## Report Documentation Page

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<td>NDIA (National Defense Industrial Association) 211 Wilson Blvd, STE. 400 Arlington, VA 22201-3061</td>
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Administrative Notes

• Continue to hydrate. Water stations are available in all 3 buildings.
• Restrooms are in the lobby of the theater. Additional facilities are available at the Davis Club.
• Please wear name badges at all time. Badge checks are conducted at each conference site.
• Please set cellular phones/beepers to vibrate mode.
• There will be scheduled breaks. If you must leave the theater, please be considerate to the briefer and keep conversations to a minimum.
• Phone messages may be left at (573) 596-0131, ext. 6-5041. A message board is at the Davis Club.
• Fort Leonard Wood has a 24 hour emergency room at the hospital. Dial 911 for emergencies.
• All buses will pick up/depart from the Davis Club.
Responding to the CB Threat
Past-Present-Future

Anna Johnson-Winegar, Ph.D.
Deputy Assistant to the Secretary of Defense
Chemical and Biological Defense
World-Wide Chemical Conference – 11 July 2001
My Office
Operation Cloudy Office
Finally, a decon system I can use!

Novel Remote Decon
Briefing Outline

• Look at a bit of history
  • Where we were
  • Where we are now

• Look at Changing “Big Picture”
  • Changing perceptions

• Reinforce that Bio is not Chem
  • (Why Bio Defense is the most difficult)

• Challenges/Potential New Directions
CB Defense History

- **Formation of Chemical Warfare Service**
- **Decade of Neglect**
- **Renamed as Chemical Corps**
- **AF/Navy increased CBW interest**

**1910s**
- Operation DESERT STORM

**1920s**
- DOD directs "joint" R&D cooperation

**1930s**
- JPO-BD Established

**1940s**
- Chem School moves back to Ft McClellan

**1950s**
- P.L. 103-160 CB Defense Program Authorization: Joint RDA Program; Consolidated Training

**1960s**
- Chem School moves to APG, MD

**1970s**
- Chem School moves to Fort Leonard Wood

**1980s**
- Operation DESERT STORM

**1990s**
- JPO-BD Established

**2000**
CB Defense Deficiencies Identified in Operation Desert Storm

<table>
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<tr>
<th>Detection</th>
<th>Individual Protection</th>
<th>Collective Protection</th>
<th>Decontamination</th>
<th>Medical</th>
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<tbody>
<tr>
<td>• No Organic Communication</td>
<td>Masks</td>
<td>• Few shelters</td>
<td>• Corrosive decontaminants</td>
<td>• Limited BD vaccines</td>
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<tr>
<td>• Limited standoff detection</td>
<td>• Multiple masks for ground and vehicle functions</td>
<td>• Very limited integrated ship &amp; vehicle protection</td>
<td>• Environmentally hazardous sensitive equipment decon</td>
<td>• No CW prophylaxes</td>
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<td>• Limited liquid agent detection</td>
<td>• Limited aviator masks</td>
<td>• Limited deployable collectively protected shelters for tactical applications</td>
<td>• Limited personal decon</td>
<td>• Limited CW pretreatment</td>
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<tr>
<td>• Single biodetection technology</td>
<td>Clothing</td>
<td>• Not lauderable</td>
<td>• Limited large area decon</td>
<td>• Limited medical training for casualty management</td>
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<tr>
<td>• Limited HD detection</td>
<td>• Bulky</td>
<td>• Bulky</td>
<td>• Water-based decontaminants</td>
<td>• Limited diagnostic capability</td>
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<tr>
<td>• Limited recon</td>
<td>• Superactivated charcoal</td>
<td>accessories</td>
<td>• Labor intensive</td>
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DoD Chemical/Biological Defense Program Historical Review

FY80-01 Total CBDP Procurement, RDT&E *

* Appropriated-including plus-ups

PL 103-160
“The grave threat from nuclear, biological and chemical weapons has not gone away with the Cold War. It has evolved into many separate threats, some of them harder to see and harder to answer. And the adversaries seeking these tools of terror are less predictable, more diverse.”

