

Department of the Navy (DON)
Perfluorinated Compounds (PFCs)
Comprehensive Strategy
Version 1, 31 Mar 2016

BLUF: Perfluorinated Compounds (PFCs) are a suite of chemicals of emerging public health concern to the U.S. Environmental Protection Agency (EPA), state regulators, public water systems, and the general public, primarily in drinking water systems. This strategy addresses PFCs in drinking water, the environmental restoration program (on and off installation), acquisition, firefighting, and facilities management and medical policy. DON policies, positions, and messages are aligned throughout the Department and with the Office of the Secretary of Defense.

Define the Problem: What are PFCs, where are they found, and why is there a concern.

Comment [RGM1]: This information is contained in many other documents and would be too much to add to an ASN level strategy.

Communications:

Need 1: DON repository of Communication Plans and supporting FAQs, Q&As, fact sheets, PAGs, and outreach material (internal and external [EPA and ATSDR]). We need to be accurate, consistent, transparent, and efficient.

- Where to store this info?
- Who maintains?
- Who has access?

Comment [NMCPHC2]: A Tri-Services Toxicology Consortium (TSTC) working group has been formed to coordinate messages across DoD

Response: we are working all PAO issues through CHINFO as the lead for DON and the other organization PAOs. I am not aware of the TSTC. Can you provide more info and POCs?

Need 2: Standardized chain of command review/approval lines for media inquiries, CODEL requests, leadership briefings/testimony.

- DASN (E) approval authority for policy decisions and new responses.
- Integrate into repository of FAQs, Q&As, etc. above to ensure everyone answers routine, similar, repeat questions consistently and efficiently.

Existing Policies and Guidance:

- DASN(E): Perfluorinated Compounds (PFCs) – An Emerging Environmental Issue, 21OCT14
- USMC: Sampling and Testing for Perfluorinated Compounds (PFCs) in Drinking Water, 12DEC14
- NAVFAC: Perfluorinated Compounds (PFCs) Interim Guidance/Frequently Asked Questions (FAQs), 29JAN15)
- OPNAV N45: Navy Drinking Water Sampling Policy for Perfluorochemicals Perfluorooctane Sulfonate and Perfluorooctanoic Acid, 14SEP15
- BUMED Memo 6280 Ser M3B7/15UM30462, 24DEC15, –Testing for Perfluorinated Perfluorochemicals Compounds (PFCs) in Drinking Water, 24DEC15
- DoDIs 4715.06, 4715.07 and 4715.18, DoDM 4715.20
- Air Force SAF/IEE: AFFF Disposal and Replacement – Crash Response Vehicles, 9MAR16

Drinking Water:

- DON complied with the third Unregulated Contaminant Monitoring Rule (UCMR3) sampling requirements in the U.S. Under UCMR3, DON tested drinking water at 19 Navy and seven USMC installations with no exceedance of the Provisional Health Advisory (PHA) levels for PFOA or PFOS.
- DASN(E) policy required testing at additional locations in the U.S. if there was a known or suspected release of PFCs within about a mile upgradient of the source water. Navy sampled 10 installations, with Naval Auxiliary Landing Field (NALF) Fentress in Chesapeake, VA as the only installation with an exceedance of the PHA. USMC sampled one installation with no PHA exceedances.
- DASN(E) policy also required testing at all overseas locations. USMC completed testing at four locations with no PHA exceedances. Navy sampling underway. All compiled sample results expected by May 2016.
- DON policy is to utilize the PHA values for drinking water as if they were a regulatory standard and provide alternative water to personnel on base for drinking and cooking if the PHA is exceeded. When/if final health advisory (HA) values or Safe Drinking Water Act (SDWA) regulatory standards (e.g. maximum contaminant levels (MCLs)) are established, these will replace the PHA action levels. DON will also comply with any State standards that are properly promulgated and used within the State.
- A looming question posed by DON leadership is “can we say now that all of our personnel on base are provided water without PFCs above an action level?” Since not every installation has sampled for PFCs under the SDWA, UCMR, or DON policy, the answer has to be no. To determine the universe of sites where this question cannot be answered, DASN(E) will request from Navy and USMC a list of installations under the following categories:
 - DON water system sampled under UCMR
 - DON water system (including overseas) sampled under DON policy
 - DON purchased water from off installation where Public Water System (PWS) sampled under UCMR
 - DON water system not sampled
 - DON purchased water from off installation where PWS not sampled

Comment [NMCPhC3]: Has the purchased water been sampled for PFOA, PFOS, or other PFCs?

Response: This bullet states this water was tested under the UCMR. Not sure what else is being asked.

