Why Is the Navy Sampling for 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/xR6SX**

If you have specific questions, please contact **NavyAtlanticWater@usmc.mil** or **1-877-MCOLF17** (1-877-626-5317)

The Navy is completing this investigation out of an abundance of caution.

- The EPA established a drinking water lifetime health advisory (70 ppt) for PFOS and PFOA.
- The Navy is taking action to:
  - Identify and prioritize locations with the potential for exposure to PFOS and/or PFOA.
  - Protect our neighbors who may be exposed to drinking water that has PFOS and/or PFOA above the EPA lifetime health advisory.
  - Prevent AFFF (firefighting foam), which contains PFOS and PFOA, from being used for fire training.
  - Identify exposure to PFBS, which does not have a lifetime health advisory.

AFFF	aqueous film forming foam	LHA	lifetime health advisory	PFBS	perfluorobutane sulfonate	PFOS	perfluorooctane sulfonate
EPA	U.S. Environmental Protection Agency	PFAS	per- and polyfluoroalkyl substances	PFOA	perfluorooctanoic acid	ppt	parts per trillion

PFAS Drinking Water Results in Atlantic, North Carolina

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

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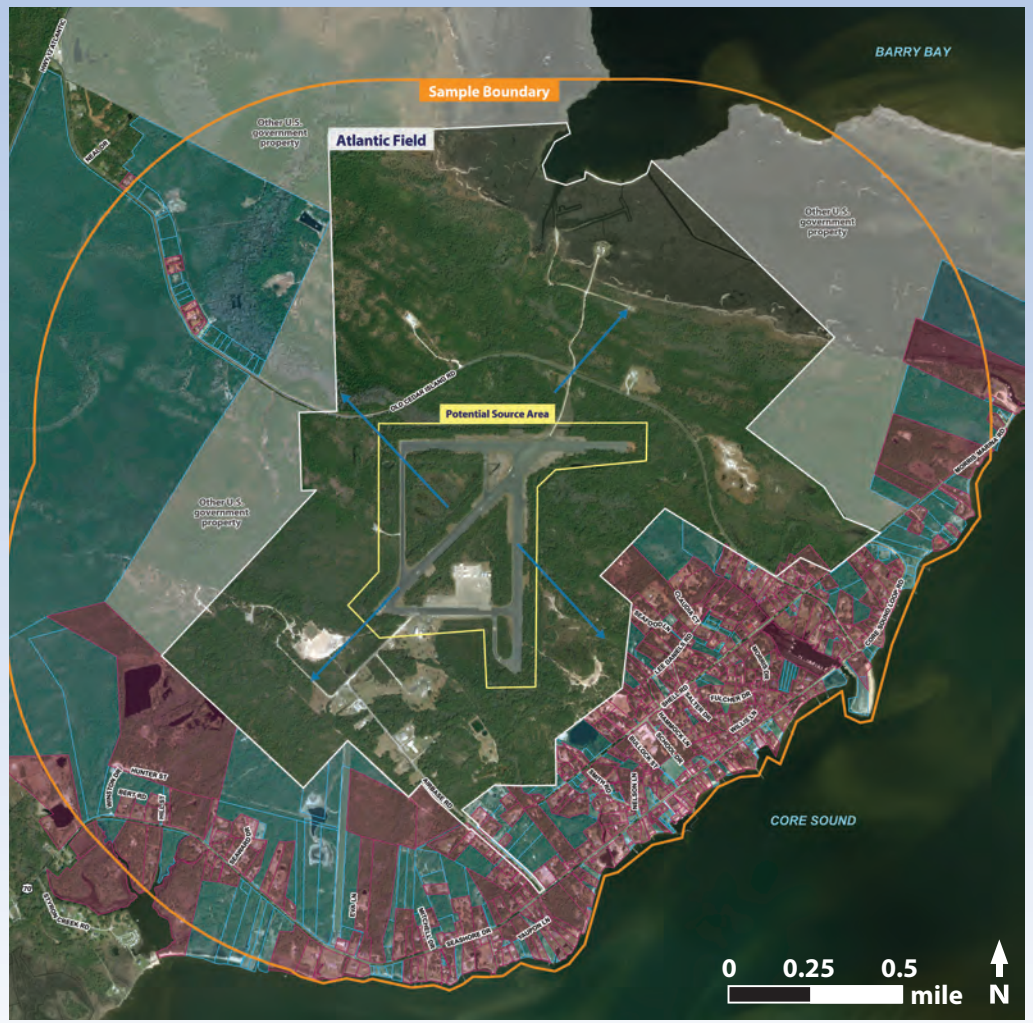

- **223** drinking water samples were collected in the sampling area during initial sampling.
- **197** samples had non-detect values.
- **26** samples had detections.
- **2** out of the 26 samples with detections had values above the EPA lifetime health advisory.

