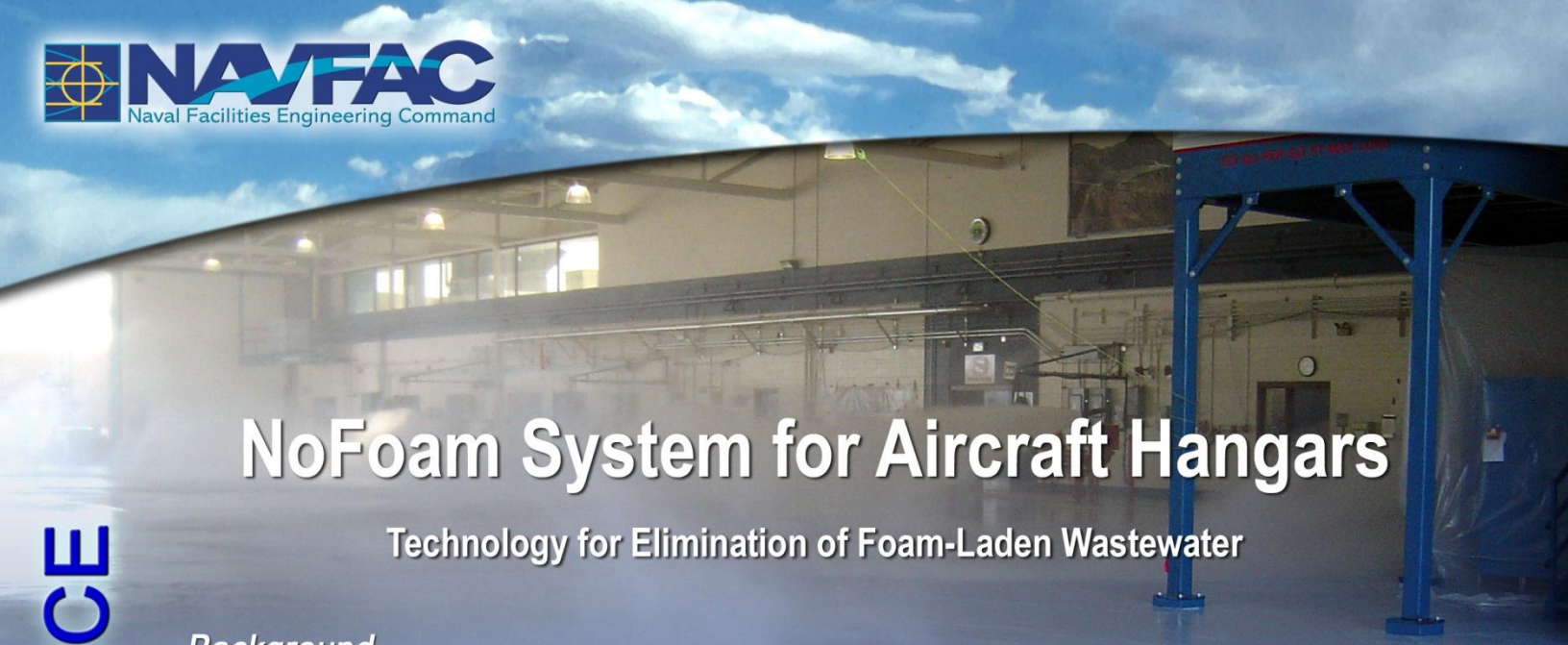
NAVFAC
Naval Facilities Engineering Command



ENVIRONMENTAL COMPLIANCE

NoFoam System for Aircraft Hangars

Technology for Elimination of Foam-Laden Wastewater

Background

The Department of Defense (DoD) requires periodic aqueous film-forming foam (AFFF) discharge checks on aircraft hangar fire suppression foam system in order to ensure proper functionality. The traditional requirement of these performance checks is to use a firefighting agent, AFFF, which meets Military specification MIL-F-24385, Type-3.

