Over-The-Horizon Weapon System (OTH-WS)

In July 2024, the Navy conducted an IOT&E flight test of the Over-The-Horizon Weapon System (OTH-WS) as part of a biennial fleet exercise, Rim of the Pacific 2024. No lethality tests were conducted in FY24. In June 2024, the Navy reported that the program is unfunded to conduct the remaining IOT&E flight and LFT&E tests, including six arena tests, five sled tests, and modeling and simulation (M&S) required to determine missile lethality and survivability within a contested environment.

SYSTEM DESCRIPTION

The OTH-WS is a standalone system providing surface-to-surface missile capability that the Navy intends to defeat maritime targets inside and beyond the firing unit's radar horizon. The Navy employs the OTH-WS on the *Independence*-class littoral combat ship with plans to employ it from the *Arleigh Burke*-class guided missile destroyer and the *Constellation*-class guided missile frigate. The OTH-WS requires minimal integration with

the host platform and consists of an operator interface console, the Naval Strike Missile (NSM), and a missile launching system. The OTH-WS receives targeting data via tactical communications from combatant platforms or airborne sensors and requires no firing unit support after launch.

MISSION

The joint force commander/strike group commander employs OTH-WS-equipped platforms to conduct offensive over-the-horizon and within-the-horizon engagements against maritime targets. The U.S. Marine Corps intends to employ NSMs from the Joint Light Tactical Vehicle mobile launch platform as a component of a Navy/Marine Expeditionary Ship Interdiction System (NMESIS).

PROGRAM

OTH-WS is an Acquisition Category II, Non-Developmental Item program. The integrator of the OTH-WS onto Navy platforms is Raytheon Missile and Defense (now known as Raytheon). The Navy is conducting OT&E and LFT&E in accordance with a test plan approved by DOT&E in March 2021 and a TEMP approved in May 2023; however, operational tests and LFT&E events were delayed due to funding shortfalls and test asset reallocation to support the Marine Corps NMESIS project.

» MAJOR CONTRACTORS

- Raytheon, a subsidiary of RTX – Tucson, Arizona
- Kongsberg Defence and Aerospace – Kongsberg, Norway

TEST ADEQUACY

In July 2024, the Navy conducted one of two remaining IOT&E flight tests during a fleet exercise, Rim of the Pacific 2024, in accordance with the DOT&E-approved test plan and with DOT&E observation. The final flight test was completed in September 2024 in Andøya, Norway; DOT&E signed a Reciprocal Use of Test Facilities with Norway in April 2024. Contributing to delays in completion of IOT&E of OTH-WS was the reallocation of test resources for flight tests in FY22 to support the Marine Corps NMESIS project.

No lethality tests were conducted in FY24. Six of seven requisite arena tests and five of six requisite sled tests to characterize the OTH-WS warhead lethality remain unscheduled due to lack of funding. Determination of missile lethality is required by DOT&E to complete our assessment. In June 2024, the Navy reported that the program remains unfunded to conduct the remaining LFT&E tests to assess missile lethality and survivability within a contested environment.

DOT&E evaluation of the July 2024 flight test, previous year flight tests, and the flight integration tests of the NSM with a Joint Light Tactical Vehicle-based mobile launch platform discussed in the FY23 Annual Report, remain in progress, but are not adequate to determine operational effectiveness and suitability due to IOT&E being incomplete.

As reported in the FY23 Annual Report, cyber survivability testing was adequate to assess the resilience of the OTH-WS to cyber-attack when employed on a Littoral Combat Ship.

PERFORMANCE

» EFFECTIVENESS AND LETHALITY

Insufficient data are available to determine lethality and operational effectiveness of the OTH-WS. The three live fire tests in FY21 demonstrated that the OTH-WS has potential to provide the Navy with an over-the-horizon capability to defeat surface ships. However, the Navy has not fully characterized this capability. Remaining arena tests, sled tests, and lethality M&S are needed to characterize the lethality of OTH-WS against threat-representative targets. Moreover, the Navy completed verification and validation of their lethality assessment simulation but has yet to accredit it. DOT&E will report OTH-WS operational effectiveness, including lethality, after the completion of remaining operational and lethality test events.

» SUITABILITY

Insufficient data are available to determine operational suitability of the OTH-WS due to remaining IOT&E events. DOT&E will report OTH-WS operational suitability after the completion of remaining operational test events.

» SURVIVABILITY

Assessment from the Navy's cyber survivability evaluation in May 2022 is classified. DOT&E will report on the cyber survivability of the OTH-WS after the completion of IOT&E.

RECOMMENDATION

The Navy should:

1. Fund and schedule the arena tests, sled tests, and M&S runs for adequate evaluation of OTH-WS.