



Why Is the Navy Investigating PFAS?

Additional information can be found online at www.secnav.navy.mil/eie/pages/pfc-pfas.aspx

For updates as more information becomes available, visit <https://go.usa.gov/xnBga>

If you have specific questions, please contact patrick.a.gordon@navy.mil or 301-757-3343

EPA Lifetime Health Advisory

- Issued in 2016.
- Two PFAS compounds, PFOS and PFOA.
- 70 ppt combined in drinking water.

Navy Use of Firefighting Foam

- Contains PFAS including PFOS and PFOA.
- Historically used for training, equipment testing, and emergency response.
- Currently used for emergency response only.
- Department of Defense is researching fluorine-free alternatives.

Navy Policy

- Investigate Navy installations nationwide.
- Identify known and suspected release areas.

Drinking water sources are top priority.



EPA U.S. Environmental Protection Agency
NAS Naval Air Station

PFAS per- and polyfluoroalkyl substances
PFOA perfluorooctanoic acid

PFOS perfluorooctane sulfonate
ppt parts per trillion



Known and Suspected PFAS Release Areas

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Site 34 – Drum Disposal Area
 Only site with sampling results:

- 11 Groundwater Samples
- Concentrations range from 0 to 1,137 ppt PFOS/PFOA

On-base sampling for PFAS will begin Spring 2020.

Known PFAS Release Areas

- Site 14 – Old Fire Fighting Burn Pad
- Air Show Fire Fighting Demonstration Area
- Site 41 – Fire Fighting Burn Pad
- Crash Trucks Daily Equipment Functioning Inspection Area
- Building 103 – Air Operations Fire Station
- Building 2385 – Hazardous Materials Storage Facility
- Hangar 110 – Test Pilot School Aircraft Hangar
- Hangar 2133 – Joint Strike Fighter Aircraft Hangar
- Hangar 2835 – Air Test & Evaluation Squadron 20 Hangar
- Building 1669 – “Hush House”
- Hangar 2805 – Presidential Helicopter Hangar
- Hangar 2905 – Aircraft Prototype Facility
- Site 34 – Drum Disposal Area

Suspected PFAS Release Areas

- Building 102 – Marine Aviation Detachment
- Buildings 215 and 217 – Engine Test Area
- Skeet Range – T-38 Aircraft Crash Site
- Bronson Road Aircraft Crash Site
- Sites 1/12 – Fishing Point Landfill/Landfill Behind Rifle Range
- Site 11 – Former Sanitary Landfill

LEGEND

Known PFAS release area	Installation boundary
Suspected PFAS release area	Stream
Groundwater flow direction	Water body

EPA U.S. Environmental Protection Agency
 NAS Naval Air Station

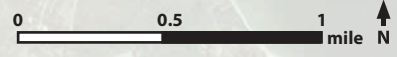
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LEGEND

- ▭ Known PFAS release area
- ▭ Suspected PFAS release area
- ➔ Groundwater flow direction
- Installation boundary
- ~ Stream
- Water body



Site 34 – Drum Disposal Area
Only site with sampling results:

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On-Base Drinking Water

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NAS Patuxent River drinking water meets all Safe Drinking Water Act Standards.

- On-base drinking water is supplied by deep wells.
- Deep drinking water wells at the base are not susceptible to contaminants originating at the land surface due to the protected nature of the confined aquifers.
- The Navy conducts routine testing of the drinking water to make sure the water meets EPA drinking water standards.
- View our annual drinking water Consumer Confidence Reports at: https://mde.maryland.gov/programs/Water/water_supply/ConsumerConfidenceReports/Pages/stmarys.aspx

Between 2014 and 2017, all drinking water systems at NAS Patuxent River were tested for PFAS compounds. None were detected.

