

Stryker – Nuclear, Biological, and Chemical Reconnaissance Vehicle (NBCRV)

Executive Summary

- The 2006-2007 IOT&E demonstrated that the Stryker Nuclear, Biological, and Chemical Reconnaissance Vehicle (NBCRV) platoon in a Stryker Brigade Combat Team (BCT) is operationally effective for chemical surveillance and chemical route reconnaissance missions. Operational effectiveness for chemical surveillance and chemical route reconnaissance missions resulted from redundancy among the three NBCRVs in the platoon. The NBCRV platoon was not operationally effective for chemical area reconnaissance missions. Single NBCRV teams were not operationally effective. The Stryker NBCRV is not operationally suitable because the base vehicle and its mission equipment package are not yet reliable. The Stryker NBCRV needs performance, safety, and reliability improvements, which the Army will evaluate in a Reliability Growth Test. The project managers for the NBCRV and its Mission Equipment Package are implementing reliability corrective actions including verification.
- The Stryker NBCRV LFT&E program found the NBCRV has similar vulnerabilities as other Stryker variants, but its Mission Equipment Package is more vulnerable to ballistic damage than other Stryker variants.
- The Army expanded its plan to field Stryker NBCRVs, increasing from 39 to support Stryker BCTs to 355 to include the support of Heavy BCTs and Chemical Companies.
- The Defense Acquisition Executive made an Extended Low-Rate Initial Production (LRIP) decision, authorizing 95 additional LRIP vehicles, in December 2007.
- The Army will begin a Reliability Growth Test in 2QFY09, which will continue until FY10. The Army scheduled IOT&E II for 4QFY10.

System

- The NBCRV is one of 10 variants of the Stryker family of vehicles. The NBCRV uses a modified Infantry Carrier Vehicle chassis.
- Chemical, biological, and radiological sensors and communications are integrated with the Stryker vehicle to perform chemical, biological, radiological, and nuclear (CBRN) detection, identification, marking, sampling, and reporting of these hazards.
- The NBCRV's armor provides ballistic protection to the crew against small arms, mines, and artillery fragments. The armor has been enhanced with slat armor. The vehicle is also equipped with a filtering and over-pressure system that provides protection from CBRN threats.
- The CBRN mission equipment package includes:
 - Joint Biological Point Detection System



- Joint Service Lightweight Standoff Chemical Agent Detector
- Chemical and Biological Mass Spectrometer to detect liquid chemical warfare agents on the ground collected by a Surface Contamination Sampler
- Chemical Vapor Sampling and Storage System
- NATO standard markers and deployment system
- Automatic Chemical Agent Detector Alarm to provide point detection of chemical warfare agent vapors
- Radiological detectors
- A NBCRV team consists of a Stryker NBCRV and its four-person crew. Two or more teams are organized into CBRN reconnaissance platoons. These platoons are assigned to a:
 - Stryker BCT, with one platoon of three NBCRVs
 - Heavy BCT, with one platoon of two NBCRVs
 - Division or Corps Chemical Company, with one platoon of six NBCRVs

Mission

CBRN reconnaissance platoons perform tactical route and area reconnaissance and tactical surveillance operations. A CBRN reconnaissance platoon, as part of an early entry combat force, is capable of limited independent operations.

Prime Contractor

- General Dynamics

ARMY PROGRAMS

Activity

- The Army's NBCRV LFT&E program completed in FY07.
- The Army expanded its plan to field Stryker NBCRVs to support Stryker BCTs from 39 to 355 in order to also support Heavy BCTs and Chemical Companies. Efforts to assess whether or not this new plan of employment will affect the effectiveness, suitability, and survivability of the NBCRV – and require additional testing – are ongoing. The United States Army Chemical School is staffing doctrinal changes to use two or more NBCRVs in a mission set for all NBCRV-equipped units.
- The Army will begin a Reliability Growth Test in 2QFY09, which will continue until FY10 with an IOT&E Phase II to be conducted in 4QFY10.

Assessment

- DOT&E focused its initial evaluation on the ability of the Stryker BCT CBRN reconnaissance platoon with three NBCRVs to accomplish its mission. The platoon demonstrated in the initial operational test that it is operationally effective for chemical surveillance and chemical route reconnaissance. Effectiveness resulted from redundant coverage by sensors. The platoon was not successful for chemical area

reconnaissance missions. Single NBCRV team performance was not operationally effective. The Stryker NBCRV base vehicle and its Mission Equipment Package are not reliable.

- The Surface Contamination Sampler used with the Chemical Biological Mass Spectrometer was easily misaligned or damaged during off-road operations causing 10 times greater unscheduled maintenance than the user requires during the IOT&E. The Reliability Growth Test should determine whether fixes to the Surface Contamination Sampler as well as other changes to the vehicle and Mission Equipment Package were successful.
- Successful completion of the Reliability Growth Test is required before entrance into IOT&E Phase II.
- The Army's NBCRV LFT&E Integrated Product Team will reconvene to determine if additional live fire testing is required.

Recommendations

- Status of Previous Recommendations. The Army accepted all previous recommendations.
- FY08 Recommendations. None.