LEGEND

- Developed Parcel
- Undeveloped/Vacant Parcel
- Assumed Groundwater Flow Direction

AFFF	aqueous film forming foam	LHA	lifetime health advisory	PFBS	perfluorobutane sulfonate	PFOS	perfluorooctane sulfonate
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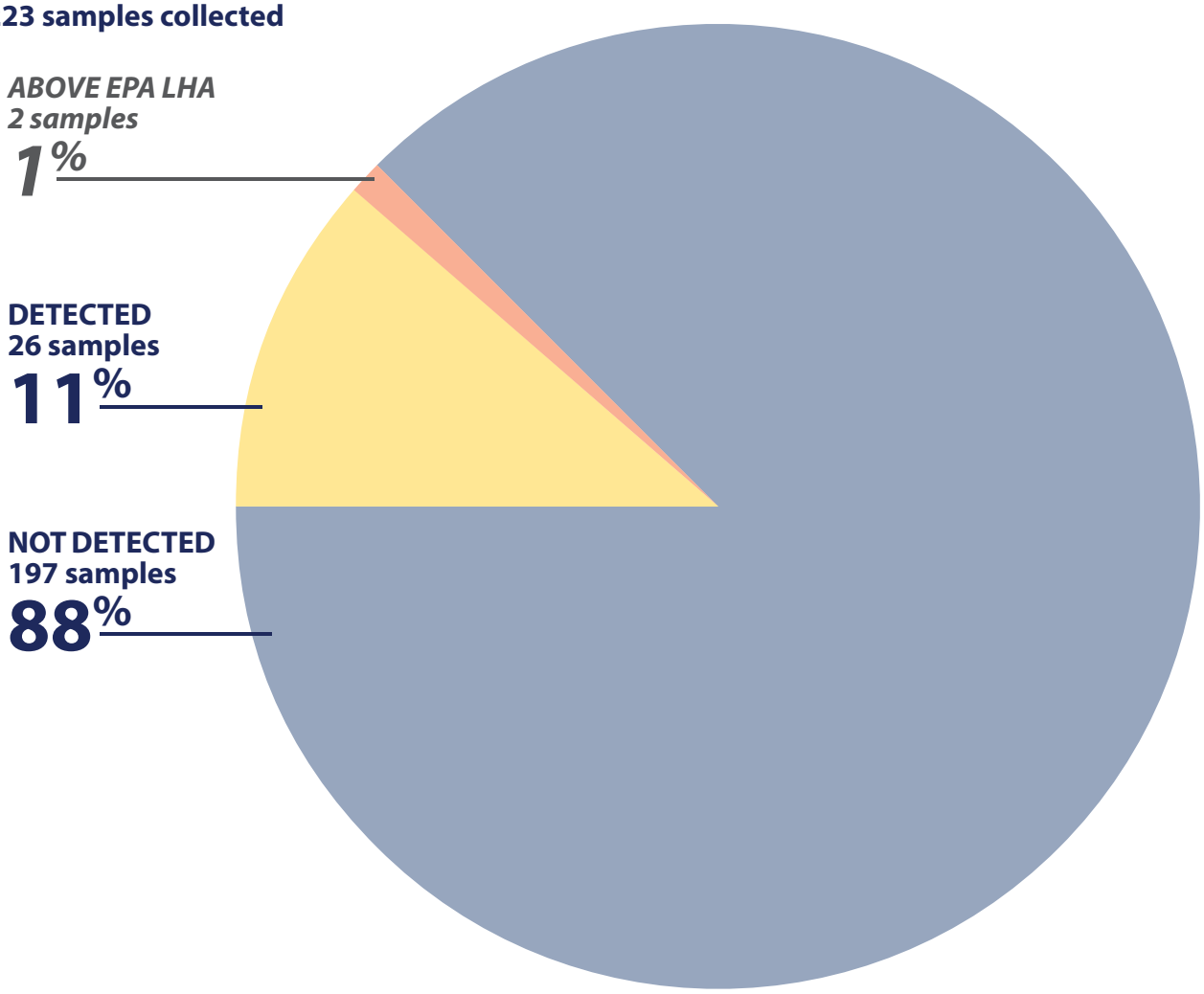
Combined PFOS, PFOA, and PFBS

223 samples collected



- The 2 samples with detections above the EPA lifetime health advisory for PFOS and PFOA are included in the number of detections.
- There is no lifetime health advisory for PFBS.

