



DERP FORUM

Achieving Greater Success Through Strong Partnerships

November 14-17, 2023 • Kansas City, MO

Enhancing Community Outreach

Ms. Stacey French, South Carolina Department of Health & Environmental Control (DHEC)

Ms. Melissa Forrest, Navy and Marine Corps Force Health Protection Command (NMCFHPC)

Dr. Chris Reh, Associate Director, Agency for Toxic Substances and Disease Registry (ATSDR)

November 16, 2023

1:30 – 2:45



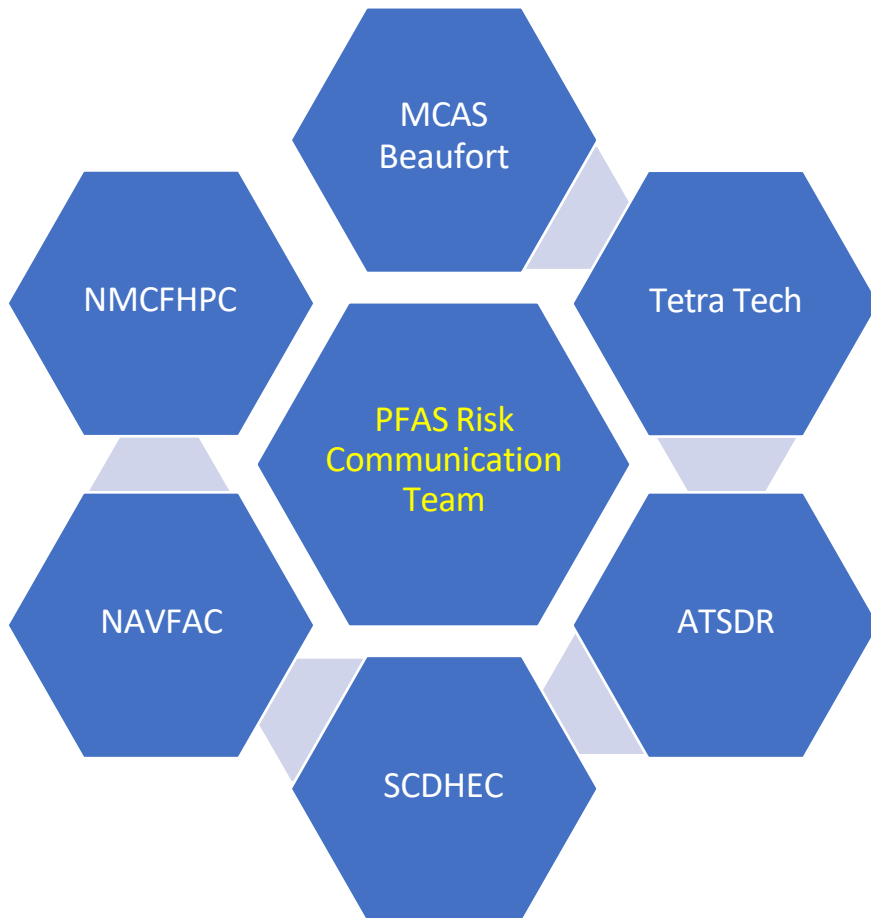
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Marine Corps Air Station Beaufort Risk Communication Team Approach

Stacey French P.E., Director
Division of Waste Management



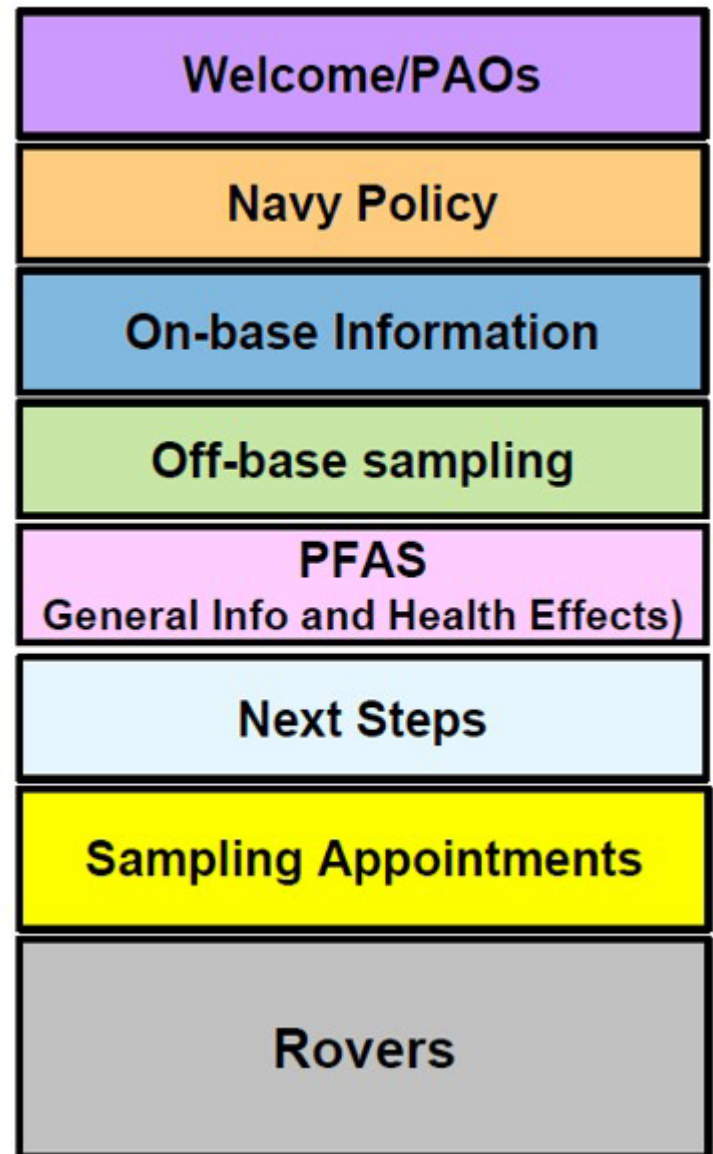
- Build your team representing all agencies involved
- Assign Stations and Roles
- Station groups review and update poster content
- Common messaging

Open House prep

- Poster layout for best flow for public
- Team Risk Communication Training
- Mock Open House

Day of

- Have a plan
- Actual Open House
- Handout POC cards
- Open House Debrief



Common Questions Previous Experience

WHY?

- Why are PFAS/PFOS/PFOA a concern in drinking water?
- Why does the Navy/Marine Corps conduct PFAS investigations?
- Why now at MCAS Beaufort?
- Why aren't you using the new EPA Health Advisories?

WHERE?

- Where are you sampling?
- Where have you sampled/have data previously?

WHEN?

- When are you doing sampling?
- When will I know the results?
- When did you know about the problem?

HOW?

- How did the water get contaminated?
- How will you do the sampling?
- How will you share the results?
- How long has this been in my water?

WHAT?

- What are the chemicals you are investigating?
- What is a Health Advisory?
- What actions will you take based on the results?
- What is a ppt?

WHAT ABOUT ME?

- Should I stop using my water until I get my results- Is it safe to drink, give to pets, shower, water garden, livestock etc.?
- Is drinking water below 70 ppt for PFOA/PFOS safe to drink?
- Are you still contaminating my water (i.e. still using AFFF)?
- Is my health problem caused by this?
- Should I have a medical test to see if I've been exposed?
- Will you pay my medical bills or my water bill if you hook me up?
- Why not give everyone bottled water until you know for sure?
- I live outside the sampling area will you still sample my well?
- Will this hurt my property value?
- I work on-base, has that water been tested?

Laurel Bay Heating Oil Tank Removal Project 2016 – 2017

Sampling Results:

Results from soil vapor sampling will be available one to two months after the sampling event and will be sent directly to the resident. The EPA's Petroleum Vapor Intrusion guidance will be used to determine if there is a vapor intrusion concern. All sampling will be done in coordination with South Carolina Department of Health and Environmental Control (SCDHEC). Soil vapor results may require additional investigation. It does not confirm the presence of vapor intrusion into the house. Additional investigations may consist of more soil vapor sampling, indoor air sampling, and long-term solutions, if needed.