LEGEND

- | | |
|---|-----------------------|
| Active Base Supply Wells | Installation boundary |
| ● Piney Point–Nanjemoy aquifer (~210–280 ft bmsl) | Stream |
| ● Aquia aquifer (~450–560 ft bmsl) | Water body |
| ● Patapsco aquifer (~680–900 ft bmsl) | |

EPA U.S. Environmental Protection Agency
ft bmsl feet below mean sea level

NAS Naval Air Station
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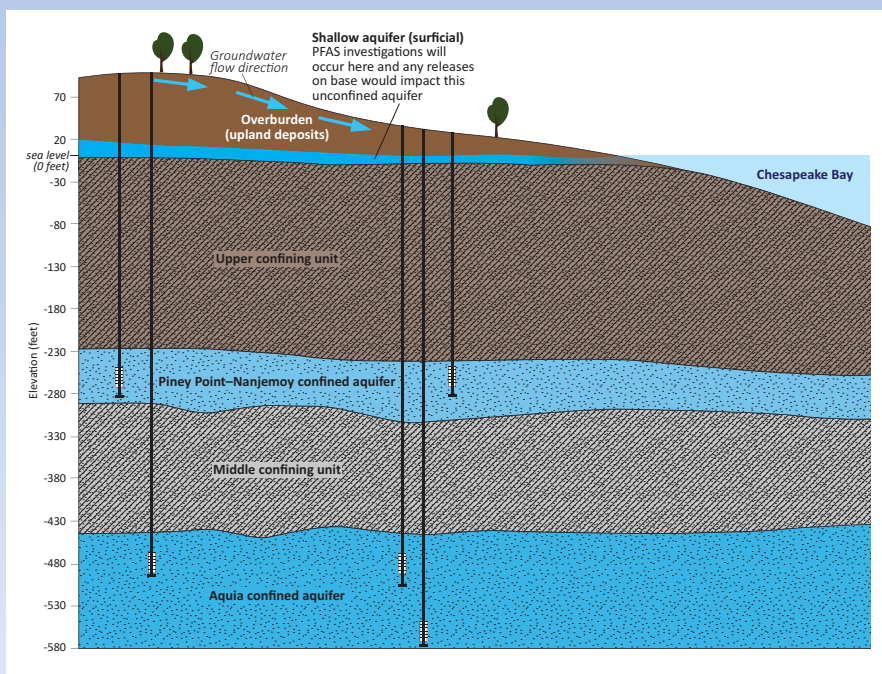


NAS Patuxent River Conceptual Cross Section

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- Drinking water wells on and near the base pull water from the deep aquifers.
- No PFAS was detected in on-base drinking water wells.

LEGEND

- | | |
|---------------------------------------|---|
| Overburden (upland deposits) | Current drainage features |
| Shallow aquifer (surficial) | Dissolved plume |
| Upper confining unit | Surface runoff flow |
| Piney Point–Nanjemoy confined aquifer | Groundwater flow |
| Middle confining unit | Downward migration (infiltration/percolation) |
| Aquia confined aquifer | |

