



# Marine Corps Outlying Landing Field Camp Davis PFAS Drinking Water Sampling

**Virtual Open House**  
***August 2021***



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



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866-MCDAVIS (866-623-2847)

- 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



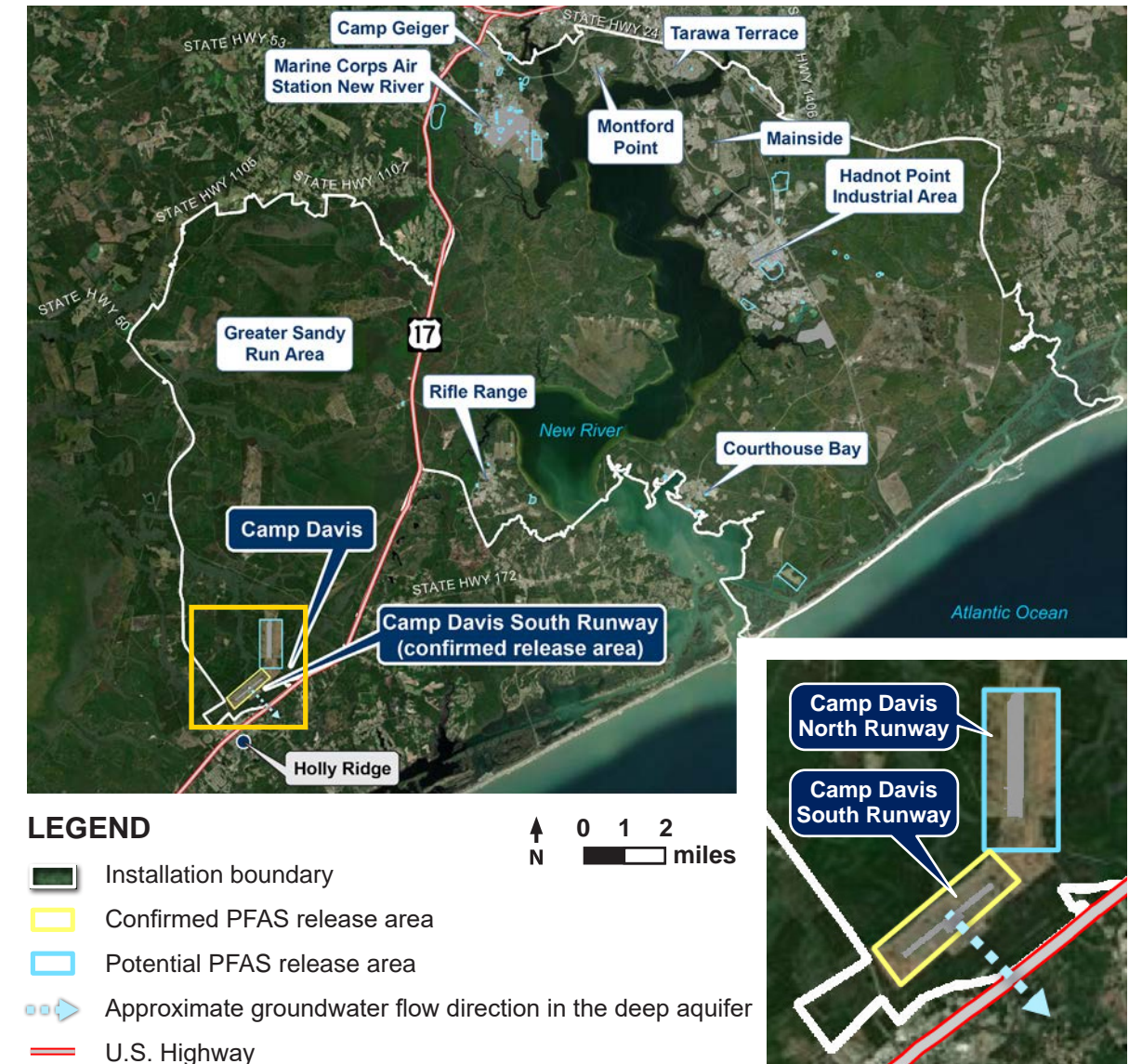


# MCB Camp Lejeune PFAS Investigation



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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 south 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 at this time.



