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STATEMENT OF

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**BIOLOGICAL TERRORISM:
DEPARTMENT OF DEFENSE RESEARCH AND DEVELOPMENT**

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OF THE
SENATE ARMED SERVICES COMMITTEE**

**“TECHNOLOGY FOR COMBATING TERRORISM AND
WEAPONS OF MASS DESTRUCTION (WMD)”**

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INTRODUCTION

Madame Chairman and distinguished committee members, I am Dr. Dale Klein, Assistant to the Secretary of Defense (Nuclear and Chemical and Biological Defense Programs). I serve as the principal staff advisor to the Secretary of Defense on nuclear, chemical and biological defense matters. My office is the single focal point within the Office of the Secretary of Defense responsible for oversight, coordination, and integration of the joint Chemical and Biological Defense Program.

The unprecedented events of September 11th have clarified the threat of terrorism to both civilians and the military. For several years, the Department of Defense has played an active role in developing countermeasures to potential attacks by terrorists using weapons of mass destruction (WMD). The anthrax contaminated letters focused attention on the use of biological weapons as an instrument of terrorism. In my testimony today, I wish to discuss the Department of Defense Chemical and Biological Defense Program, and focus on the science and technology programs and key initiatives intended to combat terrorist attacks as identified in the fiscal year 2003 budget request. Specifically, I will address the following topics:

- The Department's technology priorities and objectives for combating terrorism and WMD.
- The capabilities the Department is trying to achieve with these technology programs.
- How technology priorities are established and how the relevant organizations play in this process.
- Major technology challenges we face and how we are addressing them.

DOD TECHNOLOGY PRIORITIES AND OBJECTIVES FOR CHEMICAL AND BIOLOGICAL DEFENSE

The vision of the DoD Chemical and Biological Defense Program (CBDP) is to ensure U.S. military personnel are the best equipped and best prepared force in the world for operating in future battlespaces that may contain chemically and biologically contaminated environments. The capabilities developed and fielded by the CBDP focus on addressing the needs of the warfighter. As the events of the past few months have shown, the future battlespaces for our warfighters are evolving. Likewise, civilian organizations may increasingly turn to the Department of Defense to leverage technology development efforts to support the needs of homeland security. The fiscal year 2003 President's Budget Request for the DoD Chemical and Biological Defense Program includes \$933 million for research, development, test, and evaluation (of which \$576 million is for the science and technology base) and \$436 million for procurement for a total of \$1.369 billion. The specific funding allocations are detailed in the Annual Report to Congress on the Chemical and Biological Defense Program as well as in the detailed budget requests submitted to Congress. This funding provides support for essential research and development activities to address future warfighting needs.

The objective of the CBDP is to ensure our forces can maintain freedom of action during deployment, maneuver and engagement, while providing multi-layered defenses for our forces and facilities at all levels. Programs for chemical and biological defense are categorized broadly under three operational principles: *contamination avoidance*, *protection*, and *restoration*. *Contamination avoidance* provides automated capabilities to detect, locate, identify, quantify, sample, and plot the extent of all suspected threat agent hazards, and medical surveillance capabilities. *Protection* includes all medical and non-medical means taken to protect the

warfighter primarily from biological agent hazards and to a lesser degree, chemical agent hazards while maintaining normal operational mission tempo. The focus of protection is to prevent exposure or the effects of exposure, and includes medical capabilities, such as vaccines, and non-medical capabilities such as masks for respiratory protection. *Restoration* capabilities include medical and non-medical measures required to restore the joint force, units, facilities, and equipment to near-normal operating conditions after being challenged by a biological or chemical agent hazard. These measures include non-hazardous decontamination operations, effective supply and sustainment of all defense assets, and effective medical diagnostics and post-exposure countermeasures required to allow rapid determination of agent exposures and subsequent treatment. *Battlespace management* supports all three principals. *Battle management* includes capabilities to use medical and non-medical information throughout the joint battlespace; and to analyze this information; to predict current and future operational impacts of hazards and to model mission operations within the context of the contaminated environment.

