

Briefing on the Waiver of the Prohibition on the Use of Fluorinated Aqueous Film-forming Foams at Military Installations

Per Section 322(e) of the National Defense Authorization Act for FY 2020 (Public Law 116-92)



**SLIDES ONLY
NO SCRIPT PROVIDED**

**Office of the Secretary of Defense
June 2024**

**CLEARED
For Open Publication**

Jul 01, 2024

Department of Defense
OFFICE OF PREPUBLICATION AND SECURITY REVIEW

The estimated cost of this report or study for the Department of Defense (DoD) is approximately \$7,790 for Fiscal Year 2024. This includes \$2,880 in expenses and \$4,920 in DOD labor.
Cost estimate generated on 2024May14 RefID: 8-767B82B

All portions of this brief are Unclassified.



Purpose

- Section 322(e)(1) of the National Defense Authorization Act (NDAA) for fiscal year (FY) 2020 (Public Law 116-92) provides that the Secretary of Defense may invoke a one-year waiver to extend the current October 1, 2024, statutory deadline to cease the use of fluorinated aqueous film-forming foam (AFFF) by meeting certain requirements.
- One requirement is to provide a briefing to the congressional defense committees on the basis for the waiver, which includes:
 - Detailed data on the progress made to identify a replacement fluorine-free fire-fighting agent;
 - A description of the range of technology and equipment-based solutions analyzed to implement replacement;
 - A description of the funding, by FY, applied towards research, development, test, and evaluation (RDT&E) of replacement firefighting agents and equipment-based solutions;
 - A description of any completed and projected infrastructure changes;
 - A description of acquisition actions made in support of developing and fielding the fluorine-free fire-fighting agent;
 - An updated timeline for the completion of the transition to use of the fluorine-free fire-fighting agent; and
 - A list of the categories of installation infrastructure or specific mobile firefighting equipment sets that require the waiver along with the justification.



Bottom Line Up Front

- In order to ensure a safe transition to a fluorine-free firefighting alternative, the Department of Defense (DoD) will need to exercise a one-year waiver to extend the deadline to October 1, 2025, as provided in Section 322(e) of the FY 2020 NDAA.
- DoD has made significant progress toward meeting the FY 2020 NDAA requirement to cease use of AFFF by October 1, 2024. The Department:
 - Published a Military Specification (MILSPEC) for a fluorine-free foam (F3) in January 2023 and qualified products have been available for purchase as of September 2023.
 - In addition to F3, identified numerous technologies (such as water-only systems) to facilitate the phase-out of AFFF in facilities.
 - Developed proposed schedules, estimated costs, and strategies to use PFAS-free products and other available technologies.
 - Began the transition from AFFF for over 6,000 mobile assets and approximately 1,500 facilities.
- Challenges/factors affecting DoD's transition schedule:
 - Large number of mobile assets and facilities that require transition from AFFF, while maintaining mission readiness and safety standards
 - Time needed to procure, install, and/or modify systems before transitioning to F3 alternatives
 - MILSPEC F3 capability limitations that preclude their use in certain systems and the need to identify other fluorine-free fire fighting agents to maintain mission readiness
 - Other potential factors such as F3 product availability and disposal limitations.



DoD Progress to Identify Replacement Fluorine-free Fire-fighting Agent

- The Department has accomplished significant milestones and transition progress to identify a replacement fluorine-free firefighting agent. DoD:
 - Funded research to identify fluorine-free firefighting products and agents.
 - Conducted evaluations of acceptable fire extinguishment performance, shelf life, materials compatibility, and toxicity screening.
 - Detailed data on this R&D process is available at: serdp-estcp.mil
 - Published a MILSPEC for a F3 in January 2023.
 - Qualified F3 agents to MILSPEC standard.
 - As of April 2024, two¹ products have been qualified and are available for purchase and use.
 - DoD will continue to evaluate F3 agents for MILSPEC qualification and add qualified products to the qualified product list (QPL-32725).
 - Funded additional research to identify alternatives for assets that currently use AFFF and have capability requirements that the MILSPEC F3 formulations do not meet.
- The Military Departments have begun the transition from AFFF and are following transition plans that include strategies to use F3s and other available technologies, such as water-only systems.

