

# Joint Service Lightweight Standoff Chemical Agent Detector (JSLSCAD)

## Executive Summary

- Operational testing of the Joint Service Lightweight Standoff Chemical Agent Detector (JSLSCAD) using simulants resumed in August-October 2006 in conjunction with the Army Stryker Nuclear, Biological, and Chemical Reconnaissance Vehicle (NBCRV) Initial Operational Test. Modeling and simulation studies continued in 2007 that began in 2004 to understand how the JSLSCAD functions in different operational environments against chemical warfare agents.
- The JSLSCAD did not meet its operational requirement and was rebaselined in 2003. The Joint Requirements Oversight Council reduced the original requirements for JSLSCAD to reflect the system's performance as demonstrated using simulants in an Army Limited User Test in 2004.
- Initial operational testing of JSLSCAD took place in March-April 2006 in conjunction with the Joint Service Light Nuclear, Biological, and Chemical Reconnaissance System (JSLNBCRS) Multi-Service Operational Test and Evaluation (MOT&E). The JSLSCAD is no longer included in that system's configuration.

## System

- JSLSCAD is an infrared passive detector that detects chemical warfare agent (CWA) vapors.
- JSLSCAD is vehicle-mounted onto the Army Stryker NBC Reconnaissance Vehicle.
- The project manager stopped development of new increments of JSLSCAD because evaluation of commercial candidates did not demonstrate a performance improvement over the



current JSLSCAD. The project office is studying new techniques to improve JSLSCAD performance.

## Mission

Army Chemical Biological Radiological Nuclear (CBRN) reconnaissance platoons use JSLSCAD to conduct standoff chemical warfare agent vapor detection while conducting CBRN reconnaissance or surveillance missions to provide warning to supported commanders of the impending arrival of CWA vapor clouds.

## Activity

- The Joint Program Executive Office for Chemical and Biological Defense (JPEO (CBD)) rebaselined the JSLSCAD program in 2003.
- In 2005, the Services revised, and the Joint Requirements Oversight Council validated, that JSLSCAD must detect blister agent vapor with 70 percent probability and nerve agent vapor with 29 percent probability up to 500 meters while the platform is moving or stationary. The requirement had been 90 percent probability of detection out to 5,000 meters.
- The Army and Marine Corps operational test agencies tested JSLSCAD as part of the JSLNBCRS MOT&E in March-April 2006. The Army conducted additional operational

- testing of JSLSCAD integrated onto the Stryker NBCRV in August-October 2006 based on a DOT&E-approved test plan.
- The project manager sponsored modeling and simulation studies from 2004 through 2007 to gain understanding of how the JSLSCAD functions in different operational environments against CWAs that produce vapor clouds. From this modeling and simulation, JSLSCAD has the capability to detect large operationally realistic threat vapor clouds of specific CWAs at ranges up to 2,000 meters under certain environmental conditions.
- In July 2007, the Marine Corps decided to not integrate JSLSCAD on the Light Armored Vehicle variant of the JNBCRS because JSLSCAD capability is limited to some

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nerve and blister agents. The Air Force withdrew from the JSLSCAD program in 2005.

- To support the Stryker NBCRV development and fielding, the JPEO (CBD) will acquire 458 JSLSCAD systems.
- The Joint Requirements Oversight Council will review the JSLSCAD requirements in November 2007.
- DOT&E evaluation is ongoing of the JSLSCAD in the current Stryker NBCRV operational configuration.

## Assessment

- Evaluation of early field tests against simulants led to decrease of line-of-sight detection requirement from 5,000 to 500 meters. Field tests results have shown simulant detection under some conditions out to 2,000 meters. This level of performance and detection range with simulants confirmed modeling and simulations with CWAs over a range of conditions and operating environments.

- When used in the Stryker NBCRV at about 35 miles per hour, the JSLSCAD may provide very limited warning time before entering a chemical vapor cloud based on the 500 meter detection requirement.
- Simulant releases in the NBCRV Initial Operational Test provided validation of soldier training to operate the JSLSCAD on the NBCRV and that the JSLSCAD integrated on the NBCRV can detect chemical vapor clouds on-the-move.
- Modeling and simulations indicate that water vapor and ozone are natural interferents for the JSLSCAD. This may hamper operational use of this system.

## Recommendations

- Status of Previous Recommendations. All previous recommendations were accepted.
- FY07 Recommendations. None.