

JOINT COMBAT SEARCH AND RESCUE (JCSAR)



Joint Test and Evaluation Program

Authorized Manning (Mil & GS):	0 Program Concluded
Total JT&E Budget (TY\$):	\$24.6M
Charter Date:	1QFY96
Completion Date:	2QFY99

Lead Service

Air Force

JT&E DESCRIPTION & CONTRIBUTION TO JOINT VISION 2010

The Joint Combat Search and Rescue (JCSAR) Joint Test and Evaluation (JT&E) was an OSD-chartered, three-year program directed to assess the effectiveness of the Services' current JCSAR capabilities and identify problems and potential enhancements. JT&E examined the entire JCSAR process from the initial report of a downed aircraft to the recovery of isolated personnel. JT&E tested the effectiveness of individual JCSAR functions; i.e., location and identification; surface-based command, control, communications, computer, and intelligence (SBC⁴I) and mission execution, as well as end-to-end JCSAR missions. JT&E collected data from a combination of command post exercises, field training exercises, and virtual simulation exercises to make the overall assessment. The three-year JT&E concluded in December 1998, on schedule and within budget. The JCSAR Joint Test Director established a Legacy Transition Team in January 1999. The mission of the Legacy Transition Team was to transfer JCSAR JT&E developed legacy products to the operational community and complete the mission by September 1999.

Joint Vision 2010 emphasizes the need to develop innovative joint doctrine and enhance U.S. joint training through the use of modeling and simulation; both are areas where JCSAR made significant contributions. By enhancing the capability of the U.S. military to conduct joint rescues, JCSAR supported the Joint Vision 2010 concepts of *dominant maneuver*, *precision engagement*, and *full-dimensional protection* by identifying and testing more effective means to recover isolated personnel on the battlefield.

BACKGROUND INFORMATION

OSD chartered JCSAR JT&E in December 1995. Since then, JCSAR has conducted many tests and analyzed data to address the following issues:

- What is the effectiveness of the current capability available to CINCs to conduct JCSAR operations?
- How does identified enhancement affect the mission effectiveness of forces conducting JCSAR operations?

Early tests in the program can be categorized as component testing addressing the issues with respect to the individual functions of location and identification, SBC⁴I, and mission executions. During the later stages of JT&E, the emphasis shifted toward addressing the interactions between the above components and conducting end-to-end mission-level testing. JCSAR conducted two end-to-end mission tests in the vicinity of Fairchild AFB: the first of these in August 1997 during the Woodland Cougar 97 training exercise and the second during the dedicated Joint Rescue Exercise in June 1998.

At OSD direction, JCSAR included Virtual Simulation (VS) exercises as part of the test program. Although the virtual simulation was supposed to provide training and analysis results, the primary utility was for operator training prior to field exercises. JCSAR conducted two VS exercises—VS1 and VS2—using distributed simulation architectures. The Aviation Test Bed (AVTB) at Ft. Rucker and the Theater Air Command and Control Simulation Facility (TACCSF) at Kirtland AFB were core sites in both VS1 and VS2. Additional sites participated in both VS1 and VS2 to provide fidelity and platforms in addition to those available at AVTB and TACCSF.

TEST & EVALUATION ACTIVITY

There was no JT&E test activity during FY99. JT&E primarily focused on writing the final report and providing results to the warfighters and decision makers. The JCSAR Legacy Transition Team supported the Alaska Command in conducting end-to-end JCSAR training and evaluation during the Cope Thunder Exercises in July 1999.

TEST & EVALUATION ASSESSMENT

Overall, JCSAR test results highlighted the recurring observation that there is insufficient joint training for the conduct of JCSAR operations, and that current location and identification systems make it difficult for Service or Joint Rescue Forces to facilitate timely recovery of personnel. The Joint Test

report entitled, "JCSAR Enhanced Capability Test Report," dated March 1999, summarizes the overall results based on all tests. The report provides the current JCSAR effectiveness as follows: the survivor mean location error was 6.5 nautical miles and the mean Command, Control, Communications, Computer, and Intelligence (C⁴I) processing time was 7.3 hours. This did not include the time to recover a survivor. Of 45 baseline missions, 22 missions (49 percent) were successful in recovering a survivor without causing any secondary losses. Other trials were either only partially successful or failures.

Several enhancements were evaluated by the JT&E. The Joint Search and Rescue Center training, survivor training, and airborne mission commander training were improved. Further, the national system support was improved for survivor location and the Combat Survivor Evader Locator (CSEL) system was added on a few trials to provide better location and identification. In addition, several field exercise participants received training during virtual simulation exercises.

The enhanced capability demonstrated that the mean survivor location error could be reduced from 6.5 nautical miles to 0.5 nautical miles (100 meters desired), primarily with Hook-112 radio. With the above enhancements, the C⁴I processing time was reduced from 7.3 to 3.8 hours. The mission success rate remained about the same: from 49 percent to 46 percent for both current and enhanced capabilities.

CONCLUSIONS

Even though the tested enhancements reduced the location errors and C⁴I processing times, the enhanced capability is still deficient compared to what the warfighter would like to have. Several working groups held by the JT&E desire to have end-to-end JCSAR mission duration at two hours or less and they would like the location errors to be less than 100 meters. Therefore, annual virtual and field training exercises are necessary to further improve JCSAR end-to-end effectiveness. Also, a simple and reliable survivor location and identification system is required. DOT&E's initial Operational Assessment of the CSEL system in 1998 showed that the system needs to be made simpler and more reliable. However, DOT&E is aware that the CSEL contractor has made significant progress in 1999 towards meeting users needs.

The VS exercises were high-risk efforts that successfully provided valuable joint training in addition to assessment of alternatives. The technical expertise developed under JCSAR JT&E to conduct this type of joint distributed training will probably be lost because the Joint Personnel Recovery Agency does not have funding to conduct such exercises.

JCSAR JT&E demonstrated the value of end-to-end JCSAR training in a field exercise environment during JREX 98. A field training exercise dedicated to JCSAR is a desirable legacy from JCSAR JT&E and the Alaska Command has accepted this challenge to continue the JCSAR Legacy during Cope Thunder Exercises. JCSAR JT&E have provided the player event recording system to the Alaska Command in support of JCSAR training.