For additional information on petroleum vapor intrusion, please visit:

www.epa.gov/ust/petroleum-vapor-intrusion

MCAS Beaufort is committed to sharing information with you throughout this process. Please check the AMCC Web Site for informational updates. For further information, please contact:

Mr. William Drawdy
Natural Resources and Environmental Affairs
Officer
MCAS Beaufort

(843)228-7370
William.Drawdy@usmc.mil

Laurel Bay Military Housing



Soil Vapor Sampling

MARINE CORPS AIR STATION
BEAUFORT, SOUTH CAROLINA

April 2016

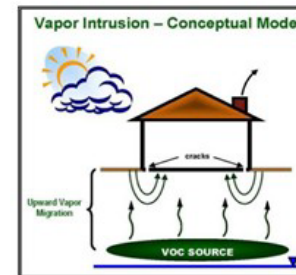
Background:

Laurel Bay Military Housing Area was constructed in the 1960s. The homes were originally heated with heating oil, which was stored in underground storage tanks located at each house. In the 1980s, the houses were converted to electric heating and the heating oil tanks were no longer used. As was the accepted practice at the time, out-of-service heating oil tanks were drained, filled with soil or sand, capped, and left in place. As a matter of environmental stewardship, a tank removal project began in 2007. Tank locations vary for each home within Laurel Bay. Most of the heating oil tanks were located in yards and open spaces and were easily removed. However, 34 houses have been identified as having heating oil tanks still in place due to above ground structures preventing their removal. Following the removal of the tanks, soil and groundwater sampling was conducted to determine if and to what extent the tanks may have leaked.

As a precautionary measure, soil vapor sampling is being conducted to insure that vapors from heating oil are not entering the homes in Laurel Bay. This sampling event is not required by regulations, but is being conducted out of an abundance of caution for residents. MCAS Beaufort is committed to sharing information with residents throughout this process.



A heating oil tank after removal at Laurel Bay.



Petroleum Vapor Intrusion:

Vapor intrusion is the term used to describe the migration of vapors from a contaminated source in soil or groundwater upward through the soil and into buildings through cracks or holes in building foundations or slabs. The term petroleum vapor intrusion is used when those vapors are the result of a release of petroleum product. Heating oil, previously used in Laurel Bay, has substances common to all petroleum products that can vaporize. These substances are known as volatile organic compounds (VOCs). In undeveloped areas, the vapors disperse into the outside air. In developed areas, the vapors can enter buildings and may affect indoor air quality. This movement of vapors into a building is called vapor intrusion.

Petroleum Vapor Intrusion at Laurel Bay:

The United States Environmental Protection Agency (EPA) published guidelines on vapor intrusion in 2012 and petroleum specific vapor intrusion in 2015. MCAS first began conducting vapor intrusion sampling in Laurel Bay in 2014. To date, 39 houses have undergone a soil vapor investigation. The results of the 39 houses have not indicated any vapor intrusion issues resulting from the leaking heating oil tanks.

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Project:

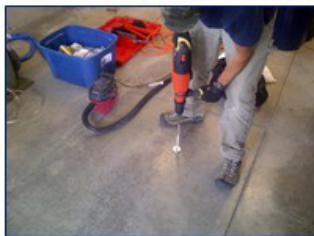
Thirty-four houses have been identified throughout Laurel Bay for this phase of the soil vapor investigation. Heating oil tanks at these residences were not removed due to location of the tank under a portion of the house slab or other exterior structure. Samples at each of these residences will need to be collected from the approximate heating oil tank location. This location will vary on a house-by-house basis, depending on the suspected location of the tank and the layout of the house. The soil vapor sampling is being conducted, as a precautionary measure, to ensure that vapors from heating oil are not entering these thirty-four houses.

Sampling Schedule:

Sampling is anticipated to begin after Memorial Day and continue through July 2016. In most cases, sampling will take less than one day to complete. Sampling will be conducted between the hours of 0800 and 1600, Monday through Friday. Your presence is not required during the sampling event, but please take special consideration for pets and children.



Typical house in Laurel Bay Military Housing Area.



Installation of a soil vapor sample point.

Prior to any sampling in your home, all residents will be contacted for the following:

- Discuss and review the sampling plan and requirements,
- Schedule a date and time for a home walkthrough and utility locate,
- Schedule a date and time for the sampling to occur, and
- Collect information about your home, such as layout, attached garages, utility doors, ventilation system design, foundation conditions, presence of foundation sump, building material, location of laundry facilities, etc.

Sampling Procedure:

A home walkthrough will be conducted to determine the approximate tank location and to identify any access concerns. The floor surface at the sample location will be assessed to determine if any flooring will need to be removed. A utility locator will be employed to identify any potential underground utilities that could be of concern while installing the sample point. The field team anticipated to access each home will consist of two contractors, one MCAS representative, and one Atlantic Marine Corps Community representative.

The sampling event will involve the installation of the soil vapor sampling point and then sample collection. The installation process will begin by exposing the concrete slab at the sample location above the heating oil tank. A 5/8-inch hole will be drilled through the concrete slab, approximately 6-inches deep. The soil vapor sampling point will then be installed into the drilled hole and capped. This will form a tight seal preventing any potential vapors from escaping into the home. Conditions at the soil vapor sampling point will need to stabilize for at least two hours before the sample can be collected. After stabilization, the field team will return to the home to set up sampling equipment and collect the sample. The sampling process will take less than an hour in most cases. Once the sample is collected, the soil vapor sampling point will then be removed, the hole will be sealed, and the surface will be restored to its original condition.



Soil vapor sample point to be used at each house.



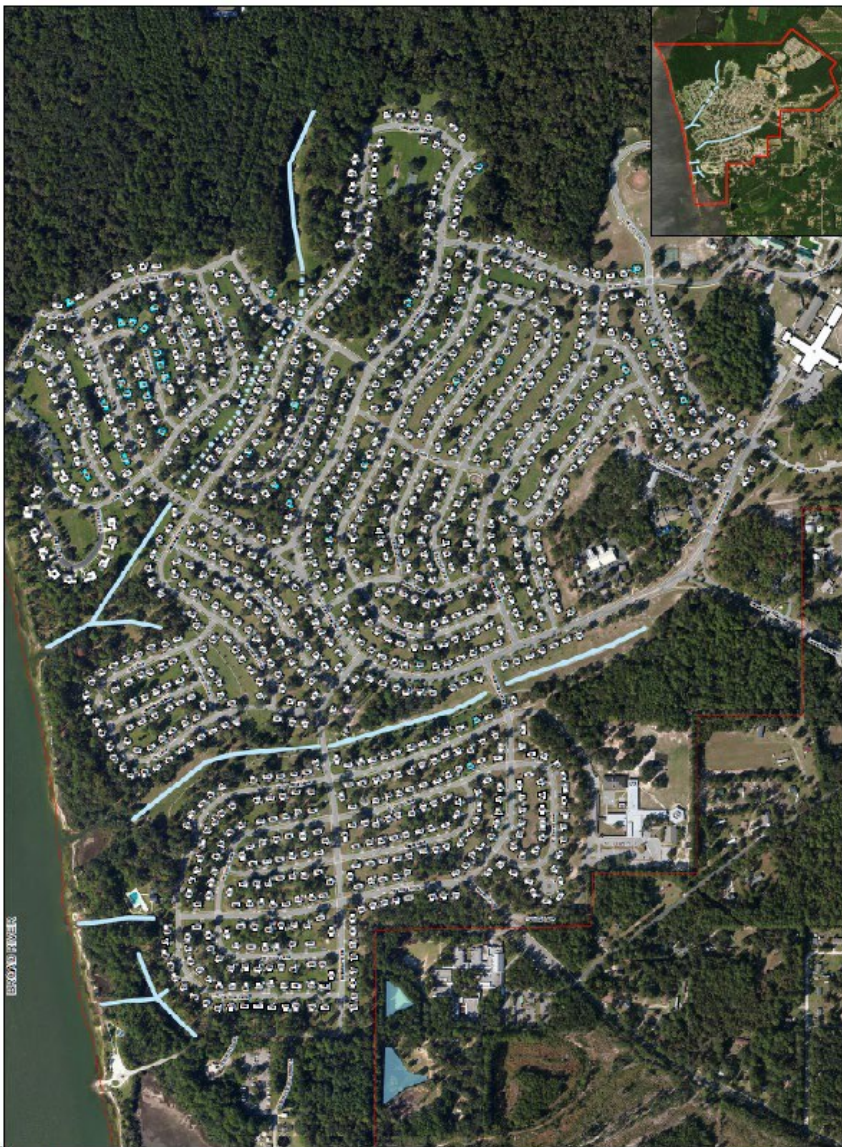
Issues Related to Heating Oil:

Only certain substances are a concern for vapor intrusion. Because heating oil is the source for potential vapor intrusion, compounds related to petroleum are the focus of sampling. VOCs are a group of compounds that can become vapors. The VOCs in heating oil are commonly found in cigarettes, cleaning products, paints, and vehicle exhausts.

Thirty-nine houses have been sampled to date. At this time, no soil vapor results have indicated any concerns for health effects. Possible initial symptoms associated with vapor intrusion of heating oil components include:

- Headache
- Dizziness
- Drowsiness
- Respiratory and Eye Irritation
- Nausea
- Increased Heart Rate

Any specific health concerns should be communicated to your primary care manager for further evaluation. If soil vapor sampling demonstrates levels above screening levels, additional sampling will be performed. This may involve air quality testing inside the home.



