



Drinking Water is Safe on MCB Camp Lejeune and MCAS New River

Drinking Water

When a known or potential release of PFAS is identified on a Navy or Marine Corps installation, the first action is to determine if there are potential impacts to drinking water sources which require a drinking water investigation. If drinking water wells are identified in an area located 1 mile in the direction the groundwater flows away from the release site (downgradient), then a drinking water investigation is conducted. A drinking water investigation is not required on- or off-base at this time for MCB Camp Lejeune or MCAS New River because there are no drinking water wells within 1 mile downgradient from known or potential PFAS release areas.

Additionally, the drinking water supplies on MCB Camp Lejeune and MCAS New River were sampled for PFAS between 2013 and 2016 as part of EPA's efforts to gather information on the prevalence of PFAS in drinking water systems across the country. The sampling effort is officially known as Third Unregulated Contaminant Monitoring Rule or UCMR3 sampling. PFAS was not detected in any of the finished drinking water samples taken on base above the EPA lifetime health advisory for PFOA and PFOS of 70 parts per trillion (ppt).

The base initiated voluntary drinking water sampling in 2019, after UCMR3, and expanded sampling to include collecting samples from individual drinking water supply wells (untreated water) for PFAS analysis. PFOA and PFOS have not been detected above the EPA lifetime health advisory or the North Carolina interim maximum allowable concentration (for PFOA) in any drinking water well sample. The sampling results from August 2019 indicated the presence of several PFAS chemicals, most of which are currently unregulated. The concentrations of other PFAS that were detected were less than 10 ppt, with most being less than 2 ppt.

As part of the voluntary drinking water sampling in 2019, finished (treated) drinking water was also collected from distribution systems. PFOA and PFOS were not detected in any of the finished drinking water samples taken on base above the EPA lifetime health advisory or the North Carolina interim maximum allowable concentration (for PFOA). In one sample collected as part of this voluntary sampling in August 2019, one other PFAS, perfluorohexanoic acid, was detected at 1.76 ppt in a sample from the Hadnot Point distribution system. This chemical currently does not have a health advisory level or other cleanup standard. This detection of perfluorohexanoic acid is the only PFAS that has been detected in finished drinking water.

Camp Lejeune drinking water comes from very deep wells and is regularly tested and continues to meet all government safe drinking water standards. Every year, the base publishes a drinking water quality report that provides details about where its drinking water comes from and how it compares to safe drinking water standards. You can find these reports by visiting the base website at <https://www.lejeune.marines.mil/Offices-Staff/Environmental-Mgmt/Annual-Reports/>.

Drinking Water Screening

The EPA has issued a lifetime health advisory for two commonly used and studied PFAS – PFOA and PFOS. EPA's lifetime health advisories are non-enforceable and non-regulatory. The EPA's health advisory for lifetime exposure is 70 ppt for PFOA and 70 ppt for PFOS. When both PFOA and PFOS are found in drinking water, the combined concentrations should not exceed 70 ppt. In 2006, the State of North Carolina set an interim maximum allowable concentration for PFOA in groundwater at 2,000 ppt.

Health Information

Exposure to PFOA and PFOS appears to be global. Studies have found both compounds in the blood samples of the general population. Once these compounds are released, they break down very slowly. Studies on exposed populations indicate that PFOA and/or PFOS may have caused elevated cholesterol levels and possibly low infant birth weight. In studies conducted using laboratory animals, effects on developmental, neurological, immune, thyroid, and liver function were observed. Health effects from exposure to low levels of PFAS are not well known and studies are continuing. At this time, it is not possible to link exposures to PFOA and/or PFOS to a person's individual health issues. Blood tests are available to measure these chemicals, but they are not routinely done because the results can be inconclusive and test results do not predict health effects. Long-term exposure effects are still being investigated by the EPA. Based on what is known and still unknown about PFOA and PFOS, EPA recommends people not drink or cook with water that contains these compounds above the EPA lifetime health advisory.

For More Information

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To learn more about PFAS:

EPA website: <http://www.epa.gov/pfas>

Basewide Per- and Polyfluoroalkyl Substances (PFAS) Preliminary Assessment and Site Inspection

Marine Corps Base Camp Lejeune and Marine Corps Air Station New River, North Carolina

June 2020



Introduction

PFAS are a large family of man-made chemicals which have been widely used in industrial and consumer products since the 1950s because of their unique water- and oil-repelling properties. They have been used in such products as carpeting, apparel, food packaging, and non-stick cookware to make them more stain-resistant, waterproof, and/or non-stick. Additionally, PFAS are key components in firefighting foam (specifically aqueous film forming foam [AFFF]), which is used by fire departments across the country to fight fuel fires.

