concern, as more communities found to have been exposed**
- **Need more health information**
- **Need to expand environmental and biological sampling methods**
- **Understanding health effects of exposure to mixtures of PFAS**
- **New compounds being created and used**
- **Water treatment methods need to be developed and evaluated**
- **Clinical interpretation of PFAS test results**

# Human Health Effects of PFAS–The Intersection of Research Findings and Community Concerns



**Alan Ducatman MD, MS**  
*Professor Emeritus*  
West Virginia University

# Scope of the C8 Health Project

- **69,030 adults and children enrolled**
- **Extensive health survey with validation for 18 health outcomes**
- **10 PFAS; >50 clinical laboratory tests**
- **Secure data base**
- **Website with summary health communications**
- **Banked serum**



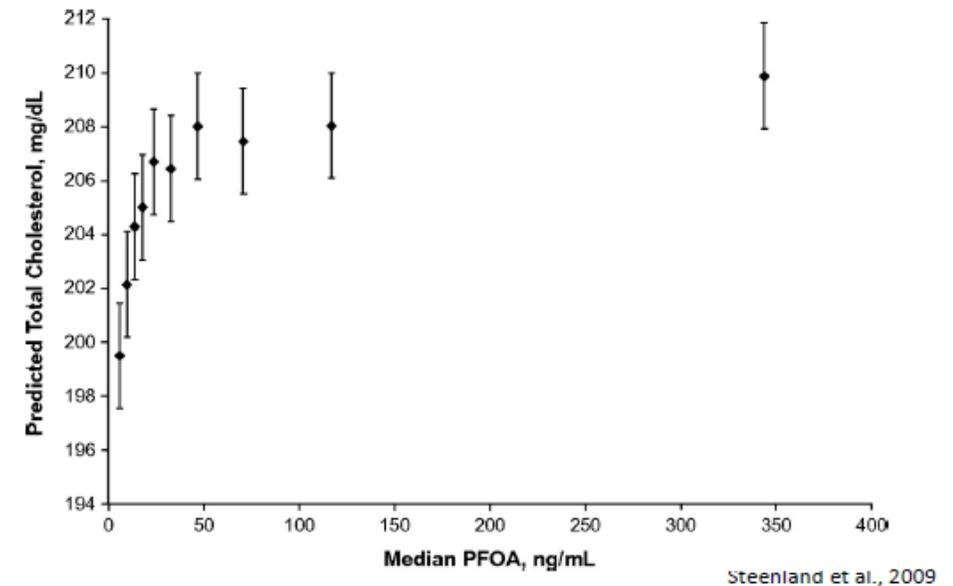
# Selected Health Outcomes of Concern Identified by the C8 Study

<u>Topic</u>	<u>Example</u>	<u>Evidence Basis</u>
Altered lipid handling	↑ Cholesterol	Strong, Near Certain
Liver functions	↑ ALT (aka SGPT)	Strong, Near Certain
Uric acid handling	↑ Uric acid	Strong, Near Certain
PIH	BP in Pregnancy	More likely than not

# Internal PFOA Dose and Cholesterol in C8 Population

- Higher PFOA exposure, as measured by blood levels, was associated with elevated total cholesterol
- Dose-response relationship suggests cause and effect

*Associations of Health Effects with Low Serum PFOA Levels – Example:  
↑ Cholesterol in Communities with Contaminated Drinking Water*



# Similar Health Effect Findings in other PFAS-exposed Populations

**Outcome topic (number  
of studies):**

**Population Examples**

➤ **Cholesterol (>15)**

➤ **Avon Longitudinal, Canadian Health Measures, Henan China, and Childhood populations**

➤ **Liver Functions (>5)**

➤ **C8 China, NHANES, Uppsala Sweden, Childhood populations**

➤ **Uric Acid (>5)**

➤ **C8 China, NHANES, Chemical Workers (Italy), and Childhood Populations**

➤ **PIH (3)**

➤ **Shanghai, China; Swedish Selma**

PIH: pregnancy induced hypertension

NHANES: National Health and Nutrition Examination Study

# Evidence of Diminished Immune Responses to Vaccines

## ➤ PFOA and PFOS

- Are presumed to be immune hazards to humans
- Suppress antigen-specific antibody responses in
  - ❑ Experimental models: high level of evidence (National Toxicology Program, NTP)
  - ❑ Humans: moderate level of evidence (NTP)

## ➤ Example: diminished antibody responses to tetanus and diphtheria vaccines in 5- to 7- year olds

# Other Health Outcomes of Concern: Reproductive and Developmental

<u>Topic</u>	<u>Example</u>	<u>Evidence Basis</u>
Transplacental transport	PFAS in Newborn	Strong/Certain
Breastfeeding	PFAS in Infant	Strong/Certain
Breastfeeding	 Duration	More likely than not

# Other Health Outcomes of Concern: Reproductive and Developmental

<u>Topic</u>	<u>Example</u>	<u>Evidence Basis</u>
Fecundity	↓ Time to pregnancy	Hot research topic
Sperm	Shape, motility	Hot research topic
Neurodevelopment	Performance testing	Hard research topic
Congenital defects	Brain development Midline clefts (e.g., cleft palate)	Research topic

**Fecundity: a woman's ability to have children**

# Health Outcomes of Concern: Endocrine Disruption

<u>Topic</u>	<u>Example</u>	<u>Evidence Basis</u>
<b>Thyroid disruption</b>	<b>Protein binding</b>	<b>Strong, importance debated</b>
Sterol hormones	Sex steroids Androgens (e.g., <b>testosterone</b> ) Estrogens (e.g., estradiol)	More likely than not
Insulin resistance	Corticosteroids Diabetes	Research topic Research topic

# Do PFAS Cause Cancer?

<b><u>Cancer type</u></b>	<b><u>Example</u></b>	<b><u>Evidence Basis</u></b>
<b>Testicular</b>	<b>Seminoma</b>	More likely than not
<b>Kidney</b>	<b>Renal Cell Carcinoma</b>	More likely than not
<b>Other urogenital</b>	<b>Prostate, Bladder</b>	Research topic
<b>Others</b>	<b>Liver, Pancreas</b>	Research topic

# Other Health Outcomes of Research Interest

## ➤ **Bone and joint health**

- Recent literature example: osteoporosis

## ➤ **Obesity**

- Following exposure in utero or early in life

## ➤ **Hypertension**

## ➤ **Microvascular disease**

- Sites include brain, kidney

## ➤ **Kidney disease**

## ➤ **Immune-mediated**

- Includes ulcerative colitis, asthma, allergy

# Certainty and Concern Are Not Always Aligned

- **Understandably, cancer, birth defects, and reproduction are frequent topics of community questions; this research is harder to do.**
- **What scientists may consider a cautious answer about exposures, outcomes, knowledge gaps, and barriers to good research, can also be heard by listeners as dismissive.**
- **Answers about what we do and do not know have to be framed carefully.**