Legend

Residence	Existing Heating Oil Tank
Residence with Proposed Soil Water Sampling Locations	Removed Heating Oil Tank
Ponds	Subsurface Drainage Pipe
Property Boundary	Drainage Channel

LAUREL BAY MILITARY HOUSING AREA
MCAS BEAUFORT
BEAUFORT, SC

NAVFAC
Naval Facilities Engineering Command

WATERLION
GENERAL SERVICES

REQUESTED BY: SED	DATE: 4/12/2018
DRAWN BY: LLM	TASK ORDER NUMBER: WE75

Open House Stations

- Find my house
- Explanation of the investigations.
 - Why
 - Where
 - When

Follow up 2017 Open House for Next Steps:

Why were these properties selected for sampling?

Soil Vapor Sampling Properties

- 238 Ash St.
- 239 Ash St.
- 309 Ash St.
- 381 Ash St.
- 410 Ash St.
- 502 Ash St.
- 57 Banyan Dr.
- 156 Banyan Dr.
- 188 Banyan Dr.
- 82 Birch Dr.
- 378 Birch Dr.
- 633 Dahlia Dr.
- 653 Dahlia Dr.
- 362 Elderberry Dr.
- 405 Elderberry Dr.
- 537 Elderberry Dr.
- 551 Elderberry Dr.
- 145 Gardenia Dr.
- 159 Gardenia Dr.
- 191 Gardenia Dr.
- 1054 Gardenia Dr.
- 345 Iris La.
- 433 Iris La.
- 467 Iris La.
- 917 Laurel Bay Blvd.
- 989 Laurel Bay Blvd.

Results from previous environmental sampling activities that led to this sampling event are as follows:

Petroleum compounds detected from soil samples were above SCDHEC screening levels.

and

Petroleum compounds detected in groundwater were above groundwater vapor intrusion screening levels.

or

Residual heating oil was detected in a monitoring well on the property.

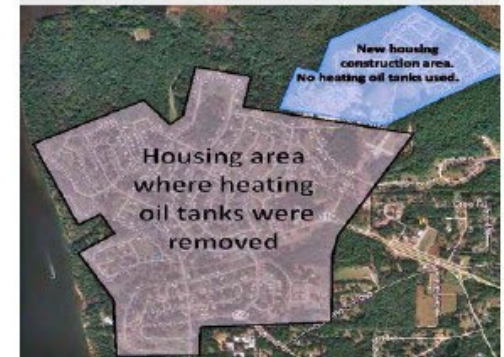
See Soil Vapor Sampling Process flow chart.

When will sampling occur?

Sampling is anticipated to begin in April 2017.

In most cases, sampling at each residence will take less than one week.

Sampling will be conducted between 0800 and 1700, Monday through Friday.



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Off Base PFAS Investigation 2022

On-base Information



MCAS Beaufort On-Base PFAS Release Areas



- 28 PFAS release areas were identified on MCAS Beaufort.
- Types of PFAS release areas on MCAS Beaufort include:
 - Emergency response areas
 - Hangars and buildings with fire suppression systems
 - Firefighting training areas
 - Fire stations
 - Sewage treatment plant and sludge disposal area
 - Landfill
- PFOA and PFOS have been detected above 70 ppt in groundwater at MCAS Beaufort.
- PFOA and PFOS may move from shallow to deep groundwater.
- Groundwater may flow off-base.

FOR MORE INFORMATION
visit <https://go.usa.gov/xJqYA>
or scan the QR code →



ACRONYMS & ABBREVIATIONS

EPA	Environmental Protection Agency	PFAS	per- and polyfluoroalkyl substances
ppt	parts per trillion	PFOA	perfluorooctanoic acid
MCAS	Marine Corps Air Station	PFOS	perfluorooctane sulfonate

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Off-base Sampling Area



Off-Base PFAS Drinking Water Sampling



The Navy and Marine Corps need your help to sample your drinking water well.

- The sampling area is in the direction that groundwater likely flows away from the PFAS release areas.
- If your drinking water is provided by the Beaufort-Jasper Water & Sewer Authority, your water does not need to be sampled by the Navy and Marine Corps.
- The Navy and Marine Corps may expand the sampling area based on the results of the off-base drinking water well sampling.

FOR MORE INFORMATION
visit <https://go.usa.gov/xJqYA>
or scan the QR code →



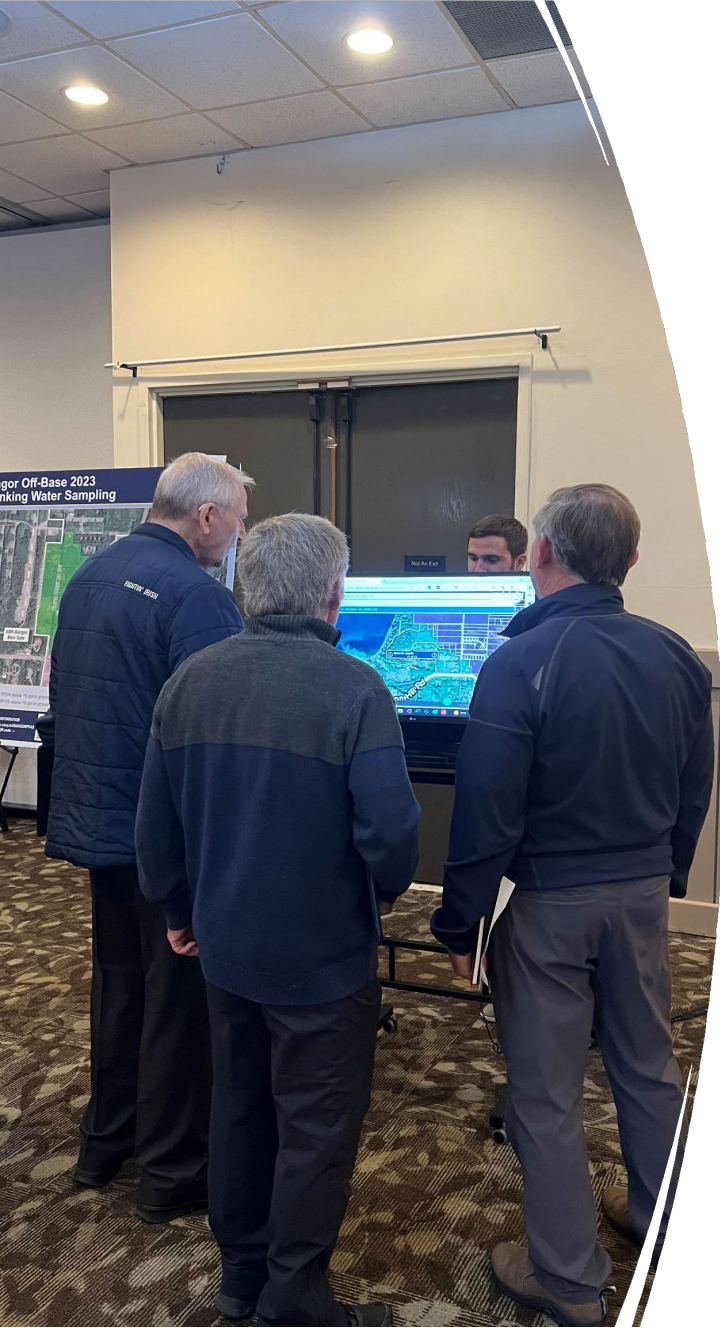
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Most Popular was the “Find my Home” station

- Allow people to personalize the impact of the investigation
- Bring a large monitor and computer allow for ease in locating

Exposure to Per- and Polyfluoroalkyl Substances (PFAS)

What are PFAS?

- Family of manufactured chemicals.
- PFOA and PFOS are the most studied and understood.
- Found in the environment around the world (in air, water, soil, animals, plants, as well as in people).
- Last a long time in the environment.
- Used since 1950s in many products, such as:



firefighting foam



water-resistant fabrics



stain-resistant carpets



some nonstick cookware



personal care products



food packaging

How Can People Be Exposed to PFAS?

- PFAS may be in drinking water, food, indoor dust, some consumer products, and workplaces.
- Most non-occupational exposures occur by drinking water or eating food that contain PFAS.
- Exposure is minor through skin contact when bathing, showering, or swimming.
- Mothers with PFAS in their bodies can transfer PFAS to their fetuses or nursing infants.
- Based on current science, the benefits of breastfeeding appear to outweigh the risks for infants exposed to PFAS in breastmilk.


How Can People Reduce Exposure to PFAS in Drinking Water?

- Use an alternative water source for drinking, cooking, brushing teeth, and making baby formula.
- Certain certified filters can reduce PFAS in drinking water.