The Navy developed a proactive policy in 2016 to address past releases of PFAS at installations nationwide, as several PFAS are now of emerging public health concern. The most common Navy activities that have resulted in the release of PFAS to the environment are testing, training, firefighting, and other life-saving emergency response using firefighting foam. The Department of Defense is currently studying fluorine-free firefighting foam alternatives to replace AFFF and prevent future PFAS release. In the interim, AFFF is no longer used in training at Marine Corps Base (MCB) Camp Lejeune and Marine Corps Air Station (MCAS) New River and is limited to emergency response actions only.

In response to the Navy policy, a PFAS investigation is being conducted for MCB Camp Lejeune and MCAS New River under the environmental restoration program. Fifty-six areas have been identified on base where investigation is needed to address known or potential releases of firefighting foam or other PFAS containing industrial materials to the environment. Four of these areas were identified and investigated previously under an Initial Site Inspection. The remaining 52 areas were identified under a recent basewide Preliminary Assessment.

Drinking water safety is the priority for Navy and Marine Corps PFAS investigations. Once released to the environment, PFAS can move easily into and with groundwater. People can be exposed to PFAS in their drinking water if contaminated groundwater is used as their drinking water source. The U.S. Environmental Protection Agency (EPA) issued a drinking water lifetime health advisory in 2016 for two commonly used and studied PFAS, perfluorooctanoic acid (PFOA) and perfluorooctane sulfonate (PFOS). **The drinking water on MCB Camp Lejeune and MCAS New River has been tested for PFOS and PFOA and remains safe to drink.** A PFAS drinking water investigation is not needed on- or off-base as known or potential PFAS releases are not impacting local drinking water well locations.

This fact sheet provides a summary of data collected under the Initial Site Inspection, information on the known or potential PFAS release areas identified for further investigation in the Preliminary Assessment, plans for further PFAS investigation, and information on drinking water testing.

Initial Site Inspections

In 2017, four areas at MCB Camp Lejeune and MCAS New River (Figure 1) were investigated for the presence of PFAS in the groundwater: two firefighting training areas (Sites 9 and 54); an area along the MCAS New River flight line containing one fire station and three aircraft hangars where fire equipment containing AFFF was stored and tested (Site 86); and a helicopter crash site where

AFFF was used during emergency response (Tactical Landing Zone Phoenix). Concentrations of PFOA and PFOS in the groundwater samples collected from Sites 9, 54, and 86 exceeded the EPA lifetime health advisory. PFOA and PFOS were not detected in the groundwater samples collected at the helicopter crash site above the EPA lifetime health advisory.

Basewide Preliminary Assessment/ Site Inspection

In 2018, MCB Camp Lejeune and MCAS New River initiated a basewide Preliminary Assessment to evaluate whether there were potential PFAS release areas in addition to those investigated in 2017. The objective of the Preliminary Assessment was to identify areas on the base where AFFF or other PFAS-containing materials may have been released to the environment. In addition to the areas previously investigated in 2017, 52 areas identified during the Preliminary Assessment are recommended for soil and/or groundwater sampling as part of a Site Inspection which is planned for late 2020 (Figure 1).

The 52 areas identified in the Preliminary Assessment for Site Inspection activities are summarized as follows:

- One firefighting training area where AFFF-containing crash crew trucks test equipment and conduct training
- 14 fire stations (or previous fire stations) where AFFF is stored, handled, and transferred into equipment
- Three hangars which use AFFF in their fire suppression systems
- Six emergency response locations where AFFF was used or reportedly used to extinguish a fire on base
- Two motor transport shops where AFFF-containing equipment is stored, repaired, and tested
- Seven spray testing areas where AFFF equipment was staged and tested
- Five wastewater treatment plants and associated sludge drying beds where AFFF could have been treated through discharges to sewers
- Seven landfills where AFFF storage containers or materials may have been disposed
- Four forward arming and refueling point training areas where AFFF-containing equipment was staged and used for training
- Three other areas where AFFF was released or reportedly released

Next Steps

The objective of the basewide Site Inspection, planned to begin in late 2020, is to evaluate the presence or absence of PFAS at the 52 areas identified in the Preliminary Assessment. Groundwater monitoring wells will be installed at these areas. Soil samples will be collected during well drilling activities and groundwater samples will be collected from existing and newly installed monitoring wells.