1. QPL-32725 established on 12 Sep 2023 with first product listed. The QPL includes lists three manufacture designations for two products; one product is approved from two manufacturing plants.



Technology and Equipment-Based Solutions

- DoD evaluated relevant technologies other than fluorine-free firefighting agents for availability and adaptability to facilitate the phase-out of AFFF.
- Non-foam firefighting alternatives DoD is considering for use include:
 - Ignitable Liquid Drainage Floor (ILDF)
 - High expansion foam
 - Trench Nozzles
 - Water-only Sprinklers
 - Optical Flame Detection
 - Water Mist
- No single technology is suitable for every situation.
- The Department continues to evaluate all available technologies to find the best fit for each mission need and level of risk.



Fire on ILDFA Floor. 2022. Fuel Spill Fire Testing of an Ignitable Liquid Drainage Floor Assembly (ILDFA) for Chemical-Free Fire Control/Suppression, Air Force Civil Engineer Center, 2022, p.21.



Funding Applied to RDT&E

- DoD has executed over \$57 million towards RDT&E of replacement firefighting agents from FY 2017 through FY 2023 and plans to execute an additional \$6M in FY 2024. DoD:
 - Evaluated the physical characteristics and fire fighting performance of commercially available firefighting agents to inform and support the development of the F3 MILSPEC.
 - Completed evaluations of shelf life, materials compatibility, and toxicity screening of the F3 agents.

- RDT&E Efforts Looking Ahead:

- Developing new formulations of F3s to improve capabilities for saltwater environments.
- Identifying additives and equipment to further optimize firefighting performance of the F3 agents.
- Continue evaluation of ecotoxicity of new F3 formulations

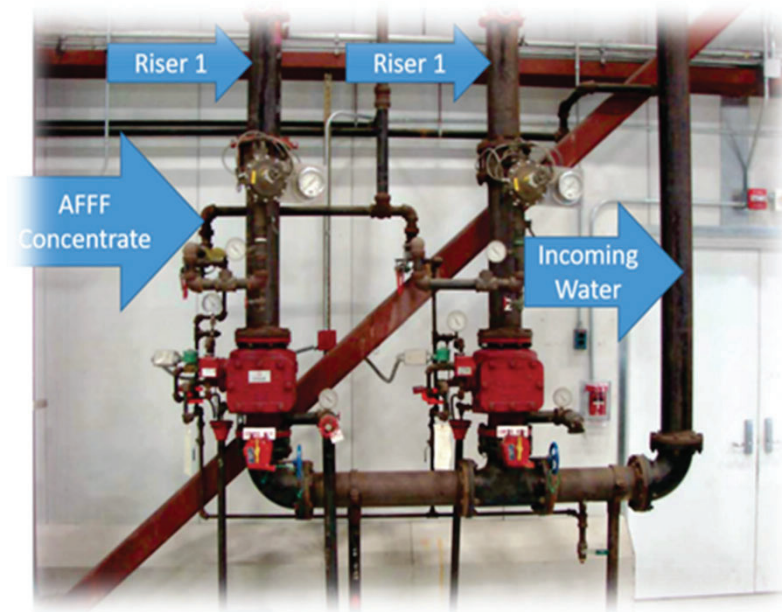
FY	RDT&E Funding Executed Through SERDP/ESTCP ¹
2017	\$750,000
2018	\$2,490,000
2019	\$2,150,000
2020	\$11,030,000
2021	\$15,350,000
2022	\$14,440,000
2023	\$11,330,000

1. Strategic Environmental Research and Development Program (SERDP)/Environmental Security Technology Certification Program (ESTCP)



Completed and Projected Infrastructure Changes

- Approximately 1,500 facilities are transitioning to F3, water-only systems, other fire-suppression technologies such as floor drains, or being completely decommissioned.
- Necessary infrastructure changes are ongoing as part of this process and vary widely across DoD based on the fire suppression system configuration.
- DoD does not track individual completed or projected infrastructure changes, but generally changes could include:
 - Replacement of foam concentrate containment bladder
 - Replacement of sprinkler head nozzles to ensure proper aspiration
 - Installation of replacement proportioner or additional foam pump
 - Installation of fire alarm control panel
 - Design and retrofit of facilities to install new equipment
- New construction will include fluorine-free fire suppression systems as part of the facility design.