FOR MORE INFORMATION about PFAS filtration systems certified by NSF International, a public health organization, visit <http://www.nsf.org> or scan the QR code. →



FOR MORE INFORMATION visit <https://go.usa.gov/xJqY4> or scan the QR code →



ACRONYMS & ABBREVIATIONS

ppt	parts per trillion	PFOA	perfluorooctanoic acid
PFAS	per- and polyfluoroalkyl substances	PFOS	perfluorooctane sulfonate

Health Effects

What are the Potential Health Effects?

- Scientists are still learning about how exposure to PFAS might affect people's health.
- Studies indicate possible health effects could include:
 - Increased cholesterol levels.
 - Changes in liver enzymes.
 - Increased risk of high blood pressure and preeclampsia in pregnant women.
 - Small decrease in infant birth weight and changes in growth.
 - Immune system effects.
 - Altered hormone function.
 - Increased risks of certain types of cancers (testicular and kidney).
- Levels of PFAS in drinking water do not predict health impacts.

Are Blood Tests Available for PFAS?

- Blood testing for PFAS is available but is not a regular test offered by a doctor.
 - Blood test results can't tell you if PFAS exposure will cause current or future health problems.
 - Blood test results can't provide information on treatment.

Chemical exposures do not always lead to health effects.

FOR MORE INFORMATION
visit <https://go.usa.gov/xJgYA>
or scan the QR code →



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Next Steps (Drinking Water Results)



Sampling Results Timeline

Sequence of Events	Approximate Schedule
1. Navy receives preliminary results.	<ul style="list-style-type: none"> • Approximately 1 month after sample collected.
2. Navy calls with results.	<ul style="list-style-type: none"> • Within 24 hours of results received. • Bottled water delivered if PFOA and/or PFOS are above 70 ppt.
3. Lab data is verified and Navy mails final lab data.	<ul style="list-style-type: none"> • Approximately 3 months after sampling.

Drinking Water Sampling and Preliminary Results Timeline



FOR MORE INFORMATION
visit <https://go.usa.gov/xJgYA>
or scan the QR code →



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Schedule Appointments



Sign Up for Your Sampling Appointment

Off-Base Drinking Water Well Sampling

- The Navy will be sampling drinking water wells in the sampling area.
- Sampling is at no cost to you.
- Drinking water samples will be collected:
Friday, December 9 through
Wednesday, December 21, 2022.
- Sampling appointments are available from:
8:00 a.m. to 6:00 p.m.
Additional times are available upon request.
- The property owner or tenant must give permission for sampling by signing the access authorization form and will be asked to complete the questionnaire.
- Sampling takes less than an hour.
- An adult must be present at the property during sampling.

Sampling Process

- Samples will be collected by a team of experienced contractors:
 - Team will consist of two members.
 - Water sample will be collected as close to well as possible.
 - Water will run for 5 minutes prior to sample collection.
- Samples will be collected and analyzed according to EPA guidelines.
- Team will take COVID precautions during sampling if requested.

The Navy will provide bottled water for cooking and drinking if PFOA and/or PFOS are above 70 ppt.

FOR MORE INFORMATION
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or scan the QR code →



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Benefits of Team Approach

- Transparency for the public
- Common messaging
- Subject Matter Experts available to answer questions
- Address community concerns so they can be engaged and help inform their neighbors
- Community follow up

Key Take Aways

1. Being proactive is better than being reactive
 - Anticipate
 - Prepare
 - Practice
2. Communicate early and often



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Navy and Marine Corps PFAS Outreach

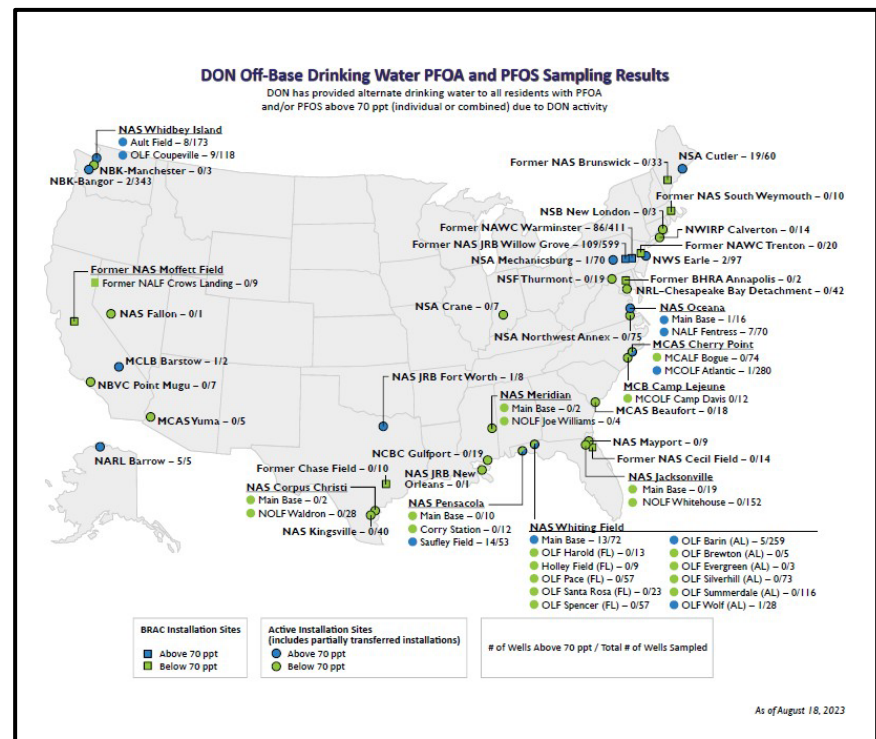
Ms. Melissa Forrest

Navy and Marine Corps Force Health Protection Command

PFAS in Drinking Water Experience

PFAS – Per or Poly-fluoroalkyl Substances

- 2014 – 1st sites in Pennsylvania
- 60+ Sites supported with off-base drinking water sampling
- # of wells sampled per site ranges from <5 to >800
- 50+ public meetings
 - 4 installations and 12 OLFs during COVID
 - 3 installations after 2022 Health Advisories



DON Policy 2016

Investigations at DON and other DOD sites have shown the potential for Navy & Marine Corps AFFF operations to impact drinking water sources

- Identify/address sites under the Environmental Restoration Program
- **Top Priority**: Identify and eliminate drinking water exposures to PFOA and PFOS above 70 ppt



PFAS in Drinking Water Experience

Off-base Drinking Water Investigations

- Identify potential/known Marine Corps PFAS release areas
- Look for drinking water sources downgradient
- Sample off-base **first** if potential exposures are identified
- If results exceed 70 ppt- for PFOS/PFOA
 - Provide alternate water source (bottled water) for drinking and cooking (short-term solution)
 - Identify and Implement appropriate long-term solution (for drinking water)



On March 14, 2023, the EPA proposed a draft regulatory drinking water standard for certain PFAS, including PFOA and PFOS. In response, the Department of Defense (DoD) has issued the following statement: "DoD respects and values the public comment process on this proposed nationwide drinking water rule and looks forward to the clarity that a final regulatory drinking water standard for PFAS will provide. In anticipation of the final standard that EPA expects to publish by the end of 2023, the DoD is assessing what actions DoD can take to be prepared to incorporate EPA's final regulatory standard into our current cleanup process, such as reviewing our existing data and conducting additional sampling where necessary. In addition, DoD will incorporate nationwide PFAS cleanup guidance, issued by EPA and applicable to all owners and operators under the federal cleanup law, as to when to provide alternate water when PFAS are present."