AFFF	aqueous film forming foam	PFAS	per- and polyfluoroalkyl substances	PFOS	perfluorooctane sulfonate
EPA	U.S. Environmental Protection Agency	PFBS	perfluorobutane sulfonate	ppt	parts per trillion
LHA	lifetime health advisory	PFOA	perfluorooctanoic acid		

PFAS Drinking Water Results in Atlantic, North Carolina

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

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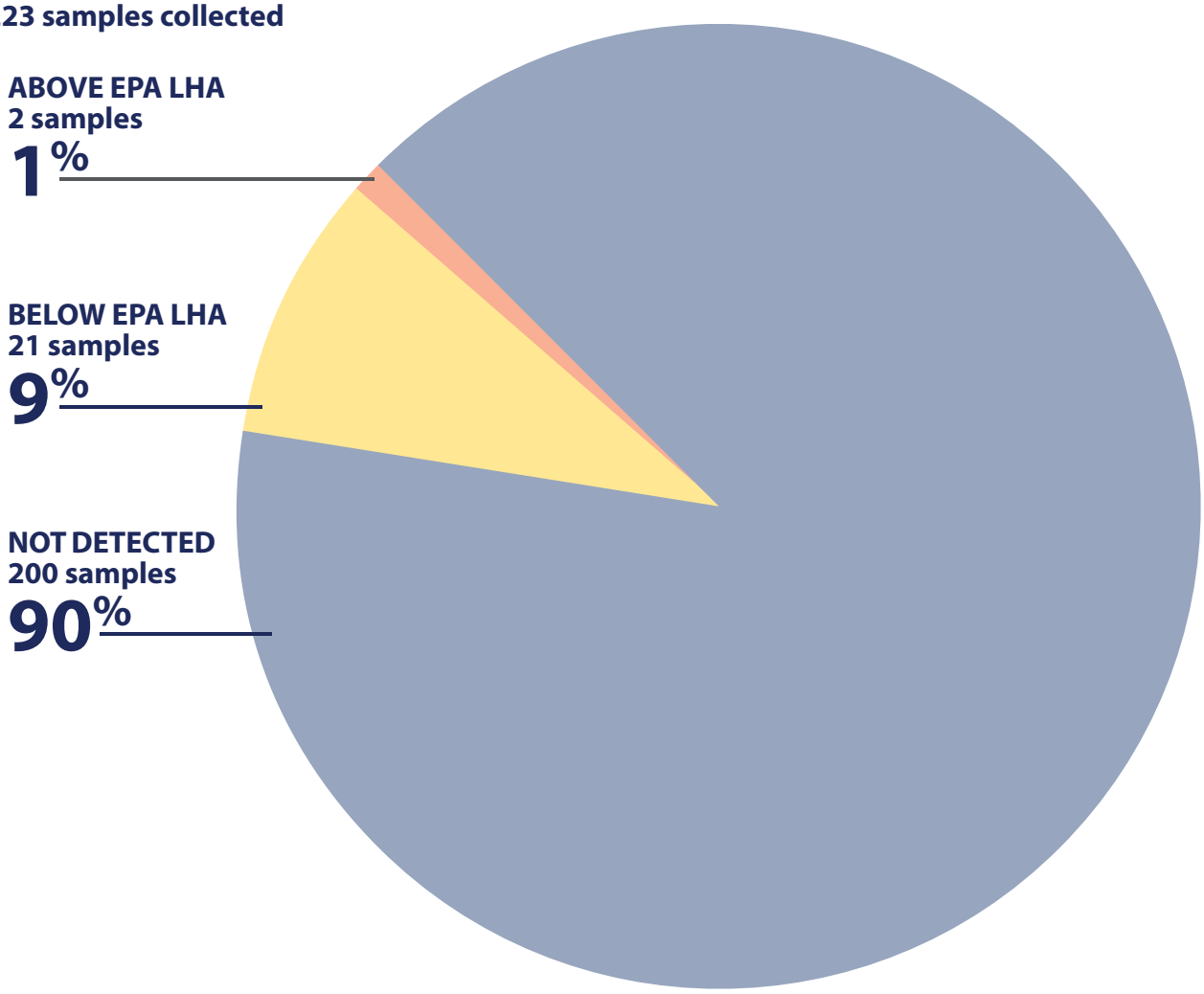
Combined PFOS and PFOA

223 samples collected



- The 2 samples with detections above the EPA lifetime health advisory for PFOS and PFOA are included in the number of detections.

