

Senate Environment and Public Works Committee

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Chairman Barrasso, Ranking Member Carper and distinguished members of the Committee. Thank you for the opportunity to discuss DoD's actions related to perfluorinated chemicals.

Background:

Perfluoroalkyl substances (PFAS) refers to the entire class of poly- and per-fluorinated alkyl substances, of which perfluorooctane sulfonate (PFOS) and perfluorooctanoic acid (PFOA) are the most well-studied substances. These substances are ubiquitous in many industrial and consumer products because they increase a product's resistance to heat, stains, water, and grease. As such, they are not uniquely attributable to Department of Defense (DoD) activities. The Interstate Technology and Regulatory Council (ITRC) determined three to six percent of the perfluorooctanyl chemicals produced were used as firefighting foam.¹ Of this percentage, DoD is only one of many users of Aqueous Film Forming Foam (AFFF), which also includes commercial airports, the oil and gas industry, and local fire departments. The remaining perfluorooctanyl chemicals produced were used in the following industrial and consumer applications: approximately 41 percent for paper and packaging protectors; 36 percent for textiles, leather and carpet treatment, and fabric protection; and 19 percent for industrial surfactants, additives, and coatings. Perfluorooctanyl chemicals are used in electroplating and etching, household additives, insecticides, and other applications.

DoD's limited use of PFAS started in the 1970s, with the introduction of AFFF for aircraft fuel fire-fighting purposes. Current sales of AFFF may contain PFOS and, in some formulations, PFOA. AFFF is mission-critical because it quickly extinguishes petroleum-based fires, which is why the Federal Aviation Administration also adopted its use at airports nationally. AFFF containing PFOS, other than in potential trace amounts, is no longer manufactured or available for purchase in the United States, although legacy stocks of these AFFF remain.

On May 19, 2016, the EPA issued Safe Drinking Water Act (SDWA) lifetime health advisories (LHA) recommending individual or combined levels of PFOS and PFOA concentrations in drinking water be below 70 parts per trillion. While the LHA is non-regulatory

¹ The Interstate Technology and Regulatory Council (ITRC) analysis is based on a 3M July 7, 2000 letter to the U.S. Environmental Protection Agency Office of Prevention, Pesticides and Toxic Substances on 3M Phase-Out plan for perfluorooctane sulfonyl fluoride (POFS) based products. This analysis does not include PFOA produced by 3M or PFOS/PFOA or other PFAS production by other manufacturers

guidance under the SDWA and not a required or enforceable drinking water standard, DoD began proactively taking action to address drinking water impacted by DoD releases.

DoD will continue our three-pronged approach: 1) DoD has taken quick action to address PFOS and PFOA in the drinking water it supplies, 2) DoD has taken response action in accordance with the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA, aka Superfund), and 3) DoD has committed significant funds in research and development to identify and test fluorine-free AFFF.

Drinking Water:

DoD provides drinking water to approximately 2 million people on its installations worldwide. The Department began testing DoD-operated drinking water systems worldwide in June 2016 to identify drinking water that exceeded EPA's LHA. DoD completed testing of all 524 DoD-owned drinking water systems worldwide in August 2017. These tests determined that twenty-four DoD drinking water systems contained PFOS and PFOA above the LHA. Accordingly, though not required by law or regulation, DoD has followed the EPA LHA recommendations, to include providing consumers bottled water or additional water treatment. In cases where DoD purchases drinking water, the Department identified 12 drinking water systems where the results were above the EPA LHA level. These installations worked with the drinking water supplier(s) to encourage appropriate actions.

Remediation Action:

CERCLA provides a consistent approach across the Nation for cleanup and includes environmental regulators and public participation. The Department addresses on-base and off-base migration of its PFOS and PFOA releases to protect human health and appropriately spend taxpayer dollars. The Defense Environmental Restoration Program (DERP) (10 USC 2701-2711) provides authorities to DoD to perform and fund these actions, and requires they be carried out in accordance with CERCLA. Our first step is to identify the source of a known or suspected release. The Military Departments identified installations where DoD stored or used AFFF containing PFOS or PFOA and suspects there was a release. DoD has identified 401 active and former (Base Realignment and Closure) installations with at least one area where there is a known or suspected release of PFOS or PFOA.

The Military Departments then determined whether there is exposure through drinking water and, if so, the priority is to address high exposure levels. DoD's actions are consistent with EPA's LHA recommended actions, which include treatment of drinking water or closing drinking water wells and providing alternative water supplies, such as bottled water or connecting private residents to public drinking water systems. Once the exposure pathway is broken, the Military Departments are prioritizing sites for further actions using the well-established CERCLA risk-based process. This longstanding site prioritization process is based

on “worst first,” meaning the Military Departments will address sites that pose a greater potential risk to human health and the environment first.²

DoD follows the CERCLA process to fully investigate the release and determine the appropriate cleanup actions based on risk. These known or suspected PFOS and PFOA release areas are in various stages of assessment, investigation, and cleanup. Although the EPA LHA level is only guidance under the SDWA and is not an enforceable drinking water standard, DoD considers the EPA’s LHA toxicity information when assessing risk to human health under CERCLA. Under the EPA’s longstanding risk assessment and hierarchy of toxicity value policies, the LHA toxicity information is used to determine a site-specific risk-based cleanup level for groundwater used as drinking water. This calculated risk cleanup level may be higher than the EPA LHA, which can cause communication challenges when explaining to the public how this groundwater cleanup level is within safe parameters.

Before Fiscal Year (FY) 2018 when the Department first included such cleanup in the President’s Budget, DoD had to prioritize funds from other cleanup activities in order to address PFOS/PFOA. Now that we have an initial inventory, we are determining the potential cleanup costs as we collect information on the nature and extent of the releases. It will also be necessary to understand the regulatory cleanup standards for PFOS and PFOA to adequately plan and budget for DoD responsibilities. As DoD moves through the CERCLA process, the Department will work in collaboration with regulatory agencies and communities, and will share information in an open and transparent manner.

