



Amendment 0007 – June 24, 2026

NRL BAA Announcement #N00173-24-S-BA01 Long Range Broad Agency Announcement (BAA) for Basic and Applied Scientific Research

The purpose of this amendment is to add Summary Topic 61-24-26 to Appendix 1 as follows:

61-24-26 - AFFF ALTERNATIVE PROGRAM COMPATIBILITY OF FLUORINE-FREE FOAM (F3) WITH NON-ASPIRATING SPRINKLER NOZZLES

INTRODUCTION: NAVSEA 05P5 has an approved Aqueous Film Forming Foam (AFFF) Alternatives program to transition Fluorine-Free Foams (F3) for shipboard use, test them with Navy-ship equipment and systems, identify the needed hardware changes to make them effective, and to establish a military specification for their use. In addition, DASN (RDA) has requested that NAVSEA propose acceleration options to potentially transition ships earlier than originally projected.

One of the major challenges for transitioning F3 products for shipboard use will be the compatibility using F3 products with non-aspirating fixed sprinkler nozzles such as the Tyco® Model SB flush-deck nozzle used on the flight decks of all U.S. Navy surface combatants (see Figure 1).

The SP flush-deck nozzles are installed to provide an application rate of 0.06 gpm/ft² over the entire flight deck. The Tyco® SB has a K-factor of 5.1 gpm/psi^{1/2} and operates at a pressure of 30 psi (minimum nozzle pressure) resulting in a flow rate ~ 28 gpm.



Figure-1: Tyco® SB Flush-Deck Nozzle

In support of the new AFFF Alternative program, the Navy Technology Center for Safety and Survivability of the Naval Research Laboratory is investigating innovative nozzle technologies

and/or engineering methods that will help to increase the aspirating capabilities of the SB flush-deck nozzles. The desires for consideration include:

- (1) Develop an improved aspirated flush-deck nozzle (forward fit option).
- (2) Develop an SB flush-deck Aspirating Design Kit that could modify the aspirating capabilities of the existing installed SB flush-deck nozzles (Back-fit option).
- (3) Develop an aspirating capability to the inlet nozzle piping that could pre-aspirate the foam solution prior to the SB flush-deck nozzle.

Preferred solutions will enhance aspirating capabilities while maintaining acceptable distribution patterns at an affordable cost with minimal intrusion (for backfit) and be compatible with Fluorine-Free Foam (F3) firefighting agents using the existing SB Flush-deck application rate of 0.06 gpm/ft² and operates at a pressure of 30 psi (minimum nozzle pressure) resulting in a flow rate ~ 28 gpm.

Proposals must clearly indicate how innovation improves aspiration capabilities and provide value added and performance.

Proposals are encouraged to consider the unique challenges of shipboard service. Solutions should be robust (shock/vibration resistant) and appropriate for the anticipated environmental exposure (corrosion/plugging), and shall not be unusually obtrusive to aircraft operations.

Address White Papers (WP) to code6101@nrl.navy.mil. Allow one month before requesting confirmation of receipt of WP, if confirmation is desired. Substantive contact should not take place prior to evaluation of a WP by NRL. If necessary, NRL will initiate substantive contact.

All other terms and conditions remain unchanged.