Lessons Learned/Best Practices

Off-base PFAS Drinking Water Investigations

- Don't try to fly under the radar
- More Notification = Less Confusion
- It takes a team
- Personal conversations are key

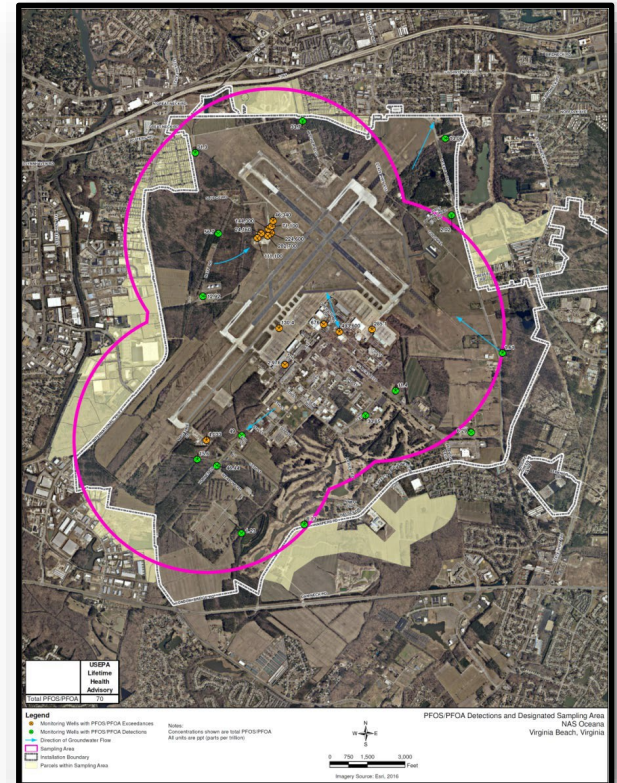
Don't Try to Fly Under the Radar

- Communicate early and often
 - Push Information - Google Results are Scary
 - Transparency is good
 - Complex Issue – Manageable “Bites” of Information
- Need to begin building relationships and an information foundation before the first sample is taken



More Notification = Less Confusion

- Notify all parcel owners/occupants in the sampling area
 - Neighbors Talk
 - We must confirm we haven't missed wells
- Clarify the sampling area question
- Clarify the public water question

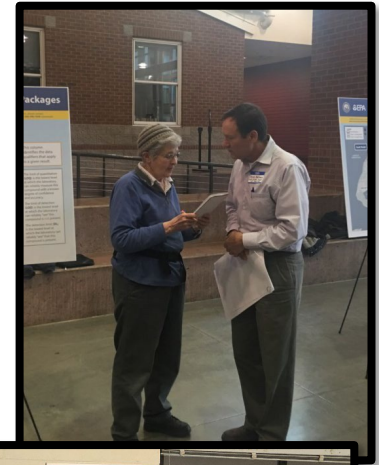


Outreach “Model”

- Notification of Investigation
 - **Congressional Delegation (CODEL) - First**
 - Individual Property Owners/Tenants/on-base if applicable
 - Other Community Members in Sampling Area
 - Local elected officials
 - Other impacted or influential stakeholder groups
 - Public
- Advertisement Of Public Meeting
 - Letters/postcards/emails
 - Press Release & Paid Advertisements
- Initial Public Meeting
 - Immediately prior to sampling
 - Appointment Station
- Sharing Results
 - Call Property Owners/Tenants with Preliminary Results
 - Final Results Mailed within 3 months
 - Final Summary on Website
 - Additional Open House?

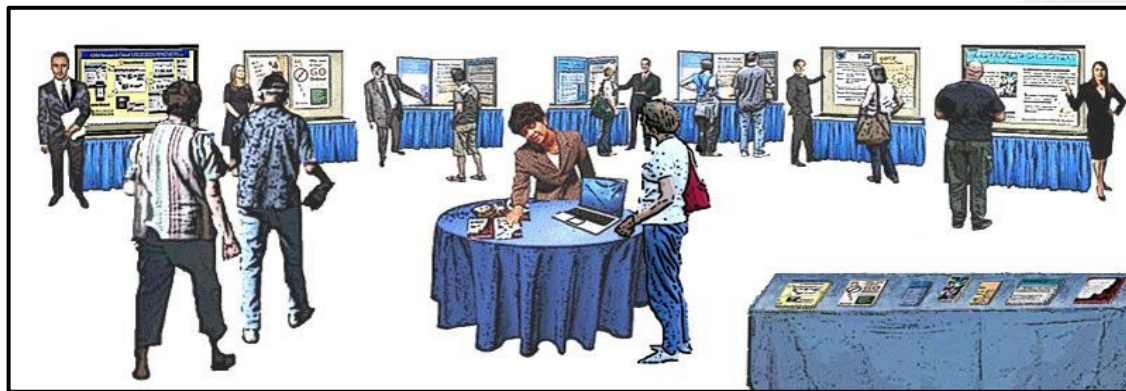
It Takes a Team

- Who will your community turn to for answers?
 - Inform elected officials and other key stakeholders in advance
- Supporting Agencies are Critical
 - Non-Navy/Marine Corps health experts
 - EPA Explanation of PFOS/PFOA Health Advisory
 - Agency support of the “Proactive DON Policy” message
- Team Involvement and Preparation a must
 - Multi-agency strategy sessions for public meetings



Personal Conversations are Key

- Written information does not satisfy everyone
- People want to discuss “THEIR” situation
- **Open House Meetings work**



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Outreach “Model” - Planning

2 (+) months before Open House

- Develop Communication Workplan
- Start Internal Team Weekly Planning Calls
 - Local Team
 - Navy Technical Experts
 - Navy Risk Communication Experts
- Engage & Schedule the Multi-agency Team
 - Health Support
 - Regulatory Support

3-4 Weeks before Open House

- Team Preparation Session
- Start Notification/Outreach

Team Preparation Session Goals

Ensure the entire Open House Public Meeting Team:

- Understands the issue/investigation plans
- Agrees on a consistent set of messages and public outreach plans
- Understands individual roles and responsibilities at the meetings
- Is prepared to interact with the public in a helpful and consistent manner



Team Preparation Session – Sample Agenda

Day 1

0830-0900 – Welcome and Team Introductions

0900-1030 – Project Summary Update

- Navy Policy and Lessons Learned
- PFAS Investigation Summary

1030-1130 – Outreach Plans

- Stakeholder Discussion
- Proposed Outreach and Timeline

1130-1230 – Lunch

1230-1330 – Risk Communication 101 and Key Message Development

1330-1400 – Proposed Meeting Layout and Poster Station Assignments Discussion

1400-1600 – Poster Station Key Message Development and Poster Refinement

Team Preparation Session – Sample Agenda

Day 2

0830-1030 – Poster Station Brief-Out Discussion

1030-1200 – Answering Questions

1200-1300 – Lunch

1300-1330 – Mock meeting setup and Prep Mock Public

1330-1430 – Mock Meeting

1430-1500 – Hot Wash of Mock Meeting

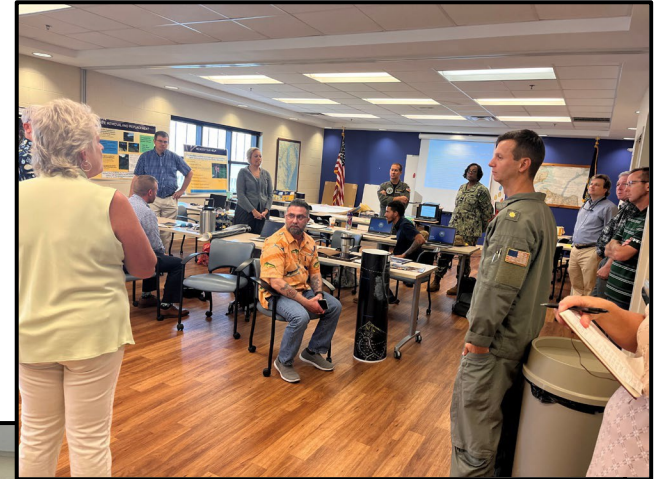
1500-1545 – Open House – Final Planning

- Meeting Logistics
- Media Plan and Spokespersons

1545-1600 – Wrap-Up

Mock Meetings – Realistic Practice

- Set-up the room
 - Full team – Host encouraged to participate
 - Welcome Area
 - Marked up posters
 - Sampling appointment station
- Volunteer Public
 - Mixed backgrounds
 - Provide overview
 - **Role play to reflect potential meeting visitors**
- Hot Wash



It Takes a Team...



**Marine Corps Air Station Beaufort
Drinking Water Well Sampling
Points of Contact**

**MCAS BEAUFORT
DIRECTOR, PUBLIC AFFAIRS
Capt Thomas “Wes” Jones
843-228-6123
BFRT_JPAO@usmc.mil**

**SOUTH CAROLINA DEPARTMENT OF HEALTH AND
ENVIRONMENTAL CONTROL (SCDHEC) / Stacey French |
Director: Division of Waste Management | frenchsl@dhec.sc.gov |
803-898-0238**

PFAS HEALTH QUESTIONS

**AGENCY FOR TOXIC SUBSTANCES AND DISEASE
REGISTRY (ATSDR) / Sue Casteel | Health Educator |
aov2@cdc.gov | 404-747-4185**

NAVY CHEMISTRY/QUESTIONS ABOUT LAB REPORTS

**NAVAL FACILITIES ENGINEERING SYSTEMS COMMAND
(NAVFAC) / Katie Tippin | kathryn.z.tippin.civ@us.navy.mil |
727-322-8425**



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Understanding the PFAS Landscape: *Exposure Assessments. Health Studies. Engagement. Tools.*

Christopher M. Reh, PhD, MS

Associate Director

Agency for Toxic Substances and Disease Registry (ATSDR)

The findings and conclusions in this presentation have not been formally disseminated by the [Centers for Disease Control and Prevention/the Agency for Toxic Substances and Disease Registry] and should not be construed to represent any agency determination or policy.

