



Why are the Marine Corps and Navy Sampling Drinking Water Wells Nationwide?



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- In 2016, the USEPA established a drinking water lifetime health advisory for two currently unregulated PFAS, specifically PFOS and PFOA.
 - The USEPA's lifetime health advisory is 70 ppt in drinking water.
- In 2016, the Department of the Navy issued a proactive policy to identify and address Navy and Marine Corps sites with the potential for exposure to PFOS and PFOA.
 - The most common historical use of PFOS and PFOA by the Marine Corps was in firefighting foam.
 - The Marine Corps no longer uses firefighting foam for training.
 - Firefighting foam is currently used for emergency response only.
- We have started assessing bases to identify and address the potential for exposure to PFOS and PFOA.



Image: Jacek Dylag / unsplash

We are sampling drinking water wells for certain PFAS near Camp Davis in Holly Ridge, North Carolina.

ACRONYMS & ABBREVIATIONS

PFAS per- and polyfluoroalkyl substances
PFOA perfluorooctanoic acid

PFOS perfluorooctane sulfonate
ppt part(s) per trillion

USEPA U.S. Environmental Protection Agency



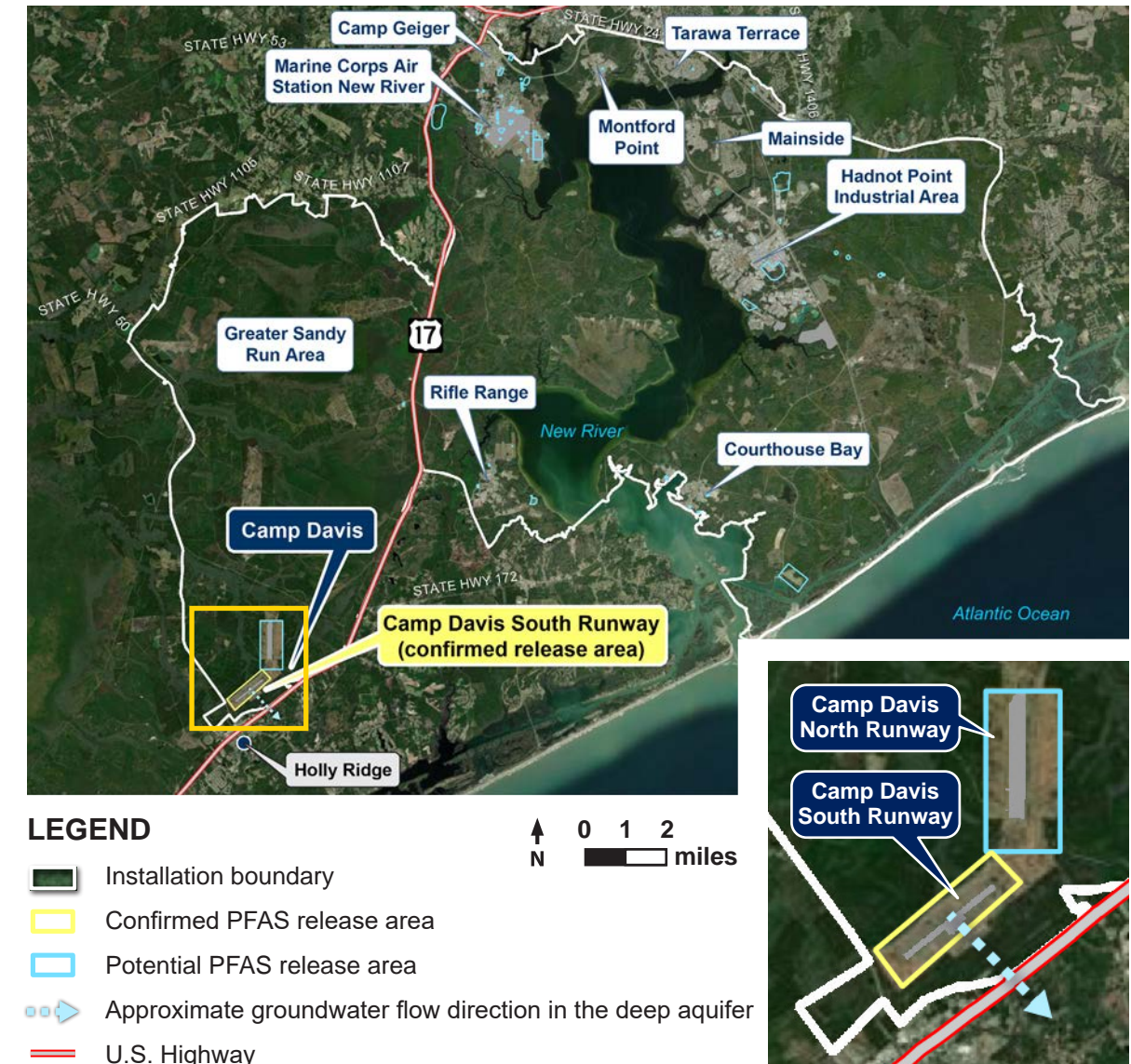
MCB Camp Lejeune PFAS Investigation



