

## STANDARD Missile 6 (SM-6)

### Executive Summary

- The STANDARD Missile 6 (SM-6) Program is in low-rate initial production.
- The SM-6 OT&E will commence in March 2010.

### System

- SM-6 is the latest evolution of the STANDARD Missile family of fleet air defense missiles that leverages two existing Raytheon product lines: the SM-2 Block IV and the Advanced Medium-Range Air-to-Air Missile (AMRAAM).
- SM-6 is employed from cruisers and destroyers equipped with Aegis combat systems.
- The SM-6 seeker and terminal guidance electronics derive from technology developed in the AMRAAM. SM-6 retains the legacy STANDARD Missile semi-active radar homing capability.
- SM-6 receives midcourse flight control from the Aegis combat system; terminal flight control is autonomous via the missile's active seeker or supported by the ship's radar.

### Mission

- The Joint Force Commander/Strike Group Commander will use SM-6 for fleet air defense against fixed/rotary-winged targets and anti-ship missiles in the very-high to sea-skimming altitude regimes across the full missile kinematic performance envelope.
- The Joint Force Commander will use SM-6 as part of the Naval Integrated Fire Control – Counter Air (NIFC-CA)



concept to provide extended range, over-the-horizon capability against at-sea and overland threats.

### Prime Contractor

- Raytheon Missile Systems, Tucson, Arizona

### Activity

- The Navy continued land-based developmental testing at White Sands Missile Range, New Mexico, conducting two flight tests.
- During the Control Test Vehicle-1 test on January 29, 2009, the SM-6 missile failed to launch. Post-test failure investigation determined the tactical seeker batteries prematurely squibbed, causing catastrophic mission computer failure. The contractor implemented corrective actions to missile circuitry to prevent this type of failure.
- Control Test Vehicle-1A retest on August 28, 2009, successfully demonstrated missile airframe performance across a wide flight dynamic envelope. This was a non-intercept mission.
- Although not officially part of the SM-6 test program, the Advance Area Defense Interceptor – 1 test on May 29, 2009, using a SM-6 missile, intercepted a BQM-74E target drone at White Sands Missile Range, New Mexico.

- DOT&E approved an update to the SM-6 Test and Evaluation Master Plan prior to Milestone C.
- The Defense Acquisition Executive approved Milestone C for the program on August 24, 2009.

### Assessment

- The planned schedule for the at-sea testing, beginning in March 2010 at the Pacific Missile Range Facility (PMRF), Kauai, Hawaii, and concluding in September 2010, is aggressive.
- Risks to completion of at-sea testing in the planned timeframe include:
  - The reasonable likelihood of flight test failures
  - The need for certification of the supersonic sea-skimming target's flight termination system and integration of the supersonic sea-skimming target into the range infrastructure

# NAVY PROGRAMS

- The planned maintenance closure of the PMRF runway for three months may impact test target deliveries
- The difficulty of coordinating multiple, stream raid target presentations
- The Navy does not have a clear test strategy for SM-6 in the NIFC-CA role. Testing of the SM-6/NIFC-CA capability will not occur until after the SM-6 full-rate production decision. Also required for the NIFC-CA capability is the Aegis Advanced Capability Build-12 and E-2D program; neither will deliver until after 2012.
- Testing of SM-6 against the full anti-ship cruise missile threat set will not occur until after the full-rate production decision because threat surrogate development and production are out of sync with the needs of the SM-6 program.

## Recommendations

- Status of Previous Recommendations. There are no previous recommendations for this program.
- FY09 Recommendations.
  1. The Navy must continue to focus attention on completion of PMRF test preparation activities to prevent delays in developmental and operational testing.
  2. Complete certification of the supersonic sea-skimming target's flight termination system by January 2010 to ensure it does not impact operational testing planned for March 2010.