

Spider XM7 Network Command Munition

Executive Summary

- The Army will use Spider instead of persistent landmines to comply with the requirements of the 2004 National Landmine Policy.
- The Army continued corrective actions to address Spider system and training deficiencies following the FOT&E conducted in May 2010.
- The Army conducted a Spider Limited User Test (LUT) as part of the Army's Network Integration Evaluation at Fort Bliss, Texas, and White Sands Missile Range, New Mexico, in June 2011. The LUT focused on demonstrating progress towards meeting Munition Control Unit (MCU) reliability requirements and demonstrating MCU reuse improvements. The program office will use the results to support a request for additional low-rate initial production (LRIP).
- The program achieved Initial Operational Capability in June 2011 with the fielding of Spider to the 4th Brigade Combat Team (Airborne), 25th Infantry Division, Fort Richardson, Alaska.
- DOT&E will report on the operational effectiveness, suitability, and survivability of the Spider system in calendar year 2013 following a third FOT&E. Based on analysis conducted to date, Spider has demonstrated effectiveness and lethality when operated with efficient operator-observer communications and clearly defined Rules of Engagement. Spider has demonstrated poor suitability and is difficult to sustain in an operational environment.

System

- The Army intends to use Spider as a landmine alternative to satisfy the anti-personnel munition requirements outlined in the 2004 National Landmine Policy, which directs DoD to:
 - End use of persistent landmines after 2010
 - Incorporate self-destructing and self-deactivating technologies in alternatives to current persistent landmines
- A Spider munition field includes:
 - Up to 63 MCUs, each housing up to six miniature grenade launchers or munition adapter modules for remote electrical and non-electrical firing capabilities
 - 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

Activity

- Based on demonstrated performance in the Spider FOT&E in May 2010, the Spider full-rate production decision was delayed from FY11 to FY13.



- All employments use "man-in-the-loop" control to engage targets.
- The Army intends to employ Spider in all environments and in all terrains.
- Spider incorporates self-destructing and self-deactivating technologies to reduce residual risks to non-combatants.
- The Army achieved Initial Operational Capability with Spider in June 2011 with fielding to the 4th Brigade Combat Team (Airborne), 25th Infantry Division, Fort Richardson, Alaska.

Mission

Maneuver or engineer units employ Spider to establish a force protection obstacle or as a stand-alone force protection system to accomplish the following missions:

- Protect the Force
- Shape the Battlefield
- Provide Early Warning
- Delay and Attrite Enemy Forces

Major Contractors

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

- The Army continued corrective actions to address Spider deficiencies with system complexity and training following the FOT&E conducted in May 2010.

ARMY PROGRAMS

- In May 2011, DOT&E approved changes to the April 2010 Spider Test and Evaluation Master Plan. The updates addressed follow-on testing to demonstrate corrective actions in an operationally realistic environment.
 - The Army conducted a LUT as part of the Army's Network Integration Evaluation at Fort Bliss, Texas, and White Sands Missile Range, New Mexico, in June 2011. The LUT focused on demonstrating progress toward meeting MCU reliability requirements and reuse improvements.
 - In June 2011, the Army conducted a Spider Force Development Test at Fort Bliss, Texas. Soldiers employed and detonated non-lethal Spider munitions during the test.
 - The Army continued fielding Spider systems to deployed and non-deployed units providing Home Station, Combat Training Center, and in-theater training as part of the fielding package.
 - The Army and DOT&E initiated planning for the third FOT&E in 1QFY13 to support a full-rate production decision.
 - The Spider Milestone Decision Authority is expected to approve the production of additional LRIP systems to support continued fielding prior to a full-rate production decision scheduled for 2QFY13.
- During the May 2010 FOT&E, Spider did not meet MCU reliability and reuse requirements, attributable to system complexity and ineffective training provided by the program office.
 - In June 2011, a unit composed of Engineer and Infantry Soldiers demonstrated in a LUT that software and training enhancements made following the May 2010 FOT&E increased the likelihood of achieving MCU reliability and reuse requirements.

Assessment

- Spider provides enhanced capabilities not previously available with anti-personnel land munition systems:
 - "Man-in-the-Loop" positive control of both lethal and non-lethal munitions
 - Remote electrical and non-electrical firing capabilities for munitions and demolitions to a range of 4 kilometers
 - Capability to fire a single munition or multiple munitions at the same time
 - Capability to collect situational awareness information through tripline activation by threat personnel
- Spider has demonstrated effectiveness and lethality:
 - An Engineer company successfully employed, operated, and achieved lethal effects during the May 2010 FOT&E.
 - An Engineer platoon validated proposed tactics, techniques, and procedures for the employment of non-lethal munitions and successfully employed non-lethal munitions during the June 2011 Force Development Test.
- Spider has demonstrated poor suitability. Sustaining the system in an operational environment is difficult:

Recommendations

- Status of Previous Recommendations. The Army initiated actions to address previous recommendations.
- FY11 Recommendations. The Army should:
 1. Complete development and implementation of software changes to achieve MCU reliability and reuse requirements by eliminating the possibility of sterilization during emplacement and recovery operations.
 2. Complete development and implementation of hardware and software changes to reduce system complexity in the hands of Soldiers and to improve the efficiency of the sustainment training program.
 3. Plan and execute a comprehensive, DOT&E-approved, FOT&E to demonstrate Spider system effectiveness and suitability in support of an Army full-rate production decision.