## ACRONYMS & ABBREVIATIONS

MCB	Marine Corps Base
PFAS	per- and polyfluoroalkyl substances

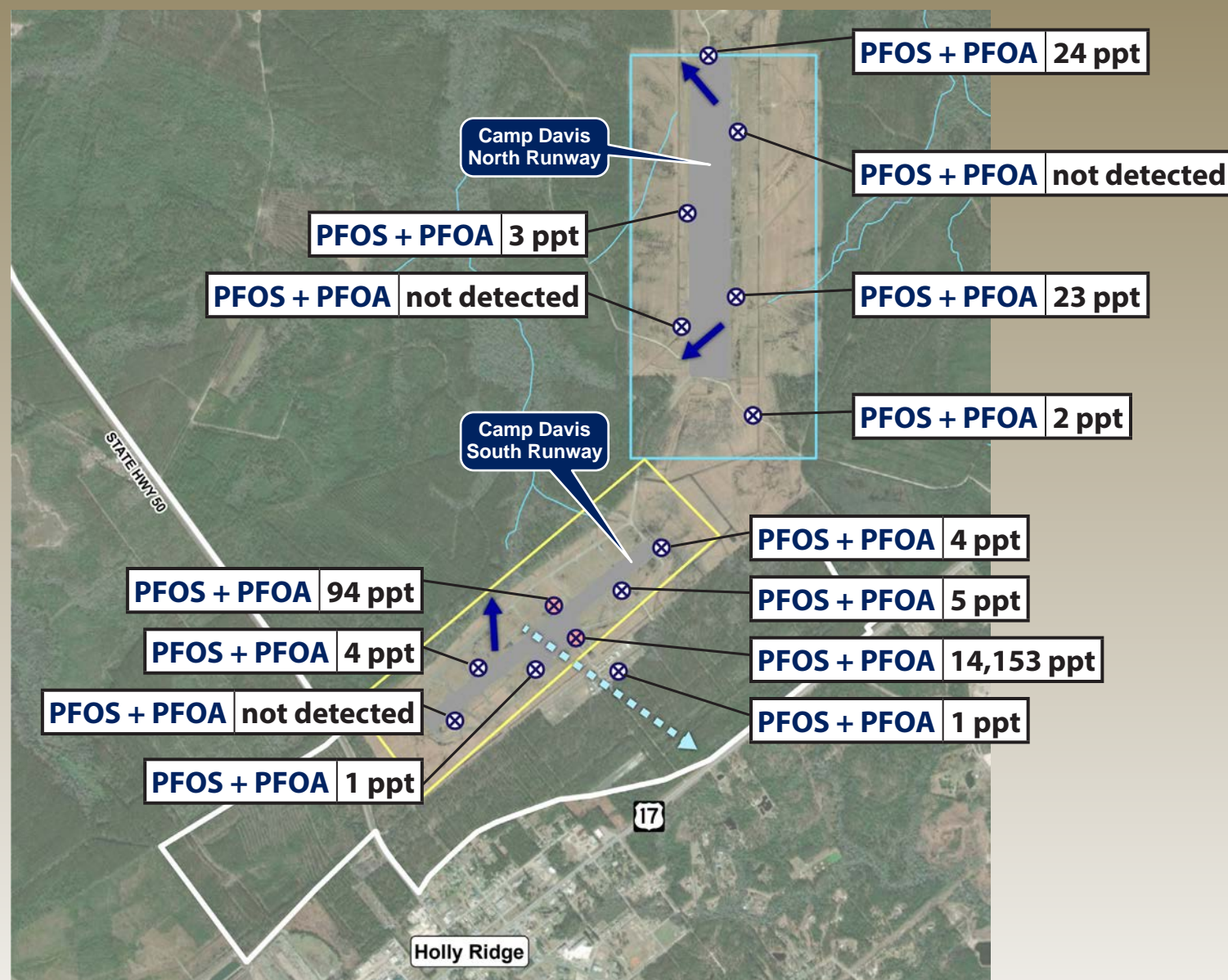




# 2020 Camp Davis On-Base Groundwater Sampling



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- 14 shallow groundwater samples were collected on-base at Camp Davis in 2020.
- PFOS and PFOA were not detected in 3 samples.
- PFOS and/or PFOA were detected in 11 samples.
  - Many of these detected values ranged from 1 to 5 ppt.
  - The 2 samples with the highest results (94 and 14,153 ppt) were at the south runway close to the Base boundary.