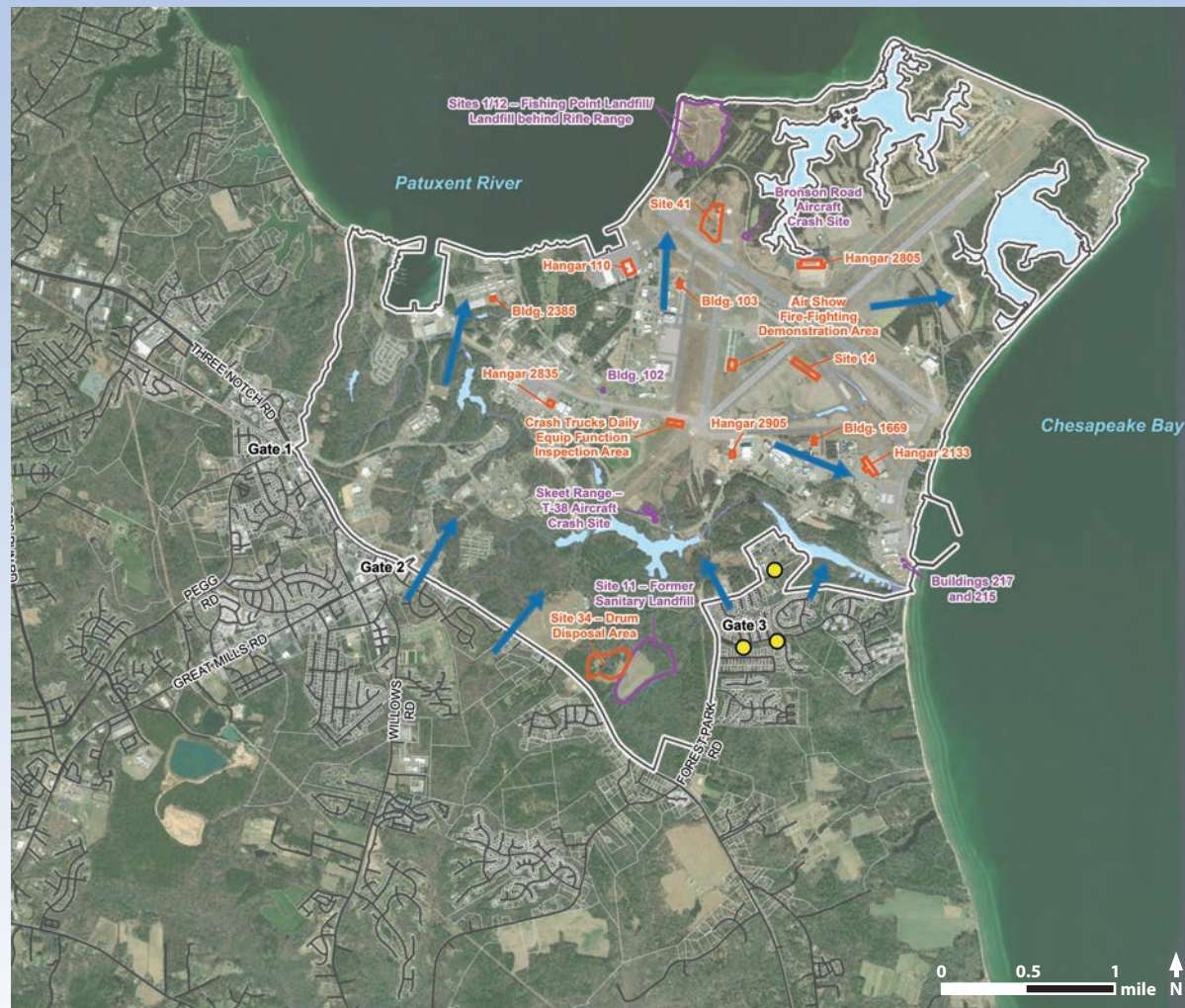


Drinking Water near NAS Patuxent River

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Off-base drinking water sampling is not necessary near NAS Patuxent River.

- PFAS was not detected in any of the on-base drinking water wells.
- Data supports shallow groundwater flows from potential on-base release areas toward the Chesapeake Bay and Patuxent River.
- Nearby off-base drinking water wells (operated by St. Mary's County Metropolitan Commission [Metcom]) are upgradient of potential on-base PFAS release areas.
- View Metcom water quality reports at: <https://www.metcom.org/operations>

LEGEND

- Known PFAS release area
- Suspected PFAS release area
- Groundwater flow direction
- Metcom well (Aquia aquifer)
- Installation boundary
- Stream
- Water body

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NAS Naval Air Station

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Per- and Polyfluoroalkyl Substances (PFAS)

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Where Do PFAS Come From?

- Are man-made compounds; no natural occurrence.
- Used since 1950s in many products.
- Last a long time in the environment.



firefighting foam



stain-resistant carpet



water-resistant fabrics



personal care products



nonstick cookware



food packaging

What Is the EPA Lifetime Health Advisory?

