

UNITED STATES MARINE CORPS

MARINE CORPS AIR STATION POSTAL SERVICE CENTER BOX 8003 CHERRY POINT, NORTH CAROLINA 28533-0003

IN REPLY REFER TO: 5090 FAC 17 Oct 2017



SUBJECT: DRINKING WATER SAMPLING IN THE VICINITY OF MARINE CORPS OUTLYING LANDING FIELD (MCOLF) ATLANTIC

Dear Sir or Madam:

The Department of the Navy (Navy) is offering to sample drinking water at your property, if you have a drinking water well located at , Parcel Number The Navy has developed a protective policy to address certain perand polyfluoroalkyl substances, commonly known as PFAS on and in the vicinity of installations which have known or potential releases of these compounds into the environment, including MCOLF Atlantic. These are compounds frequently found in fire-fighting foam (aqueous film forming foam (AFFF)) and various industrial and consumer products such as: non-stick cookware coating; waterresisting agent for clothes and mattresses; food packaging; and a variety of other uses in the aerospace, automotive, electronics, and other industries. We are not aware of any information indicating there are problems with your drinking water. offered testing is part of the Navy's response to the Department of Defense (DoD) concerns about PFAS.

The Environmental Protection Agency (EPA) classifies the chemicals the Navy is testing for, perfluorooctane sulfonate (PFOS) and perfluorooctanoic acid (PFOA) as unregulated, "emerging" contaminants, which are not subject to Safe Drinking Water Act regulatory standards or routine water quality testing requirements. The EPA is currently studying PFOS/PFOA to determine whether regulation is needed. The DoD and Navy programs are, however, based on current EPA advisories.

No known records indicate AFFF use at MCOLF Atlantic, but based on the Navy's policy protocol about the use of fire-fighting equipment and AFFF that may have occurred over the past 40 years, we tested the drinking water (groundwater) well at MCOLF Atlantic. The sampled water PFOS/PFOA levels were below detection limits—

indicating no impact to the groundwater from PFOS/PFOA. Even with those results, based on the Navy policy discussed above, and in an abundance of caution we are offering to test your drinking water well for PFOS/PFOA beginning in November 2017.

The Navy is committed to providing accurate information. There will be an Open House meeting on November 8, 2017 from 4 p.m. to 7 p.m. at Atlantic Elementary School on 151 School Drive in Atlantic, NC. In the meantime, please review the enclosures and information located online at https://go.usa.gov/xR6SX. To schedule testing of your drinking water, please call and leave a message at 1-877-MCOLF17 (626-5317).

Sincerely,

T. W. FERRY

Colonel, U.S. Marine Corps

Commanding Officer

- Enclosures: 1. Frequently Asked Questions
 - 2. Homeowner Ouestionnaire
 - 3. MCOLF Atlantic Drinking Water Investigation Fact Sheet
 - 4. United States Environmental Protection Agency Fact Sheet: PFOA & PFOS Drinking Water Health Advisories

PFOS/PFOA Drinking Water Sampling Frequently Asked Questions

How do I schedule the sampling? Property owners with a private drinking water within the designated sampling area can call the Navy at 1-877-MCOLF17 (626-5317) to schedule a sampling appointment. If you are on a community well, the Navy will request to sample the supply well at the distribution point.

How do I return the Homeowner Questionnaire? The questionnaire can be returned to the Navy at the Open House Public Meeting on November 8, 2017, 4 pm to 7 pm at Atlantic Elementary School located at 151 School Drive, Atlantic, NC 28511, or mailed to MCOLF Drinking Water Investigation, c/o CH2M, 5701 Cleveland Street, Suite 200, Virginia Beach, VA 23462 (using the self-addressed envelope). The questionnaire can also be completed and submitted on the MCOLF website https://go.usa.gov/xR6SX or emailed to NavyAtlanticWater@usmc.mil. Additionally, you may provide your response with your name, address, and telephone number by leaving voicemail at 1-877-MCOLF17 (626-5317).

What are the dates and times for sampling? The sampling will be conducted over several weeks from November 13-18, November 20-21, November 27-December 2, and December 4-9, 2017. Sampling appointments will be available between the hours of 9 am to 6 pm during the week, and 9 am to 1 pm on Saturdays. The sampling period may be extended as necessary. Accommodations can be made for property owners who may not be available during the regularly scheduled sampling times.