ATSDR: Who we are, What we do

Agency for Toxic Substances and Disease Registry

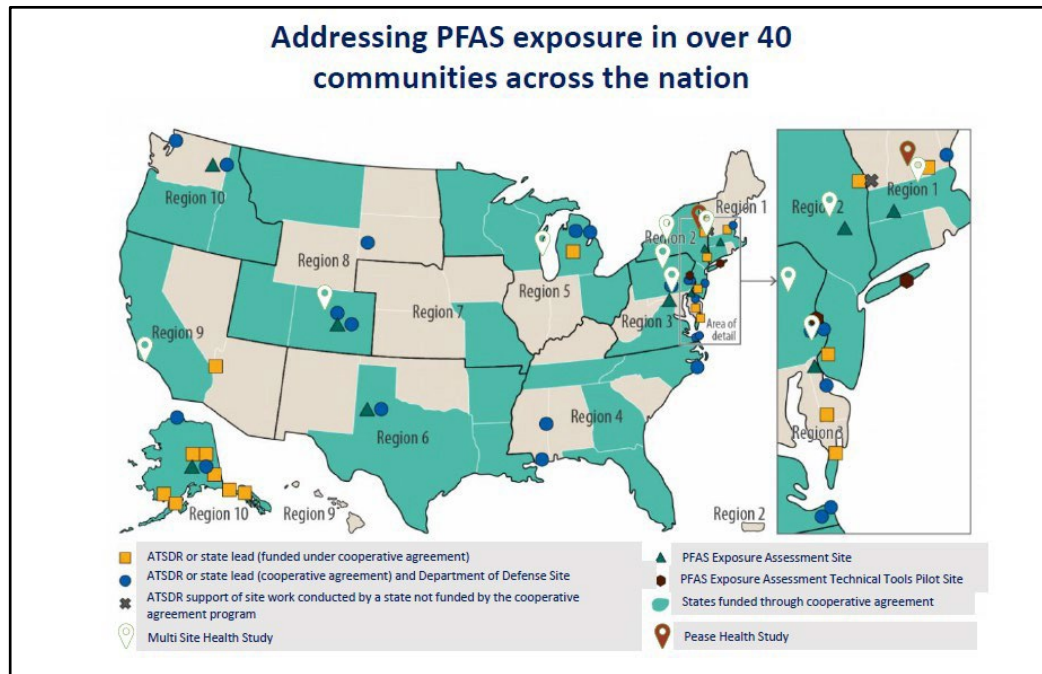
- Federal public health agency
- Congressionally mandated to
 - perform public health assessments at contaminated sites,
 - develop toxicological profiles on harmful substances,
 - conduct epidemiological studies, and
 - maintain health registries and conduct medical surveillance.
- Located across 10 regions



ATSDR Activities Related to PFAS

- Toxicological Profile for Perfluoroalkyls (PFAS)
- PFAS exposure assessments
- Health studies (Pease, Multi-site Study)
- Public health assessments and health consultations
- PFAS Information for Clinicians
- PFAS Blood Level Estimation Tool
- Regional support for health education and community involvement
- Presence on several national-level workgroups

ATSDR PFAS Activities Across the Nation

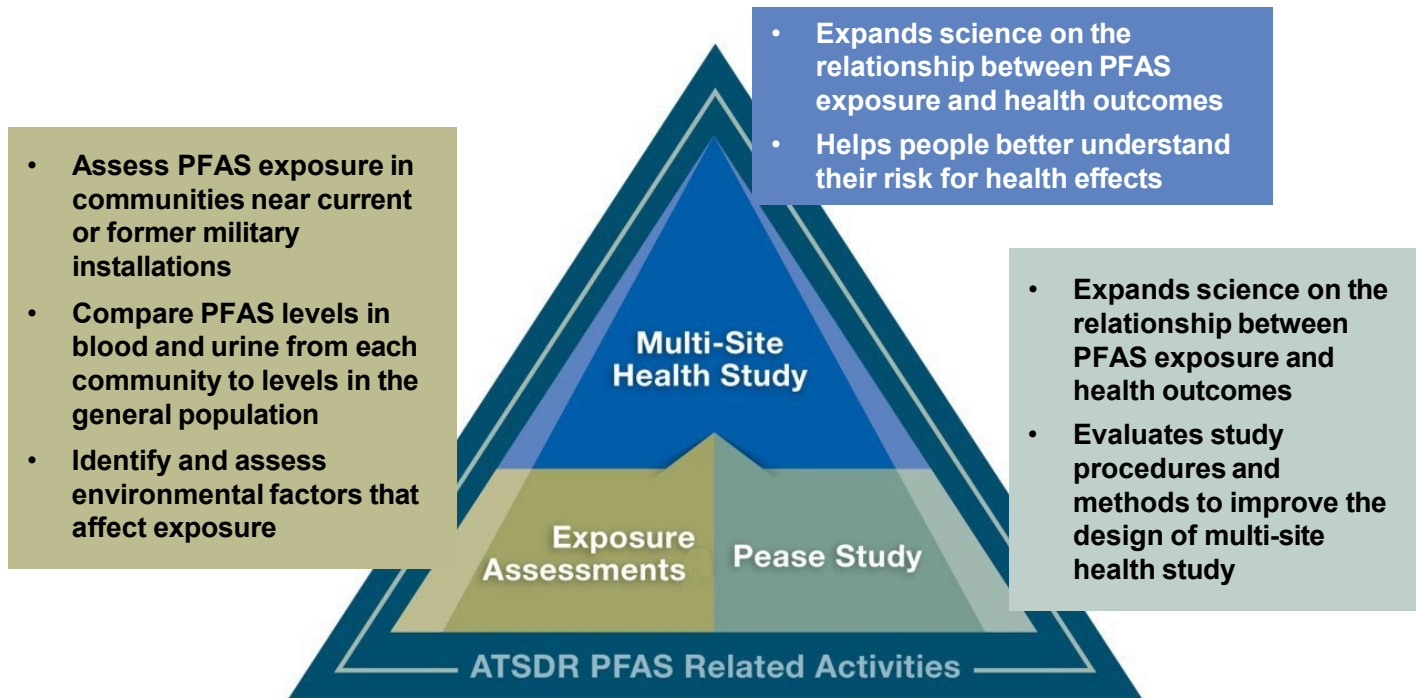


Source: [Map of ATSDR PFAS Sites](#)

Long-Term Objectives

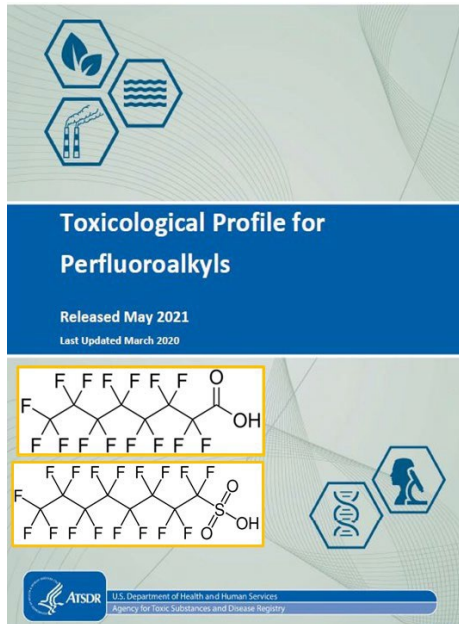
- **Understand** where, how, and to what degree exposure is occurring in affected communities
- **Examine** the relationship between PFAS exposures and health effects
- **Identify** strategies to reduce exposure

ATSDR PFAS EA & Health Studies



Tools to Support Assessment of Chemical Exposures

Toxicological Profiles



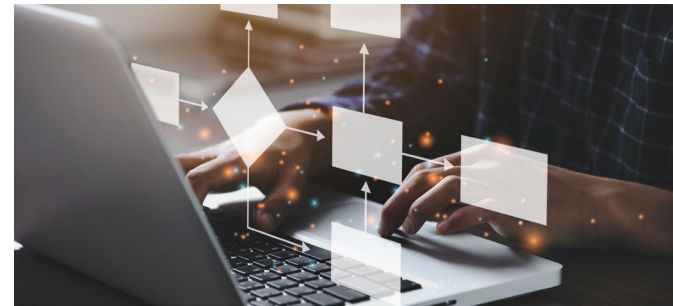
Toxicological Profile for Perfluoroalkyls

Released May 2021
Last Updated March 2020

ATSDR U.S. Department of Health and Human Services
Agency for Toxic Substances and Disease Registry