- Sets a concentration of 70 ppt PFOS and PFOA in drinking water.
- Protects against harmful health effects to sensitive populations and the general public.
- Assumes exposure over a 70-year lifetime.
- Provides information to state agencies and public health officials on health effects and water treatment so they can take steps to reduce exposures.
- Is only an advisory and is therefore non-enforceable.

How Is the EPA Lifetime Health Advisory Calculated?

- Is based on studies of health effects with PFOS and PFOA in laboratory animals.
- Considers information regarding health effects of people exposed to PFOS and PFOA.
- Protects sensitive populations, including the fetuses and nursing infants of mothers who are exposed.
- Assumes 20 percent of overall exposure is from drinking water, 80 percent of overall exposure is from other sources.

ATSDR Agency for Toxic Substances and Disease Registry
 CDC Centers for Disease Control and Prevention
 EPA U.S. Environmental Protection Agency
 NAS Naval Air Station

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Exposure and Health Effects

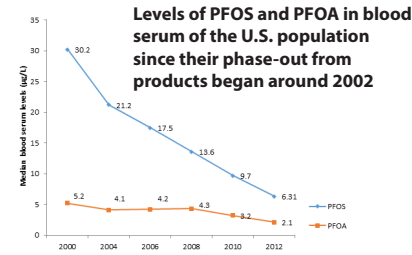
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PFAS in People

- CDC monitoring estimates that most people in the U.S. have PFAS in their bodies.
- Levels of PFOS and PFOA are decreasing following their phase-out from use.
- Some PFAS stay in the body a long time.
- There is no recommended medical treatment to reduce PFAS in the body.



Source: CDC National Health and Nutrition Examination Survey

How Are People Exposed to PFAS?

Most people in the U.S. and other developed countries have probably been exposed to PFAS and have PFAS in their blood.

- PFAS contamination may be in drinking water, food, indoor dust, some consumer products, and workplaces.
- Most non-occupational exposures occur through drinking contaminated water or eating food that contains PFAS.
- Very little PFAS exposure occurs during swimming, bathing, or showering.
 - Only a very small amount of PFAS can get into your body through the skin.
- Mothers exposed to PFAS:
 - Can pass them to their unborn baby.
 - Transfer PFAS to their breast milk, and can expose their babies through breastfeeding.
 - Nursing mothers are encouraged to continue breastfeeding, as the benefits outweigh potential risks from PFAS exposure.

How Might PFAS Exposure Affect People's Health?

- At this time, scientists are still learning about how exposure to PFAS might affect people's health.
- Some scientific studies suggest that certain PFAS may affect different systems in the body.
- Although more research is needed, some studies in people have shown that certain PFAS may:
 - Affect growth, learning, and behavior of infants and older children.
 - Affect the immune system.
 - Interfere with the body's natural hormones.
 - Increase cholesterol levels.
 - Increase the risk of certain types of cancers.
 - Lower a woman's chance of getting pregnant.

Can I Be Tested?

Although tests can measure the amount of PFAS in your blood, these tests are not routinely offered by most doctors or health departments.

- Blood test results won't tell you how PFAS could affect your health now or in the future. The test results will only tell you and your health care provider if you have been exposed to PFAS.
- Most people in the U.S. have one or more specific PFAS in their blood.

If you have questions about your PFAS blood levels or if you have concerns about your health, talk to your doctor or other healthcare professional.

ATSDR	Agency for Toxic Substances and Disease Registry	PFAS	per- and polyfluoroalkyl substances
CDC	Centers for Disease Control and Prevention	PFOA	perfluorooctanoic acid
EPA	U.S. Environmental Protection Agency	PFOS	perfluorooctane sulfonate
NAS	Naval Air Station	ppt	parts per trillion