Who will be taking the sample? A team of two Navy-contracted professional environmental samplers will collect the sample. An adult resident (18 years of age or older) must be present during the sampling.

How long will the sampling take? The sampling will take approximately 30 minutes. The Navy representatives will take a sample from the closest spigot to your well, preferably from a spigot that does not receive any in-home treatment. If there is no outside access, the sample will be collected from a faucet in your home. The team will measure and record basic information about the water, and will review the homeowner questionnaire if completed.

When will I receive the results? The <u>preliminary</u> results of your drinking water sample are expected within 2 weeks from when the sample was collected. The Navy will provide private notification of your preliminary results:

- If your drinking water is found to contain PFOS and/or PFOA above the EPA health advisory levels, the
 Navy will contact you to make arrangements to provide an alternate water supply (e.g., bottled water) for
 drinking and cooking in your home until a long-term solution can be implemented.
- If your drinking water is found to contain PFOS and /or PFOA below the EPA health advisory levels, you
 will be contacted and informed of these results.

All preliminary result will be validated by an independent 3rd party. The validated sample results will be provided to homeowners via letter; additionally, this correspondence will invite homeowners to an Open House Public Meeting in early 2018 to review the sampling results and any potential future actions, if necessary.

Will my results be private? All results will be confidential to the greatest extent possible. You will receive your results and all references to results in official reports or in documents that will have a random number associated with your drinking water sample. Reports and documents will not contain your name or address. The Navy will not share any personal information that you provide, such as name, address, email, or phone number.

PFOS/PFOA Drinking Water Sampling Homeowner Questionnaire

If the drinking water consumed on your property comes from local groundwater (e.g., a private well, a community well), the Navy would like to sample drinking water to test for perfluorooctane sulfonate (PFOS) and perfluorooctanoic acid (PFOA).

If you do <u>not</u> have a drinking water well, please complete the questionnaire by marking "no" and return to the Navy. If your property uses local groundwater for drinking and cooking, please complete as much of the questionnaire as possible and return to the Navy. Completed forms can be returned to the Navy by:

- bringing it to the Open House Public Meeting,
- mailing it using the attached self-addressed envelope,
- completed online and submitted on the MCOLF website https://go.usa.gov/xR6SX
- emailed to <u>NavyAtlanticWater@usmc.mil</u>, or,
- leaving a voicemail at 1-877-MCOLF17 (626-5317) including your name, property address, and telephone number

Name and Address:
Do you have a private drinking water well? YES NO
Do you obtain your drinking water from a community well that serves more than one property? YES NO
(If YES, please let us know where that community well is located and provide contact information for the drinking water system operator:
Do you rent or own your property?RENT OWN Is there more than one home or apartment on this property? If yes, how many homes? How many apartments?
Do you share your private well water with other residents outside your property? YES NO
Do you have well construction information on your drinking water well (e.g. when it was installed, well depth, well location, and screen length)? YES NO If YES, please provide details (include construction log if available):
Have you upgraded your drinking water system in any way? If so please specify (e.g. storage tanks, water treatment).
Do you have more than one well (e.g. additional well for irrigation or livestock)?
Will you share your email address and phone number for future contact? YES NO
Email: Phone:

Please return this questionnaire to the Navy at the Open House Public Meeting or by mail using the attached self-address envelope. The questionnaire can also be completed and submitted on the MCOLF website https://go.usa.gov/xR6SX or emailed to NavyAtlanticWater@usmc.mil. Additionally, you may provide your response with your name, address, and telephone number by leaving voicemail at 1-877-MCOLF17 (626-5317).

MCOLF Atlantic Drinking Water Investigation Fact Sheet

October 2017

PFAS to determine if regulation is needed. In May 2016, the EPA released lifetime health advisory levels for two PFAS, specifically perfluorooctane sulfonate (PFOS) and perfluorooctanoic acid (PFOA). Health advisory levels are not regulatory standards. They are health-based concentrations which should offer a margin of protection for all Americans throughout their lives from adverse health effects resulting from exposure to PFOS and PFOA in drinking water. The EPA health advisory level for lifetime exposure is 70 parts per trillion (ppt) for PFOS and 70 ppt for PFOA. When both PFOS and PFOA are found in drinking water, the combined concentrations should not exceed 70 ppt.