<https://www.atsdr.cdc.gov/ToxProfiles/tp.asp?id=1117&tid=237>

Simulation Science



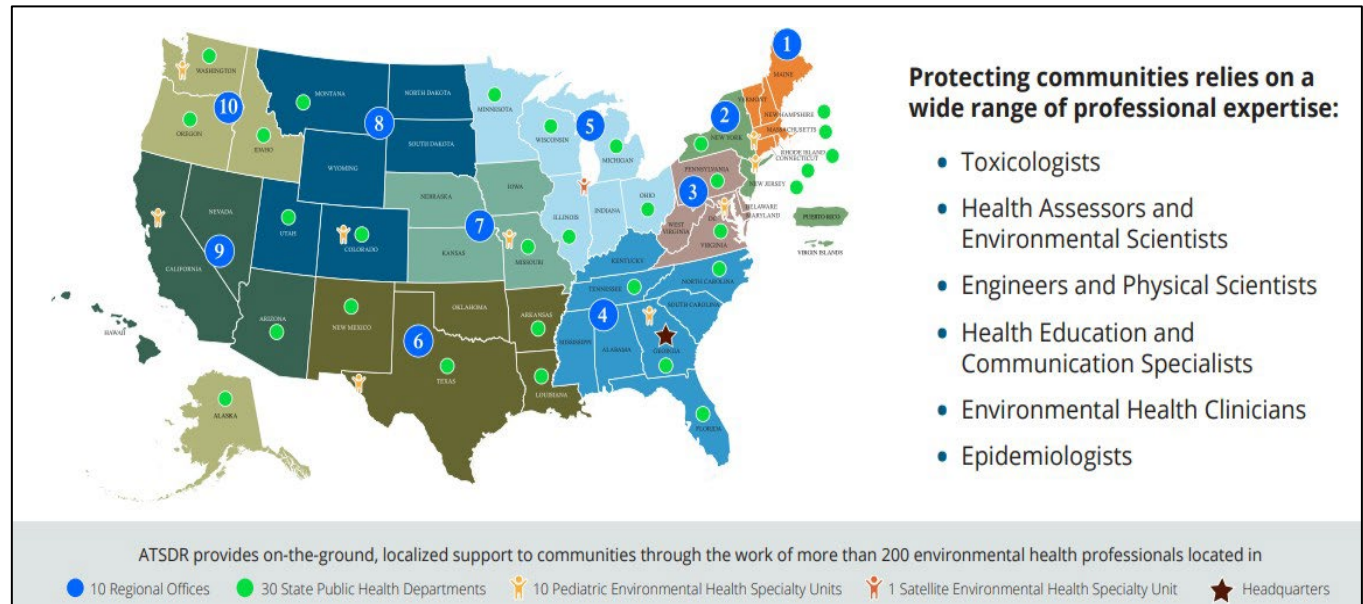
- Drinking Water Modeling
- Pharmacokinetic Modeling
- Structure Activity Relationships

For more information, visit t.cdc.gov/simsci

Interested in collaborating with ATSDR's Simulation Science Section? Email ATSDR_SSS@@cdc.gov

ATSDR Regional Support

- Pediatric Environmental Health Specialty Units (PEHSUs)
- ATSDR Regional Offices
- ATSDR Health Education & Community Involvement Support through Defense Centers for Public Health – Aberdeen



Source: https://www.atsdr.cdc.gov/docs/Across_the_US_ATSDR_FactSheet_508.pdf

Annual Plan of Work (APOW)

- Sites where DoD would like health education and community involvement support from ATSDR are coordinated through Defense Centers for Public Health - Aberdeen.
- Annual plan of work is collaboratively developed between DoD and ATSDR, starting in May each year for the following fiscal year.
 - Describes planned support from ATSDR to DoD
 - Defines scientific and logistical scope of work requested
- DCPH – Aberdeen coordinates the requests and funding from the Services

Tools to Support Community Outreach & Engagement

Community Engagement Playbook



<https://www.atsdr.cdc.gov/ceplaybook/index.htm>

Community Stress Resource Center

Community Stress Resource Center

The experience of long-term environmental contamination, such as perfluoroalkyl and polyfluoroalkyl substances (PFAS) in drinking water, can contribute to psychological and social stress in affected communities. While it is normal for some community members to feel stress in these situations, chronic stress can affect their health.

This Resource Center provides guidance and tools for reducing stress and building resilience in communities during public health responses to environmental contamination. Use it to better understand and address each community's unique practical, informational, social, and emotional needs.

What's the Science?



Learn about the sources of stress and resilience in communities affected by chronic environmental contamination and how that stress can affect community members' health.

Taking Action



Use the 3 Keys Framework – **Recognize, Prepare, and Partner** – to develop strategies for reducing stress and building resilience in communities faced with environmental contamination.

Resources



Find practice-oriented resources to help public health professionals learn about and address community stress related to environmental contamination.

<https://www.atsdr.cdc.gov/stress/index.html>

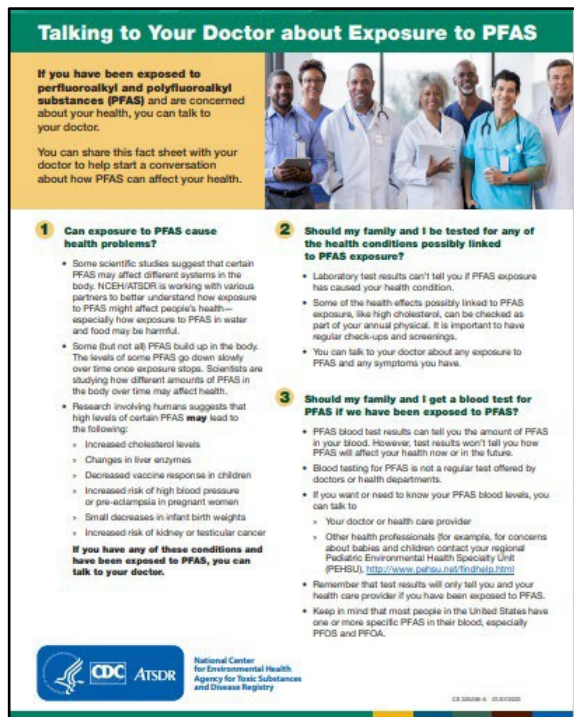
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Tools to Support Communities Affected by PFAS

ATSDR Fact Sheets



Talking to Your Doctor about Exposure to PFAS

If you have been exposed to perfluoroalkyl and polyfluoroalkyl substances (PFAS) and are concerned about your health, you can talk to your doctor.

You can share this fact sheet with your doctor to help start a conversation about how PFAS can affect your health.

1 Can exposure to PFAS cause health problems?

- Some scientific studies suggest that certain PFAS may affect different systems in the body. NCEH/ATSDR is working with various partners to better understand how exposure to PFAS might affect people's health—especially how exposure to PFAS in water and food may be harmful.
- Some (but not all) PFAS build up in the body. The levels of some PFAS go down slowly over time once exposure stops. Scientists are studying how different amounts of PFAS in the body over time may affect health.
- Research involving humans suggests that high levels of certain PFAS **may** lead to the following:
 - Increased cholesterol levels
 - Changes in liver enzymes
 - Decreased vaccine response in children
 - Increased risk of high blood pressure or pre-eclampsia in pregnant women
 - Small decreases in infant birth weights
 - Increased risk of kidney or testicular cancer

If you have any of these conditions and have been exposed to PFAS, you can talk to your doctor.

2 Should my family and I be tested for any of the health conditions possibly linked to PFAS exposure?

- Laboratory test results can't tell you if PFAS exposure has caused your health condition.
- Some of the health effects possibly linked to PFAS exposure, like high cholesterol, can be checked as part of your annual physical. It is important to have regular check-ups and screenings.
- You can talk to your doctor about any exposure to PFAS and any symptoms you have.