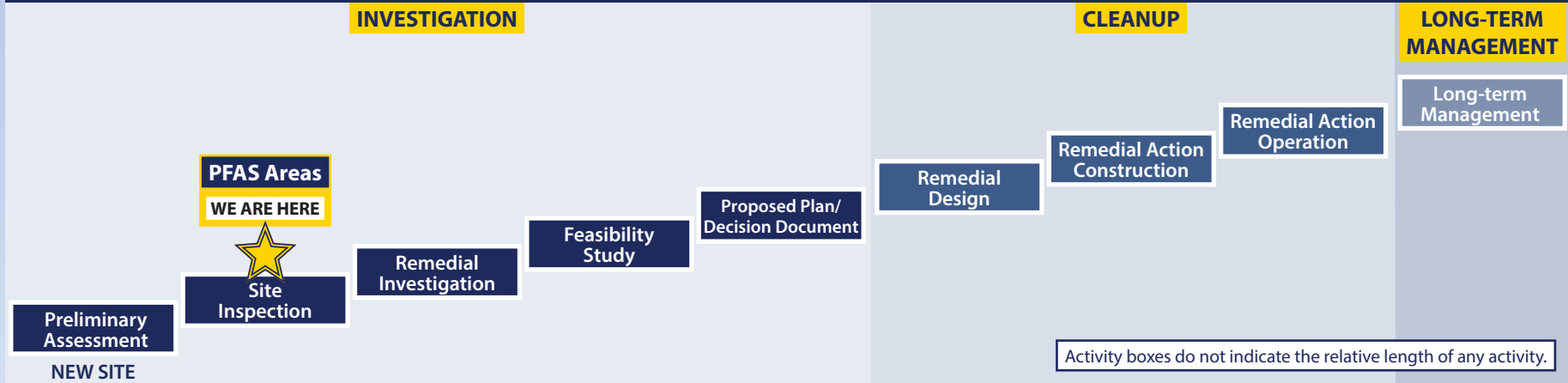
Federal Environmental Investigation Process

For more information on NAS Patuxent River environmental activities, visit <https://go.usa.gov/xnBga>

For more information on EPA processes, visit <https://www.epa.gov/superfund>

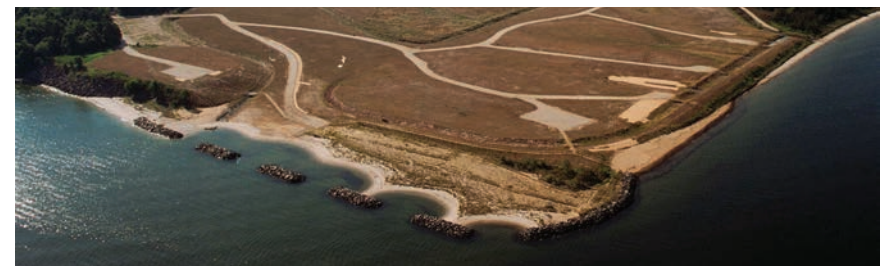
For more information on Maryland processes, visit www.mde.maryland.gov

Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) Process



NAS Patuxent River Community Involvement

- Community involvement is the process of providing information to the community.
- The goal of community involvement is:
 - Providing an avenue for information exchange for the environmental cleanup program.
 - Helping to address concerns from the community.



The on-base PFAS investigation is in the early stages. The goal of the Site Inspection is to determine the magnitude and extent of PFAS releases.



The Navy's Environmental Restoration Program

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- Investigates and cleans up soil, sediment, groundwater, and surface water contamination that resulted from past activities.
- Is dedicated to reducing risks to human health and the environment.
- Is conducted in partnership with:
 - U.S. Environmental Protection Agency
 - Maryland Department of the Environment
 - St. Mary's County Health Department



Environmental restoration work in 2007 to remove lead-contaminated soil from a closed rifle range (Operable Unit 2-Area E) at NAS Patuxent River.

Join Us at the Next Restoration Advisory Board Meeting!

**October 20, 2020
5:30 p.m.**

**Frank Knox Employment Development Building
Room 100
21774 Three Notch Road
Lexington Park, MD 20653**

Our environmental partnership ensures our program meets all state and federal laws and regulations and provides long-term protection of both human health and the environment.

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