AFFF	aqueous film forming foam	PFAS	per- and polyfluoroalkyl substances	PFOS	perfluorooctane sulfonate
EPA	U.S. Environmental Protection Agency	PFBS	perfluorobutane sulfonate	ppt	parts per trillion
LHA	lifetime health advisory	PFOA	perfluorooctanoic acid		

Understanding Data Packages

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

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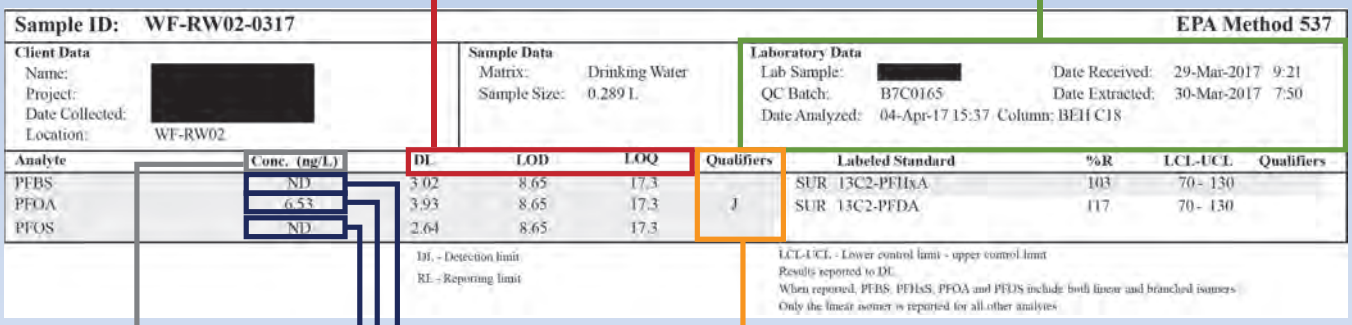
If you have specific questions, please contact **NavyAtlanticWater@usmc.mil** or **1-877-MCOLF17** (1-877-626-5317)

The detection limit (**DL**) is the lowest level at which the laboratory can reliably "see" that this compound is present.

The limit of detection (**LOD**) is the lowest level at which the laboratory can reliably "see" this compound is **not** present.

The limit of quantitation (**LOQ**) is the lowest level at which the laboratory can reliably measure this compound with a known degree of confidence and accuracy.

This section contains sample processing information used by the laboratory.



Sample ID: WF-RW02-0317 — **EPA Method 537**

Client Data
Name: [redacted]
Project:
Date Collected:
Location: WF-RW02

Sample Data
Matrix: Drinking Water
Sample Size: 0.289 L

Laboratory Data
Lab Sample: [redacted]
QC Batch: B7C0165
Date Analyzed: 04-Apr-17 15:37
Date Received: 29-Mar-2017 9:21
Date Extracted: 30-Mar-2017 7:50
Column: BEH C18

Analyte	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers
PFBS	ND	3.02	8.65	17.3	
PFOA	6.53	3.93	8.65	17.3	J
PFOS	ND	2.64	8.65	17.3	

Labeled Standard	%R	LCL-UCL	Qualifiers
SUR 13C2-PFHxA	103	70 - 130	
SUR 13C2-PFDA	117	70 - 130	

DL - Detection limit
RL - Reporting limit

LCL-UCL - Lower control limit - upper control limit
Results reported to DL.
When reported, PFBS, PFHxS, PFOA and PFDS include both linear and branched isomers.
Only the linear isomer is reported for all other analytes.

1 ng/L = 1 ppt
nanogram(s) per liter **part(s) per trillion**

The result for PFBS:*

PFBS was not detected in the sample.

This is reported as **"ND" (Non-Detect).**

The result for PFOA:

PFOA was detected in the sample at 6.53 ng/L (6.53 ppt).

The "J" qualifier means that the PFOA was detected but the *amount* detected is estimated.

The result for PFOS:

PFOS was not detected in the sample.

This is reported as **"ND" (Non-Detect).**

This column identifies the data qualifiers that apply to a given result. Possible laboratory qualifiers are:

"J" (Estimated Value) – indicates the value reported for the analyte is below the LOQ and was detected. The value reported is considered estimated.

"B" (Blank) – this compound was also detected in the method blank.

"D" (Diluted Sample) – the sample result was taken from a diluted sample.

AFFF	aqueous film forming foam	PFAS	per- and polyfluoroalkyl substances	PFOS	perfluorooctane sulfonate
EPA	U.S. Environmental Protection Agency	PFBS	perfluorobutane sulfonate	ppt	parts per trillion
LHA	lifetime health advisory	PFOA	perfluorooctanoic acid		

What Are PFAS?

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

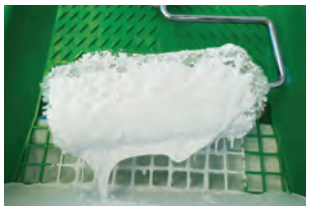
For updates as more information becomes available, visit **https://go.usa.gov/xR6SX**

If you have specific questions, please contact **allenbach.becky@epa.gov** or **404-562-9687**

Where Do PFAS Come From?