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- Beginning in 2017, MCB Camp Lejeune has identified potential or confirmed PFAS release areas.

FOR MORE INFO | click the links icon below the poster station
- Over 200 groundwater samples have been collected on MCB Camp Lejeune and tested for PFAS.
- In November 2020, groundwater sampling data identified the southern runway at Camp Davis as an area where PFAS could migrate off-base to nearby drinking water wells.
- Camp Davis South Runway is the only PFAS release area at MCB Camp Lejeune warranting an off-base drinking water investigation.



ACRONYMS & ABBREVIATIONS

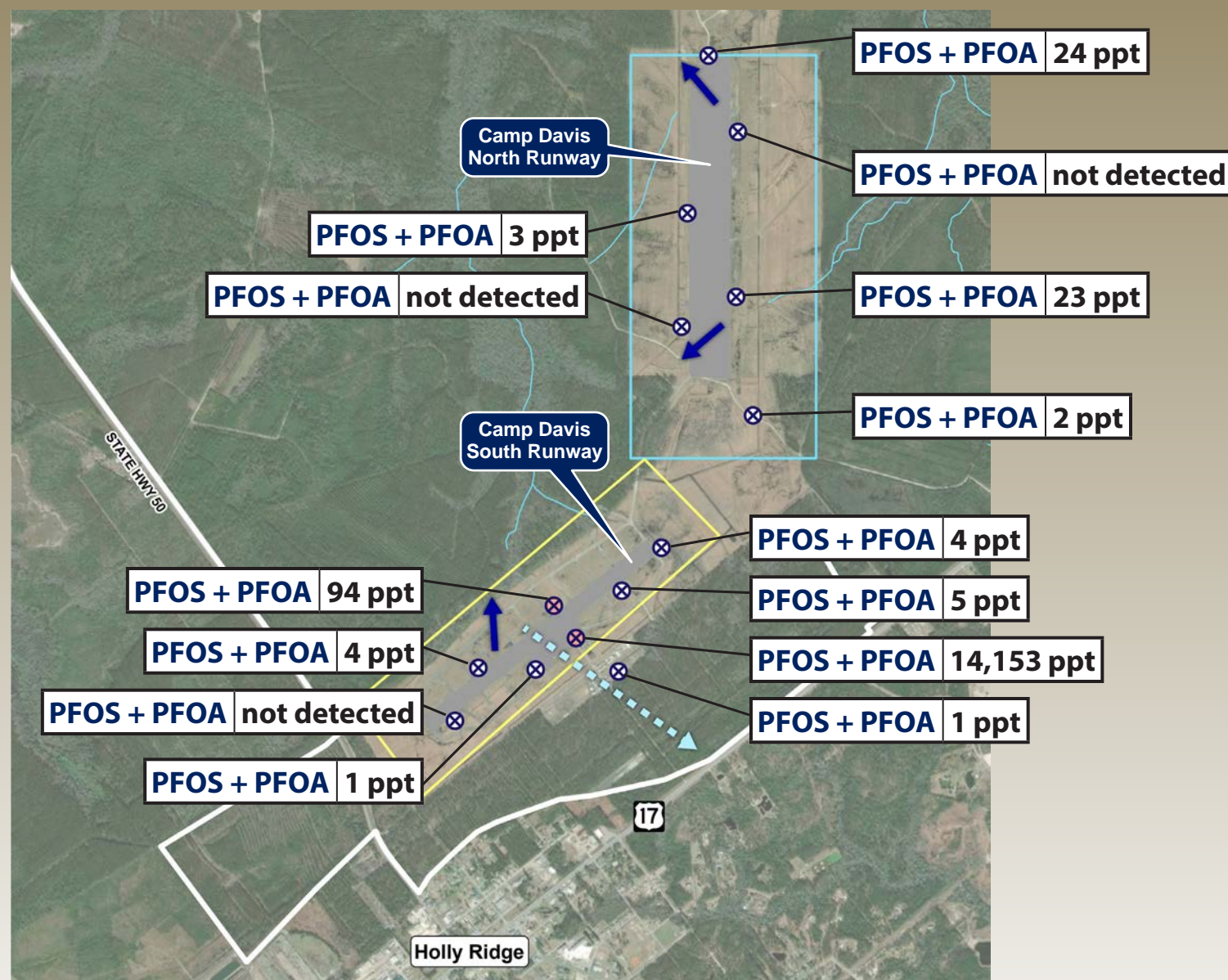
MCB	Marine Corps Base
PFAS	per- and polyfluoroalkyl substances



