

Additional Technical PFC Comments (NAVSEA and NAVFAC)

NAVSEA 05P Comments and Concerns:

To the extent possible, SEA 05P gathered input from the Program Offices and the TYCOMs for Carriers, Surface Ships and Submarines.

1. The DoD ECGS policy addresses only PFOS-based AFFF and requires action relative to PFOS-based AFFF only, whereas the DON draft proposal has actions relative to PFOA-based AFFF as well. PFOS-based AFFF was manufactured only by 3M and they ceased production in 2001/2002. Nearly all AFFF produced since then is PFOA-based. So the impacts are greatly expanded within all DON by adding PFOA-based AFFF to the draft proposal.
2. The DoD ECGS policy specifically did not address shipboard systems or material, however the DON draft proposal includes ships. Navy ships do not discharge AFFF while pier side except for **a small amount of testing during construction**, where the discharge is collected and properly disposed of, or an occasional inadvertent release to the water while in port. **Intentional ship discharges only occur during testing conducted at sea beyond 12nm or during an actual fire.** Concerns for groundwater and drinking water contamination ashore have led to the requirements in the DON draft proposal, however Navy ships are not a source of groundwater/drinking water contamination and that should be considered in the decision to include Navy ships in the DON policy.
3. The draft DON proposal states to assess the availability of PFOA/PFOS-free AFFF products on the QPL.
There is no standard definition of what "PFOA-free" means. How many ppm or ppb are acceptable?
NAVSEA contacted 3 MIL-spec AFFF vendors that were recently qualified (Oct 2015 to present). All of them stated that they meet the goals of the EPA 2010/2015 PFOA stewardship program. None of them claim to have a PFOA-free product. All stated that there is some trace amount of PFOA present in their product even with a C6 based fluorosurfactant, and that all C6 based AFFFs will have some trace amount of PFOA.
The EU is also considering limits on PFOA. The current proposed limit is 25 ppb for all products containing PFOA, with the exception of 1000 ppb for firefighting foams.
4. Before or concurrent with issuing any policy, DLA needs to be directed to cancel current AFFF contracts and establish new contracts with deliverable dates for new AFFF that support the actions in the policy. (Note previous comment that recently qualified AFFFs are not PFOA-free) Other military services are also taking actions and there will be competition between the services for DLA stock.
5. The draft DON proposal states that all partial and full containers shall be replaced within 6 months, and shipboard systems within 60 months. The starting point for replacement needs to consider when DLA will be stocked with new formulations and can handle the surge of requests.

For shipboard material in cans and drums, 6 months is too short considering some ships are deployed. 12 months is more reasonable.

For shipboard systems, there also needs to be adequate planning for the change out, especially if extensive cleaning and flushing will be required. 5 years is not sufficient time to accomplish this, a minimum of 6 years is required. We are working with the program offices to identify a better time frame.

Some ships, especially forward deployed or those that don't go into long shipyard availabilities in this timeframe, may not be able to perform the change out within the specified time frame. There needs to be a waiver process for those ships.

6. It is uncertain if cleaning and flushing of shipboard tanks and systems should be required. Cleaning and flushing will generate additional HAZMAT that must also be disposed of. How will it be determined and who will determine whether or not cleaning/flushing is required? If cleaning/flushing must be done, to what extent? Will only wet piping require cleaning/flushing or dry pipe also? Will valves need to be removed, and rebuilt with new gaskets and soft parts? Special procedures will need to be developed for each class of ships as there currently are no procedures for this. Even with the best procedures, the systems cannot be fully drained, we know this from experience with the AFFF biocide testing done many years ago and recent CVN-78 AFFF work. We recommend cleaning/flushing not be required for ships. Even with repeated flushing, some of the old AFFF will still remain in the piping and a film will remain on the pipe walls.

7. Costs will be significant and no funding has been identified. This has not been planned or POM'd for.

Total shipboard AFFF quantity in 5 or 55 gallon containers and ships tanks is approximately 800,000 gallons. A 55 gallon drum of 3% AFFF from DLA currently costs \$1525 (6% is \$1258).

Disposal as HAZMAT depends on the concentration – AFFF concentrate is more expensive to dispose of than AFFF solution (concentrate plus water). When testing AFFFs, NRL typically pays \$30K for disposal of 5,000 gallons of AFFF/fuel/water mix. The price is higher when the mix contains a greater amount of AFFF.

In 2014, disposal costs for 3% AFFF concentrate were quoted as \$750 for a 55 gallon drum and \$125 for a 5 gallon can.

As an example, an LHD has six 2000 gallon tanks of concentrate for immediate use, plus over 2000 gallons in drums and cans; approximately 2500 feet of wet piping ranging in size from 1.5 inch to 8 inch, and approximately 5000 gallons of wet piping volume. A DDG has two 600 gallon tanks of concentrate for immediate use, over 600 gallons in drums and cans; approximately 800 feet of wet piping, and 800 gallons of wet piping volume.

