Chemical/Biological Warfare Defense and Protection and Counter Weapons of Mass Destruction

I.02   Joint Biological Remote Early Warning System ACTD

Objectives. Evaluate the military utility of remote early warning for biological warfare (BW) attacks against U.S. forces, and develop the operational procedures and doctrine associated with that capability. An additional objective is to provide the CINCs with an interim residual capability to detect and provide automated warning and reporting to promptly alert only those forces that may be exposed to BW agents. The ACTD will leverage advanced biological detection technologies (e.g., UV laser particle sizer, immunoassay fiber-optic wave guide) from the DoD counterproliferation initiative and technology base community. The ACTD will demonstrate several remote early warning platforms, man-emplaced detectors, and standoff active laser detectors. All of the remote detectors will be connected to a warning and reporting system that enables the CINC to promptly (in less than 15 minutes) alert forces who are downwind of BW agents. Extensive simulation will be conducted in parallel to evaluate the operational utility of the remote early warning system for employment during early entry, buildup, defensive, offensive, and consolidation phases. Preliminary modeling of BW attack against U.S. forces during a proposed buildup phase shows that an early warning system could reduce casualties by up to 95%.

Payoffs. In FY99, the system demonstrated in CONUS networked (Joint Warning and Reporting Network (JWARN)) remote early warning systems against point and long-line source BW attacks. Data fusion of remote detectors into a JWARN is the key to providing early warning of potential BW attacks; this capability may eliminate nearly all (95%) casualties from a biological attack.

Challenges. Technical barriers include the demonstration of a UV particle sizer, sufficiently miniaturized detection technologies, and effective active laser biodetection technology. Demonstration of a simulation capability for operational use that enhances warning and reporting capabilities is needed.

Milestones/Metrics.

FY2000: Provide the CINCs with an interim residual capability to detect and provide automated warning and reporting to promptly alert only those forces that may be exposed to BW agents. Conduct military utility assessment. Conduct unit training. Deliver residual assets. Commence interim capability support.

FY2001: Provide sustainment of demonstrated equipment at selected locations for operational use. Conclude interim capability support.

Customer POC	**Service/Agency POC**	**USD(A&T) POC**
LTC Ken MANFRA, USA HQ PACOM/STA	Mr. Brian J. DAVID JPO/BD	Dr. Laura PARKER DUSD/AS&C
LTC Robert C. NEUMANN, USA USEUCOM		
Lt Col Mike URBAN, USAF CENTCOM		

I.02 S&T Funding ($ millions)

PE	Project	FY00	FY01	FY02	FY03	FY04	FY05
0603750D	P523	2.5	3.8	0.0	0.0	0.0	0.0
	DTO Total	**2.5**	**3.8**	**0.0**	**0.0**	**0.0**	**0.0**

I.02 Non-S&T Funding ($ millions)

PE	Project	FY00	FY01	FY02	FY03	FY04	FY05
0603884BP	BJ5	26.4	33.7	0.0	0.0	0.0	0.0
0603884BP	CP4	4.7	4.4	0.0	0.0	0.0	0.0
	DTO Total	**31.1**	**38.1**	**0.0**	**0.0**	**0.0**	**0.0**

J.04   Counterproliferation II ACTD

Objectives. Employ state-of-the-art technology products in weapons and sensors and improved calculational target planning tools to provide CINCs with counterforce capabilities to hold nuclear/ biological/chemical (NBC) missile targets at risk while minimizing collateral effects. Demonstration testing will include three demonstration test series to (1) exploit technology by expanding target planning tools to include joint air-to-surface standoff missile (JASSM) weapons effects data collected during a demonstration against a simulated biological weapons storage facility; (2) demonstrate use of a conventional air-launched cruise missile (CALCM)-based penetrator and use an unmanned aerial vehicle (UAV)-based remote chemical sensor for weapons of mass destruction (WMD) combat assessment; and (3) evaluate the end-to-end set of products of the Counterproliferation II (CPII) ACTD, including the target planning tool in its final operational context, a Tactical Tomahawk Penetrator Variant (TTPV) weapon capability, and a WMD combat assessment system consisting of the UAV-based remote chemical sensor and a mini-UAV with onboard contact chemical sensors. The CPII ACTD will deliver residual capabilities to the sponsoring CINC.

Payoffs. The CPII ACTD will improve existing standoff weapon platforms to provide enhanced penetration and advanced fuzing. An Integrated Target Planning Tool Set will be delivered to the warfighter to predict weapon performance against complex NBC structures and associated collateral effects, and to develop targeting solutions to minimize collateral effects with advanced weather and wind prediction models. Sensors and data fusion will address confirming the post-attack presence of chemical agents and assist in predicting tranport patterns by updating pre-strike predictions of the potentially hazardous plume with real-time data to provide a standoff WMD combat (collateral effects) assessment capability.

Challenges. Primary challenges involve integration of existing technologies and systems into an effective capability.

Milestones/Metrics.

FY2000: Conduct wet biological collateral effects experiment and deliver target planning tool to support JASSM demonstration.

FY2001: Conduct first of two JASSM demonstrations to validate target planning tools and demonstrate CALCM penetrator performance.

FY2002: Complete JASSM demonstration.

FY2003: Demonstrate TTPV to include a demonstration of the advanced target planning system and WMD combat assessment sensor.

Customer POC	Service/Agency POC	USD(A&T) POC
Col Stephen HARPER, USAF	Lt Col Dan LYKINS, USAF	Dr. Judith A. DALY
EUCOM	DTRA/CP	DUSD/AS&C

J.04 S&T Funding ($ millions)

PE	Project	FY00	FY01	FY02	FY03	FY04	FY05
0603160BR	BK	31.6	36.3	34.6	23.6	0.0	0.0
0603750D	P523	12.0	3.8	5.1	0.0	0.0	0.0
	DTO Total	**43.6**	**40.1**	**39.7**	**23.6**	**0.0**	**0.0**