# What Should Happen in Affected Communities?

## Priority 1. First Reduce the Exposure

- **When a contaminated water supply is identified as the primary source in an affected community, this is a public health priority in that community. Options are a source of clean, uncontaminated water, or a means to filter the contaminated water.**

## Priority 2: Reduce the Impact of Past Exposures

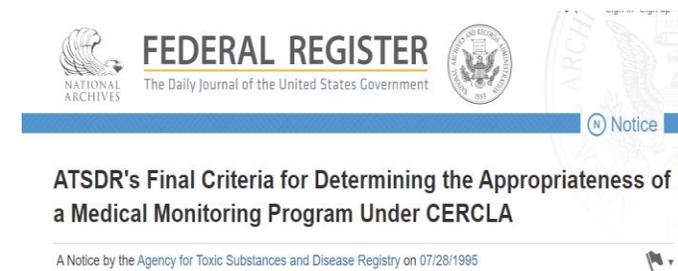
This leads to questions about **MEDICAL MONITORING**, defined as **case-finding** in order to refer individuals for further evaluation and, as appropriate, treatment.

### Can Include:

- **Testing for early biologic effect, and**
- **an assessment of exposure using models of exposure or actual biological specimens (for example, blood or urine), when appropriate**

# CDC/ATSDR Guidance: When is Medical Monitoring Helpful?

- **Target community, exposure > threshold**
  - measured or modeled
- **Reasonable association: exposure → adverse outcomes**
- **Monitoring brings a net benefit**
  - ❑ Earlier detection
  - ❑ Treatment or intervention possible, can prevent or mitigate disease
  - ❑ Detection and treatment or intervention has more benefits than harm
  - ❑ Does not duplicate other testing



# Advantages of Community Level Medical Monitoring

- **Participant access to testing, including serum PFAS**
- **Summary report-back function**
- **Access to expertise**
- **Economies of scale**
- **Quality improvement**
- **Proven participation, appreciation**

# Positive Community Response to Medical Monitoring

## Combined “excellent” or “good” responses (percent) from C8 Health Project Participant Survey

➤ Public awareness:	88.0 %
➤ Ease of providing blood sample:	94.4 %
➤ Recalled receiving results:	97.5 %
➤ Overall experience	91.8 %

<b>Importance to health of family:</b>	<b>Very important</b>	<b>84.4%</b>
	<b>Moderately important</b>	<b>14.1%</b>

# One Reality of Community Level Monitoring: In Absence of Resources, Long Delays



# What Is Reasonable for Affected Individuals in Communities?

**A physician's perspective:**

**The CDC/ATSDR criteria for communities can also provide reasonable guidance to people and their providers, so long as:**

- The exposure is documented**
- The approach is simple, acceptable in the community, and has a net benefit for earlier diagnosis and then preventing or mitigating disease**

# What Is Reasonable for Affected Individuals in Communities?

- **Clinical Evaluation (in my view meeting recommended criteria for helping and being acceptable)**
  - Body mass index (BMI) measurement and managing obesity as needed
  - Clinician or self-administered testicular examination
  - Home blood pressure monitoring to augment measurements during pregnancy
  - Fertility and reproductive concerns- discussion

# What Is Reasonable for Affected Individuals in Communities?

- **Laboratory Testing** (in addition to serum PFAS)
  - lipid panel (cholesterol, LDL, HDL, triglycerides)
  - liver function tests such as ALT, AST, GGT
  - thyroid stimulating hormone (TSH)
    - especially during pregnancy
  - uric acid and creatinine
  - urinalysis

# Health Communications About PFAS Testing

- **Needs to be done thoughtfully.**
- **Those affected by contaminated water may not agree that they are “better off without testing”.**
- **Barriers should be stated honestly; it has been hard and costly to get individual testing of PFAS exposure.**

Other than money and time investment, there is in my view no downside to the individual obtaining PFAS lab data.

# Summary

- **Some health effects of PFAS exposure are well documented, others the subject of ongoing investigation, and our knowledge is based on only a few of the many possible PFAS contaminants.**
- **Reduction of exposure and reducing the effects of past exposure are overarching principles of public health response.**
- **Medical monitoring according to established public health guidance is beneficial to populations in exposed communities and can reasonably inform choices for individuals.**

