

# Joint Biological Point Detection System (JBPDS)

## Executive Summary

- The project manager for Joint Biological Point Detection System (JBPDS) demonstrated successful corrective actions to findings identified from earlier Multi-Service Operational Testing and Evaluation (MOT&E) and system development tests. The Service Operational Test Agencies (OTAs) will retest these in MOT&E Phase VI in August-November 2007. MOT&E Phase VI follows the first phase of Whole System Live Agent Testing (WSLAT) that includes testing against four biological warfare agents (BWAs). These four agents represent different classes of biological warfare agents.
- The Army OTA leads the testing of new simulants in the WSLAT program. WSLAT is consistent with recommendations from a 2004 Committee Report from the National Academy Sciences/National Research Council for improved BWA simulant development.
- WSLAT is a combined developmental/operational test with the objectives to provide performance of JBPDS against BWAs and simulants in closed chamber and correlate JBPDS performance against simulants in field environments.

## System

- The JBPDS provides biological agent point detection, identification and sampling capability for fixed-site, mobile (shelter, man portable, and trailer), and shipboard applications in one of four variants:
  - Man-portable and trailer variants for the Air Force
  - Shelter variant for the Army and the Marine Corps; this variant is integrated into the Stryker Nuclear, Biological, and Chemical (NBC) Reconnaissance Vehicle for the Army and Joint NBC Reconnaissance System for the Marine Corps
  - Shipboard variant for the Navy
- The JBPDS consists of a basic biological suite that has a trigger (Biological Aerosol Warning Sensor), collector, fluid transfer system, and identifier. The identifier inoculates assays that contain antibodies of specific BWA antigens.



- The trigger detects presence of a biological mass in less than 1 minute and the identifier identifies the BWA in less than 15 minutes.
- JBPDS provides the capability to collect and preserve samples for confirmatory analyses to support follow-on courses of action including treatment, quarantine, countermeasures, and litigation.
- Depending on Service employment concept and particular mission, JBPDS is considered either a detect-to-warn or a detect-to-treat system.

## Mission

Units equipped with the JBPDS support U.S. forces by providing early warning and identification of various aerosolized biological warfare agents.

## Activity

- The Joint Project Manager (JPM) and the Service OTAs conducted whole system live agent testing (WSLAT) methodology development and initial testing in FY06-07 to establish the detection and identification performance of JBPDS against BWAs and new simulants. These new simulants are inactivated vaccine strains and toxoids of those BWAs. Testers and test units may safely use the simulants in open air operational testing, as recommended by a Committee

Report in 2004 from the National Academy Sciences/National Research Council. The WSLAT methodology development established the relationships of four inactivated vaccine strains and toxoids to their BWA counterparts. Progress met entrance criteria to begin MOT&E Phase VI as scheduled. The Army OTA intends to conduct record field testing of the new simulants of the four BWAs in 1QFY08.

# DOD PROGRAMS

- The Air Force Operational Test and Evaluation Center is leading the four Service OTAs in MOT&E Phase VI in August-November 2007 at Dugway Proving Ground (DPG), Utah, and in an Air Force/Navy phase at Eglin Air Force Base, Florida. During the DPG phase, the multi-Service test team will conduct open air operational testing with the new simulants and a simulant for spore-forming BWAs.
- The Joint Program Executive Officer for Chemical and Biological Defense (JPEO(CBD)) plans to make a full-rate production decision in June 2008 with a competitive procurement. The Army OTA will continue WSLAT for additional BWAs that JBPDS is required to detect and identify after the full-rate production decision.

## Assessment

- JBPDS provides capability to detect biological warfare agents when deployed in an array, or set of JBPDSs, to provide coverage of a “protected” area based on the area topography and current meteorological conditions.
- Early BWA identification provides opportunity for improved medical treatment. Units use this information to quarantine,

decontaminate, and plan for impact on forces by donning protective equipment, isolating personnel, and restricting troop movement.

- Earlier MOT&E highlighted high false alarm rate and communication failures. System level demonstrations indicated problems were resolved adequately to enter MOT&E Phase VI.
- A Joint Program Executive Office for Chemical and Biological Defense competitive procurement for JBPDS may invalidate prior MOT&E results and conclusions.

## Recommendations

- Status of Previous Recommendations. The JPM and Service OTAs implemented prior DOT&E recommendations.
- FY07 Recommendations.
  1. The JPM and Army Test and Evaluation Command should continue field testing and characterization of new simulants for the BWAs that JBPDS is required to detect and identify.
  2. Regardless which vendor successfully competes for the full-rate production, operational effectiveness and suitability must be confirmed with an operational test.