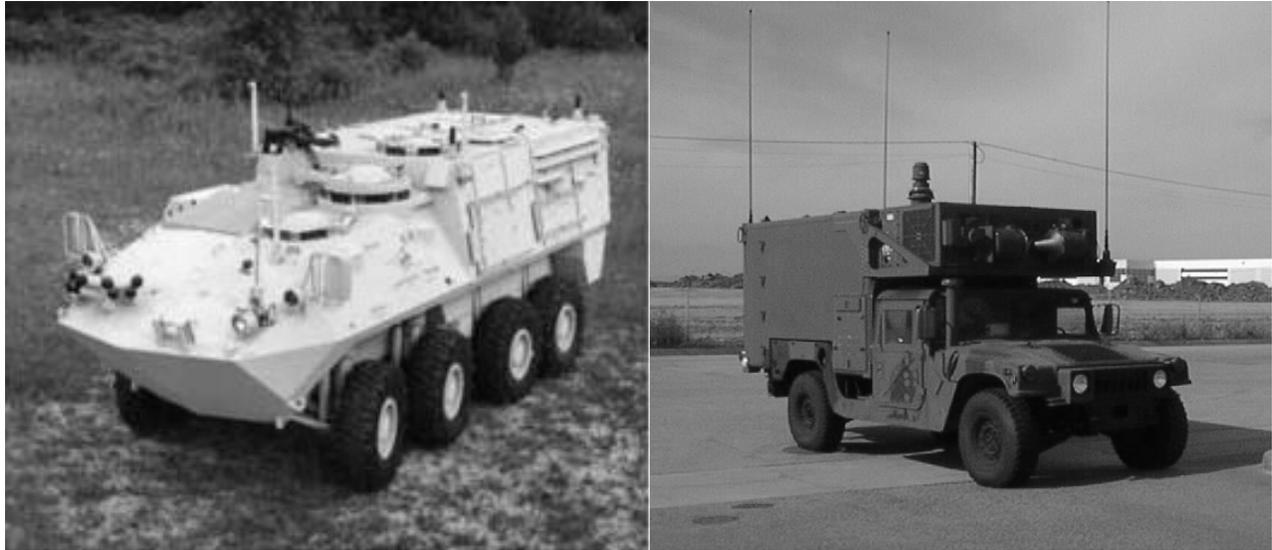


JOINT SERVICES LIGHT NUCLEAR, BIOLOGICAL, AND CHEMICAL RECONNAISSANCE SYSTEM (JSLNBCRS)



Joint Program/USMC Lead

Total Number of Systems:	671 (HMMWV) 31 (LAV)
Total Program Cost (TY\$):	\$755.4
Average Unit Cost (TY\$):	\$0.94M (HMMWV) \$1.86M (LAV)
Full-rate production:	3QFY03 (HMMWV) 4QFY04 (LAV)

Prime Contractor

TRW: Tactical Systems Division

SYSTEM DESCRIPTION & CONTRIBUTION TO JOINT VISION 2020

The Joint Services Light Nuclear, Biological, and Chemical Reconnaissance System (JSLNBCRS) is a specialized, mobile reconnaissance system intended to detect and report NBC hazards on the battlefield. JSLNBCRS consists of a Base Vehicle equipped with hand-held and vehicle-mounted NBC detection and identification equipment. Detectors selected for use on the JSLNBCRS provide the capability to sample, detect, and identify known NBC agents as well as Toxic Industrial Materials (TIMs). Communications equipment is required to transmit analog and digital messages and NBC contamination warnings. A system for marking contaminated areas is also included. Local meteorological and accurate navigation information is provided by onboard meteorological and global positioning systems. Two base vehicles are planned: the HMMWV for the Army, Air Force, and Marine Corps, and the LAV for the Marine Corps. A central component of the JSLNBCRS is the NBC suite comprising the following:

- Joint Biological Point Detection System (JBPDS), Chemical Biological Mass Spec (CBMS) Block I, and a Surface Contamination Sampler (SCS) for detection and identification of chemical and biological agents.

- Joint Service Light Stand-off Chemical Agent Detector (JSLSCAD), for stand-off chemical detection and identification.
- Chemical agent monitor (Improved Chemical Agent Monitor (ICAM)/Chemical Agent Detector II (CAM II) for hand-held, dismantled monitoring of nerve and mustard chemical agents.
- Automatic Chemical Agent Detector Alarm (ACADA) for detecting nerve and blister agent vapors and alerting the crew.
- ADM-300 radiation detector for detecting radiation from neutrons and gamma rays, displaying levels, and storing doses.
- AN/PSN-11 PLGR for navigational information.
- SINGARS for secure voice and data communications.
- METSMAN for meteorological sensing.
- Central Data Processing Unit (CDPU) to collect, organize, and store data.
- Sampling system for collecting samples of soil, liquid, small animals, and vegetation.
- Marking system for delineation of areas of contamination.