# How Michigan Is Taking Action on PFAS



**Steve Sliver**

*Executive Director*

Michigan PFAS Action Response Team

Michigan Department of Environment, Great Lakes, and Energy

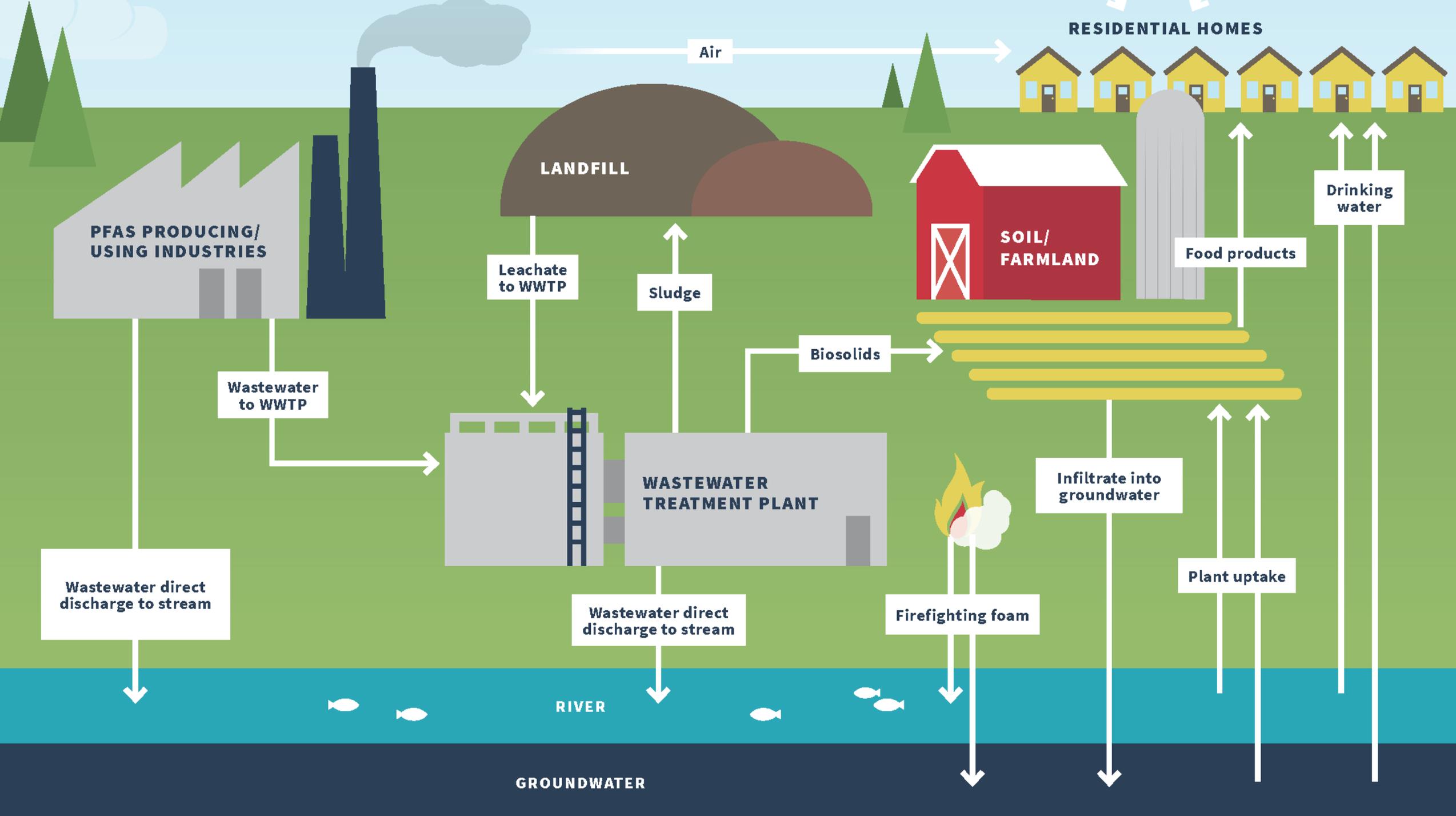


# Objectives

- **Highlight Michigan's proactive approach to PFAS contamination**
- **Provide an overview of PFAS contamination in Michigan and actions to identify and reduce exposures**
- **Highlight state-level opportunities for protecting public health**

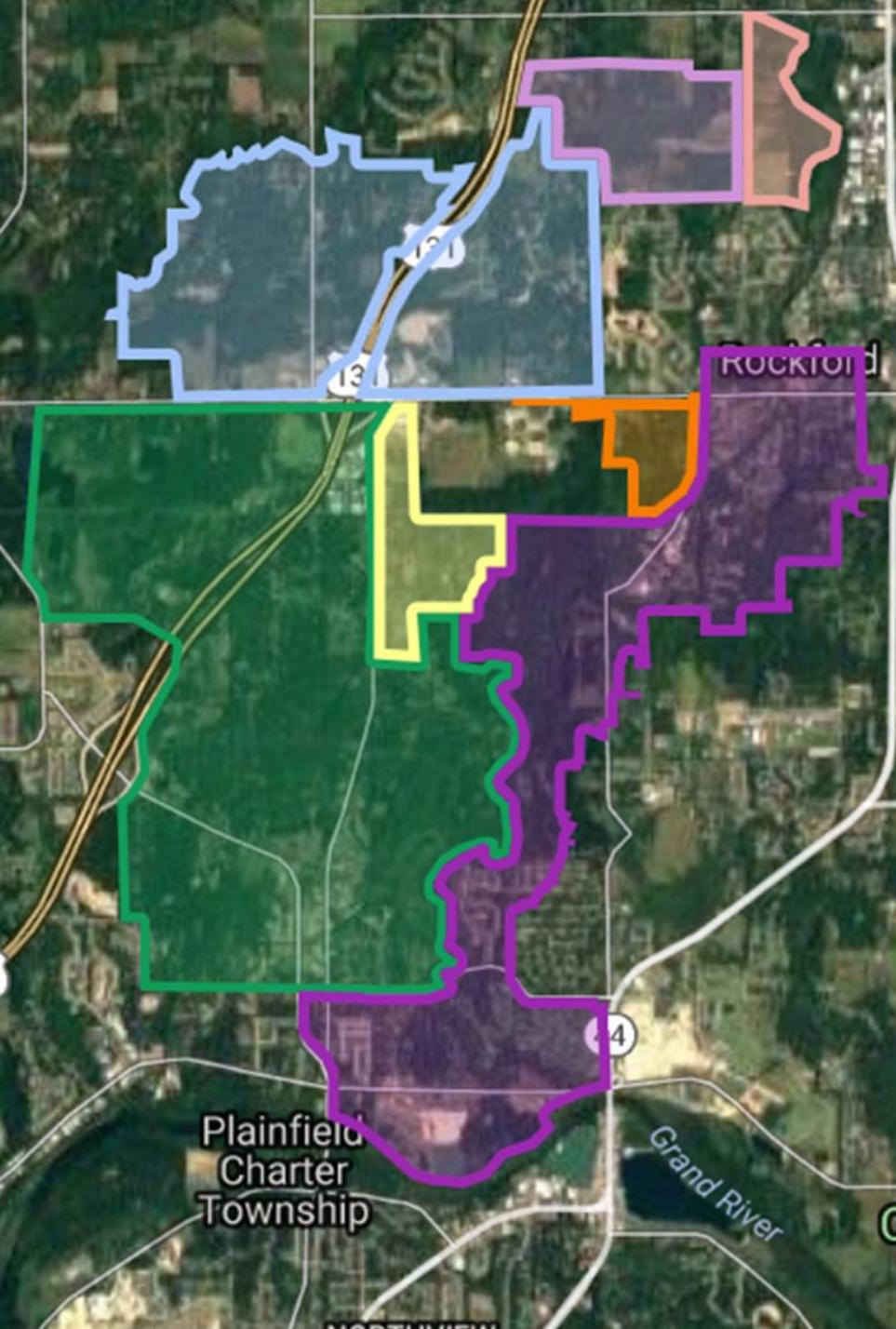
PFAS RESPONSE

**TAKING ACTION, PROTECTING MICHIGAN**



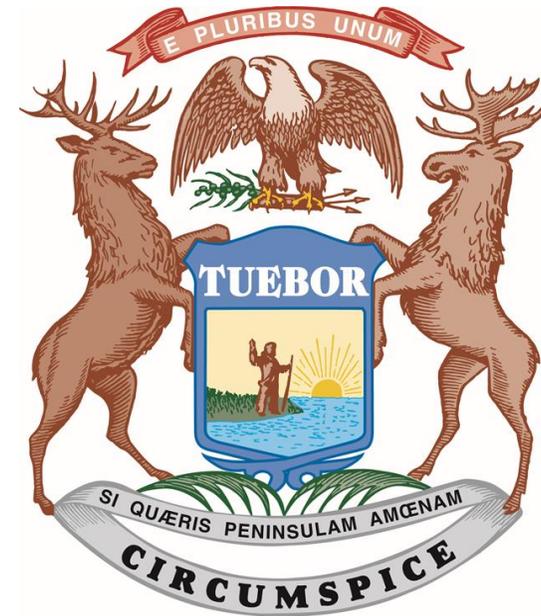
# PFAS Emerge in MI

- ❑ 2012 Wurtsmith Air Force Base “Do Not Eat” fish advisory
- ❑ 2013 Surface water survey
- ❑ 2017 Camp Grayling sample data
- ❑ 2017 North Kent County sample data