## LEGEND

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

0 0.25 0.5  
N mile

## ACRONYMS & ABBREVIATIONS

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



# Summary of Drinking Water Well Sampling near Camp Davis



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**There were no detections of PFOS and/or PFOA above the USEPA lifetime health advisory in the designated sampling area.**

- PFOS/PFOA were only detected in one sample, and the result was well below the lifetime health advisory level.
- The off-base sampling area does not need to be resampled or expanded at this time based on available information.
- We will contact you if new data indicate a need to conduct additional off-base sampling in the future.

## Off-Base Drinking Water Sampling Activity Timeline – 2021

Virtual Open House  
launched March 22, 2021

Off-Base Drinking Water Well Sampling  
initiated March 29, 2021

Results Virtual Open House  
launched August 2021

WE ARE HERE

MARCH

APRIL

MAY

JUNE

JULY

AUGUST

SEPTEMBER

**You can still request sampling if you have a drinking water well in the sampling area that has not been tested.**

### ACRONYMS & ABBREVIATIONS

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PFOS perfluorooctane sulfonate  
USEPA U.S. Environmental Protection Agency

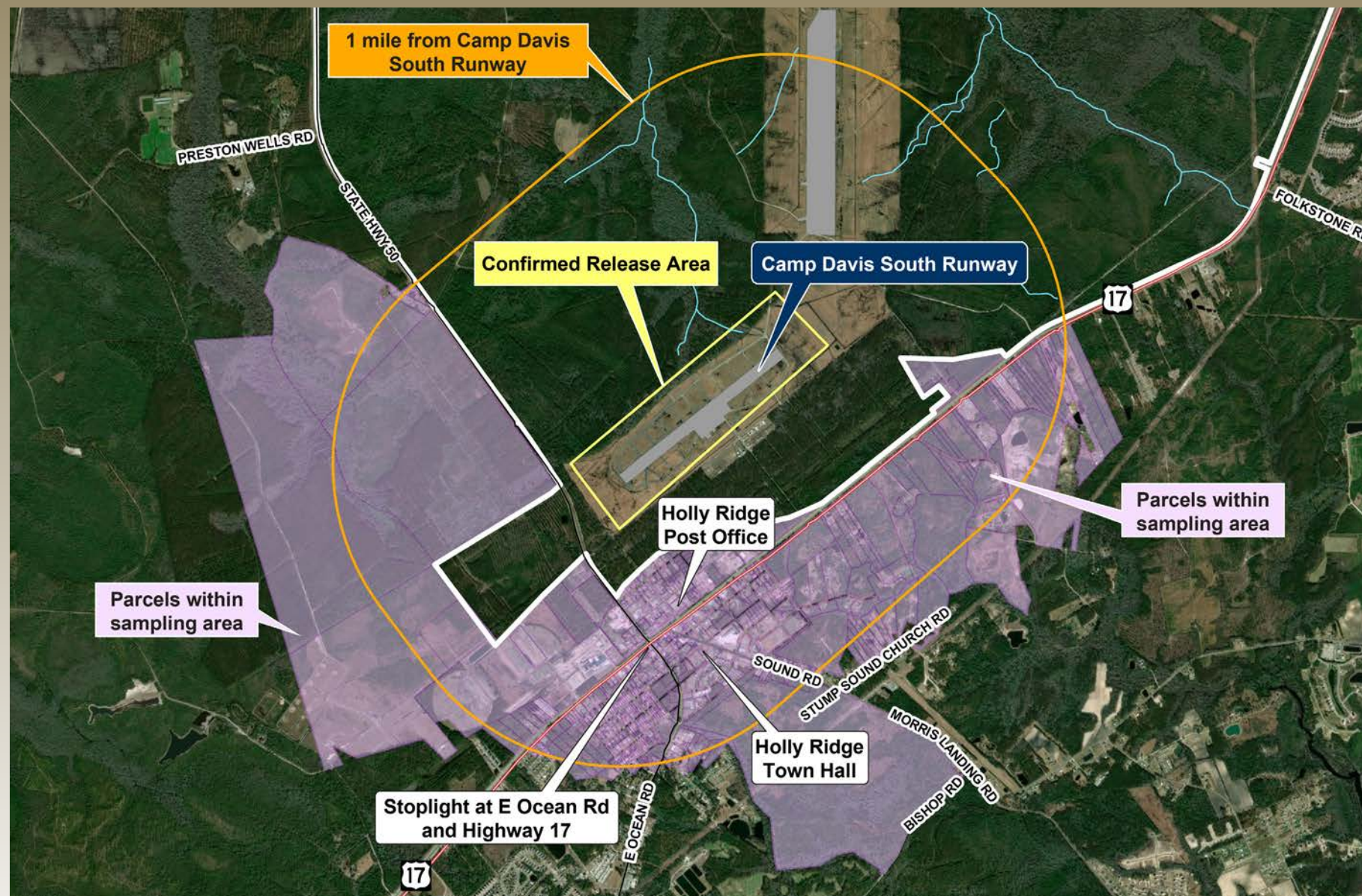




# PFAS Drinking Water Results near Camp Davis



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- Most parcels in the sampling area receive drinking water from the public utility, Onslow Water and Sewer Authority (ONWASA).