Disposal procedures will need to be developed, such as contracts in place to deliver containers for collection, removal and destruction.

Labor hours to plan, schedule, and accomplish (ISEA through fleet level) will be significant and need to be considered and funded.

8. While the request was to provide comments on the DON proposal, we note that the DoD ECGS Policy states that the DoD SERDP will issue a Statement of Need (SON) for research to develop a fluorine-free

AFFF. This is not correct. The SON was to develop a fluorine-free surfactant, not a finished AFFF product. The surfactant is only one component of AFFF. The SON is ambiguous in that the title and content do not match, and as written could lead to delays in this effort.

9. For new construction ships, this would require a specification and contract change at significant expense to the program. At least in the near term, programs will likely push this change out to sometime post-delivery and do it as a separate work item, rather than have the builder accomplish at additional expense. We are aware that some shipbuilders have a stockpile of AFFF concentrate for current construction projects.

NAVSEA AFFF systems and MIL-F-24385 POCs:

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NAVFAC MIDLANT Technical Comments

1. The generic use of PFCs is somewhat worrisome. RPMs need to understand PFCs are a large group of chemicals, not just the 6 sampled on the UCMR3 list. Since 'PFCs' now includes over 100 compounds - a general statement indicating 'recent research indicates over 100 PFCs (which are strictly anthropogenic) have been identified in the environment should be noted in the strategy.
2. Suggest the consideration for other routes of exposure (specifically eco [ingestion of animals with PFCs since they bioaccumulate]). BTAG is furiously working on establishing eco screening values. Maybe some sort of statement indicating 'As screening values are established for other routes of exposure, new guidance/policies will be established?' We have been able to 'fend' off other routes of exposure to date by simply stating Navy policy only allows me to address direct ingestion of drinking water by human consumption - but I'm pretty sure this will not be sufficient to address the Fentress community and BTAG in the near future.
3. Strategy should note that EPA is pushing to investigate metal plating facilities for PFCs, possibly including the potential 'PFCs' associated with the metal plating suppressants (that contain PFCs) that are assumed to be present in discharges, sludges, etc.
4. In regards to Fentress, the RPM has been repeatedly asked where the treatment systems (water treatment plant and wastewater treatment lagoon) sludges, filter backwash, etc have been disposed in the past (to see if these disposal areas would have contaminated groundwater/drinking water in another location). This is yet another reason that it is so important the RPM needs to completely understand the entire PFC CSM for the base (which includes contaminant source area, migration pathways, lithology, points of extraction, septic tank locations (on and off base) any treatment facilities, and ultimate disposal of sludges/backwash water from these treatment facilities, etc).

5. Recommend that the Navy's approach to monitor a residence if PFCs are detected below federal or state (P)HAs should be changed for the following reasons:
 - a. The level measurement of these compounds is in the parts per trillion which is extremely low. The criteria to monitor a location if below the (P)HA action level but above 25% of this level means we are looking at concentrations that are even lower and sometimes we may be taking action on spurious analytical results. In addition, to monitor (i.e. return to a residence to sample quarterly) means we may be elevating a concern for a resident when results are not indicative of a need for concern (i.e., we should perhaps look at this action from the resident's view point instead of the Navy's perspective of being protective).
 - b. The PFCs we are looking for are very common in the environment and their presence in a resident's drinking water may not be directly attributable to a Navy source. If we find PFCs that are at low concentrations, we may be monitoring a source local to the resident's well and not part of a Navy-sourced plume. The decision to return to sample a residence should be deferred until the site source investigation progresses and the CSM is built, thus allowing for informed decisions as to the area to monitor.
6. The science of PFC fate and transport is evolving and it is unclear if some PFCs detected in groundwater are directly attributable to AFFF chemistry (e.g., PFNA). Recommend a desk top study of literature to allow making informed DON decision(s) as to which PFCs are directly related to AFFF chemistry and then action decisions can be made on specific compounds.
7. As the States and EPA move forward with looking at the full suite of PFCs, it may be beneficial to know which PFCs are directly attributable to past use of the foam and thus are likely Navy-sourced. Such a study may (or may not) prevent the expenditure of Navy funds in addressing a contaminant not related to Navy actions.

NAVFAC HQ Comments

1. There are numerous aspects/actions (drinking water systems, clean up of suspected/contaminated sites, acquisition, firefighting, and facilities management) concerning the phase out of PFOA/PFOS based AFFF. Inventory assessment of building systems unknown. Recommendation to consider issuing Navy (ASN/OPNAV) TV-5 tasker to collect comprehensive data involving acquisition, firefighting, and facilities management aspects of policy implementation. Significant disposal costs anticipated.
2. ASN (FM&C) - Financial Management and Comptroller should review this strategy.