

## Standard Missile (SM)-6

### Executive Summary

- The Navy completed modeling and simulation (M&S) runs for the record of Standard Missile (SM)-6 Block (BLK) IA. DOT&E will publish the SM-6 BLK IA FOT&E report in 1QFY21.
- The Navy is leveraging inherent capabilities in the SM-6 missile to evolve the overall SM-6 mission set. The Navy's SM-6 Future Capabilities Demonstration (FCD) project executes these mission expansions under the overall management of the SM-6 program.

### System

- SM-6 BLK I and BLK IA are the latest evolution of the Standard Missile family of fleet air defense missiles.
- The Navy employs the SM-6 from Aegis-equipped cruisers and destroyers (i.e., *Ticonderoga*-class cruisers and *Arleigh Burke*-class destroyers).
- The SM-6 seeker and terminal guidance electronics derive from technology developed in the Advanced Medium-Range Air-to-Air Missile program.
- SM-6 retains the legacy SM semi-active radar homing capability.
- SM-6 receives midcourse flight control from the Aegis Weapon System (AWS) via the ship's radar; terminal flight control is autonomous via the missile's active seeker or supported by the AWS via the ship's illuminator.
- The Navy intends for SM-6 BLK IA to provide improved performance against advanced threats.
- SM-6 Dual I capability is fielded and provides Sea-Based Terminal Ballistic Missile Defense capability against short-range ballistic missiles.
- The Navy is expanding the SM-6 mission areas via the FCD project.

### Mission

- The Joint Force Commander/Strike Group Commander may employ naval units equipped with the SM-6:
  - For air defense against fixed-/rotary-winged targets and anti-ship missiles operating at altitudes ranging from very high to sea-skimming.



- To provide extended-range capability against surface targets as part of the FCD.
- To provide extended range over-the-horizon capability against at-sea and overland threats as part of the Navy Integrated Fire Control – Counter Air From the Sea operational concept.
- The Joint Force Commander/Strike Group Commander will use SM-6 Dual I to provide Sea-Based Terminal capability against short- and medium-range ballistic missiles in their terminal phase of flight, against anti-ship cruise missiles, and against all types of aircraft.

### Major Contractor

Raytheon Missile Systems – Tucson, Arizona

### Activity

- The Navy completed M&S runs for the record for SM-6 BLK IA in FY20 in accordance with the DOT&E-approved test plans.
- DOT&E completed its assessment and evaluation of the SM-6 BLK IA FOT&E. DOT&E will publish its report in 1QFY21.
- In 4QFY20, the Navy conducted developmental/engineering flight test to examine corrective actions to a classified

- performance deficiency discovered during FY17 SM-6 BLK I verification of correction of deficiency tests.
- The Navy is not planning operational testing or lethality assessments for FCD mission areas. DOT&E is participating in the planning and execution of FCD developmental test events and will report, as appropriate, on these warfighting enhancements.

# FY20 NAVY PROGRAMS

## Assessment

- As reported in the FY18 DOT&E SM-6 BLK I FOT&E Report, the SM-6 remains effective and suitable with the exception of the classified deficiency identified in the FY13 IOT&E Report and two additional problems discovered during FY17 SM-6 BLK I testing to verify corrected deficiencies. The SM-6 BLK IA FOT&E analysis is consistent with prior reporting.
- While post-flight test data appears promising, DOT&E will assess the results of the developmental/engineering flight test to examine corrective actions to a classified performance deficiency discovered during FY17 SM-6 BLK I verification of correction of deficiency tests. This assessment will occur in FY21.

## Recommendations

The Navy should:

1. Fully assess the corrective actions implemented to address the additional problems encountered during FY17 SM-6 BLK I verification of corrected deficiency tests by conducting a verification of deficiency operational flight test.
2. Plan and conduct lethality assessments for the SM-6 FCD capabilities.