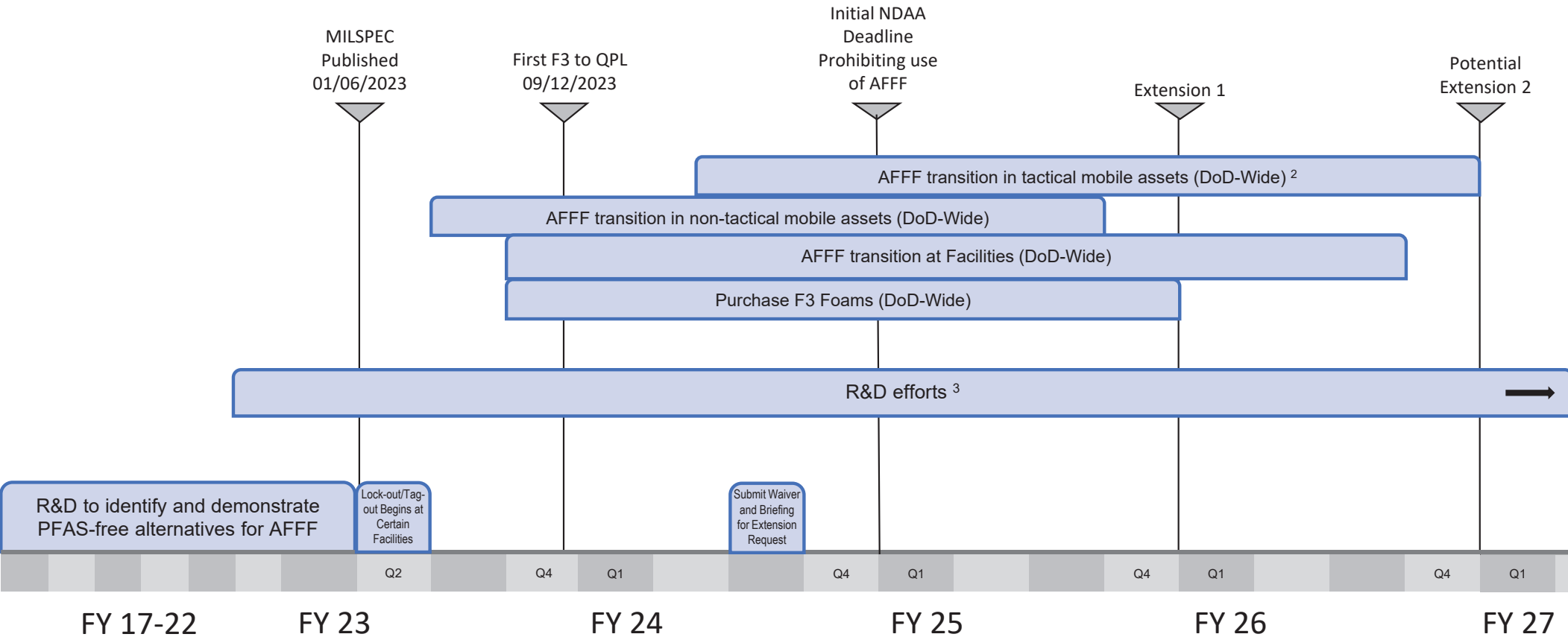
Acquisition Actions Supporting F3 Development and Fielding

- DoD and the Military Departments have taken or plan to take the following acquisition actions:
 - Procure approximately 700,000 gallons of qualified MILSPEC F3 agents through the Defense Logistics Agency for use in DoD mobile assets.
 - Fund research on optimization of firefighting performance of F3 agents and alternatives for systems not compatible with MILSPEC F3 formulations.
 - Establish:
 - Local or regional contracts to conduct the transition to F3 for over 6,000 mobile assets.
 - Large contract vehicles to perform the transition to AFFF alternatives in 1,500 facilities.
 - Contracts to rehabilitate/modify existing training facilities for firefighters to meet mission requirements to perform live-fire training with the new F3 products.
- DoD issued a Defense Federal Acquisition Regulation Supplement (DFARS) class deviation¹ to prohibit procuring fluorinated aqueous film-forming foam that contains in excess of one part per billion of PFAS after October 1, 2023, except for use solely onboard ocean-going vessels.