DOD TECHNOLOGY INITIATIVES FOR COMBATING CHEMICAL AND BIOLOGICAL TERRORISM

The Administration has provided a significant addition of funds for two key initiatives— (1) Biological Counterterrorism Research Program, and (2) Biological Defense Homeland Security Support Program. These two initiatives will be implemented by the Department of Defense in support of the President’s direction and the overall interagency effort. In DoD, funds for these initiatives are in addition to the core programs of the CBDP. Another key effort is the CB Defense Force Protection and Homeland Security Initiative.

BIOLOGICAL COUNTERTERRORISM RESEARCH PROGRAM

This defensive program will establish a biological terrorism threat assessment research Center for Biological Counterterrorism at the U.S. Army Medical Research and Materiel

Command, Fort Detrick, Maryland. A panel of senior scientists from DoD, federal labs, academia, industry and intelligence communities will develop concept and scope of threat assessment research. The research program will initiate competitive extramural contracts during design and construction phase. The unique facilities at Fort Detrick will support DoD and national requirements for analysis of emerging biological threats and assessment of countermeasures against those threats. The FY03 program will:

- Conduct a technology survey and identify gaps.
- Award extramural research with emphasis on identification of virulence factors, pathogenic mechanisms and structural biology.
- Establish research programs in aerobiological research, forensic genomics and certified forensic biological threat agent capability.
- Initiate planning and concept development for necessary infrastructure.
- Develop Applied Microbial Threat Assessment Research to assist in the development of the Counter Terrorism Research Program and to establish a management element for the Program; develop program policy, strategic plan, short through far term investment strategies.
- Develop environmental and access control point monitoring.
- Develop enhanced medical surveillance technologies.
- Demonstrate an enhanced signatures database and conduct baseline studies.
- Develop improved biological defense data mining, fusion, and analysis architectures.
- Conduct Baseline Self Assessment (BSA), Mission Area Assessments (MAAs), and Requirements Analysis and Process Development.

BIOLOGICAL DEFENSE HOMELAND SECURITY SUPPORT PROGRAM

This program initiates a comprehensive program to build a National Biological Defense System. It aims to create and deploy a national, multi-component, multi-organization defense capability targeted to urban areas, other high-value assets, and special events. It seeks to provide an integrated homeland security capability to detect, mitigate and respond to biological-related incidents. Capabilities would include:

- Enhanced biological detection capabilities and the fusion of medical surveillance systems, wide-area environmental sensors, access control points and information systems.

- Deployed systems will exploit existing technology supplemented with new capabilities resulting from accelerated development.

DOD FORCE PROTECTION AND HOMELAND SECURITY INITIATIVES

In addition, the Chemical and Biological Defense Program plans to establish a fully-equipped DoD test-bed in an urban environment, an enhanced monitoring system for the National Capital Region and an initial capability in two additional urban areas in order to enhance the protection of DoD assets against terrorist attacks with chemical or biological weapons. Specific research and development activities in FY03 include:

- Enhanced biological detection capabilities and the fusion of medical surveillance systems, wide-area environmental sensors, access control points and information systems.
- Requirements analysis, system integration, and program support for DoD installation and urban test beds.
- Environmental and access control point monitoring for the integration of point, standoff, and transportable detection technologies.
- Demonstrate initial mining, fusion, and analysis module, incorporate modeling and analysis of threat transport prediction, adopt command, control, and communications infrastructure, and integrate information networking.
- DoD test bed design, environmental testing, and test bed trials.
- Initiate the integration of point-of-care diagnostics, syndromic reporting and medical surveillance mining.
- Integration of signature source term cataloging into system of system technology architecture.
- Consequence Management in support of the National Guard's Weapons of Mass Destruction-Civil Support Teams (WMD-CSTs), including initiating evaluation, purchase, and testing of commercial-off-the-shelf products for the Table of Distribution & Allowances (TDA) for WMD-CSTs.
- Integration, demonstration, and testing of: (1) CB collection, detection, and identification technologies, (2) reagents and antibodies for biological detection, and (3) an automated biological agent testing laboratory.
- Initiate systems engineering studies for deployment of sensors in the National Capital Region.
- Conduct Ambient Breeze Tunnel testing and characterization of system and components .
- Conduct background aerosol and indoor building flow character and testing.
- Conduct wargames/tabletop exercises for Concepts of Operations (CONOPS) development.