Camp Davis Groundwater Sampling



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- 14 shallow groundwater samples were collected on-base at Camp Davis.
- 3 samples did not contain any PFOS and PFOA.
- 11 samples detected PFOS and/or PFOA.
 - Many of these detected values were low, ranging from 1 and 5 ppt.
 - However, the 2 samples with the highest results (94 and 14,153 ppt) were at the south runway close to the Base boundary.
- Deep groundwater, which is typically what is used for drinking water, has not yet been sampled on-base.
- 26 soil samples were also collected and did not contain any PFOS or PFOA above the screening criteria.

LEGEND

- ⊗ Shallow aquifer monitoring well
PFOS and/or PFOA detection
 - ⊗ greater than USEPA lifetime health advisory (70 ppt)
 - Groundwater flow direction in the shallow aquifer
 - Approximate groundwater flow direction in the deep aquifer
 - Installation boundary
- 0 0.25 0.5
N mile

ACRONYMS & ABBREVIATIONS

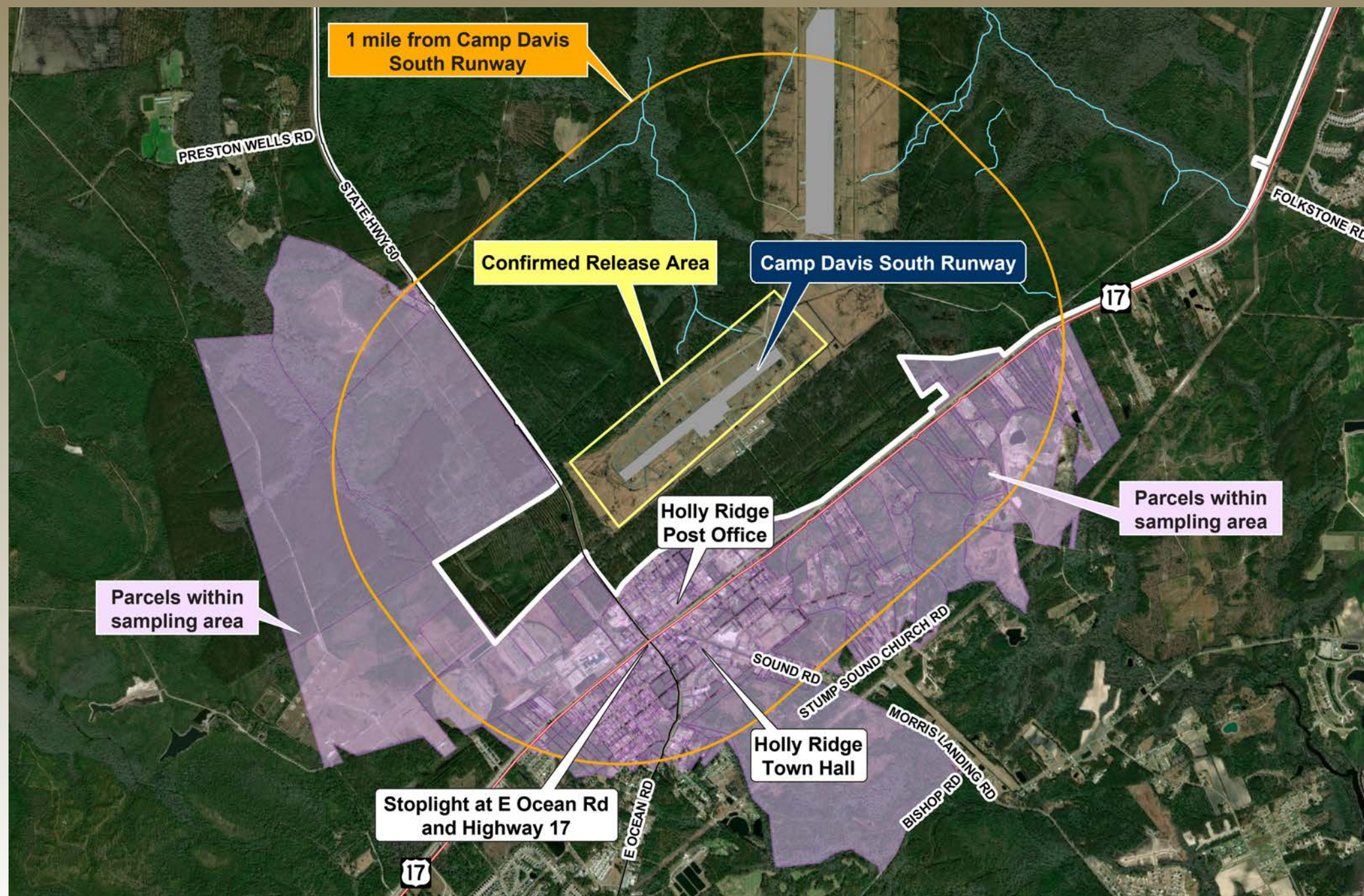
PFOA	perfluorooctanoic acid	ppt	part(s) per trillion
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Off-Base Drinking Water Investigation Sampling Area



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- The designated sampling area includes all private properties within 1 mile of Camp Davis.
- All parcels that have any part of the property touching the sample area boundary have been included as parcels within the designated sampling area.