Environmental Restoration Program:

- DON is following policy/guidance in DoDI 4715.07, DoDM 4715.20, DoDI 4715.18, and Navy Environmental Restoration Program (NERP) Manual to conduct Defense Environmental Restoration Program (DERP) response actions for PFCs, consistent with any other contaminant. No additional policy is required to address PFC releases under DERP, however DASN(E) plans to issue the direction below to efficiently complete a comprehensive inventory of potential release sites across DON.
- NOTE: OSD responded to a reporter’s question and in December 2015 released a list of 664 fire or crash training sites (DERP sites identified in KBCRS database) throughout DoD. Of the 664 sites, 143 are identified as DON sites. Fire and crash sites are just one category of potential PFC release sites, so this list is not complete for DON or DOD.
- A more extensive internal DON inventory review considering additional PFC release categories has identified 267 known or suspected PFC release sites to date, including the 143 identified by OSD. The following actions are underway/planned:

- Complete compilation/verification of active installation (funded with Environmental Restoration – Navy (ER,N)) and Base Realignment and Closure (BRAC) location PFC site inventories. (Kim and Lawrence)
- Finalize list of categories where PFCs may have been used/or and released. (Kim)
- Need to further identify additional known or suspected releases of PFCs on active installation and BRAC locations. Since conducting CERCLA preliminary assessments is costly and time consuming, DASN(E) will be issuing direction to quickly and cost effectively identify all (~95-99% solution) known or suspected PFC release sites. DASN (E) will disseminate the existing lists of DERP sites and PFC release categories to CNIC and USMC who will conduct facility-wide reviews to identify additional potential DERP sites to “assess”.
- Funding:
 - Conduct all investigations, removal, and remedial actions using ER,N or BRAC funding.
 - Address all off-installation contaminant migration, including provision of alternative water, where appropriate, using ER,N or BRAC funding.
 - Do not use ER,N funding to provide alternative water on an installation (e.g., NALF Fentress) or to install, operate, or test drinking water treatment systems. These on-installation drinking water systems must meet all SDWA and DON policy requirements. USMC will fund using local O&M/base operating funds, with support from higher HQ as required. Navy will require funding by the drinking water system facility maintenance owner.
- Prioritization: — all known or suspected PFC release sites will need to be assessed to determine whether they require further DERP response actions. **The number one objective is to identify sites with likely/potential direct exposure via DON-caused contamination reaching public or private drinking water supplies so that the exposure can be eliminated.** The following prioritization hierarchy should be used to assess each installation/site, taking into account site-specific circumstances.
 - Each installation shall identify known or suspected PFC release sites, determine known or likely groundwater flow direction, and identify potential drinking water exposure pathways (e.g., public or private drinking water wells) within approximately 1-mile down gradient. In coordination with the installation cleanup team (team composition and designations vary but normally include NAVFAC project manager, State regulator, and sometimes EPA regulator), these exposure pathways/drinking water sources shall be investigated, and if levels exceed thresholds (e.g. PHA levels), eliminate the water consumption pathway (e.g., provide alternative water) for drinking and cooking.
 - Remaining sites shall be prioritized for assessment, investigation, and remediation (if needed) in coordination with the cleanup teams for each installation. Factors to consider are:
 - Groundwater designation (e.g. beneficial or non-beneficial use)
 - Property ownership (e.g., DON owned or transferred)
 - For BRAC, timeframe for anticipated future property transfers
 - Potential for other potentially responsible parties
- Completion of all DERP response actions will be a multi-year process similar to any other contaminated site.

Comment [NMCPHC4]: “reduced or...” ?

Response: will change to eliminate “unacceptable” exposure.

Comment [NMCPHC5]: Note if they use this water source for other consumptive purposes such as oral hygiene, showering, cooking, as some fire stations do, we are not eliminating all exposure pathways. The Tri-Services Toxicology Consortium (TSTC) work group addressed in NMCPHC2 have briefly discussed these and other pathways.

Response: Understand, but until more is known, what else are you recommending we do now?

