

Dry Cargo/Ammunition Ship (T-AKE 1)

The Dry Cargo/Ammunition Ship program provides a new multi-product ship class for resupply to Navy combat forces at sea. The ships will replace the existing auxiliary replenishment (AFS-Stores and AE-Ammunition) ships and will provide ammunition, spare parts, and provisions (dry, refrigerated, and frozen). The primary mission of T-AKE 1 class ships is to provide logistics lift from friendly ports or from specially equipped merchant ships to the battle group replenishment station ships. In its secondary mission, the T-AKE 1 will be capable of remaining on station with the battle group to fill the station ship role in conjunction with a T-AO (Fuel-replenishment)-class ship.

By 2007, the entire Navy's current eight-ship AFS 1 class and eight-ship AE class will have reached the end of their 35-year design life. The proposed 12-ship T-AKE 1-class is intended to replace these ships. The acquisition strategy prescribed a two-phased program. Phase I was to identify innovative concepts for efficiencies with on-board material handling and cargo flow and to propose life cycle cost savings through reduced manning and improved ship design. That phase has been completed. A contract for Phase II, the detailed design and construction of the ships, was awarded in October 2001. The ship design is progressing well and contracts for three ships have been awarded.

TEST & EVALUATION ACTIVITY

During FY02, DOT&E continued to participate in the program's integrated product teams and approved a Test and Evaluation Master Plan to guide planning for a three-phase operational test, assessment, and evaluation strategy.

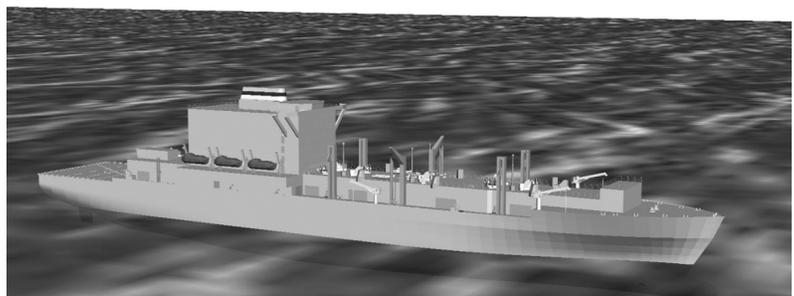
The first Operational Assessment (Operational Test-IIA), which focuses on cargo movement and ship survivability, commenced in August 2002. DOT&E representatives witnessed testing of fire detection equipment and overhead and bulkhead cooling water spray systems for the protection of multipurpose cargo stowage spaces.

Both of these testing efforts were part of a Live Fire Testing and Evaluation investigation into potential vulnerabilities of the T-AKE ordnance stowage spaces to weapons-induced fires.

TEST & EVALUATION ASSESSMENT

A three-phase operational test, assessment, and evaluation strategy consists of two Operational Assessments (OAs) and an Initial Operational Test and Evaluation (IOT&E) for the lead ship of the class.

The first OA (Operational Test-IIA) focuses on the adequacy of planned cargo handling capabilities and ship survivability. Risks associated with flight operations for vertical replenishment will also be assessed. Because the ship will use existing Navy standard replenishment rigging, inter-ship replenishment capability is a low risk. Furthermore, the ship hull is based on existing commercial designs; therefore there is a low risk of serious hull and propulsion deficiencies. This initial OA has achieved accreditation of modeling and simulation programs by the Navy's Operational Test and Evaluation Force. DOT&E will continue to work with the Navy to ensure that the initial OA provides assessment results that identify any design modifications from an operational perspective.



Artist's conception of the new Lewis and Clark T-AKE 1 Class Dry Cargo and Ammunition Ship currently under construction.

Testing of fire detection equipment during OT-IIA demonstrated that Navy standard

NAVY PROGRAMS

Heat Sensing Devices were unable to provide adequate detection capabilities for initiation of installed water sprinkling systems to meet Navy functional requirements, nor were they able to detect large adjacent space and below deck fires. As a result of this testing, the T-AKE will include ionization smoke detectors in all multipurpose stowage spaces and in the spaces adjacent to them. The T-AKE Program Manager conducted a rigorous program to develop and test a combined overhead and bulkhead cooling water spray system to meet a variety of Navy and regulatory requirements. The system was developed using performance-based testing and will result in a fire protection system for T-AKE that reduces the required water application rate (and thus the system impact on the ship design) while achieving performance superior to existing systems currently in use in the Navy. Current Navy fire detection systems and sprinkling systems may not meet Navy functional requirements. The Navy should ensure all new ship programs have improved fire detection systems and develop and install performance-based sprinkling systems. The Navy should also examine the feasibility of installing these systems in existing ship classes paying particular attention to magazines.

The second OA (Operational Test-IIB) will be conducted during the ship construction phase and will focus on the projected performance of the ship's cargo management capability and other areas not considered in Operational Test-IIA. The IOT&E (Operational Test-IIC) will be conducted under realistic at-sea conditions, including replenishment of an aircraft carrier battle group.