Research and Development:

In May 2000, 3M, the sole American manufacturer, began voluntarily phasing out the production of PFOS-related products, including AFFF containing PFOS, in response to proposed EPA regulations under the Toxic Substances Control Act. Since PFOS is no longer manufactured in the U.S., the U.S. AFFF on the market today should not contain PFOS, although legacy stocks of these AFFF remain. However, some formulations still contain trace amounts of PFOA. While AFFF containing PFOS (other than potential trace amounts) is no longer manufactured for purchase in the U.S., the Military Departments may still have AFFF containing PFOS in stock and in equipment, such as aircraft hangar fire suppression systems. There is currently no fluorine-free formulation of the foam commercially available that meets the critical Military Specification (MILSPEC) requirement to suppress aircraft fires effectively, although DOD is testing alternative formulations. DoD must maintain the capability to fight fires to protect the men and women serving in the military and the communities surrounding their installations.

To address this challenge, DoD is taking several steps. To prevent further releases into the ground water, DoD issued a policy in January 2016 requiring the Military Departments to prevent uncontrolled, land-based AFFF releases during maintenance, testing, and training

² This longstanding CERCLA prioritization process was developed by EPA and state regulators, as well as the other stakeholders such as DoD and various Non-Governmental Organizations, and documented in recommendations of the Federal Facilities Environmental Restoration Dialogue Committee (FERDEC 1999).

activities. The policy also requires the Military Departments to remove and properly dispose of local warehouse supplies of AFFF containing PFOS (other than for shipboard use), where practical. Each Military Department is taking actions to remove this AFFF containing PFOS from its inventory.

The Department is also researching and developing technologies to enhance our response to PFAS and to ensure the safe use of AFFF through two key programs: the Strategic Environmental Research and Development Program (SERDP), which focuses on basic and applied research, and the Environmental Security Technology Certification Program (ESTCP), whose mission is to validate more mature technologies to transition them to widespread use.

SERDP initiated research into the fate, transport, and remediation of PFOS and PFOA shortly after EPA released the 2009 Provisional Health Advisories for these compounds. Follow-on research beginning in 2014 has targeted developing several approaches for treating groundwater containing PFOS and PFOA. These efforts have matured from the small scale to field demonstrations that began under ESTCP in 2017 and have continued into 2019 as new technologies mature and are ready for field demonstration.

In addition to these initial projects on PFOS and PFOA, the SERDP and ESTCP Environmental Restoration Program Area has launched an aggressive effort to develop more cost effective treatment options for other, newly-identified PFAS. At the conclusion of the ongoing projects, the Department will have invested \$60M in PFAS-related research and development through SERDP and ESTCP, with additional research and demonstration projects under consideration for funding beginning in FY 2020.

In FY 2017 and FY 2018, SERDP solicited research projects to identify and test fluorine-free surfactants for use in next-generation AFFF that can meet the military's stringent performance requirements while eliminating PFAS. Two core projects and seven limited-scope, proof-of-concept projects have been initiated in this effort. In FY 2019, ESTCP initiated demonstrations of fluorine-free AFFF formulations at DoD facilities to determine if their performance can meet mission requirements.

These combined efforts support DoD's commitment to finding an AFFF alternative that meets critical mission requirements while protecting human health and will represent \$10M in SERDP and ESTCP funding over six years.

The Department of the Navy is funding research and development efforts related to AFFF alternatives and development of analytical methods to test commercial products for PFAS. Recognizing the need to continue to have a foam that fights aircraft fires effectively while also looking for options without PFOA, the Navy is working with the manufacturers to test various alternative products. The Navy has tested commercially available fluorine free foams to determine if they can meet MILSPEC. These tests are critical from a personnel safety perspective and validate a foam's performance capabilities. To date no commercially available fluorine free foam has demonstrated comparable performance on critical MILSPEC required performance tests.

Exposure Assessment and Health Study:

We are working with the Agency for Toxic Substances and Disease Registry (ATSDR) to support their efforts to conduct an exposure assessment at not less than 8 military installations and a multi-state health study, as required by the FY2018 NDAA. We recently provided ATSDR \$30M to begin conducting the exposure assessment and health study. Another \$10M will be transferred in FY2020. ATSDR established criteria to select the military installations to be included in the assessment, and announced their selection on February 21, 2019.

Conclusion

In summary, DoD is proactively taking action to reduce the risks of PFOS and PFOA to human health. The Department is committed to mitigating PFOS and PFOA in the drinking water it supplies, as well as addressing releases to the environment under CERCLA that are the direct result of DoD's AFFF use. DoD has also invested in research to develop fluorine-free substitutes for AFFF that meet the military's stringent performance criteria, and develop technologies to quantify and clean up PFOS and PFOA and related PFAS chemicals. These combined efforts reinforce DoD's commitment to meeting critical mission requirements while protecting human health.

As the Department addresses this national issue, we strive to work in collaboration with regulatory agencies and communities to ensure our resources are applied effectively to protect human health across the country as part of a national effort led by EPA. We must ensure our response and clean-up resources are effectively applied to result in a reduced risk and exposure of personnel on our installations and in the surrounding communities around the country. We are prioritizing our investments to those actions which will address the greatest degree of risk. DoD has taken the lead in protecting the health of persons on and near DoD installations by following the CERCLA process to fully investigate releases and determine the appropriate cleanup actions based on risk. This is a national problem involving a wide array of industries and commercial applications, as well as many Federal and state agencies. Therefore, it needs a nation-wide solution.