

LPD 17 *San Antonio* Class Amphibious Transport Dock

Executive Summary

- IOT&E is scheduled to commence in summer 2007.
- Confirmation of self-defense capability against Anti-Ship Cruise Missiles (ASCM) requires an adequate number of high-diver surrogates.

System

The LPD 17 class ship is a diesel engine powered ship designed to embark, transport, and deploy ground troops and equipment. The troops and equipment move ashore by way of air-cushion landing craft (LCAC), by displacement utility landing craft (LCU), by helicopter, or by MV-22 tiltrotor aircraft.

- The LPD 17 has a floodable well deck for LCACs.
- Flight deck and hangar facilities accommodate the Navy and Marine Corps helicopters and the MV-22.
- For self defense against ASCMs, the Ship Self Defense System Mark 2 (with Cooperative Engagement Capability) is the combat system that integrates weapons (Rolling Airframe Missile and Mk 53 electronic Nulka decoys) and radars (AN/SPQ-9B short-range radar and AN/SPS-48E long-range radar, housed in the Advanced Enclosed Mast Structure (AEM/S) to reduce detection of the ship by enemy radars).
- Two Mk 46 (30 mm) gun systems and smaller caliber machine guns defend against small surface threats.
- Command and Control facilities and equipment to support Marine Corps Landing Force operations are part of the program of record.

Mission

The Expeditionary Strike Group Commander employs LPD 17 class ships to conduct Amphibious Warfare. In this role, the ship can:

- Accommodate combat and support elements of a Marine Expeditionary Unit or Brigade



- Embark, discharge, and recover LCACs, LCUs, amphibious assault vehicles, and expeditionary fighting vehicles for seaborne assault missions
- Participate in aerial assault by embarking Marine Corps aircraft
- Carry and discharge combat service support elements and cargo to sustain the landing force
- Support non-combatant evacuation operations
- Be loaded and configured to conduct various crisis response missions such as humanitarian assistance

Activity

- The ship underwent no operational testing in FY06.
- DOT&E approved an updated Test and Evaluation Master Plan (TEMP) in February 2006.
- Post delivery test and trials (PDT&Ts) continue to demonstrate functionality of the ship's amphibious warfare systems, hull, mechanical and electrical systems, and combat systems. Commander, Operational Test and Evaluation Force (COMOPTEVFOR) representatives have observed most PDT&T events.
- The LPD 17 test and evaluation community is actively planning the total ship survivability trial (TSST) on LPD 17,

scheduled for FY07, and the full ship shock trial on LPD 19, scheduled for FY08.

Assessment

- COMOPTEVFOR's observations of PDT&T events will be used to scope IOT&E to avoid duplicating events that may have already confirmed performance. Once equipped with fully integrated and tested systems, LPD 17 should provide considerable amphibious lift as well as improved information technology, reduced susceptibility, and enhanced living conditions for the crew and embarked Marines.

NAVY PROGRAMS

- The LPD 17 IOT&E amphibious warfare phase is scheduled to be conducted in summer 2007. Two capabilities essential to these primary mission operations include the ability to control landing operations and to provide command, control, communications, computers, and intelligence (C4I) support to the Marine Corps landing force. Shortfalls in these two areas currently exist:
 - The AN/KSQ-1 Amphibious Assault Direction System, the ship's primary system for controlling the surface assault element, was removed from LPD 17 in preparation for a scheduled upgrade. The upgraded system will be installed in December 2006.
 - There are concerns regarding current C4I capabilities. The Digital Wideband Transmission System, which allows high capacity line-of-sight data transmission to support Amphibious and Landing Force operations, has not been installed. The availability and required location of Secret Internet Protocol Router Network (SIPRNET) connections and the readiness of the ship's tactical satellite communications systems are concerns. Critical developmental test of landing force-related C4I systems will not occur until just before the IOT&E begins, which is inherently risky.
- PDT&T to date has shown the ship to have credible capability to defend against small manned surface threats, but has not confirmed the capability to defend against ASCMs. The IOT&E will include a ship self-defense phase focused primarily on the ship and crew's capability to defend against ASCMs. Currently, there are too few high-diver targets. PDT&T has identified serious integration problems with the AN/SPS-48E radar performance while enclosed in the AEM/S. The Navy is conducting an AN/SPS-48E - AEM/S characterization study. However, it is too early to determine what mitigation will be required.
- The survivability of the LPD 17 class ships should be improved over the 1970's-era amphibious ships they will replace. The increased survivability is attributed to reduced radar cross-section signature design features, strengthened hull girder design, improved bulkhead connections, improved fragmentation protection, fire insulation at fire zone boundaries, and redundant and separated vital systems.
- Based on proposed changes in the LPD 17 schedule, there is potential that TSST will not be conducted in advance of the lead ship deployment. DOT&E believes the TSST should be done before deployment as it can provide the Navy valuable data to characterize the ship's survivability and response to damage.

Recommendations

- Status of Previous Recommendations. There were no recommendations made in FY05.
- FY06 Recommendations.
 1. Performance of the AN/SPS-48E radar is critical to the ship's capability to control aircraft and to defend itself. The Navy should investigate and understand the impact of the AEM/S configuration before deploying the ship.
 2. The Navy should conduct the TSST in close sequence with IOT&E before deploying the lead ship.
 3. The Navy should procure the necessary number of high-diver targets.