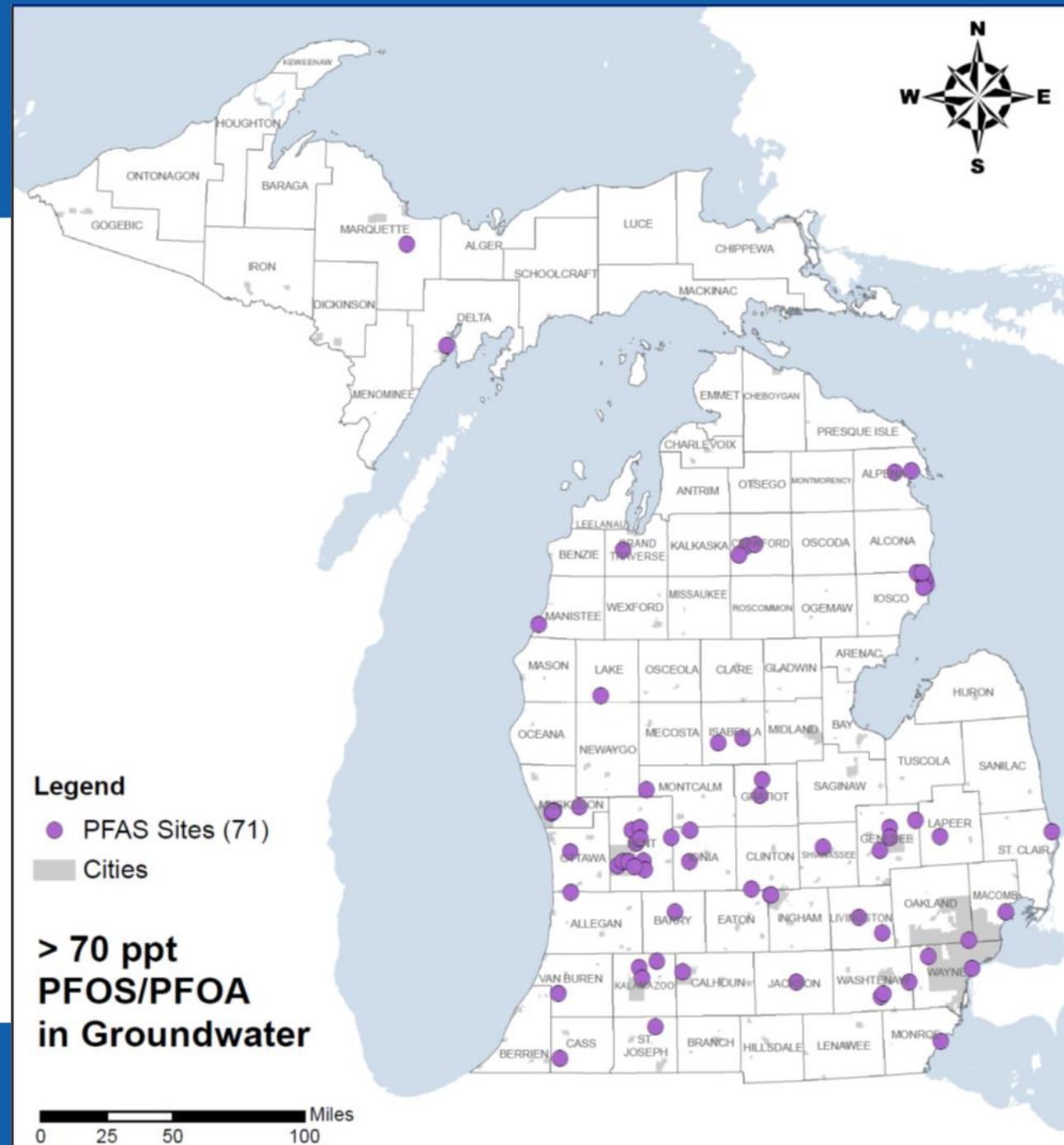
# Michigan PFAS Action Response Team (MPART)

- **Unique multiagency approach**
  - includes environment, agriculture, transportation, and health
- **Advisory body**
- **Leads coordination and cooperation at all levels of government**
- **Enables a comprehensive approach to identify and reduce exposures to PFAS contamination**



# Sites Being Investigated

- **Prioritized investigations based on known or suspected sources, potential for exposure**
- **Protect drinking water**
- **Other investigations underway**



# Surface Water Investigations

- Survey of surface water and fish
- Foam
- Wastewater



# Public Health Advisories

## Fish and Deer consumption 9 – 300 ppb PFOS



## Surface water foam



PPB: parts per billion



# Michigan PFAS Standards

## Drinking water

- ✓ 70 ppt PFOA/PFOS lifetime health advisory recommendation
- ✓ Maximum contaminant levels (MCLs)

## Surface water quality

- ✓ 12 ppt PFOS (11 ppt if DW source)
- ✓ 12,000 ppt PFOA (420 ppt if DW source)

## Groundwater cleanup

- ✓ 70 ppt PFOA/PFOS
- ✓ GSI per surface water quality standards

DW: drinking water

PPT: parts per trillion

GSI: groundwater surface water interface

# Public Water Supply Testing



## ➤ Phase I - 2018

- All community water supplies (1,114)
- All NTNCWS schools and daycares (619)
- All tribal systems (17)
- Informs additional testing of other supplies

## ➤ Phase II - 2019

- Non-community water supplies (750 total)
  - 237 children's camps
  - 162 medical care facilities