3 Should my family and I get a blood test for PFAS if we have been exposed to PFAS?

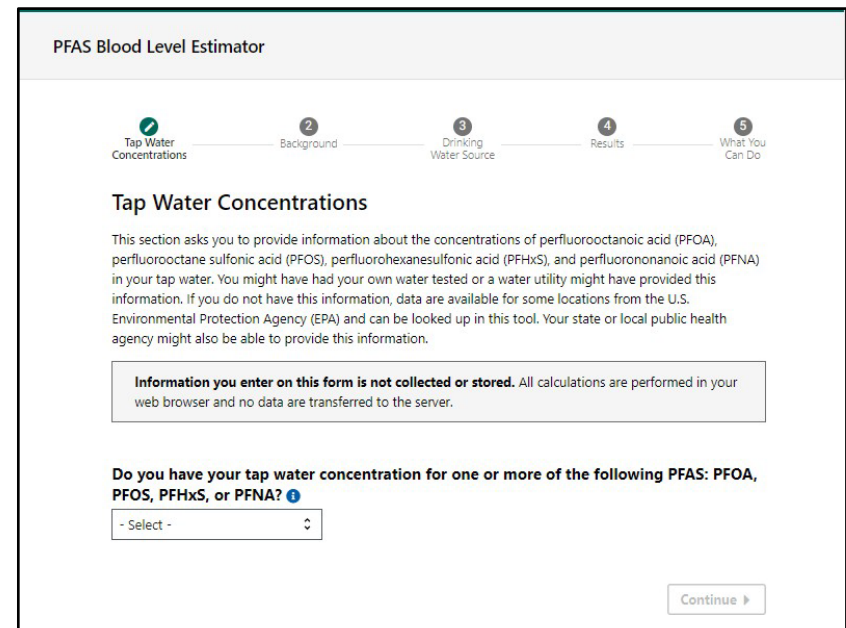
- PFAS blood test results can tell you the amount of PFAS in your blood. However, test results won't tell you how PFAS will affect your health now or in the future.
- Blood testing for PFAS is not a regular test offered by doctors or health departments.
- If you want or need to know your PFAS blood levels, you can talk to:
 - Your doctor or health care provider
 - Other health professionals (for example, for concerns about babies and children contact your regional Pediatric Environmental Health Specialty Unit (PEHSU), <http://www.pehsu.net/findhelp.html>)
- Remember that test results will only tell you and your health care provider if you have been exposed to PFAS.
- Keep in mind that most people in the United States have one or more specific PFAS in their blood, especially PFOS and PFOA.

ATSDR National Center for Environmental Health Agency for Toxic Substances and Disease Registry

CE 120208-A 05/01/2020

<https://www.atsdr.cdc.gov/pfas/docs/TalkingToYourDoctor-Fact-Sheet-H.pdf>

ATSDR PFAS Blood Level Estimation Tool



PFAS Blood Level Estimator

1 Tap Water Concentrations 2 Background 3 Drinking Water Source 4 Results 5 What You Can Do

Tap Water Concentrations

This section asks you to provide information about the concentrations of perfluorooctanoic acid (PFOA), perfluorooctane sulfonic acid (PFOS), perfluorohexanesulfonic acid (PFHxS), and perfluorononanoic acid (PFNA) in your tap water. You might have had your own water tested or a water utility might have provided this information. If you do not have this information, data are available for some locations from the U.S. Environmental Protection Agency (EPA) and can be locked up in this tool. Your state or local public health agency might also be able to provide this information.

Information you enter on this form is not collected or stored. All calculations are performed in your web browser and no data are transferred to the server.

Do you have your tap water concentration for one or more of the following PFAS: PFOA, PFOS, PFHxS, or PFNA? **1**

- Select -

Continue ▶

<https://www.atsdr.cdc.gov/pfas/bloodlevel estimator/index.html>

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Resources to Communicate PFAS Health Effects

For Consumers: ATSDR PFAS website

Per- and Polyfluoroalkyl Substances (PFAS) and Your Health

PFAS and Your Health

[Español \(Spanish\)](#) | [Print](#)

What are the health effects of PFAS?
Human exposure to per- and polyfluoroalkyl substances (PFAS) is a public health concern

[Learn more](#)

Per- and polyfluoroalkyl substances (PFAS) are man-made chemicals that have been widely used in industry and consumer products since the 1940s and remain in the environment for a long time. Human exposure to per- and polyfluoroalkyl substances (PFAS) is a public health concern that the Centers for Disease Control and Prevention's (CDC) National Center for Environmental Health (NCEH) and the Agency for Toxic Substances and Disease Registry (ATSDR) are helping our local, territorial, tribal, state, and federal partners address.

Over the last decade, interest in PFAS has grown. ATSDR and our state health partners are investigating exposure to and possible health effects associated with PFAS in more than 30 communities across the United States.

[What are the health effects?](#)

[What is ATSDR doing?](#)

[Resources](#)

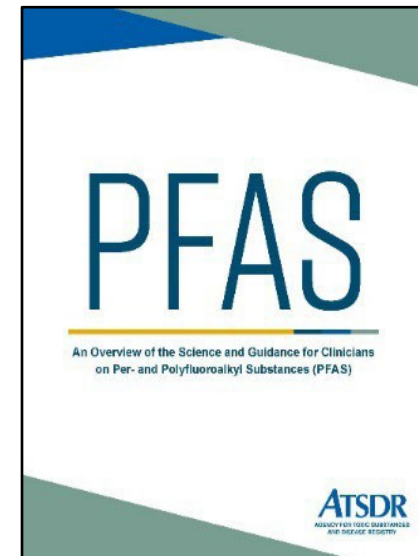
<https://www.atsdr.cdc.gov/pfas/index.html>

ATSDR Site Map

ATSDR and our state health partners are investigating exposure to and possible health effects associated with PFAS in more than 30 communities across the United States.

[Learn More](#)

For Healthcare Providers:
PFAS Information for Clinicians



<https://www.atsdr.cdc.gov/pfas/resources/clinical-guidance.html>

ATSDR Tools and Resources

- [PFAS Information for Clinicians](#)
- [Toxicological Profile for Perfluoroalkyls](#)
- [PFAS fact sheets](#)
- [PFAS and Your Health](#)
- [PFAS Blood Level Estimation Tool](#)
- [ATSDR Community Stress Resource Center](#)
- [ATSDR Community Engagement Playbook](#)
- [ATSDR Principles of Community Engagement](#)
- [PFAS Progress Newsletter](#)
 - Email: pfas@cdc.gov
 - Website: www.atsdr.cdc.gov/pfas/newsletter/index.html
 - Phone : 1-800-CDC-INFO (232-4636)
 - TTY 888-232-6348
 - Monday–Friday
 - 8:00 a.m.–8:00 p.m. ET

The collage features several key documents:

- Perfluoroalkyls - ToxFAQs™**: A fact sheet titled "What are perfluoroalkyls (PFAs)?" explaining that they are a group of man-made chemicals used in various products like stain repellents and non-stick coatings. It lists health effects such as thyroid disease, liver damage, and developmental issues in children.
- Perfluoroalkyl and Polyfluoroalkyl Substances (PFAS) Frequently Asked Questions**: A document dated 03/24/2020 that addresses common questions about PFAS, including what they are, how they are used, and potential health risks.
- Talking to Your Doctor about Exposure to PFAS**: A fact sheet providing guidance on how to discuss PFAS exposure with a healthcare provider. It includes three main sections:
 - Can exposure to PFAS cause health problems?**: Discusses scientific studies suggesting PFAS may affect different systems in the body and notes that research is ongoing.
 - Should my family and I be tested for any of the health conditions possibly linked to PFAS exposure?**: Explains that laboratory test results can help determine if PFAS exposure has caused a health condition and lists symptoms like thyroid disease, liver damage, and developmental issues.
 - Should my family and I get a blood test for PFAS if we have been exposed to PFAS?**: States that PFAS blood test results can help determine the amount of PFAS in the blood and how it might affect health. It notes that testing is not a regular test offered by doctors or health departments.
- PFAS Progress Newsletter**: A newsletter from the ATSDR, featuring a photo of a woman and text about community engagement and health resources.

Stay Connected with Our Work

PFAS Progress Newsletter — May 2023



Welcome to the May 2023 edition of the PFAS Progress newsletter! In this newsletter, you will learn about

- Updates to the exposure assessments, Pease Study, and Multi-site Studies
- ATSDR's health consultation in response to per- and polyfluoroalkyl substances (PFAS) contamination in the Fairfield area of Maine
- The launch of CDC/ATSDR's PFAS Blood Level Estimation Tool
- A new interactive map of ATSDR PFAS sites

Thank you for reading the newsletter! Please share with us ideas for future newsletters or ways we can improve our newsletter.

Activities Updates

Exposure Assessments (EAs)

Final PFAS Exposure Assessment Report

An exposure assessment (EA) is a way to look at whether people in a community might have been exposed to a certain type of substance in their environment. People are tested to see whether they have been exposed to that substance and answer questions to help identify possible sources.

The Centers for Disease Control and Prevention (CDC) and the Agency for Toxic Substances and Disease Registry (ATSDR) conducted EAs in 10 communities known to have had PFAS in their drinking water, including two pilot EAs conducted in partnership with the Association of State and Territorial Health Officials, the Pennsylvania Department of Health and New York State Department of Health and eight ATSDR-led EAs. In September 2022, CDC/ATSDR released a final, aggregate report that summarizes the findings of analysis of data from all 10 EA sites.

Across the 10 EA sites, we analyzed the blood samples of



• ATSDR PFAS Progress Newsletter

- Subscribe by visiting www.atsdr.cdc.gov/pfas/newsletter/index.html

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Q&A and Discussion