LEGEND

- Parcels within sampling area
- Installation boundary
- U.S. Highway

0 0.25 0.5
N mile




MCB Camp Lejeune Drinking Water



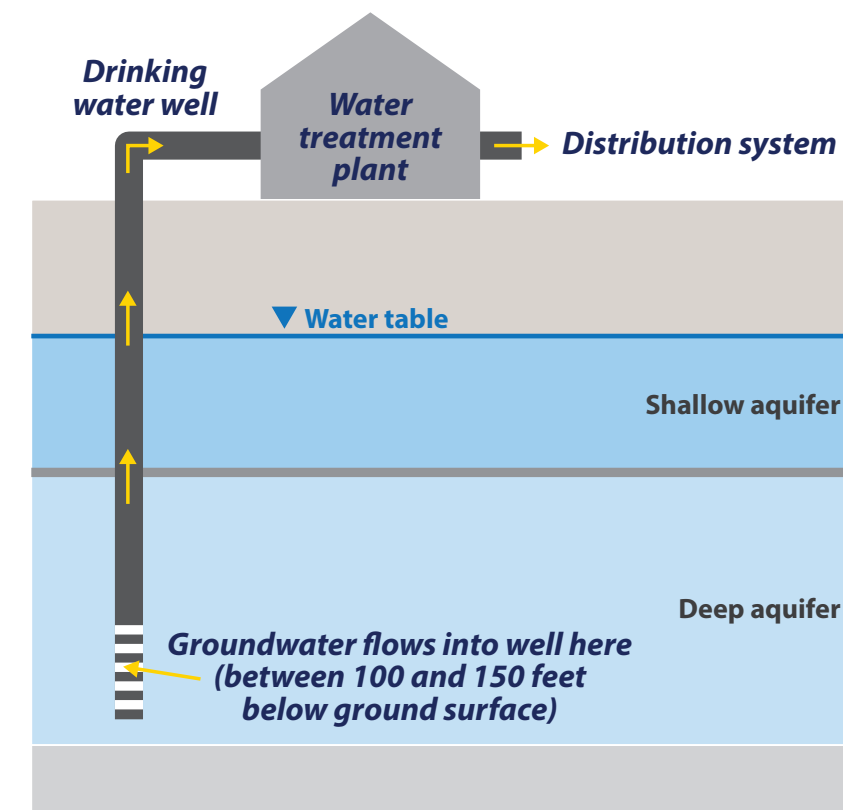
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**On-base drinking water has been tested for PFOS and PFOA,
and results are below the USEPA lifetime health advisory.**

- MCB Camp Lejeune provides drinking water for the installation from more than 50 on-base wells.
 - None of these wells are located on Camp Davis.
- In 2019, MCB Camp Lejeune initiated proactive PFAS drinking water sampling.
 - All drinking water supply wells were sampled, both treated and untreated water.
 - **PFOS and PFOA have not been detected above the USEPA lifetime health advisory (70 ppt) in any drinking water samples.**
- MCB Camp Lejeune on-base drinking water meets federal and state standards and is tested more often than is required.
- Annual on-base drinking water reports can be viewed online.

FOR
MORE
INFO | click the links icon 
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MCB Camp Lejeune Water Distribution



ACRONYMS & ABBREVIATIONS

MCB	Marine Corps Base	PFOA	perfluorooctanoic acid	ppt	part(s) per trillion
PFAS	per- and polyfluoroalkyl substances	PFOS	perfluorooctane sulfonate	USEPA	U.S. Environmental Protection Agency

Per- and Polyfluoroalkyl Substances (PFAS)

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What Are PFAS?

- Man-made compounds, do not occur naturally.
- Used since 1950s in many products.
- Last a long time in the environment.
- Found in people, animals, and fish around the world.



U.S. Navy / Photographer's
Mate 3rd Class Tommy Gilligan
firefighting foam



Image: freepik.com
stain-resistant carpets and fabrics



Image: Kyle Boore / unsplash
water-resistant fabrics



Image: freepik.com
personal care products



Image: Valeria_Aksakova / freepik
nonstick cookware



Image: freepik.com
food packaging

What Is the USEPA Lifetime Health Advisory for PFOS and PFOA?

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

How Was the USEPA Lifetime Health Advisory 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 babies during pregnancy 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.

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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 going down over time following their phase-out from products, which began around 2002.
- Some PFAS stay in the body a long time – there is no recommended medical treatment to reduce PFAS in the body.







Exposures to PFAS

- Appear to be widespread around the world.
- Are primarily through:
 - Drinking contaminated water.
 - Eating contaminated food or soil.
 - Breathing air that contains contaminated dust from carpets, upholstery, clothing, etc.
- Will build up in the body until exposure stops.
- Reach babies during pregnancy and while breastfeeding.
- Are not significant through skin contact when bathing or showering.

How to Reduce Exposure

- There are no medical treatments that will remove PFAS from the body.
- If drinking water contains PFAS, use a different water source for drinking and cooking.

Potential Health Effects

- At this time, scientists are still learning about how exposure to PFAS might affect people’s health.
- High levels of certain PFAS may lead to the following:
 -  Increased cholesterol levels.
 -  Changes in liver enzymes.
 -  Small decrease in infant birth weight.
 -  Decreased vaccine response in children.
 -  Increased risk of high blood pressure or preeclampsia in pregnant women.
 -  Increased risk of kidney or testicular 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?