Remarks by the President to the troops and personnel, Norfolk Naval Air Station, Norfolk, Virginia, 13 February 2001
“(The) proliferation of dangerous technologies is aided by the same globalization that is helping to fuel our current prosperity. Just as we see growing interdependence within the free world, there is also a growing interdependence among the world’s rogue states. Those states are sharing information, technology, weapons material and know-how at a rapid pace. What all this means is that soon, for the first time in history, individuals who have no structure around them to serve as a buffer on their decision-making will possess nuclear, chemical and biological weapons, and the means to deliver them.”

Secretary Donald Rumsfeld, Congressional Testimony, June 22, 2001
Current National Military Strategy

Shape
- Peacetime Engagement Activities
  - Deterrence
- Smaller Scale Contingencies
  - Major Theater Wars
- Nuclear/CB Threats

Respond

Prepare Now

Meet shape/respond challenges while transforming future force
Shape, Respond, Prepare
Current Defense Strategy

• **Worldview:**
  • Dynamic, uncertain security environment
  • No peer competitor until after 2025
  • Near and mid-term focus on regional threats
  • Rise of asymmetric threats (esp. WMD, IW and terrorism, including threats to US homeland)

• **Highest DoD priority**
  • Fight and win two overlapping MTWs

• **Also important**
  • Multiple, concurrent Small Scale Conflicts as required
  • Peacetime engagement, including efforts to strengthen alliances/coalitions
  • Transformation
  • Homeland Security
  • Nuclear Deterrence
Current Guidance - CBW

- “Threat or use of chemical and biological weapons is a likely condition of future warfare”

- “In this context, (fighting two nearly simultaneous major theater wars), U.S. forces must be able to defeat the initial enemy advance in two distant theaters in close succession and to fight and win in situations where CBW and other asymmetric offensive measures are employed”

- “I (Sec of Def) am concerned that the Services are not programming adequate operations and maintenance (O&M) funds for CB equipment maintenance and repair parts, replacement of shelf-life items, equipment installation and integration, and CB defense training. The Services must define their CB defense O&M requirements and provide funding to maintain a high state of readiness”
Changing Landscape
Potential New Directions

21st Century

- Information Age
- Globalization

Security Emphasis:
- Economics/Diplomacy/Defense

Integrated National Security Apparatus

Security Forces:
- Aerospace/Maritime/Ground/Homeland/Economic

20th Century

- Industrial Age
- Nation-States

Security Emphasis:
- Defense

Department of Defense

Military Forces:
- Ground/Maritime/Air/Space

A broader range of threats

Spectrum of Military Operations

Persuasive in Peace

Soldiers on Point for the Nation
## Changing Perceptions

### “1991”
- WMD = Poor man’s atomic bomb
- Used against US as weapons of last resort
- Weapons of mass destruction
- Operating “too hard to do”
- Too hard for adversary to use effectively

### Today
- WMDs counter U.S. conventional superiority
- Early CB use against US possible, even likely
- Low lethality attractive as well
- BW still (too?) hard to do
- CBW have operational utility; differentiated effects
Changing Perceptions - Continued

“1991”
- CW, esp. BW, not effective vs forces in field
- BW seen through CW prism
- Effects on coalitions unknown and not planned
- Regional in nature
- Reliance on deterrence (offensive retaliation)
- NBC - it’s all the same WMD

Today
- Extended battlefield: air bases, ports are front line
- BW seen as very different
- US/Allied concerns about splitting coalitions
- U.S. Homeland at risk
- Deterrence could fail; emphasize deterrence by denial (strong defense)

N ≠ B ≠ C
The Complexity of CB Environment

- Limited institutional or personal experience within DoD
- CB Agent scenarios - hundreds of different possibilities!
- CB casualties
  - Delayed in time: dispersed in effect
  - Medical, not trauma in nature
- CB Attack - could be covert
Chemical/Biological Program
Core Assumptions

• CB threat is a prototype of future warfare:
  • Complex and changing
  • Need for clearly defined roles and responsibilities will replace requirement for detailed procedures
  • Threat is shifting from survival in CB environment to response to a limited or specific CB incident

• B ≠ C
“The one that scares me to death, perhaps even more so than tactical nuclear weapons, and the one we have less capability against is biological weapons.”