A Remedial Investigation is planned to gather more information on the location and concentration of PFAS contamination at Sites 9, 54, and 86 evaluated previously in the Initial Site Inspection. If sampling results for any of the additional 52 sites contain PFAS at levels which could pose unacceptable risks to human health, the site will also be included in the upcoming Remedial Investigation.

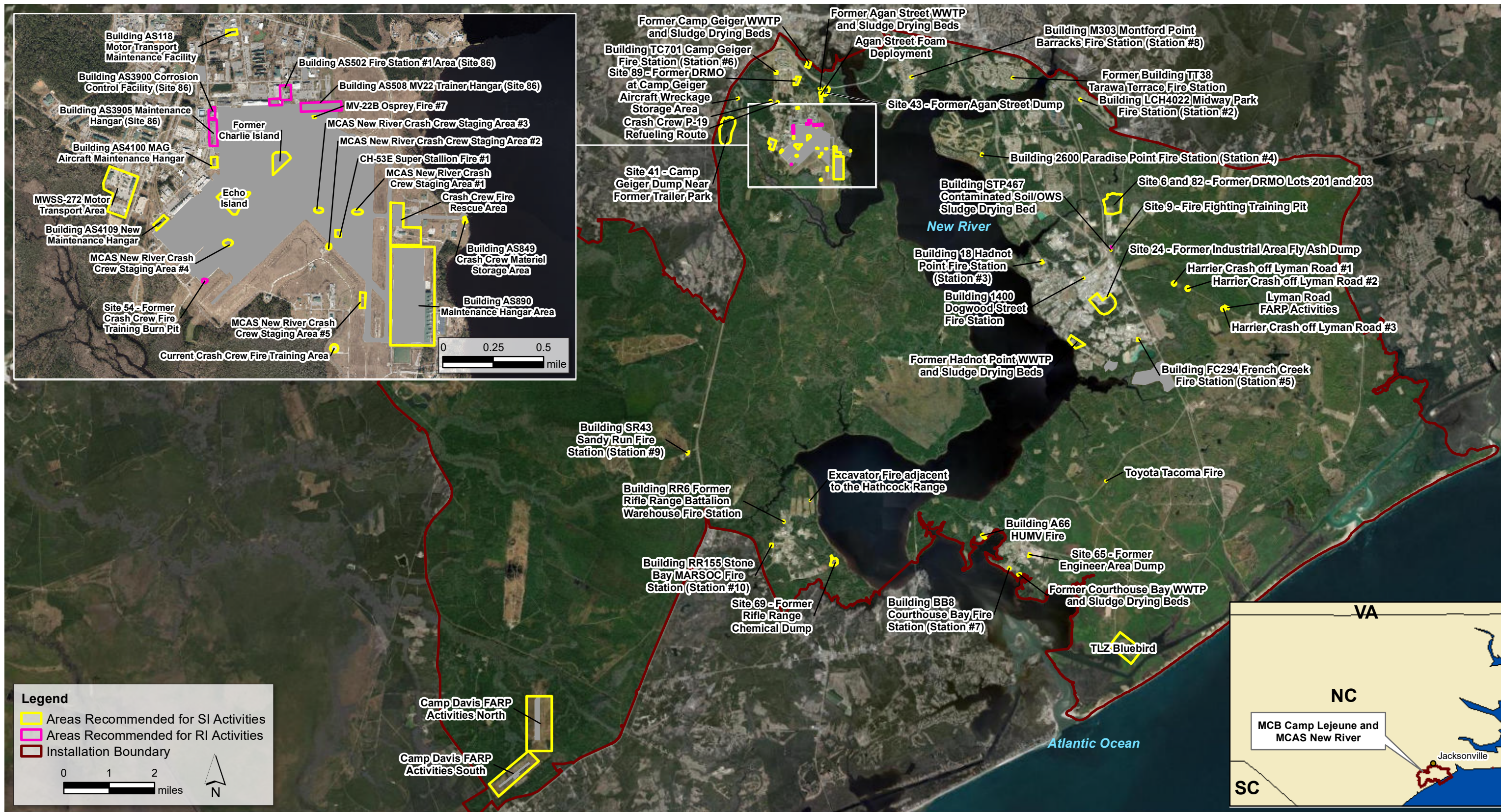


Figure 1 - Potential AFFF Release Sites at MCB Camp Lejeune and MCAS New River