## ➤ Monthly monitoring

- All 65 surface water systems

## ➤ Quarterly monitoring

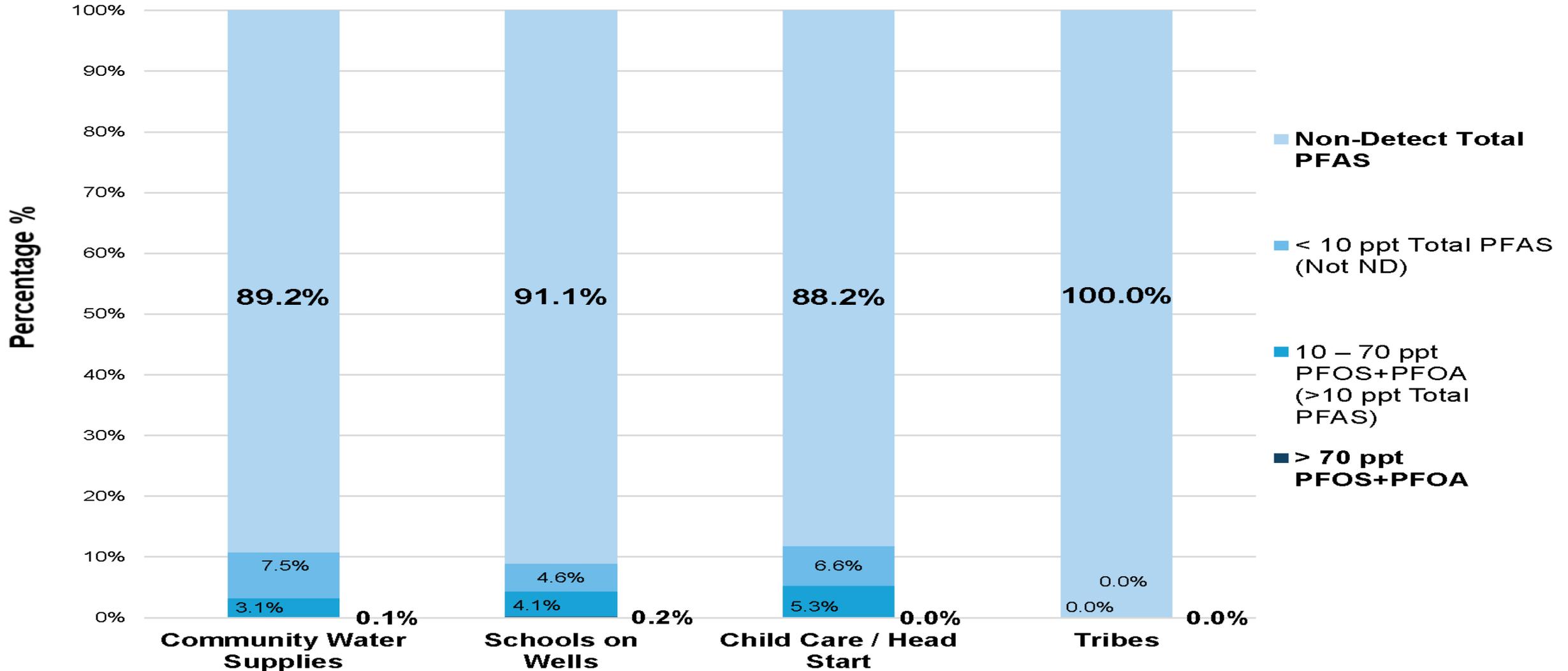
- 61 systems with >10 ppt total PFAS from Phase I

NTNCWS: Non-Transient Non-Community Water System

PPT: parts per trillion

# Phase I Results Show PFAS Contamination in Multiple Types of Community Settings

## Statewide Public Water Supply Testing Initiative Results\*



# Establishing State Drinking Water Standards

- **No federal standards on the horizon**
- **Science Advisory Panel Report, December 2018**
  - 70 ppt standard for PFOA/PFAS could be too high
  - other PFAS should be considered as well
- **Michigan's two-step approach to enforceable standards**
  - Science Advisory Workgroup completed June 27, 2019
  - rulemaking underway for planned issuance in April 2020

# Health-Based Values for Drinking Water

<u>Specific PFAS</u>	<u>Parts Per Trillion (ppt)</u>	<u>EPA Lifetime Health Advisory</u>
PFOA	8	70 ppt combined
PFOS	16	
PFHxS	51	N/A
PFNA	6	N/A
PFBS	420	N/A
GenX	370	N/A
PFHxA	400,000	N/A

# Michigan's Public Health Response to PFAS

- **Whole of state government response**
- **Source investigations and statewide drinking water surveillance**
- **Evidence-informed policymaking**
- **Public health actions to reduce PFAS exposure**





# MICHIGAN PFAS ACTION RESPONSE TEAM (MPART)

[www.michigan.gov/pfasresponse](http://www.michigan.gov/pfasresponse)

The logo for the Michigan Department of Environment, Great Lakes, and Energy (EGLE), consisting of the letters "EGLE" in a stylized, blocky font with a green-to-blue gradient.

MICHIGAN DEPARTMENT OF  
ENVIRONMENT, GREAT LAKES, AND ENERGY



# PFAS Contamination: Community Perspective



**Andrea Amico**  
*Co-founder*  
Testing for Pease

# Objectives

- Describe PFAS contamination at the former Pease Air Force Base in Portsmouth, NH
- Outline origins of Testing for Pease
- Understand the role of community action and organizing in protecting public health
- State community concerns and needs



# Welcome to the Pease International Tradeport

- **Large business park on the seacoast of New Hampshire**
- **Development of the Pease Tradeport started in 1991**
- **Three wells supply drinking water**
- **Currently home to ~ 250 businesses and still growing**
  - 2 daycare centers
  - restaurants
  - healthcare and medical office buildings
  - five colleges
  - golf course
- **More than 10,000 people employed on Pease daily**
- **Home to Portsmouth International Airport (PSM)**
- **Air National Guard base still active on Pease**



# PFAS Contamination at Pease Air Force Base in Portsmouth, NH

- 1956 to 1991 Strategic Air Command (SAC) base
- 4,365 acres of land with 3 on-site drinking water wells
- In 1991, Pease AFB closed
- In 1991, Pease became a Superfund site
- Home to the Air National Guard 157th Air Refueling Wing

A **Superfund site** is any land that has been contaminated by hazardous waste and identified by the EPA as a candidate for cleanup because it poses a risk to human health and/or the environment.