- Man-made compounds, no natural occurrence
- Used since 1950s in many products
- Last a long time in the environment
- Found in people, animals, and fish around the world

firefighting foam



paints and stains

stain-resistant carpets

water-repelling fabrics

nonstick cookware

food packaging

What Is the EPA LHA for PFOS and PFOA?

- Sets a concentration of 70 ppt in drinking water
- Protects against harmful health effects to sensitive populations and the general public, even for lifetime exposure
- Compares the total concentration of both PFOS and PFOA found to the 70 ppt advisory
- Provides information to state agencies and public health officials on health effects and water treatment so they can take steps to reduce exposures
- Is non-enforceable

How Is the EPA LHA Calculated?

- 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 or nursing infants of mothers who are exposed
- Assumes 20 percent of overall exposure is from drinking water, 80 percent of exposure is from other sources

AFFF	aqueous film forming foam	LHA	lifetime health advisory
ATSDR	Agency for Toxic Substances and Disease Registry	PFAS	per- and polyfluoroalkyl substances
		PFBS	perfluorobutane sulfonate
CDC	Centers for Disease Control and Prevention	PFOA	perfluorooctanoic acid
		PFOS	perfluorooctane sulfonate
EPA	U.S. Environmental Protection Agency	ppt	parts per trillion

Exposure and Health Effects

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

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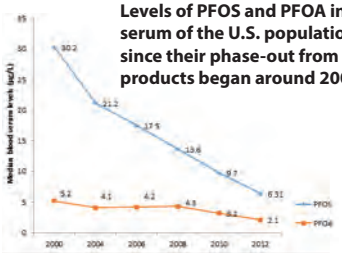
PFAS in People

- CDC monitoring estimates that most people in the U.S. have PFAS in their bodies.
- Levels of PFOS and PFOA are going down over time 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.

Levels of PFOS and PFOA in blood serum of the U.S. population since their phase-out from products began around 2002

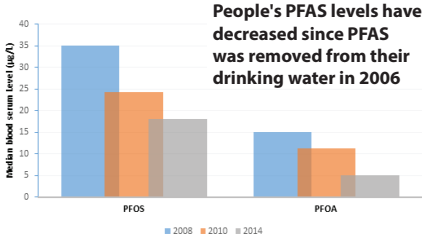


Source: CDC National Health and Nutrition Examination Survey

Exposures to PFAS

- Appear to be widespread around the world
- Are primarily through:
  - Ingestion of contaminated food, water, or soil
  - Breathing air that contains contaminated dust from carpets, upholstery, clothing, etc.
- Will build up in the body until exposure stops
- Reach the fetuses or nursing infants of mothers who are exposed
- Are not significant through skin contact when bathing or showering

People's PFAS levels have decreased since PFAS was removed from their drinking water in 2006



Source: Minnesota Department of Health. Available from: http://www.health.state.mn.us/divs/hpcd/tracking/biomonitoring/projects/emetro-landing.html

How To Reduce Exposure

- If water contains PFOS and PFOA above the health advisory level, you can reduce exposure by using a different water source for drinking, cooking, and brushing teeth.
- Filter PFOS and PFOA from water using certified granular activated carbon or high-pressure membrane systems, such as reverse osmosis. These systems require ongoing maintenance.

Potential Health Effects

- More research is needed to confirm or rule out possible links between exposure and health effects.
- Animals exposed to high levels of PFAS had changes in liver, thyroid, and pancreas function; altered hormone levels; and increased rates of certain cancers.
- Based on limited evidence from studies with people, potential health effects can include:
  - Increased cholesterol levels
  - Changes in growth, learning, and behavior of the developing fetus and child
  - Immune system changes
  - Decreased fertility
  - Altered hormone function
  - Increased risk of certain types of cancer
- The levels of PFOS or PFOA in drinking water do not predict what, if any, health impact might occur as a result of exposure.

Should I Have My Blood Tested?

ATSDR and CDC understand and acknowledge that you may want to know the level of PFAS in your body. However, there are some limitations with blood tests to consider:

- Test results will not provide clear answers for existing or possible health effects or patient care.
- Blood testing for PFAS is not a routine test that health care providers offer.

Consult with your doctor for more information.

AFFF	aqueous film forming foam	LHA	lifetime health advisory
ATSDR	Agency for Toxic Substances and Disease Registry	PFAS	per- and polyfluoroalkyl substances
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EPA	U.S. Environmental Protection Agency	ppt	parts per trillion

Off-Base Drinking Water Investigation – Next Steps

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

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Sampling appointments are available February 22–March 1.