- In support of Consequence Management - Initiate development of a Unified Command Suite (UCS) and Mobile Analytical Laboratory (MALS) block upgrades to support WMD-CSTs.

This program also provides resources in the DoD Chemical and Biological Defense Program to complete fielding and modernization of (1) Weapons of Mass Destruction-Civil Support Teams, and (2) Reserve Component Reconnaissance and Decontamination Teams. Full funding includes the following in the FY03 budget:

- Type-classified protection, detection, and training equipment.
- Development and fielding of upgraded analytical platforms for the detection, identification, and characterization of CB and radiological agents used by terrorists in a civilian environment.
- Development and fielding of communication capabilities that are interoperable with other federal, state, and local agencies.
- Testing and evaluation to ensure that the systems are safe and effective.
- Program management funds to successfully execute the CBDP Consequence Management RDA program.

Another key element of the Biological Defense Homeland Security Support Program is the *Joint Service Installation Protection Project (JSIPP)*. The JSIPP is a Pilot Project designed to increase CB defense capabilities at DoD Installations. The JSIPP is intended to provide a robust CB defense capability integrated into installation force protection and anti-terrorism plans. The project will refine concepts of operations and resource requirements for expansion across DoD. The two key components of this project are the: (1) Chemical Biological Installation Protection Program, and (2) Chemical, Biological, Radiological, Nuclear and High-Yield Explosives (CBRNE) Emergency First Response Program. The project will equip nine diverse DoD Installations with:

- Contamination Avoidance, Protection and Decontamination Equipment Packages.
- Emergency response capability for consequence management.
- Integrated Command and Control Network.
- Comprehensive training and exercise plan.

Finally, the FY03 budget includes procurement funds to support homeland security biological defense. Procurement will support the following:

- *First Responders*- procures emergency first-response capability for consequence management—supports organizing, equipping, training and conducting exercises for first responders.
- *Installation Force Protection Equipment* – procures CBD equipment packages for nine installations; buys Dry Filter Units, Joint Portal Shield biological agent detectors, Automated Chemical Agent Detectors, Remote Data Relays, Ruggedized Advanced Pathogen Identification Device (RAPID), and operational fielding support.
- *WMD Civil Support Teams*- procures new equipment training support, required equipment and required Operational Assessments for 32 WMD-CSTs.
- *Homeland Security Initiative*- procures a dual-use operational capability for integrated bio-surveillance, detection, and alerting in the National Capitol Region within 12 months.

DOD INTERAGENCY COORDINATION ON CHEMICAL AND BIOLOGICAL TERRORISM RELATED RESEARCH AND DEVELOPMENT

Within DoD, the key organizations responsible for the management and transition of science and technology efforts for chemical and biological defense are (1) the Joint Science and Technology Panel for Chemical and Biological Defense, and (2) the Joint Medical Chemical and Biological Defense Research Program. These organizations help to ensure effective coordination of efforts among the Service Laboratories and Defense Agencies, including the Biological Warfare Defense program of the Defense Advanced Research Projects Agency (DARPA). In addition to management responsibilities, DoD provides many unique resources that can be used in the development of countermeasures to biological terrorism. Some of these unique resources include high containment (biosafety level 4) laboratories, aerosol exposure test chambers, live agent test facility, simulant test grids, and personnel with exceptional scientific expertise.