Popular Interest In Bioterrorism
# The Challenge of Bio-Defense

<table>
<thead>
<tr>
<th>CW</th>
<th>BW</th>
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</table>
| **CW agent threat and nature**  
  - Small number  
  - Immediate effects  
  - Largely tactical effects | **BW agent threat and nature**  
  - Potential for large numbers  
  - Delayed effects & contagion  
  - Potential strategic effects |
| **Detection and identification**  
  - Simple analysis (yes/no)  
  - Distinct symptoms | **Detection and Identification**  
  - Complex analysis  
  - Confusing symptoms |
| **Warning & Reporting**  
  - Deal with at local level  
  - Point of attack easily identified; hazard prediction understood | **Warning & Reporting**  
  - Local actions limited  
  - Attribution of attack difficult to ascertain; models inadequate |
| **Protection & countermeasures**  
  - Self-administered pre-treatment  
  - Full IPE and Collective Protection | **Protection & countermeasures**  
  - Immunizations  
  - Respiratory barrier (mask)  
  - Disease surveillance (time lag) |
Biological Detection is Different From Chemical Detection

<table>
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<tr>
<th>Chemical Agents</th>
<th>Emerging Chemical Agents</th>
<th>Bioregulators</th>
<th>Toxins</th>
<th>Microbes</th>
<th>Engineered Microbes</th>
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<tr>
<td>Nerve Agents</td>
<td>Toxic Chemicals</td>
<td>Neuropeptides</td>
<td>Ricin, SEB, Saxitoxin, Mycotoxin</td>
<td>Bacteria, Viruses, Spores</td>
<td>Genetically Manipulated Micro-encapsulates</td>
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<tr>
<td>Blister Agents</td>
<td>Aerosols</td>
<td>Psychoactive Compounds</td>
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<td>Blood Agents</td>
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- 10^-3 g/Person “Toxicity” 10^-12 g/Person

- Fast Detection Time
- Slower Detection Time

The Bottom Line: B ≠ C
Timeline for Medical Intervention

Viruses

Bacteria / Rickettsia

Toxins

T=0 first BW agent reaches US personnel

This is not Chemical Warfare…
Desired Outcome is Detect to Warn- EARLY WARNING
Challenges for Future Biological Detection

Institute for Defense Analysis - Mission Area Analysis  
(Jan 2000)

- Wide Range of Agents, Including Conventional Agents, Bioengineered Agents, Toxins, Bioregulators  
  • Required: Broad Spectrum Detection and Identification
- Increased Toxicity, Encapsulation  
  • Required: Very High Sensitivities
- Less Treatable Agents, Agents for Which There Are No Vaccines, Contagious Agents, Rapidly Acting Agents  
  • Required: Warning Prior to Significant Exposure
- More Stable Agents, Improved Covert Dissemination Means, (and Improved US Battlefield Awareness of Conventional Attacks)  
  • Required: More Emphasis on Covert Attacks (Non-covert Attacks May Be Ameliorated by Non-materiel Doctrinal Solutions)
- Technical Characteristics, Scope of Threat Must Be Decided!  
  • Lethality, Particle Size, Purity, Survivability, Dissemination Efficiency, etc.
Challenges for Future Bio Defense Doctrine

**Intelligence**
- Agent
- Delivery System
- Organization
- Time

**Medical Countermeasures**
- Vaccines
- Diagnostics
- Therapeutics

**Education & Training**
- Military and Civilian Health Care Providers
- Electronic Communication
- Distance Learning

**Physical Countermeasures**
- Detection
- Physical Protection
- Decontamination

**Bio Defense Doctrine**
Future Challenges/Chemical Corps/Service CBD Specialists

Homeland Security
Institutional Reform
Science and Technology Development and Procurement
Coalition Partners
Joint Forces
Joint Warfighter Requirements

Full Spectrum Dominance
Challenges for the Chemical Corps/Service CBD Specialists

- Modifying and Adapting 2 MTW Core Competencies to Address Spectrum of Conflict During Transformation
  - Including All Aspects of Biological Defense – Become more knowledgeable in biological warfare – agents, physical properties, medical treatment, and decontamination.