- 11 drinking water wells were sampled within the sampling area. No additional requests were received.
  - PFOS/PFOA were **NOT DETECTED** in 10 wells.
  - PFOS/PFOA were detected **BELOW** the USEPA lifetime health advisory (70 ppt) in 1 well:

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

PFAS	Result	Q
PFOS	0.395 ppt	J
PFOA	0.869 ppt	J
PFOS + PFOA	1.264 ppt	

Q = Qualifier  
J = Estimated

## PFOS/PFOA Results Summary Table

PFAS	Standard	Level	Above	Below	Not Detected
PFOS + PFOA	USEPA lifetime health advisory	70 ppt	0	1	10

## LEGEND

Parcels within sampling area

Installation boundary

U.S. Highway

0 0.25 0.5  
N mile

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

## ACRONYMS & ABBREVIATIONS

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USEPA U.S. Environmental Protection Agency





# Path Forward for MCB Camp Lejeune On-Base Investigation

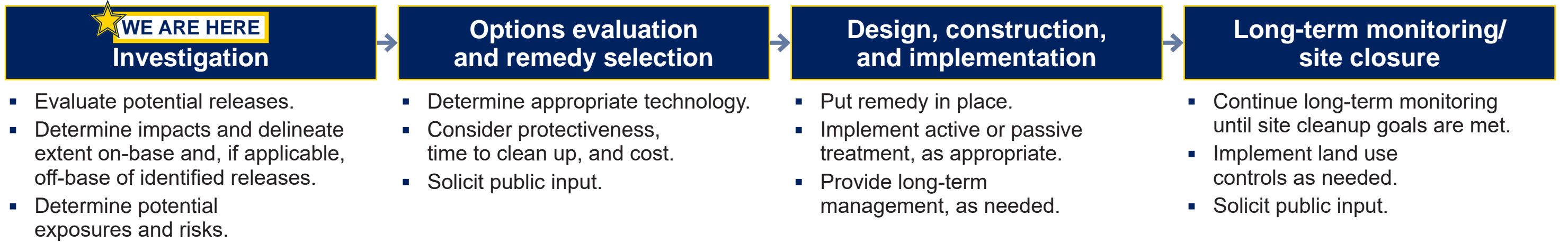


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## PRIORITY: Protect Human Health and the Environment

- 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



# Moving Forward – How Can I Stay Involved?




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## Join the Restoration Advisory Board

- Meetings are held quarterly in Jacksonville to discuss various ongoing projects within the Environmental Restoration Program.
- As new PFAS investigation information becomes available, it will be shared with the community through the Camp Lejeune Restoration Advisory Board.
- For details on upcoming meetings, visit our website or email [Lejeune\\_IR\\_Program@usmc.mil](mailto:Lejeune_IR_Program@usmc.mil).