# Origins of PFAS Contamination at Pease

- **May 2014 – newspaper revealed that PFAS contamination was discovered in three wells supplying drinking water to the Pease International Tradeport.**
- **All three drinking water wells had detectable levels of many PFAS.**
- **One well tested over the EPA Public Health Advisory limits and was shut down immediately.**
- **Source of PFAS was aqueous film forming foam (AFFF).**
  - Used to fight petroleum related fires



**Water contamination shuts down well at Pease**



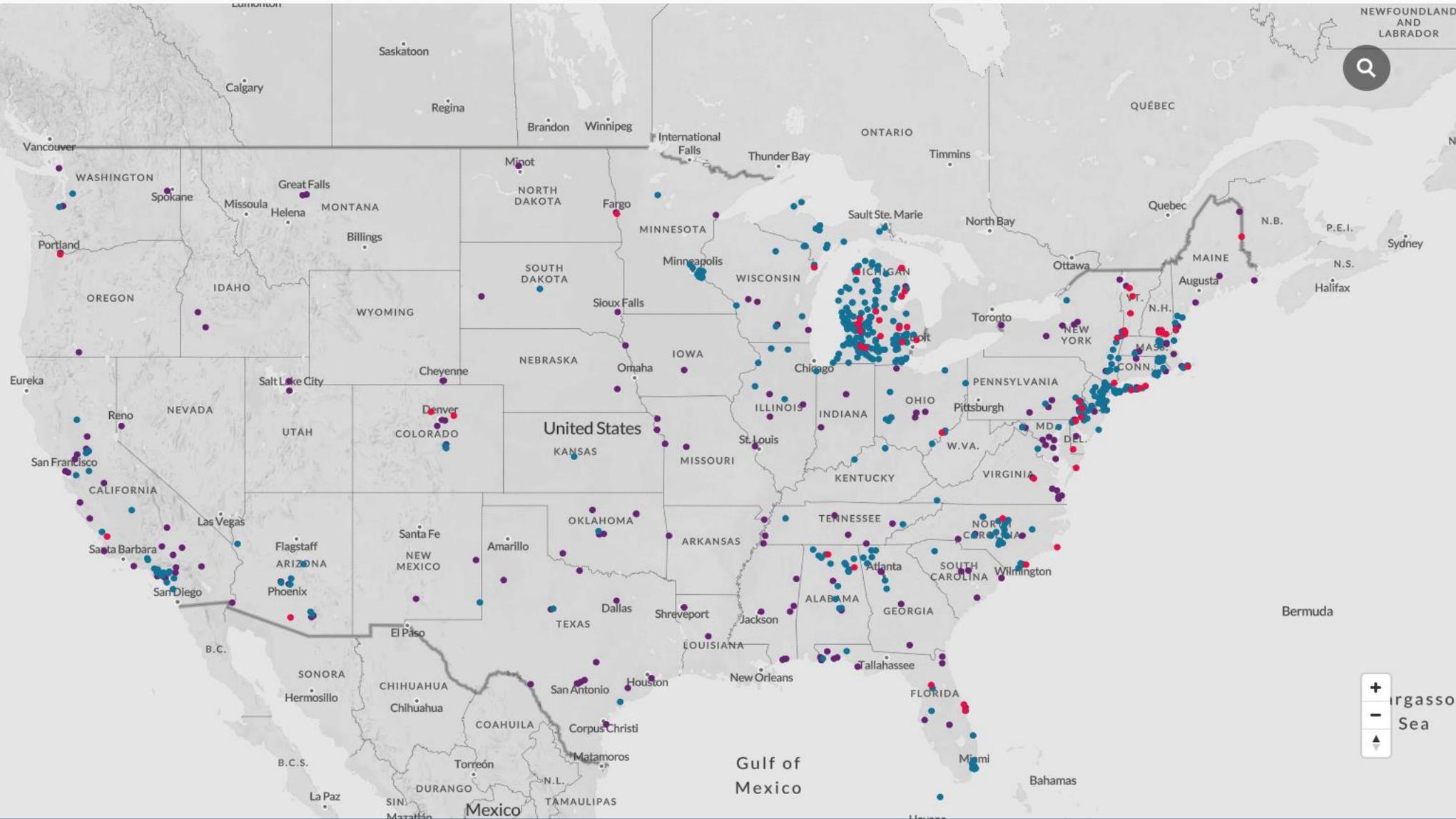
# PFAS Contamination is Widespread



## PFAS Contamination in the U.S.



- On** Military Sites
- On** Drinking Water
- On** Other Known Sites



# What Is Testing for Pease?

- **Testing for Pease is a community action group, whose mission is to**
  - be a reliable resource for education and communication
  - advocate for a long-term health plan on behalf of those harmed by the PFAS water contamination at the former Pease Air Force Base in Portsmouth, NH



Alayna Davis, Andrea Amico, Michelle Dalton



**TESTING** *for* **PEASE**

# Community Action

Action achieved for the Pease community:

- PFAS blood tests from 2015–2018 (~ 1800 participants)
- Filtration of two of the drinking water wells (September 2016)
- Remediation of PFAS contamination (ongoing)

## Air Force plant removes PFAS from Pease water



# Community Action

## Action achieved for the Pease community:

- ATSDR Feasibility Assessment completed May 2017
- Federal law giving DoD authority to fund Pease health study, exposure assessments, and multisite studies
- ATSDR Pease pilot health study started Fall 2019

**Many communities have NOT experienced all of the action we have seen at Pease**



NEWS > PRESS RELEASES

## Shaheen Announces Pilot PFAS Study at Pease to Move Forward

AUGUST 29, 2019



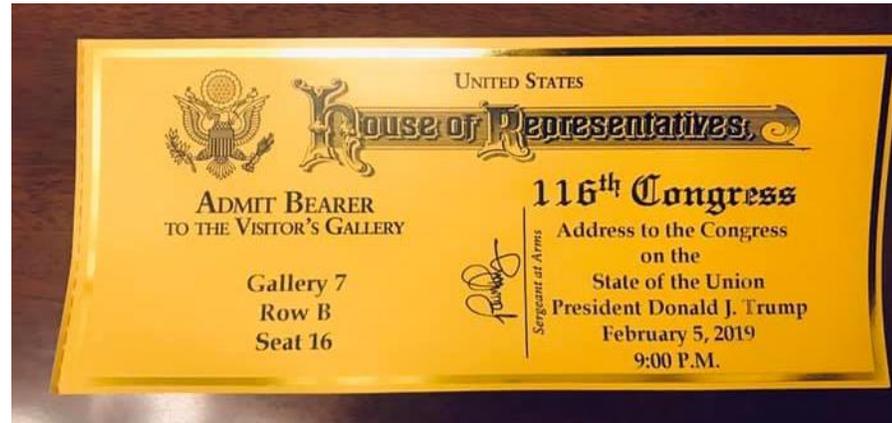
# PFAS Community Leaders Taking a National Platform

- **Attended EPA's first National PFAS Summit in DC – May 2018**
- **Met with then EPA administrator Scott Pruitt – May 2018**
- **Testified at the Senate's first hearing on PFAS – September 2018**
- **Presented at National PFAS Conferences – 2017, 2019**



# PFAS Community Leaders Taking a National Platform

- Attended the president's State of the Union address – February 2019
- Gave a TEDx talk “How an Ordinary Person Can Become an Advocate” – September 2019
- Executive steering committee member for ATSDR's First PFAS Community Engagement Summit – June 2019