JSLNBCRS will be employed in forward combat areas and integrated into the overall reconnaissance and surveillance effort to support combat operations. It will also be employed in rear areas to monitor main supply routes, logistics bases, airfields, ports, and key command and control centers for NBC hazards. JSLNBCRS supports the *Joint Vision 2020* goals of *full-dimensional protection* and *situational awareness* by providing new sensors and information dissemination systems to detect chemical or biological attack at extended ranges and provide warning to affected units.

BACKGROUND INFORMATION

The Tactical Systems Division of TRW was awarded a four-phase contract in September 1998 that includes Concept Exploration (CE), Program Definition Risk Reduction (PDRR), Engineering Manufacturing and Development (EMD), and Post-EMD to build and integrate the HMMWV base vehicle and support Developmental Testing. Additionally, two LAV base vehicles have been refurbished using the Inspect and Repair Only as Needed program and will begin their own build and integration phase during EMD.

An Analysis of Alternatives/Tailored Executive Analysis, which was conducted during PDRR, included trade studies of vehicle platform, NBC sensors, collective protection, surface samplers, and computers. The Assistant Commandant of the Marine Corps approved the Joint Operational Requirements Document (JORD) for the JSLNBCRS on October 14, 1997.

JSLNBCRS was placed on DOT&E oversight on January 18, 2000, during the Program Definition and Risk Reduction (PDRR) phase of its development. Following designation as a DOT&E

oversight program, the USMC, as the lead Service, has undertaken an extensive review and revision of the JSLNBCRS TEMP. A Milestone II is planned for early 2001.

TEST & EVALUATION ACTIVITY

Three HMMWV systems are being fabricated for Developmental Testing (DT I) during PDRR. These systems will be equipped with command and control hardware/software and an NBC suite, using developmental versions of the Joint Services Light Standoff Chemical Agent Detector (JSLSCAD, also on Oversight), Chemical and Biological Mass Spectrometer (CBMS), and Joint Biological Point Detection System (JBPDS). In addition to the JSLSCAD, one vehicle will be equipped to mount two alternative stand-off chemical agent detectors – the Mobile Chemical Agent Detector (MCAD) and the Remote Air Pollution Identification Detector (RAPID) – bringing to three the number of candidate chemical stand-off detectors that will be tested. Command and control and sensor/sampling functionality will be tested. DT I will also test collective protection, mobility, climate control, and human factors engineering. An Engineering Design Test is planned for the LAV during January-March FY02.

A second phase of Developmental Testing (DT II) for the HMMWV variant will be conducted during April-August 2001. These vehicles will be the subjects of a Limited User Test (LUT) during July and August 2001. Key to this phase is the technical integration and update of production-representative CB sensors, notably the JSLSCAD, CBMS, and JBPDS. The LUT will support an LRIP decision in October 2001.

Production-representative HMMWVs and LAVs will be operationally tested from December 2002-March 2003. The vehicles will be tested in Service-representative scenarios, including NBC reconnaissance in support of offensive and defensive tactical operations and rear area operations. Simulated field-dispersed CB agents, and an instrumented radiological simulator will be used to challenge the NBC suite and stimulate message traffic and reporting to higher headquarters over the C² network. Each scenario will have appropriate adjacent and higher headquarters networks and nodes.

TEST & EVALUATION ASSESSMENT

The biggest *effectiveness* issue facing JSLNBCRS will be the integration, performance, and stability of the NBC suite for IOT. JSLNBCRS, which is dependent on several key programs, including JSLSCAD, JBPDS, and CBMS, will be challenged by the timing and performance of these externally managed systems. The PM must address risk mitigation and Block development should one or more of these systems fail or not be ready in time for IOT.

The JSLNBCRS Acquisition Strategy and TEMP have addressed this risk in several ways. First, the EMD phase is preceded by a robust technical development phase (DT I) where multiple sensors and basic functionality will be tested. Second, a LUT, which is scheduled after DT II, will support the LRIP decision. The PM has established clearly defined configuration thresholds and objectives for the LUT and IOT. Third, the PM has allowed for a DT III following the LUT to address design changes and schedule slips prior to IOT.

The PM must demonstrate that the LAV, with integrated NBC suite, is production-representative before beginning operational testing.

The PM has not included JWARN in the core program to be tested and fielded, since a production-representative version of JWARN is some two years behind the JSLNBCRS schedule. The program is developing a less capable Computer and Data Processing Unit to perform basic integration and reporting functions. JWARN must be integrated and tested after core JSLNBCRS fielding, and subject to Follow-on OT&E.

The Capstone System Threat Assessment (STAR), Chemical and Biological Systems, dated June 2, 1997, has expired, but the Marine Corps Intelligence Activity (MCIA) has developed a draft specific System Threat Assessment for JSLNBCRS.

CONCLUSIONS, RECOMMENDATIONS AND LESSONS LEARNED

Although JSLNBCRS is dependent on the schedule and performance of externally managed NBC sensor programs, the PM has adequately addressed this risk in the Acquisition Strategy and test plans for the program.

Designation of this program as a DOT&E oversight program has stimulated a review of C⁴ISR interoperability issues and testing plans by the Joint Interoperability Test Command.