- CDC understands and acknowledges 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.

ACRONYMS & ABBREVIATIONS

CDC	Centers for Disease Control and Prevention	PFOA	perfluorooctanoic acid
PFAS	per- and polyfluoroalkyl substances	PFOS	perfluorooctane sulfonate



Path Forward for MCB Camp Lejeune On-Base Investigation

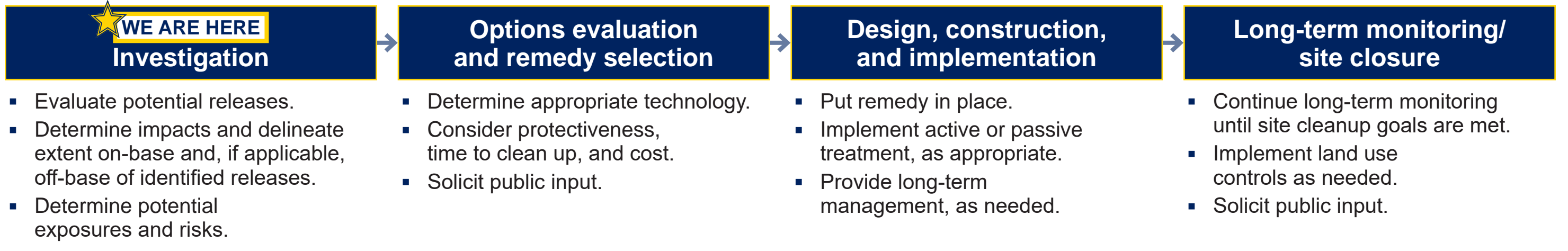


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PRIORITY: Protect Human Health and the Environment

- The structured regulatory process, shown below, will be used to identify and clean up past environmental releases at MCB Camp Lejeune.
- The North Carolina Department of Environmental Quality and USEPA are working closely with the Navy and Marine Corps and providing oversight at every step of the process.
- Public input is formally solicited during the process.
- From the beginning to end, this process can be lengthy.

PFAS Environmental Cleanup Process



The on-base PFAS investigation is in its early stages. The first step is to identify potential releases of PFAS. The second step is to determine where PFAS are actually present.

FOR MORE INFO | click the links icon  below the poster station

ACRONYMS & ABBREVIATIONS

MCB Marine Corps Base
PFAS per- and polyfluoroalkyl substances
| USEPA U.S. Environmental Protection Agency

