

## Airborne Mine Neutralization System (AMNS)

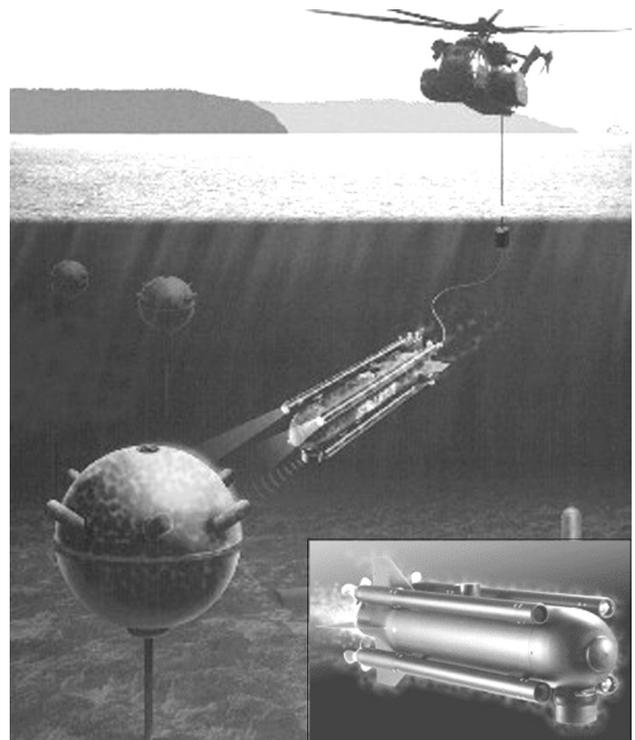
The Airborne Mine Neutralization System (AMNS) is one of five modular Airborne Mine Countermeasures systems that will be integrated into the MH-60S helicopter to provide Carrier Battle Groups and Amphibious Ready Groups an organic mine countermeasure capability. AMNS is being integrated into MH-53E helicopters in order to provide an interim capability. AMNS is derived from a system built for German Navy mine countermeasure ships, and is intended to provide the capability to relocate, identify, and neutralize bottom and moored mines directly from the helicopter. Target location information obtained from other sources will be entered into AMNS prior to take-off or while the aircraft is flying to the area of operations. The aircraft will then hover at a safe distance from the target and lower an expendable, self-propelled neutralizer device into the water. Once released, the neutralizer travels to the reported target position to search for the mine. It relays depth, position, and sensor (sonar and video) information to the operator in the helicopter via a fiber-optic cable, which is also used to send control and guidance commands to the neutralizer. Once the target is relocated and identified as a mine, the neutralizer is positioned so that its shaped-charge will detonate into the vulnerable area of the mine. A successful mine neutralization renders the mine inoperable either by rupturing its case or by sympathetic detonation of the mine charge. A reusable training version of the neutralizer is also being procured with the system. Four neutralizers can be carried in the MH-53E.

### TEST & EVALUATION ACTIVITIES

Developmental testing (DT) continued through FY02 under the direction of the Naval Surface Warfare Center, Dahlgren Division, located at Coastal Systems Station, Panama City, Florida. Live Fire Test and Evaluation will leverage DT to assess system lethality and the vulnerabilities incurred by platforms when they store, carry, and deploy AMNS. An MH-53E helicopter employed expendable neutralizers against inert moored and bottom targets during the first phase of explosive DT in September and October 2002. The second phase of explosive DT occurred in October 2002 at the Underwater Explosive Test Facility (UNDEX) at Aberdeen Test Center, Aberdeen, Maryland, where an MH-53E helicopter deployed expendable neutralizers against one live Mark 56 and three live Mark 6 moored mines. Additionally, DOT&E representatives participated in AMNS Test and Evaluation Working Groups throughout 2002 and reviewed the test plan for DT-IIB explosive testing. The AMNS Test and Evaluation Master Plan was approved in June 2002 to support initial Operational Test and Evaluation, scheduled for March through May 2003.

### TEST & EVALUATION ASSESSMENT

Completion of DT-IIB was delayed for several months during 2002 while the contractor attempted to identify the cause of unreliable communications between neutralizer vehicles and the operator console. The signal loss along the fiber optic path between the neutralizer and the console was eventually reduced to acceptable levels, and testing resumed in June 2002. Although AMNS performance has continued to improve, some system performance parameters, including the probability of successful neutralization and neutralizer reliability, were below threshold at the conclusion of DT. Some DT data will be used as part of the operational evaluation. AMNS must have a higher success rate during operational testing to counter poor performance in tests to date.



*The Airborne Mine Neutralization System is one of five modular Airborne Mine Countermeasures systems that will be integrated into the MH-60S helicopter to provide Carrier Battle Groups and Amphibious Ready Groups an organic mine countermeasure capability.*

## NAVY PROGRAMS

Despite three attempts, AMNS performance in a high current environment has been poor and failed to demonstrate the required capability in that environment. If not successfully demonstrated during DT, this capability will be tested as part of the operational evaluation.

DOT&E urged the Navy to explore the feasibility of conducting explosive testing at the UNDEX facility when environmental clearance and cost issues threatened to cancel plans for DT-IIB at the ranges in Panama City, Florida, and Scotland. Subsequent investigation determined that testing could be conducted against live moored mines at the UNDEX facility. Testing against live bottom mines was ruled out because of the risk of damage to the test facility.

Three missions employing expendable (explosive) neutralizers against live Mark 6 moored mines were successfully completed in October 2002 at the UNDEX. A successful mission was also conducted against a Mark 56 moored mine. During these missions, the AMNS operator reacquired the targets, maneuvered the neutralizer into the proper firing position, and detonated the neutralizer's shaped charge, destroying the mines. The neutralizer failed to detonate during four other missions against Mark 6 mines. Analysis of those failures is ongoing. Based on the data obtained from DT-IIB explosive testing, AMNS is lethal against threat mines that are comparable to the Mark 6 and Mark 56 moored mines when detonated in the correct firing position. Additional data will be collected during operational testing to evaluate the likelihood of correct placement and neutralizer detonation.