
From: John P. Farley
To: Hunstad, Mary P CIV NAVSEA HQ, SEA 05
CC: Fletcher, Steven G CIV NSWCCD PHIL, PA; Berchtold, Brian D CIV NAVSEA HQ, NAVSEA 05; Sonntag, William B CIV NAVSEA, SEA 00D
Sent: 9/22/2014 3:38:30 PM
Subject: RE: Tasker 19392C4_DRAFT RESPONSE_CORRECTED
Attachments: 19392C4_Rep+Rogers+Questions (3).docx

Mary:

Sorry for the confusion. The attachment is the most recent version. Everything else is OK as stated.

R/ John

John P. Farley
Director, CBD/ex-USS SHADWELL Fire Test Operations
Naval Research Laboratory
Washington DC

From: John P. Farley
Sent: Monday, September 22, 2014 11:29 AM
To: 'Hunstad, Mary P CIV NAVSEA HQ, SEA 05'
Cc: Fletcher, Steven G CIV NSWCCD PHIL, PA; Berchtold, Brian D CIV NAVSEA HQ, NAVSEA 05; 'william.sonntag@navy.mil'
Subject: FW: Tasker 19392C4_DRAFT RESPONSE

Mary:

The following (including the attachment) provides NRL's draft response. It should be noted that a concerted effort has been made "to stress" keeping the current MILSPEC AFFF and to note the current shortfalls of the currently available F3 products. Additionally, since the Congressman is well aware of the potential environmental issues related to AFFF based on the specific questions provided, we feel strongly that a thorough review of the topic is necessary to definitively show that NRL/NAVSEA /DoD/DLA/OSD has the requisite technical knowledge of the subject and has a conceptual plan that will both address any environmental issues and the need to maintain the "best product" available to the Fleet.

1. In response point #1 of Tasker 19392C4 on Fire Fighting Foam we provide the following discussion with respect to the potential problems the U.S. DoD may encounter by substituting military specification (MILSPEC) MIL-F-24385F Aqueous Film Forming Foam (AFFF) products with commercial-of-the-self (COTS) fluorine-free foam (F3) products.

2. With regard to the suitability of the available COTS F3 products, previous MILSPEC AFFF fire testing conducted by NRL has demonstrated that the present F3 formulations do not conform to the MIL-F-24385F standard, and cannot be used as an AFFF substitute in U.S. DoD applications which require MILSPEC AFFF. The principle reasons for this are:

a. MIL-F-24385F explicitly states that AFFF must be able to produce an aqueous film with a positive spreading coefficient on the surface of a burning liquid. In addition, it requires that all qualified products be cross-compatible (two or more products mixed in any proportions must maintain the same firefighting performance). Cross-compatibility with several AFFF formulations already listed on the Qualified Product Database (QPD) would be difficult to achieve for an F3 product.

b. An extinguishment time as short as possible is critical for crew safety, mission restoration, and vital capital

asset fire protection, especially considering the hazardous conditions posed when there may be ordnance present. Currently there are no COTS F3 products that can meet the MIL-F-24385F firefighting extinguishment performance standard. Additionally, since the extinguishment time for COTS F3 products are inherently slower in comparison to AFFF, the application rate would have to be increased, which would result in greater system costs and higher weight penalties for ship classes, which tend to be weight critical by design.

c. Beyond firefighting extinguishment performance, MIL-F-24385F additionally mandates specific chemical and physical requirements to ensure the candidate foam products are compatible with existing military foam proportioning systems and firefighting appliances. The current F3 products have demonstrated potential problematic issues with regard to their concentrate viscosity, sea water compatibility, their ability to function with non-aspirating nozzles, and will have increased acute toxicity to aquatic life forms, particularly fish, due to their higher levels of hydrocarbon surfactants in comparison to AFFF.

In response point #2 of Tasker 19392C4 on Fire Fighting Foam, the attachment provides comments to each of the questions requested by Rep Rogers.

R/ John