

## Joint Biological Point Detection System (JBPDS)

The Joint Biological Point Detection System (JBPDS) is to provide early warning and identification of biological warfare agents to supported forces. It will provide biological agent point-detection, identification, and sampling capability for both fixed-site and mobile operations. The system is to automatically detect and identify up to ten agents simultaneously in less than 15 minutes.

The JBPDS is intended to be man-portable or installed onboard ships, in shelters mounted on high-mobility multipurpose wheeled vehicle -heavy variants, or on trailers. The capabilities of each configuration are common and will eventually be used by each of the Services. JBPDS will be integrated into the Joint Services Light Nuclear, Biological, and Chemical Reconnaissance System. The Army will incorporate JBPDS into the Stryker Reconnaissance Vehicle. The Army fielded the JBPDS to the 375<sup>th</sup> Biological Detection Company during FY03, and the Air Force plans to field it in FY04.

In December 1996, the Joint Program Manager for Biological Defense approved the Milestone II decision for JBPDS, and the system transitioned into the engineering and manufacturing development phase. DOT&E placed the JBPDS on oversight in January 2000.

In February 2002, the Army requested an urgent fielding of the JBPDS shelter variant to upgrade the 310<sup>th</sup> Chemical Company and in April 2002, requested urgent fielding of the JBPDS for the 375<sup>th</sup> Chemical Company due to the heightened threat to deployed forces. In April 2002, the Air Force also requested an urgent fielding, identifying the deployment of a trailer variant for high-threat air bases in Europe.

### TEST & EVALUATION ACTIVITY

Because of these urgent needs, and similar operational commitments from other Services, the Program Manager accelerated the schedule for low-rate initial production and adopted a six-phase IOT&E. DOT&E approved the test plan and the Army conducted Phase I at Dugway Proving Grounds, Utah, for the shelter variant from September-November 2002. DOT&E approved the Test and Evaluation Master Plan on January 13, 2003. Data from Phase II of the IOT&E, scheduled at Eglin Air Force Base, Florida, for November-December 2003, will be used to support the Air Force urgent need. Phase III, run concurrently with Phase II, is a cold weather operational test at McKinley Laboratory, Eglin Air Force Base. Phase IV, scheduled for January-April 2004, will be the Navy's test onboard a ship. Phase V will be a follow-on test for the Army to confirm that changes made as a result of Phase I have not degraded the performance of the JBPDS. For testing efficiency, one portion of Phase V will occur concurrently with the Air Force Phase II and Phase III testing at Eglin while a second portion of the Phase V testing will take place at McClellan, Alabama, in conjunction with a training exercise. Phase VI is planned to repeat the first three phases with production articles if necessary.

### TEST & EVALUATION ASSESSMENT

The Army shelter variant testing Phase I results showed system improvement in detection and identification, but an increase in false positives. Weather conditions limited the release of some of the simulants. The system did not meet the requirement for mean time between operational failure (54 hrs vs. 144 hrs). Lack of headquarters and Corps nuclear, biological, and chemical analysis cells precluded command, control, and reporting procedures to be adequately tested and evaluated. Because of these issues, Phase V will address system suitability, effectiveness, and command and control interoperability.



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## DOD PROGRAMS

Additional developmental component-level testing of biological warfare agents is underway with aerosol challenges against the biological aerosol warning sensor and liquid-injection challenges against the assay identifier. These tests will be used to establish a tentative correlation between live biological warfare agents and their simulants used for IOT&E field releases. The biological aerosol warning sensor and assay identifier— as components— do not represent the whole system. An adequate end-to-end evaluation of the JBPDS will be based on the performance of the whole system tested in a chamber against live biological warfare agents. The whole system test will consist of a sample collection and include its transportation and delivery to a theater medical laboratory for analysis. It was requested that the West Desert Test Center conduct a feasibility study to accomplish whole-system live-agent testing and the risks associated with the development, construction, operation, and maintenance of this facility. The National Research Council of the National Academy of Sciences were requested to validate the solution proposed by the West Desert Test Center.

Adequate whole-system testing will be the basis for characterizing JBPDS biological warfare and simulant detection performance before a full-rate production decision.