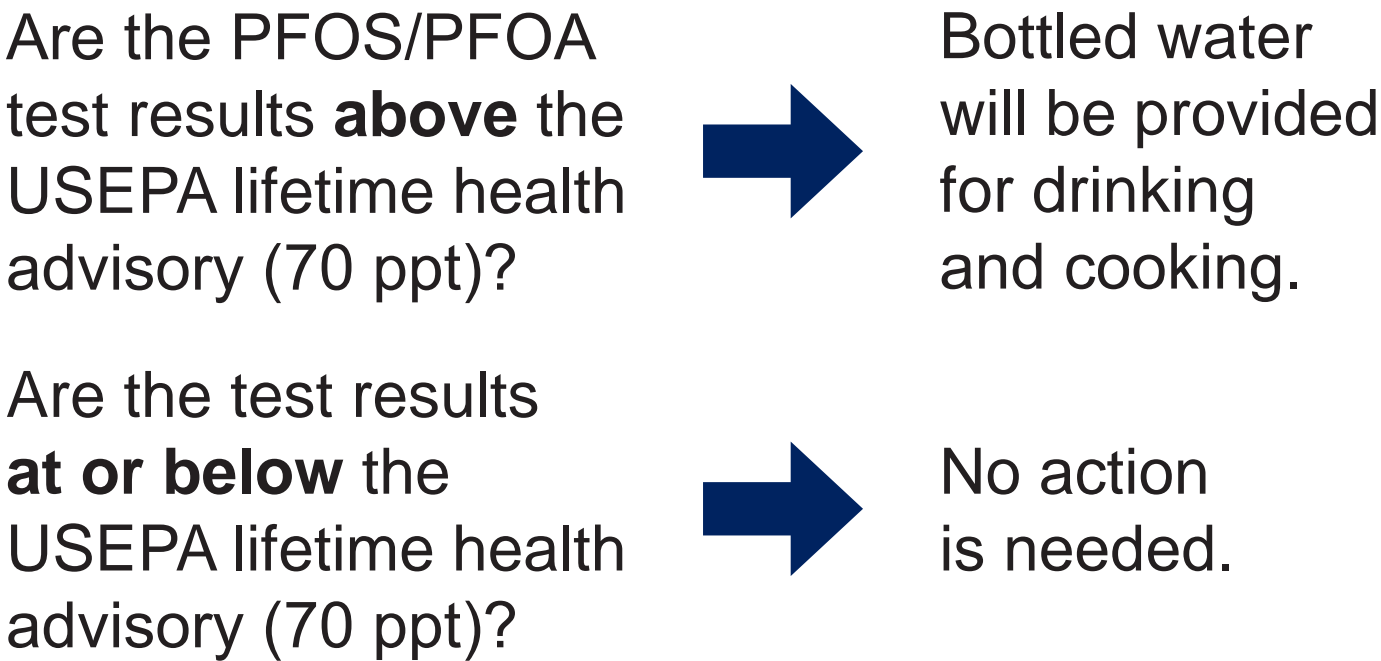


Next Steps



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Results are provided by phone to the property owner within about 30 days of sample collection.



We will respond in a timely manner.

We will develop a suitable long-term solution if needed.

Ongoing Actions

- Respond to PFOS and PFOA results above USEPA lifetime health advisory in drinking water.
- Continue to keep the community informed.
- Potentially expand sampling area based on sampling results.
- Continue to partner with USEPA Region 4, North Carolina Department of Environmental Quality, North Carolina Department of Health and Human Services, and Onslow County Health Department.

ACRONYMS & ABBREVIATIONS

PFOA	perfluorooctanoic acid	ppt	part(s) per trillion
PFOS	perfluorooctane sulfonate	USEPA	U.S. Environmental Protection Agency



We Need Your Cooperation – Drinking Water Sampling Process



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Sampling Process

- If you have a drinking water well on your property, we need your cooperation to:
 - Make the sampling appointment (must be made by property owner).
 - Sampling will take less than an hour.
 - Review and fill out the questionnaire.
- If the property owner chooses to have their well sampled, a team of qualified professionals will:
 - Collect water from an outdoor sample point (water will run for 5 minutes).
 - Analyze the sample according to USEPA guidelines for a sampling and analysis process that follows strict quality control and quality assurance protocols.

COVID-19 Precautions

- The sampling team will take the necessary precautions to minimize exposure.
 - A sampling team member will call you upon arrival; you do not need to directly interact with the team.
 - Sampling team members may arrive in separate cars.
 - Sampling team members will be wearing masks and gloves.
 - One team member will collect the sample; the second team member will likely remain in the car to assist with documentation.
 - Upon completion of sampling, a team member will call you to let you know that sampling is complete.

ACRONYMS & ABBREVIATIONS

COVID-19 coronavirus disease 2019
USEPA U.S. Environmental Protection Agency



Sign Up for Your Sampling Appointment



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Off-Base Drinking Water Well Sampling

- We are sampling drinking water wells in the designated area only.
- Drinking water samples will be collected **Monday, March 29–Friday, April 9, 2021.**
 - Sampling appointments are available **Monday–Friday, 9 a.m.–6 p.m. | Saturday, 9 a.m.–1 p.m.**
Additional times are available upon request.
- The sampling period may be extended as necessary.
- The property owner must give permission for sampling.
- Sampling takes less than an hour.
- An adult (18 years or older) must be at the property during sampling.

Off-Base Drinking Water Sampling Activity Timeline – 2021



MARCH

APRIL

MAY

JUNE