NAVY POLICY

The Navy has developed a proactive policy to assess potentially impacted drinking water and eliminate exposure to PFOS and/or PFOA near installations where there were known or suspected releases of PFAS to the environment. Navy policy is to sample drinking water sources downgradient (in the direction of groundwater flow) from a suspected release of PFAS. Sampling in this area will allow the Navy to identify if our neighbors are exposed to PFOS and/or PFOA in drinking water above the EPA health advisory levels.

In September 2016, the drinking water at MCOLF Atlantic was sampled and analyzed for several PFAS. Even though no PFAS were detected in the on-base drinking water, we realize that this sample result does not mean that groundwater has not been impacted because of the groundwater aquifer characteristics and depth of the Navy supply well relative to the depth of private drinking water wells. As such, we are conducting this voluntary measure to ensure that past operations on the MCOLF have not impacted drinking water in private wells near MCOLF Atlantic.

Our first priority is to determine if PFOS and/or PFOA are present in groundwater when used as drinking water by nearby residents and take appropriate action. Once any current exposure from drinking water has been addressed, we will initiate the on-base investigation to determine contaminant source areas, assess the extent of contamination, evaluate the potential for risk, and develop appropriate response actions following federal environmental investigation guidance.

HEALTH INFORMATION

Exposure to PFOS and PFOA appears to be global. Studies have found both compounds in the blood samples of the general population. Studies on exposed populations indicate that PFOS and/or PFOA may cause 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. Evidence linking PFOS and/or PFOA with cancer is inconclusive.

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 PFOS and/or PFOA 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 PFOS and PFOA, it is recommended people not drink or cook with water that contains these compounds above the EPA's health-based levels.

ACTIONS BASED ON RESULTS

The preliminary results from the off-base drinking water sampling are expected within approximately 30 days after collecting the samples. The Navy will keep the results confidential to the extent permitted by law. We will notify the property owners of their personal drinking water results and follow-up actions if needed.

The Navy will provide an alternate water source, likely bottled water, for drinking and cooking for those individuals whose drinking water is found to contain PFOS and/or PFOA above health advisory levels. The Navy will continue to provide the alternate water source until a permanent solution can be implemented.

For more information, visit these websites:

https://go.usa.gov/xR6SX
www.secnav.navy.mil/eie/pages/pfc-pfas.aspx

If you have specific questions, contact the MCOLF Atlantic Public Affairs office at 1-877-MCOLF17 (1-877-626-5317) or email NavyAtlanticWater@usmc.mil.



Marine Corps Outlying Landing Field Atlantic, North Carolina

Drinking Water Investigation

October 2017

The Navy is requesting permission to sample drinking water from wells within designated areas near Marine Corps Outlying Landing Field (MCOLF) Atlantic. The Navy has developed a protective policy to assess past releases of per- and polyfluoroalkyl substances, commonly known as PFAS. These substances may be present in the soil and/ or groundwater at Navy sites as a result of historical firefighting activities using aqueous film forming foam (AFFF), including response to crashes, equipment testing, and training. Although no releases of AFFF have been reported at MCOLF Atlantic, the Navy is conducting this investigation in an abundance of caution due to the historical flight operations with emergency response equipment being present at MCOLF Atlantic that may have used AFFF. If PFAS are in the groundwater, there is the potential for these substances to also be present in private drinking water wells in the designated areas because of their proximity and location relative to the MCOLF Atlantic runway where AFFF may have been used in the past (Figure 1).

Out of concern for our neighbors and a desire to be proactive, the Navy is assessing potential exposure to certain PFAS compounds in drinking water before conducting the onsite environmental investigation for **PFAS at MCOLF Atlantic.** In the review of available records, the Navy has identified property parcels suspected to have drinking water wells within the designated sampling area (Figure 2). We are seeking the public's assistance to verify the presence of these drinking water wells. There is no legal requirement to conduct drinking water testing. It is a voluntary measure because water quality for our off-base neighbors is a priority for the Navy. The Navy is performing this drinking water sampling in coordination with partners such as U.S. Environmental Protection Agency (EPA) Region 4, Agency for Toxic Substances and Disease Registry Region 4, North Carolina Department of Health and Human Services, North Carolina Department of Environmental Quality, and Carteret County Health Department.