Despite the widespread use for its effectiveness for extinguishing fires, AFFF waste invites environmental concerns and raises questions about its long-term outcomes from continued use. Concerns include fish toxicity, biodegradability, treatability in wastewater treatment plants, and nutrient loading in natural or domestic water systems. Furthermore, perfluorinated chemicals like AFFF are currently under evaluation by the Environmental Protection Agency (EPA) for the development of action plans to address their associated risks.

Due to these environmental concerns as well as costs for disposal and treatment of foam-laden wastewater, many facilities are not performing the required periodic foam discharge checks on the aircraft hangar fire suppression foam systems. While the NoFoam System for Aircraft Hangars by the NAVFAC Engineering and Expeditionary Warfare Center (NAVFAC EXWC) does not displace the use of AFFF in actual fire-fighting events, it is capable of performing discharge checks on the hangar foam fire suppression distribution system without generating foam-laden wastewater.

The NoFoam System for Aircraft Hangars has been demonstrated at Arizona Air National Guard (Tucson) and Corrosion Control Hangar at Marine Corps Base Hawaii (Kaneohe). It is currently available for implementation at all appropriate new and existing hangars at U.S. DoD facilities.

Technology

The NoFoam System was developed from the original NoFoam Unit by NAVFAC EXWC under the sponsorship of the Environmental Security Technology Certification Program (ESTCP), and Environmental Protection Safety and Occupational Health Division (N45) of the Chief of Naval Operations.

The NoFoam System checks the hangar's foam delivery system by discharging a surrogate fluid-water. The flow value displayed on the monitor connected to the meter installed in the system is recorded as a measure of the system's performance. The recorded flow value represents the baseline value of AFFF concentrate flow through the suppression foam system. This value is then compared with values generated in the future by the same system. A drastic deviation from the acceptable range of flow values derived from the baseline will indicate a change in the system's performance.

Technology Benefits

Benefits of the NoFoam System for Aircraft Hangars include:

- Elimination of foam-laden wastewater management
- Functionality validation of aircraft hangar fire suppression foam distribution system
- Facilitated compliance with relevant Federal pollution and waste minimization regulations
- Reduction of procurement cost for replenishing AFFF concentrate
- Minimal user training requirements for operation and maintenance of the system
- Maintain facility mission readiness
- Reduction of aircraft downtime during fire suppression foam system nozzle discharge checks from one to several days to just one hour

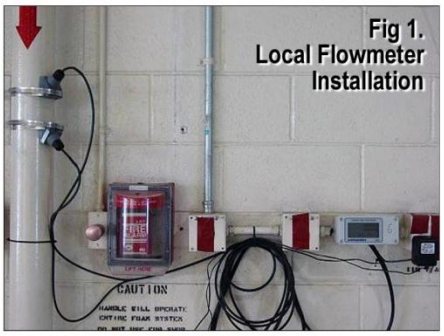


Fig 1. Local Flowmeter Installation


Fig 2. Retrofit Module - Pump Room


Fig 3. Nozzle Discharge Check

Costs

For new hangars, the cost will vary with the following estimates:

- Retrofit module design = Potentially $0
- Flow sensors = $1.2k/sensor or $7.2k/six sensors
- Installation (per sensor) = $0.9k

For existing hangars, the following estimates apply for a rough total of $29K:

- Retrofit module design and materials = $13.8k
- Flow sensors = $7.2k, for minimum of six sensors
- Installation = $7.9k, includes shipping and training

Final cost may vary, depending on hangar capacity.

Availability

Acquisition of the NoFoam System for Aircraft Hangars is available through NAVFAC EXWC. Currently, there is no centralized source of funding specific for acquisition of the technology. In cases where the host activity is not able to find sufficient funds, NAVFAC EXWC can assist with the search.

Sponsored By:

Environmental Security Technology Certification Program
(ESTCP) - Project # - SI-0525
Navy Environmental Sustainability Development to Integration
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