# National PFAS Contamination Coalition

- **Formed in June 2017**
- **Made up of community PFAS leaders all across the U.S. and Guam**
- **Working on common goals to enact change at the federal level**
- **Provide support, education, and act as a resource to others**



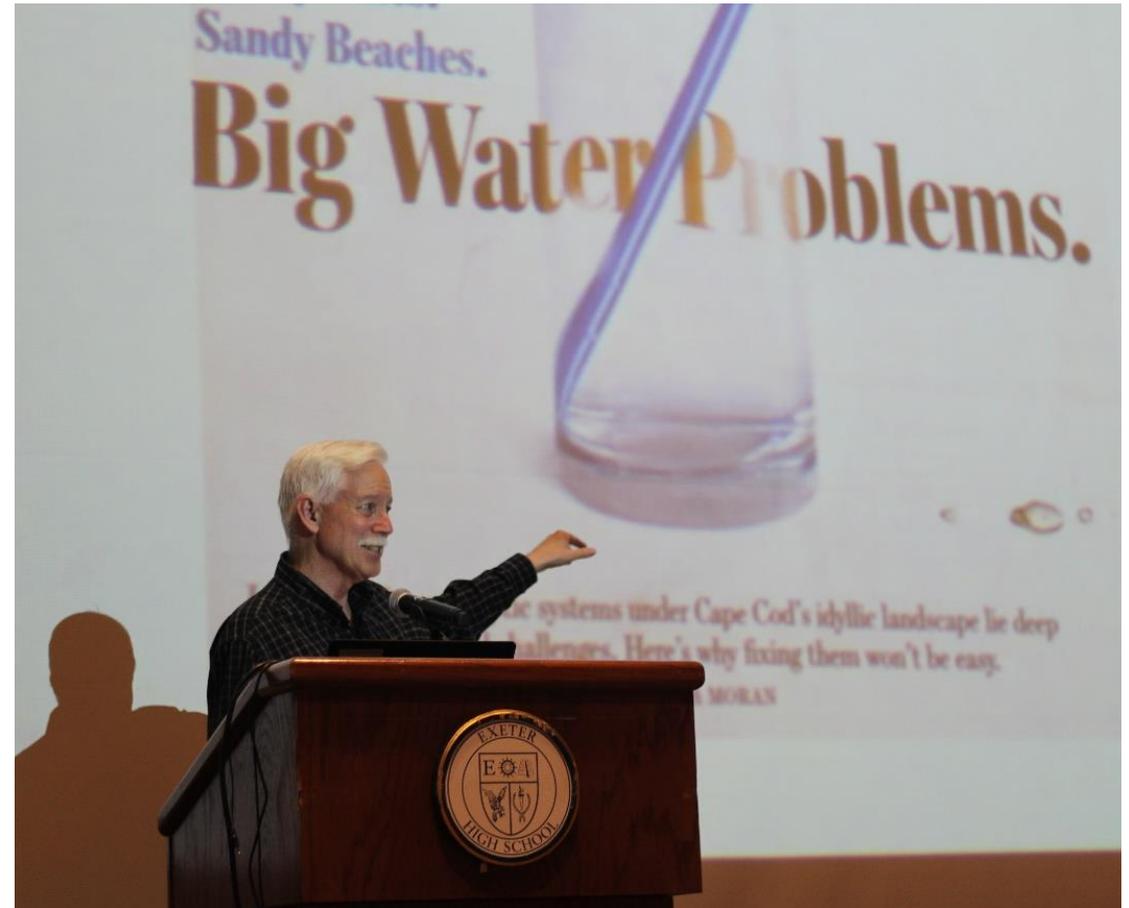
# National PFAS Contamination Coalition

- Coordinated trips to local, state, and federal meetings and hearings
- Presented and attended PFAS conferences
- Met with many elected officials, government agencies, scientists, academics, and nongovernmental organizations



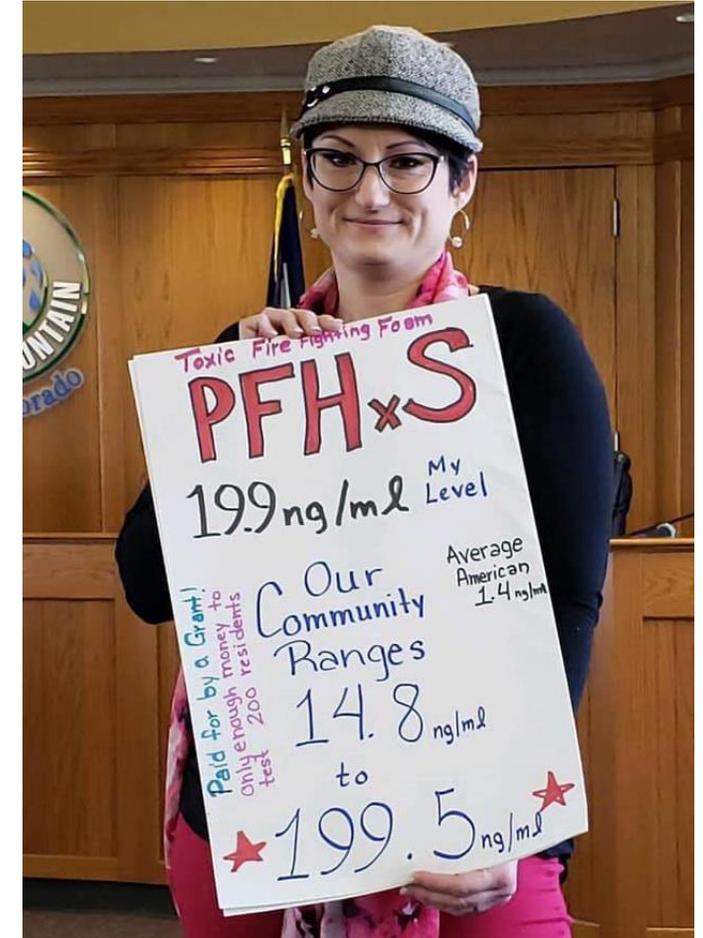
# Community Challenges and Concerns

- **Why are PFAS presumed safe until proven toxic?**
- **Lack of federal health advisories, health and toxicology data for all PFAS**
- **Current EPA LHAs for PFOS and PFOA are too high and do not protect public health and sensitive populations (infants, children, already exposed populations)**
- **Multiple health effects impacting many systems in the body**



# Community Challenges and Concerns

- Communities should not be financially responsible for alternative water supply, remediation, filtration, blood testing
- Having few labs capable of standardized testing of water and blood causes multiple barriers to PFAS testing
- Lack of physician education and medical monitoring guidelines on PFAS