1. 48 CFR Part 252.223-7009



Timeline to Transition to Use Fluorine-free Foams ¹



1. Estimated timeline based on information known as of 30 March 2024. Transition timeline is dependent on several factors including future funding and product availability. Transition plans and timeline are updated quarterly.
2. DoD is currently performing R&D to identify alternative products for certain tactical assets that cannot use MILSPEC F3 because of performance limitations. Transition efforts for certain tactical assets may extend beyond October 1, 2026, pending results from ongoing R&D efforts to locate products that are compatible with these tactical assets.
3. The R&D timeline represents both past and planned R&D efforts. These efforts include advancing F3 products to enhance firefighting performance and identifying products that address incompatibility issues in certain tactical assets. Efforts are expected to continue based on future funding availability and identification of alternative products.



Installation Infrastructure and/or Mobile Firefighting Equipment Requiring Waiver

Installation Infrastructure or Mobile Firefighting Equipment Requiring Waiver	Justification
<p>Mobile Assets: Tactical & Non-Tactical Assets <i>(e.g: installation fire trucks, Aircraft Rescue and Fire Fighting [ARFF] vehicles, Man Portable Single User Rechargeable Foam Firefighting System [SURFFS])</i></p>	<ul style="list-style-type: none"> • Over 6,000 assets require transition, including modifications of some existing systems. • Limited number of fire trucks that can be serviced at one time while maintaining DoD operational readiness and compliance with National Fire Protection Association requirements and standards. • MILSPEC F3 formulations do not meet the requirements for certain tactical systems (e.g. saltwater-use systems, pre-mixed AFFF systems, extreme environmental conditions). <ul style="list-style-type: none"> – Alternative PFAS-free fire fighting products are being evaluated for these systems, but efforts are expected to extend beyond October 1, 2024. • Assets may be field deployed.
<p>Facilities Fire Suppression Systems <i>(e.g. closed head/wet pipe sprinkler systems, closed head/dry pipe nozzle systems)</i></p>	<ul style="list-style-type: none"> • Over 1,500 facilities require transition including modifications of some existing systems. • Time needed to procure, install, and/or modify systems before transitioning to F3 alternatives or alternative technologies (e.g., water-only systems). • Limited number of facilities can be serviced at one time while maintaining DoD operational readiness. • Efforts at facilities are expected to extend beyond October 1, 2024 for a safe and methodical transition. • Installations may require extended time for removal and disposal of AFFF, and efforts are expected to extend beyond October 1, 2025.



Conclusion

- DoD is committed to eliminating AFFF use for firefighting operations across its installations.
- DoD accomplishments that support and facilitate the transition from AFFF include:
 - Published a MILSPEC for F3s in January 2023 with two¹ qualified products as of April 2024.
 - Identified numerous technologies that are available and can be adapted for use by the Department of Defense to facilitate the phase-out of AFFF, such as water-only systems.
 - Initiated the transition from AFFF and the Military Departments are following transition plans (updated quarterly) that include proposed schedules, estimated costs, and strategies to use PFAS-free products and other available technologies.
- Although the Department has made significant progress, it needs additional time to ensure a methodical and safe transition of approximately 1,500 facilities and over 6,000 mobile assets.
- The next step in the waiver process is for SECDEF to submit a written certification to the congressional defense committees by August 2, 2024

1. QPL-32725 established on 12 Sep 2023 with first product listed. A second product was qualified and listed 8 Feb 2024. A second manufacturing plant of an already qualified brand product) was qualified and listed on 28 Mar 2024.