Are the PFOS/PFOA test results **above** the health advisory level? → The Navy will provide bottled water for drinking and cooking.

Are the test results **at or below** the health advisory level? → No immediate action is needed.

The Navy will respond in a timely manner.

Ongoing Actions

- Continue to request permission to sample drinking water wells not previously sampled in the designated area.
- Respond to PFOS and PFOA results above health advisory in drinking water.
- Keep the community informed.
- Partner with Agency for Toxic Substances and Disease Registry, North Carolina Department of Environmental Quality, and North Carolina Division of Public Health.

The Navy will develop a suitable long-term solution if needed.

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EPA	U.S. Environmental Protection Agency	PFAS	per- and polyfluoroalkyl substances	PFOA	perfluorooctanoic acid	ppt	parts per trillion

Off-Base Drinking Water Well Sampling

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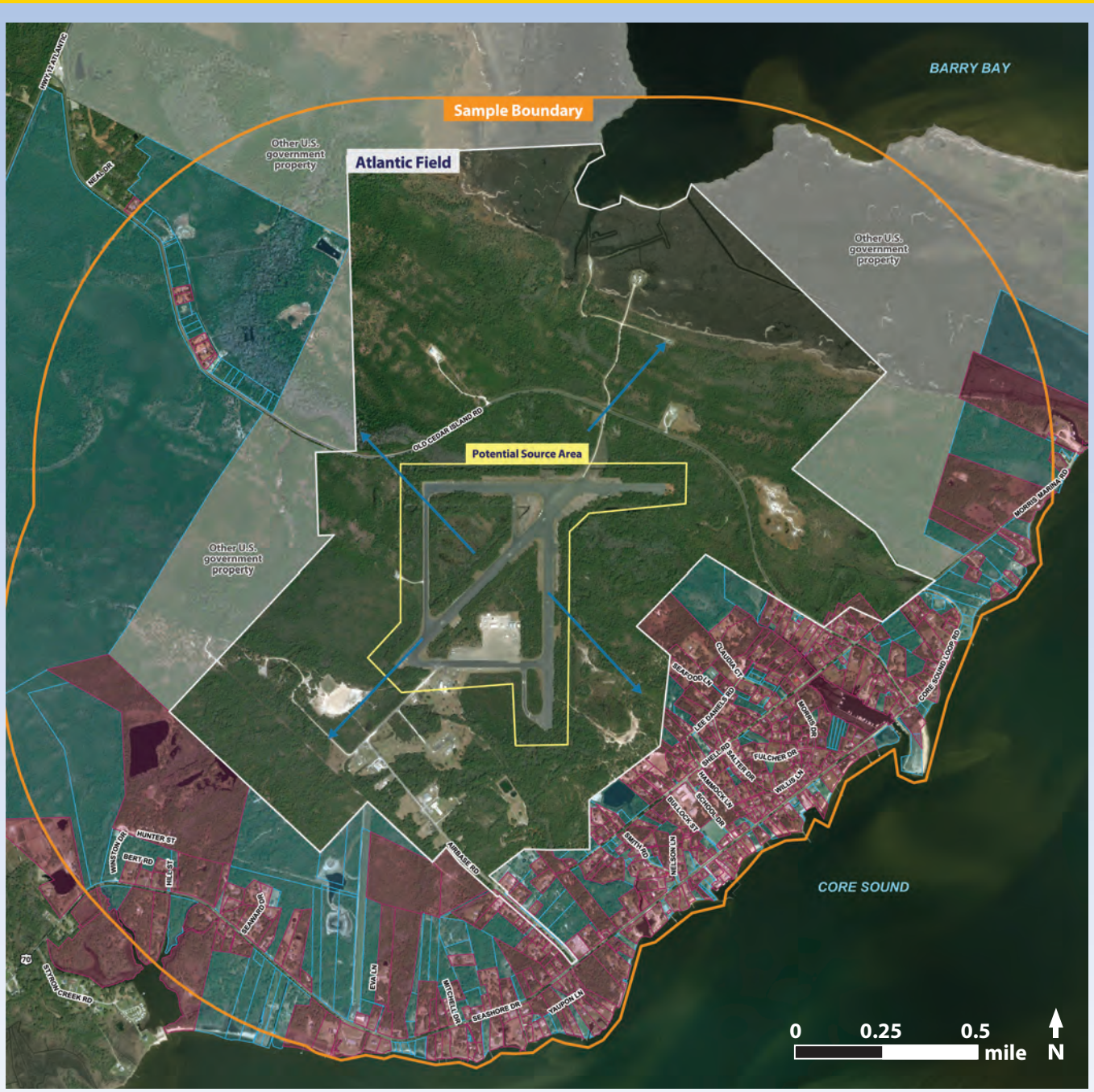