Figure 1



BACKGROUND

PFAS are manufactured chemicals that have been used since the 1950s in many household and industrial products because of their stain- and water-repellant properties. PFAS are now present virtually everywhere in the world because of the large amounts that have been manufactured and used. Once these compounds are released to the environment, they break down very slowly.

PFAS are "emerging" contaminants, which have no Safe Drinking Water Act regulatory standards or routine water quality testing requirements. The EPA is currently studying

If your preliminary results show that your drinking water contains PFOS and/or PFOA above the EPA health advisory, then the Navy will provide bottled water or an alternate water supply until a long-term solution is implemented.

MCOLF Atlantic Drinking Water Investigation Fact Sheet October 2017

Figure 2





Direction of Groundwater Flow MCOLF Atlantic – 1-mile zone

Site Boundary (suspected source)

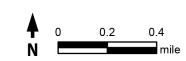
Base Boundary

Parcels

Suspected Vacant or Unknown

Property owned by the U.S. Government

Note: A private drinking water well is assumed to be present on all parcels within the sampling area.





FACT SHEET PFOA & PFOS Drinking Water Health Advisories



Overview

EPA has established health advisories for PFOA and PFOS based on the agency's assessment of the latest peer-reviewed science to provide drinking water system operators, and state, tribal and local officials who have the primary responsibility for overseeing these systems, with information on the health risks of these chemicals, so they can take the appropriate actions to protect their residents. EPA is committed to supporting states and public water systems as they determine the appropriate steps to reduce exposure to PFOA and PFOS in drinking water. As science on health effects of these chemicals evolves, EPA will continue to evaluate new evidence.

Background on PFOA and PFOS

PFOA and PFOS are fluorinated organic chemicals that are part of a larger group of chemicals referred to as perfluoroalkyl substances (PFASs). PFOA and PFOS have been the most extensively produced and studied of these chemicals. They have been used to make carpets, clothing, fabrics for furniture, paper packaging for food and other materials (e.g., cookware) that are resistant to water, grease or stains. They are also used for firefighting at airfields and in a number of industrial processes.

Because these chemicals have been used in an array of consumer products, most people have been exposed to them. Between 2000 and 2002, PFOS was voluntarily phased out of production in the U.S. by its primary manufacturer. In 2006, eight major companies voluntarily agreed to phase out their global production of PFOA and PFOA-related chemicals, although there are a limited number of ongoing uses. Scientists have found PFOA and PFOS in the blood of nearly all the people they tested, but these studies show that the levels of PFOA and PFOS in blood have been decreasing. While consumer products and food are a large source of exposure to these chemicals for most people, drinking water can be an additional source in the small percentage of communities where these chemicals have contaminated water supplies. Such contamination is typically localized and associated with a specific facility, for example, an industrial facility where these chemicals were produced or used to manufacture other products or an airfield at which they were used for firefighting.

EPA's 2016 Lifetime Health Advisories

EPA develops health advisories to provide information on contaminants that can cause human health effects and are known or anticipated to occur in drinking water. EPA's health advisories are non-enforceable and non-regulatory and provide technical information to states agencies and other public health officials on health effects, analytical methodologies, and treatment technologies associated with drinking water contamination. In 2009, EPA published provisional health advisories for PFOA and PFOS based on the evidence available at that time. The science has evolved since then and EPA is now replacing the 2009 provisional advisories with new, lifetime health advisories.

FACT SHEET PFOA & PFOS Drinking Water Health Advisories

EPA's 2016 Lifetime Health Advisories, continued

To provide Americans, including the most sensitive populations, with a margin of protection from a lifetime of exposure to PFOA and PFOS from drinking water, EPA established the health advisory levels at 70 parts per trillion. When both PFOA and PFOS are found in drinking water, the <u>combined</u> concentrations of PFOA and PFOS should be compared with the 70 parts per trillion health advisory level. This health advisory level offers a margin of protection for all Americans throughout their life from adverse health effects resulting from exposure to PFOA and PFOS in drinking water.