November 2015 Restoration Advisory Board Meeting

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

## Review Environmental Restoration Documents

- The Navy's website hosts a document library for Camp Lejeune's Environmental Restoration Program.
- For documents related to this PFAS investigation, along with other environmental restoration activities, follow the link to the Administrative Record located below the poster station.

**FOR  
MORE  
INFO** | click the links icon   
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## Contact Us with Questions or Comments

### MCB CAMP LEJEUNE PUBLIC AFFAIRS OFFICER

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## ACRONYMS & ABBREVIATIONS

DEQ	Department of Environmental Quality	MCB	Marine Corps Base	NAVFAC	Naval Facilities Engineering Systems Command
DHHS	Department of Health and Human Services	PFAS	per- and polyfluoroalkyl substances	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.

## ACRONYMS & ABBREVIATIONS

PFAS per- and polyfluoroalkyl substances  
PFOA perfluorooctanoic acid

PFOS perfluorooctane sulfonate  
ppt part(s) per trillion

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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





# 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.**

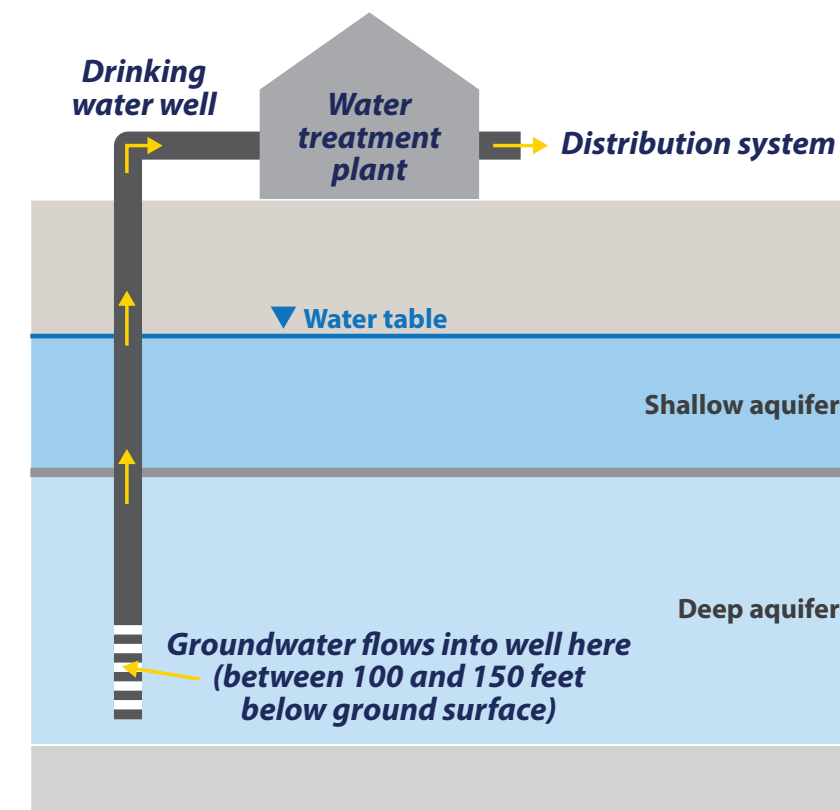
- MCB Camp Lejeune provides drinking water for the installation from more than 50 on-base wells.
  - None of these wells are located on Camp Davis.
- In 2019, MCB Camp Lejeune initiated proactive PFAS drinking water sampling.
  - All drinking water supply wells were sampled, both treated and untreated 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.

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## MCB Camp Lejeune Water Distribution



### ACRONYMS & ABBREVIATIONS

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PFAS	per- and polyfluoroalkyl substances	PFOS	perfluorooctane sulfonate	USEPA	U.S. Environmental Protection Agency