

Spider XM7 Network Command Munition

Executive Summary

- During FY09, the Spider program continued in the low-rate initial production phase of its acquisition program and completed an FOT&E of its “man-in-the-loop” only system.
- Based on an Operational Needs Statement approved by the Army in August 2008, 66 partial Spider systems were deployed between February and May 2009 to three Brigade Combat Teams for combat operations in Operation Enduring Freedom (OEF).
- Identification and development of methods to mitigate the loss of Spider’s capability to autonomously attack targets continued under a two-year Standoff Capabilities Enhancement (SCE) program initiated in FY08.
- Prior to incorporating SCE capabilities into the Spider system, the Army will test these enhancements during a second FOT&E scheduled for April – May 2010.



System

- Spider is a landmine alternative that satisfies the anti-personnel munition requirements outlined in the 2004 National Landmine Policy. That policy directs DoD to:
 - End use of persistent landmines after 2010
 - Incorporate self-destructing and self-deactivating technologies into alternatives to current persistent landmines
- The Army intends to achieve an Initial Operational Capability with Spider by 2011.
- The Army removed the capability for Spider to engage targets autonomously. “Man-in-the-loop” control is the only method the system uses to engage targets.
- A Spider munition field includes:
 - Up to 63 Munition Control Units, each housing six miniature grenade launchers
 - A remote control station, used by the operator to maintain “man-in-the-loop” control of all munitions in a field
 - A communications relay device known as a “repeater” for use in difficult terrain or at extended ranges
- Units can employ Spider in all environments and in all terrains.

- Spider incorporates self-destructing and self-deactivating technologies to reduce residual risks to non-combatants.

Mission

Maneuver or engineer units will employ Spider, by itself or in conjunction with other networked munition systems and obstacles, to accomplish the following missions:

- Force protection
- Battlefield shaping
- Early warning
- Delay enemy forces
- Attrite enemy forces

Prime Contractors

- C2 hardware and software: Textron Defense Systems, Wilmington, Massachusetts
- Munition Control Unit and Miniature Grenade Launcher: Alliant-Techsystems Advanced Weapons Division, Plymouth, Minnesota

Activity

- The Army conducted the “man-in-the-loop” Spider FOT&E at Fort Bragg, North Carolina, in February – March 2009.
- Based on an Operational Needs Statement approved by the Army in August 2008, the Army deployed 66 partial Spider systems, between February – May 2009, to three Brigade Combat Teams for use in OEF. The 66 partial systems had full command and control capabilities, but reduced numbers of Munition Control Units and munitions.
- The Army continues to investigate and develop methods to mitigate the loss of Spider’s capability to autonomously attack targets. The Army is focusing these new developments under a two-year SCE research development test and evaluation contract initiated in FY08.
- The program will conduct a second FOT&E beginning in April 2010, to operationally test the baseline Spider system and SCE capabilities.

ARMY PROGRAMS

- The Army is preparing an updated Test and Evaluation Master Plan to support a planned full-rate production and fielding decision in 2010. The updated TEMP will address how the Army will integrate the SCEs into the Spider system.

Assessment

- Based upon analysis of the FOT&E conducted for the Spider system, DOT&E's assessment is:
 - The Spider system remains complex and is difficult to employ and sustain in an operational environment.
 - The loss of Spider's capability to engage targets autonomously and the complexity of the system's hardware and software reduce a unit's ability to control and fight a munition field.
 - A unit's logistic requirements to support the fielded system will increase due to Spider's Munition Control Units not meeting the reuse requirement. The Army expects a unit to reuse a Spider Munition Control Unit seven times before

it fails. Failures before seven times will require increased repair or replacement.

- The program has limited time to test and confirm all system fixes and achieve Initial Operational Capability by the end of 2010 in order to comply with the 2004 National Landmine Policy.

Recommendations

- Status of Previous Recommendations. The program has addressed all previous recommendations.
- FY09 Recommendations. The Army should:
 1. Capitalize on lessons learned from the Spider systems deployed to OEF units for optimizing tactics, techniques, and procedures and addressing system deficiencies.
 2. Concentrate on system complexity issues and reevaluate the Spider system in the second FOT&E.