How the Health Advisories were developed

EPA's health advisories are based on the best available peer-reviewed studies of the effects of PFOA and PFOS on laboratory animals (rats and mice) and were also informed by epidemiological studies of human populations that have been exposed to PFASs. These studies indicate that exposure to PFOA and PFOS over certain levels may result in adverse health effects, including developmental effects to fetuses during pregnancy or to breastfed infants (e.g., low birth weight, accelerated puberty, skeletal variations), cancer (e.g., testicular, kidney), liver effects (e.g., tissue damage), immune effects (e.g., antibody production and immunity), thyroid effects and other effects (e.g., cholesterol changes).

EPA's health advisory levels were calculated to offer a margin of protection against adverse health effects to the most sensitive populations: fetuses during pregnancy and breastfed infants. The health advisory levels are calculated based on the drinking water intake of lactating women, who drink more water than other people and can pass these chemicals along to nursing infants through breastmilk.

Recommended Actions for Drinking Water Systems

Steps to Assess Contamination

If water sampling results confirm that drinking water contains PFOA and PFOS at individual or combined concentrations greater than 70 parts per trillion, water systems should quickly undertake additional sampling to assess the level, scope and localized source of contamination to inform next steps

Steps to Inform

If water sampling results confirm that drinking water contains PFOA and PFOS at individual or combined concentrations greater than 70 parts per trillion, water systems should promptly notify their State drinking water safety agency (or with EPA in jurisdictions for which EPA is the primary drinking water safety agency) and consult with the relevant agency on the best approach to conduct additional sampling.

Drinking water systems and public health officials should also promptly provide consumers with information about the levels of PFOA and PFOS in their drinking water. This notice should include specific information on the risks to fetuses during pregnancy and breastfed and formula-fed infants from exposure to drinking water with an individual or combined concentration of PFOA and PFOS above EPA's health advisory level of 70 parts per trillion. In addition, the notification should include actions they are taking and identify options that consumers may consider to reduce risk such as seeking an alternative drinking water source, or in the case of parents of formula-fed infants, using formula that does not require adding water.

FACT SHEET PFOA & PFOS Drinking Water Health Advisories

Recommended Actions for Drinking Water Systems, continued

Steps to Limit Exposure

A number of options are available to drinking water systems to lower concentrations of PFOA and PFOS in their drinking water supply. In some cases, drinking water systems can reduce concentrations of perfluoroalkyl substances, including PFOA and PFOS, by closing contaminated wells or changing rates of blending of water sources. Alternatively, public water systems can treat source water with activated carbon or high pressure membrane systems (e.g., reverse osmosis) to remove PFOA and PFOS from drinking water. These treatment systems are used by some public water systems today, but should be carefully designed and maintained to ensure that they are effective for treating PFOA and PFOS. In some communities, entities have provided bottled water to consumers while steps to reduce or remove PFOA or PFOS from drinking water or to establish a new water supply are completed.

Many home drinking water treatment units are certified by independent accredited third party organizations against American National Standards Institute (ANSI) standards to verify their contaminant removal claims. NSF International (NSF®) has developed a protocol for NSF/ANSI Standards 53 and 58 that establishes minimum requirements for materials, design and construction, and performance of point-of-use (POU) activated carbon drinking water treatment systems and reverse osmosis systems that are designed to reduce PFOA and PFOS in public water supplies. The protocol has been established to certify systems (e.g., home treatment systems) that meet the minimum requirements. The systems are evaluated for contaminant reduction by challenging them with an influent of $1.5\pm30\%$ µg/L (total of both PFOA and PFOS) and must reduce this concentration by more than 95% to 0.07 µg/L or less (total of both PFOA and PFOS) throughout the manufacturer's stated life of the treatment system. Product certification to this protocol for testing home treatment systems verifies that devices effectively reduces PFOA and PFOS to acceptable levels.

Other Actions Relating to PFOA and PFOS

Between 2000 and 2002, PFOS was voluntarily phased out of production in the U.S. by its primary manufacturer, 3M. EPA also issued regulations to limit future manufacturing, including importation, of PFOS and its precursors, without first having EPA review the new use. A limited set of existing uses for PFOS (fire resistant aviation hydraulic fluids, photography and film products, photomicrolithography process to produce semiconductors, metal finishing and plating baths, component of an etchant) was excluded from these regulations because these uses were ongoing and alternatives were not available.