- Capable Advisors to Commander for Operations Other than War
  - Protection Levels for Less than ICT/LD
  - Adaptable Detection, Warning, and Reporting Networks

- Establishing Principles of NBC Defense at All Operational Levels and Depths
  - Individual Soldier, Sailor, Airman
  - Rear Areas, Homeland Security

- Improving true Jointness
  - Doctrine, Training, Leader Development, Organization, Materiel

- Become experts in the domestic & international hazardous materials, Federal Response Plan, Hazmat and Bio Hazard operations
Challenges for the Chemical Corps/Service
CBD Specialists

Continuing/documented CB defense Training Shortfalls:

• 1991—Operation Desert Storm
• 1996—GAO Report, “Chemical and Biological Defense: Emphasis Remains Insufficient to Address Continuing Problems”
• 1998—Joint NBC Defense Executive Agent, “CINC Assessment”
• 1999—GAO Report, “Chemical and Biological Defense: Observations on Actions Taken to Protect Military Forces”
• 2000—GAO Report, “Chemical and Biological Defense: Units Better Equipped, but Training and Readiness Reporting Problems Remain”

Integrated CBD Training Must Continue to Improve
Develop Future Staff Officers/Planners/Decision Makers who are:

- Fully aware of the WMD/NBC/CP threat and of the potential impact of that threat on joint forces and operations.

- Educated, trained and capable of performing their staff functions in WMD/NBC/CP situation.

- Aware and sensitive to WMD/NBC/CP issues to influence the decision making process.

- Supported by joint doctrine that appropriately addresses WMD/NBC/CP issues.

- Fully capable of operating at any level within a Joint Task Force
Potential New Directions to Think About

- Establish a Joint Program Executive Officer (PEO) to consolidate all materiel development responsibilities

- Establish multiple, highly specialized, rapidly deployable “fly-away” CB defense packages
  - Support geographic CINCs in a consequence management role at critical theater fixed sites, or tactically
  - Detect, identify, and collect agent samples to verify alleged use of CBW (OCONUS)
  - Respond to a CONUS, or OCONUS terrorist attack

- Establish a Joint CB Defense Operations Center
  - Comprised of all Service representatives- Joint Staff controlled
Important/Topical Issues

- **We’re at a critical place and time (again)**
  - Senior Executives in OSD think CB Defense is important
  - New Administration team coming on-board; transition team has shown great interest in our business
  - There will be changes: strategic review has 12 ongoing panels looking at various areas
  - QDR- ongoing- investment alternatives under review

- **USD(AT&L) plans to nominate an ATSD(NCB)**

- **Maturation/Evolution of the Joint CB Defense Process**

- **Homeland Security – DoD’s role**
  - CBDP now responsible for RDA for domestic preparedness
• “Today’s problems cannot be solved with the same thinking that created them.”

Albert Einstein
Chemical Corps Regimental Association

### Membership Benefits

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<td>All Full Membership Benefits</td>
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<td>Patronship in the Museum</td>
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Be a part of the continuing tradition and support our history!
Be a member of the Chemical Corps regimental Association...join today!
To join the Chemical Corps Regimental Association, please fill out the application at our web site [www.nti.net/ccra](http://www.nti.net/ccra) or pick up an application form at the Chemical Personnel Proponency Office, U.S. Army Chemical School and return to:

Chemical Corps Regimental Association, P.O. Box 437, Fort Leonard Wood, MO

Business Manager: Gina Coffelt Phone #: (573) 336-2049 E-mail coffeltg@aol.com
CPPO: (573) 569-0131 ext 3-7692, DSN 676-7692