LEGEND

- Developed Parcel
- Undeveloped/Vacant Parcel
- Assumed Groundwater Flow Direction

AFFF	aqueous film forming foam	PFAS	per- and polyfluoroalkyl substances	PFOS	perfluorooctane sulfonate
EPA	U.S. Environmental Protection Agency	PFBS	perfluorobutane sulfonate	ppt	parts per trillion
LHA	lifetime health advisory	PFOA	perfluorooctanoic acid		

Path Forward for On-Base Investigation

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

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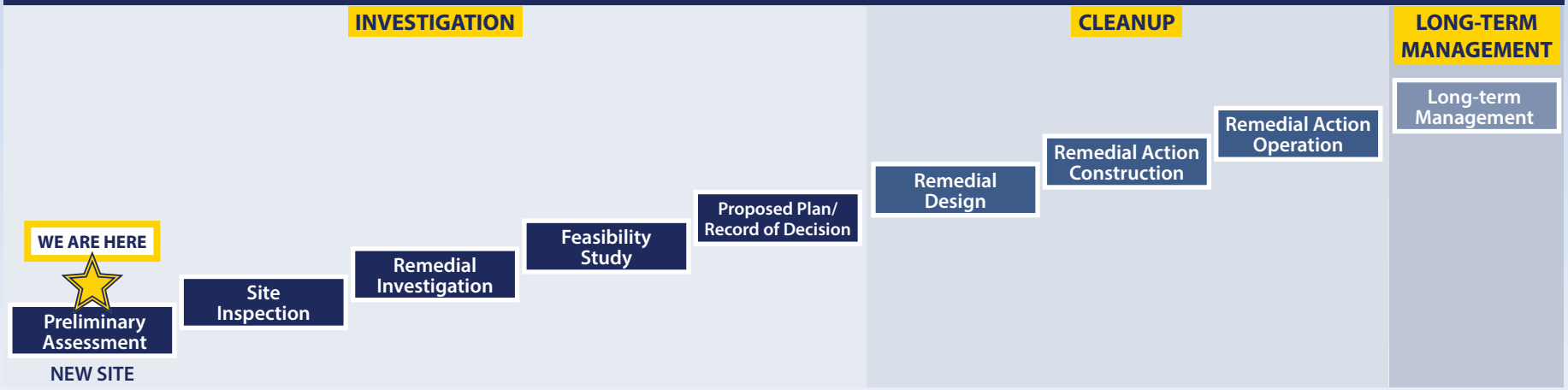
Objectives of Preliminary Assessment/Site Inspection

- Identify potential on-base sources of PFAS.
- Measure PFAS concentrations.
- Determine groundwater characteristics.

The Navy will be involved until necessary actions are complete.

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



Activity boxes do not indicate the relative length of any activity.

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Managing Your Private Well

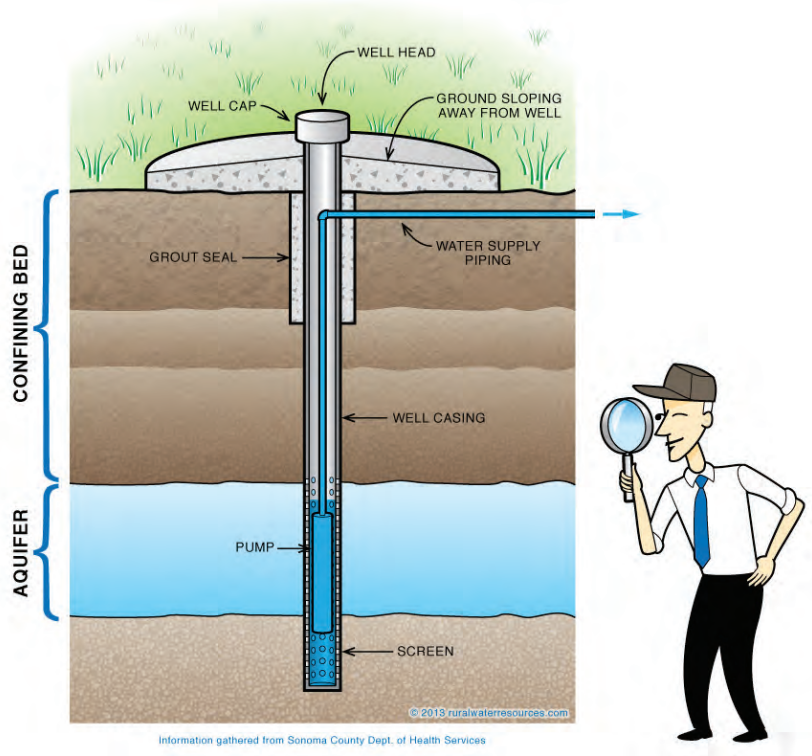
Additional information can be found online at
http://ehs.ncpublichealth.com/oswp/wells-resources.htm