In 2006, EPA asked eight major companies to commit to working toward the elimination of their production and use of PFOA, and chemicals that degrade to PFOA, from emissions and products by the end of 2015. All eight companies have indicated that they have phased out PFOA, and chemicals that degrade to PFOA, from emissions and products by the end of 2015. Additionally, PFOA is included in EPA's proposed Toxic Substance Control Act's Significant New Use Rule (SNUR) issued in January 2015 which will ensure that EPA has an opportunity to review any efforts to reintroduce the chemical into the marketplace and take action, as necessary, to address potential concerns.

FACT SHEET PFOA & PFOS Drinking Water Health Advisories

Other Actions Relating to PFOA and PFOS, continued

EPA has not established national primary drinking water regulations for PFOA and PFOS. EPA is evaluating PFOA and PFOS as drinking water contaminants in accordance with the process required by the Safe Drinking Water Act (SDWA). To regulate a contaminant under SDWA, EPA must find that it: (1) may have adverse health effects; (2) occurs frequently (or there is a substantial likelihood that it occurs frequently) at levels of public health concern; and (3) there is a meaningful opportunity for health risk reduction for people served by public water systems.

EPA included PFOA and PFOS among the list of contaminants that water systems are required to monitor under the third Unregulated Contaminant Monitoring Rule (UCMR 3) in 2012. Results of this monitoring effort are updated regularly and can be found on the publicly-available National Contaminant Occurrence Database (NCOD) (https://www.epa.gov/dwucmr/occurrence-data-unregulated-contaminant-monitoring-rule#3). In accordance with SDWA, EPA will consider the occurrence data from UCMR 3, along with the peer reviewed health effects assessments supporting the PFOA and PFOS Health Advisories, to make a regulatory determination on whether to initiate the process to develop a national primary drinking water regulation.

In addition, EPA plans to begin a separate effort to determine the range of PFAS for which an Integrated Risk Information System (IRIS) assessment is needed. The IRIS Program identifies and characterizes the health hazards of chemicals found in the environment. IRIS assessments inform the first two steps of the risk assessment process: hazard identification, and dose-response. As indicated in the 2015 IRIS Multi-Year Agenda, the IRIS Program will be working with other EPA offices to determine the range of PFAS compounds and the scope of assessment required to best meet Agency needs. More about this effort can be found at https://www.epa.gov/iris/iris-agenda.

Non-Drinking Water Exposure to PFOA and PFOS

These health advisories only apply to exposure scenarios involving drinking water. They are not appropriate for use, in identifying risk levels for ingestion of food sources, including: fish, meat produced from livestock that consumes contaminated water, or crops irrigated with contaminated water.

The health advisories are based on exposure from drinking water ingestion, not from skin contact or breathing. The advisory values are calculated based on drinking water consumption and household use of drinking water during food preparation (e.g., cooking or to prepare coffee, tea or soup). To develop the advisories, EPA considered non-drinking water sources of exposure to PFOA and PFOS, including: air, food, dust, and consumer products. In January 2016 the Food and Drug Administration amended its regulations to no longer allow PFOA and PFOS to be added in food packaging, which will likely decrease one source of non-drinking water exposure.

Where Can I Learn More?

- EPA's Drinking Water Health Advisories for PFOA and PFOS can be found at: https://www.epa.gov/ground-water-and-drinking-water/drinking-water-health-advisories-pfoa-and-pfos
- PFOA and PFOS data collected under EPA's Unregulated Contaminant Monitoring Rule are available: https://www.epa.gov/dwucmr/occurrence-data-unregulated-con taminant-monitoring-rule
- EPA's stewardship program for PFAS related to TSCA: <a href="https://www.epa.gov/assessing-and-managing-chemicals-under-tsca/and-polyfluoroalkyl-substances-pfass-under-tsca
- EPA's research activities on PFASs can be found at: http://www.epa.gov/chemical-research/
- The Agency for Toxic Substances and Disease Registry's Perflourinated Chemicals and Your Health webpage at: http://www.atsdr.cdc.gov/PFC/