# Community Challenges and Concerns

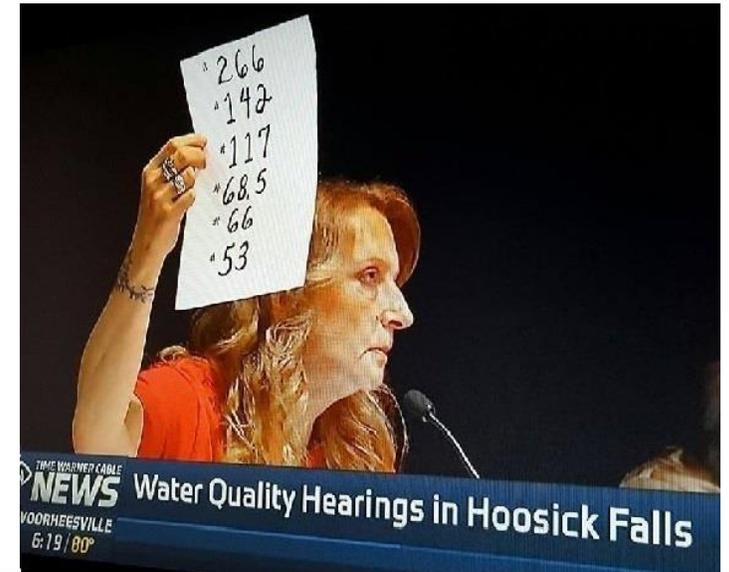
## ➤ PFAS contamination has significant economic consequences:

- Property values decreased
- Businesses lack the ability to attract and retain talented employees and customers
- Chronic illness reduces employee attendance and productivity and drives up healthcare costs



## ➤ Additional expenses:

- Medical bills
- Bottled water
- Home filtration systems
- Blood and water tests
- Community organizing



# Community Challenges and Concerns

## ➤ Chronic illness as a result of PFAS exposure

- loss of work, wages
- loss of happiness
- loss of productivity
- loss of life



# Community Challenges and Concerns

- **Not seen as stakeholders**
- **Lack of transparency**
- **Inconsistent responses to contamination**
- **Inconsistent messaging from government agencies**
- **Ongoing exposure from unregulated contaminants**
- **Data is not made readily available to stakeholders**
- **Impacted communities do not have resources to engage independent technical support**
- **Communities, rather than polluters, bear the brunt of financial costs**



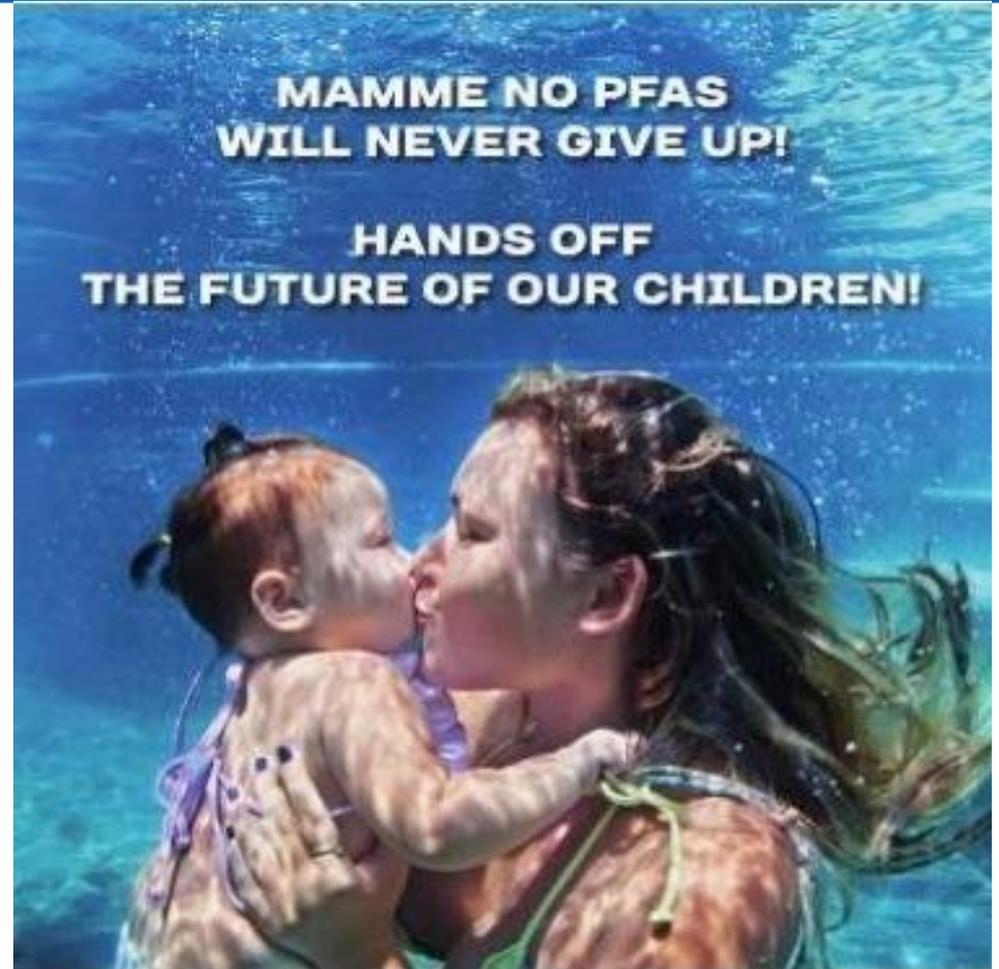
# Community Needs

- **Classify PFAS as hazardous substance**
- **Treat PFAS as a class and regulate them together, not one compound at a time**
- **Establish MCL of 1 ppt for all PFAS**
- **Use non-fluorinated firefighting foam alternatives**
- **Do not allow the introduction of any new PFAS into production due to the large number already in the environment**
- **Establish medical monitoring guidelines and provide outreach to physicians**
- **Improve lab analytical methods to test for many PFAS in water and blood and make those more accessible, affordable nationwide**



# Community Needs

- **Prioritize public health when making critical regulatory decisions**
- **Shorten response time on taking meaningful action**
- **Label all products containing PFAS**
- **Provide funding to states to support more testing, clean up, and community response**
- **Value community members as critical stakeholders by including us in meetings and ask for our input on important decisions – “Nothing about us without us”**



# Thank You!!!

Andrea Amico  
Testing for Pease, Co-founder  
[www.testingforpease.com](http://www.testingforpease.com)  
Email: info@testingpease.com



TESTING *for* PEASE

***“Never doubt that a small group of thoughtful committed citizens can change the world; indeed, it's the only thing that ever has.” ~Margaret Mead***