If you have specific questions, please contact
252-728-8499 (Carteret County Environmental Health)

Managing the Risks

- Testing of private wells is recommended to ensure water quality.
- Bacteriological testing once a year is a good idea. Regular testing can tell you the quality of the water.
- More frequent testing is recommended if your water changes in taste, odor, or appearance or if you have recurrent incidences of gastrointestinal illness.
- The National Groundwater Association recommends you test for bacteria, nitrates/nitrites, and any other contaminants of local concern.
- If using water conditioner (aka, "water softener") equipment, it should be maintained and kept in working order.
- Do not dispose of or store hazardous materials or chemicals on your property or near your well.

Typical Well Design



Information gathered from Sonoma County Dept. of Health Services

We Need Your Cooperation – Drinking Water Sampling Process

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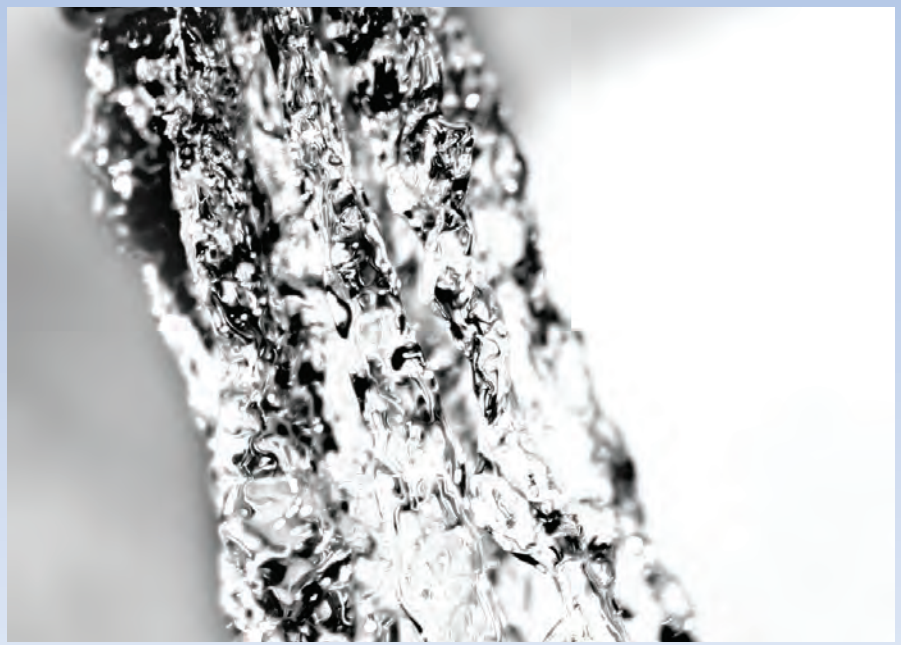
Sampling Process

- We need your cooperation to:
  - Make your appointment (sampling will take less than an hour).
  - Review and fill out the questionnaire.
- A team of qualified professionals will:
  - Collect water from the sample point (water will run for 3–5 minutes).
  - Analyze the sample according to EPA guidelines for a sampling and analysis process that follows strict quality control and quality assurance protocols.



Other Ways To Schedule an Appointment

To schedule an appointment for sampling a drinking water well in the designated area, please contact: **NavyAtlanticWater@usmc.mil** or **1-877-MCOLF17** (1-877-626-5317).

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Sign Up for Your Sampling Appointment Here

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If you have specific questions, please contact **NavyAtlanticWater@usmc.mil** or **1-877-MCOLF17** (1-877-626-5317)

Off-Base Drinking Water Well Sampling

- The Navy is currently sampling drinking water wells not previously sampled in the designated area only.
- Drinking water samples will be collected **February 22–March 1.**
- Sampling appointments are available **9 a.m.–6 p.m. Monday–Friday, 9 a.m.–1 p.m. Saturday,** and **1 p.m.–5 p.m. Sunday.**
- The sampling period may be extended as necessary.
- The property owner must give permission for sampling.
- Sampling takes less than an hour.
- An adult resident (18 years of age or older) must be present during sampling. Accommodations can be made for property owners who may not be available during the regularly scheduled sampling times.

Sampling dates, February/March 2018

S	M	T	W	Th	F	S
18	19	20	21	**22**	**23**	**24**
25	**26**	**27**	**28**	**1**	2	3

Drinking Water Sampling Activity Timeline