Technology:

To support our drinking water and cleanup programs, we plan to consolidate information on the state of technology and research and development investments being made regarding:

- Drinking water treatment technologies
- Groundwater treatment technology for both in-situ and ex-situ implementation
- Soil treatment technologies for on site
- Off-site disposal of soil or other contaminated media

Specific Installations:

To date, two BRAC and two active installations have been at the forefront of the PFC issue due to PFC being detected in public and/or private drinking water wells on or near these installations. Each installation has generated a lot of material, fact sheets, PAGs, Q&As, etc. The four locations and their established web links are:

- Warminster:
http://www.bracpmo.navy.mil/brac_bases/northeast/former_warfare_center_warminster.html
- Willow Grove:
http://www.bracpmo.navy.mil/brac_bases/northeast/reserve_base_willow_grove.html
- Fentress:
http://www.cnmc.navy.mil/regions/cnrma/installations/nas_oceana/om/environmental_support/NALE_fentress_drinking_water.html
- Earle:
http://www.cnmc.navy.mil/regions/cnrma/installations/nws_earle/om/environmental_support/nws_earle_msc_ffs_drinking_water.html

Health Studies and Medical Testing:

- Many requests are being made to conduct health studies where there is contamination on site or in drinking water; however, the desired outcomes of the requested studies are not always clear.
- ~~Health studies cannot determine whether an individual's exposure to past PFC contaminated water has caused or will/may cause specific adverse health effects in the future. The public has been exposed to PFCs for many years as PFCs are in many consumer products (e.g., non-stick cookware, microwave popcorn bags, stain resistant carpet, etc.). There are also many other confounding factors (e.g., other chemical exposures, smoking, etc.) that cause similar adverse health effects and thus preclude the ability to determine a conclusive cause and effect for an individual.~~
- DON is investing funds proactively to eliminate exposures from DON releases, as discussed above.
- ~~BUMED's policy recommends not sampling individual's blood is:~~
 - ~~Healthcare providers should perform routine diagnostic or screening tests as medically indicated, based on their patients' history, physical examination, and assessment, and not based on PFOS/PFOA levels.~~

Comment [RGM6]: This bullet will remain in this strategy.

- Blood testing for PFOS/PFOA is not medically necessary. While blood tests can measure the level of PFCs in person's body at the time of the test, the blood tests cannot identify the source of the PFCs.
- Providers should advise patients: That there are many sources of PFCs in a person's living and working environment, and that health studies have not consistently found any specific health effects from exposure to PFCs. Also that there are no medically approved "treatments" or methods to remove PFCs from a person's body other than to decrease total exposure and allow the levels to decrease through natural elimination.
- ATSDR has guidance on health studies. Will want to summarize and reference.
- **Need to develop a unified DON/DoD position, plan, statement, etc. to address this matter.**

Comment [NMCPhC7]: We are not aware of the specific ATSDR guidance addressed. ATSDR publication on PFOAs indicated that the health effects are still under study.

From:

http://www.atsdr.cdc.gov/pfc/health_effects_pfc.html

"More research is needed to confirm or rule out possible links between health outcomes and exposure to PFCs and to quantify the associated dose-response relationships. Overall, the scientific evidence linking PFC exposures with specific health effects in people is mixed and inconclusive."

Response: will expand.

Aqueous Film Forming Foam (AFFF):

The DoD Emerging Contaminants Governance Council (ECGC) issued a policy memorandum on January 28, 2016 that specifies:

- The Military Services will:
 - Issue Service-specific risk management procedures to prevent uncontrolled land-based releases of AFFF during maintenance, testing, and training activities.
 - Where and when practical to do so, remove and properly dispose of PFOS-based AFFF from the local stored supplies for non-shipboard use to prevent future environmental response action costs. Focus on removing and replacing known PFOS-based AFFF in unopened drums/can versus AFFF already loaded into systems tanks/bladders. PFOS-free AFFF is available on the DoD Qualified Products List.
- DLA will support the Services risk management actions to include AFFF procurement strategies and inventory assessment.
- The DoD Strategic Environmental Research and Development Program will issue a Statement of Need to initiate research to develop a fluorine-free AFFF.

Proposed elements for ASN(EIE) policy to meet these DoD directions are:

- Require Best Management Practices (BMPs)/containment for all AFFF storage and system applications. This includes HAZMAT/supply areas, mobile equipment, training locations, fixed flooding systems, etc.
- Require replacement and proper disposal of all AFFF containing PFOA or PFOS, as follows:
 - All partial and full containers of material within 6 months
 - All mobile firefighting and crash response vehicles within 12 months
 - All fixed and training systems without complete containment and disposal BMPs in place within 18 months
 - All fixed and training systems without complete containment and disposal BMPs in place within 36 months
 - All shipboard systems during next availability, but no later than 60 month
- Require assessment of the availability of PFOA/PFOS-free AFFF products on QPL-24385.

- Require guidance/information be provided for purchasers and end users for ordering PFOA/PFOS-free AFFF products on QPL-24385 via NAVMSG, Advisory, other (advanced change notice to MIL-SPEC; applicable Tech. Manuals, etc.).
- Require cancellation of national stock numbers (NSNs) (or other) for all PFOA/PFOS containing AFFF products on the QPL-24385 by [future date certain].