The Department of Defense has established a set of requirements for the successful completion of military operations in chemical and biological environments. We submit an Annual Report to Congress documenting our progress in meeting these requirements. My office

regularly coordinates its efforts with the Department of Energy and the intelligence community through the Counterproliferation Review Committee, which reports annually to Congress on its progress (provided as a classified document to Congress).

In order to meet the challenge of biological warfare across the spectrum, our program must address the need for both materiel improvement and operational concepts to use the new and improved equipment. In order to address the issue of bioterrorism, we have documented gaps in previous exercises and these will be the focus of reprioritized efforts within the Department of Defense. One of the lessons of previous exercises was that to work effectively during an actual crisis, various governmental agencies must actually exercise beforehand or their “cultural differences” will overcome any plan. We will continue to work with the Office of Homeland Security and other agencies to ensure good working relationships. One specific area we will focus on is to help define what support the Department of Defense can provide and work with other agencies to define what support they request and need.

While the DoD can provide unique expertise and materiel support, it is not charged with lead federal agent responsibilities as described in the interagency Federal Response Plan. In the area of domestic terrorism medical response, the Department of Health and Human Services takes charge and requests support as needed. However, the Department of Defense provides materiel support to other organizations.

Congress has provided a number of statutory methods for the Department of Defense to support other federal, state, and local agencies in preparing for and responding to weapons of mass destruction (WMD) terrorism. Requests may come to the department for operational support or for the purchase of equipment. These requests are approved on a case-by-case basis. My office has responded to a number of requests from other-federal agencies for individual and

collective protective equipment and access to vaccines, while the operational support provided by the Department is coordinated through the Secretary of the Army. The Department will continue to provide this support within statutory and regulatory limits and balance requests against the readiness of military forces to accomplish their warfighting mission.

DoD can offer many of its systems, either those in the field or in development, and expertise that may prove useful to civil agencies. DoD's chemical and biological detection equipment could be applied in civilian situations, as can many of our medical countermeasures. However, the provision of materiel alone does not enhance capability, it needs to be accompanied by valid operational concepts, training, and maintenance.

Our armed forces are trained primarily to fight foreign adversaries. However, our forces also maintain significant capabilities to support homeland security, through such operational units as the Chemical and Biological Rapid Response Team, the Technical Escort Unit, the WMD-Civil Support Teams, and the Marines' Chemical and Biological Incident Response Force (CBIRF).

In order to enhance our Nation's overall capabilities the Department of Defense participates in programs to support the transition of military equipment and concepts to civil agencies. Specifically,

- The Technical Support Working Group (TSWG), rapidly prototypes emerging technologies for high priority federal interagency requirements;
- The Interagency Board for Equipment Standardization and Interoperability (known as the IAB), is a partnership with federal, state, and local agencies focused on the capabilities necessary for fire, medical, and law enforcement responses to WMD terrorism;
- The Domestic Preparedness Program (now a Department of Justice program), mandated under the 1997 Nunn-Lugar-Domenici legislation, trained and equipped municipalities to address WMD terrorism;
- Interagency agreements with Department of Justice's Office Domestic Preparedness to purchase equipment; and
- Medical training programs from the U.S. Army Medical Research Institutes for Infectious Disease and Chemical Defense.

These efforts represent the Department's procurement and research support to address bioterrorism. As federal agencies assess their needs, DoD anticipates additional requests for support.

CONCLUSION

For operational responses to biological terrorism, the Department of Defense is working closely with the lead federal agencies as defined in the Federal Response Plan to ensure a well coordinated response. As I discussed, the Department of Defense is exploring an array of scientific approaches to counter biological warfare and biological terrorism threats. We are working closely with several other federal agencies to provide science and technology resources to support warfighting and homeland security needs. We will continue to work closely with other agencies to ensure that the warfighter is protected with the best available technologies and that U.S. citizens are provided as great a degree of protection as possible. Thank you for the opportunity to speak here today, I would be happy to respond to any questions.