UNITED STATES ARMY
CHEMICAL CORPS

Report Documentation Page

Report Date	Report Type	Dates Covered (from... to)
11Jul2001	N/A	-

Title and Subtitle Responding to the CB Threat Past- Present- Future	**Contract Number**
	Grant Number
	Program Element Number
Author(s) Winegar-Johnson, Anna	**Project Number**
	Task Number
	Work Unit Number
Performing Organization Name(s) and Address(es) United States Army Chemical Corps	**Performing Organization Report Number**
Sponsoring/Monitoring Agency Name(s) and Address(es) NDIA (National Defense Industrial Association) 211 Wilson Blvd, STE. 400 Arlington, VA 22201-3061	**Sponsor/Monitor's Acronym(s)**
	Sponsor/Monitor's Report Number(s)
Distribution/Availability Statement Approved for public release, distribution unlimited	
Supplementary Notes Proceedings from Worldwide Chemical Conference, 9-13 July 2001 Sponsored by NDIA, The original document contains color images.	
Abstract	
Subject Terms	
Report Classification unclassified	**Classification of this page** unclassified
Classification of Abstract unclassified	**Limitation of Abstract** UU
Number of Pages 38	

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.

UNITED STATES ARMY
CHEMICAL CORPS

Responding to the CB Threat
Past-Present-Future

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Deputy Assistant to the Secretary of Defense

Chemical and Biological Defense

World-Wide Chemical Conference – 11 July 2001

My Office

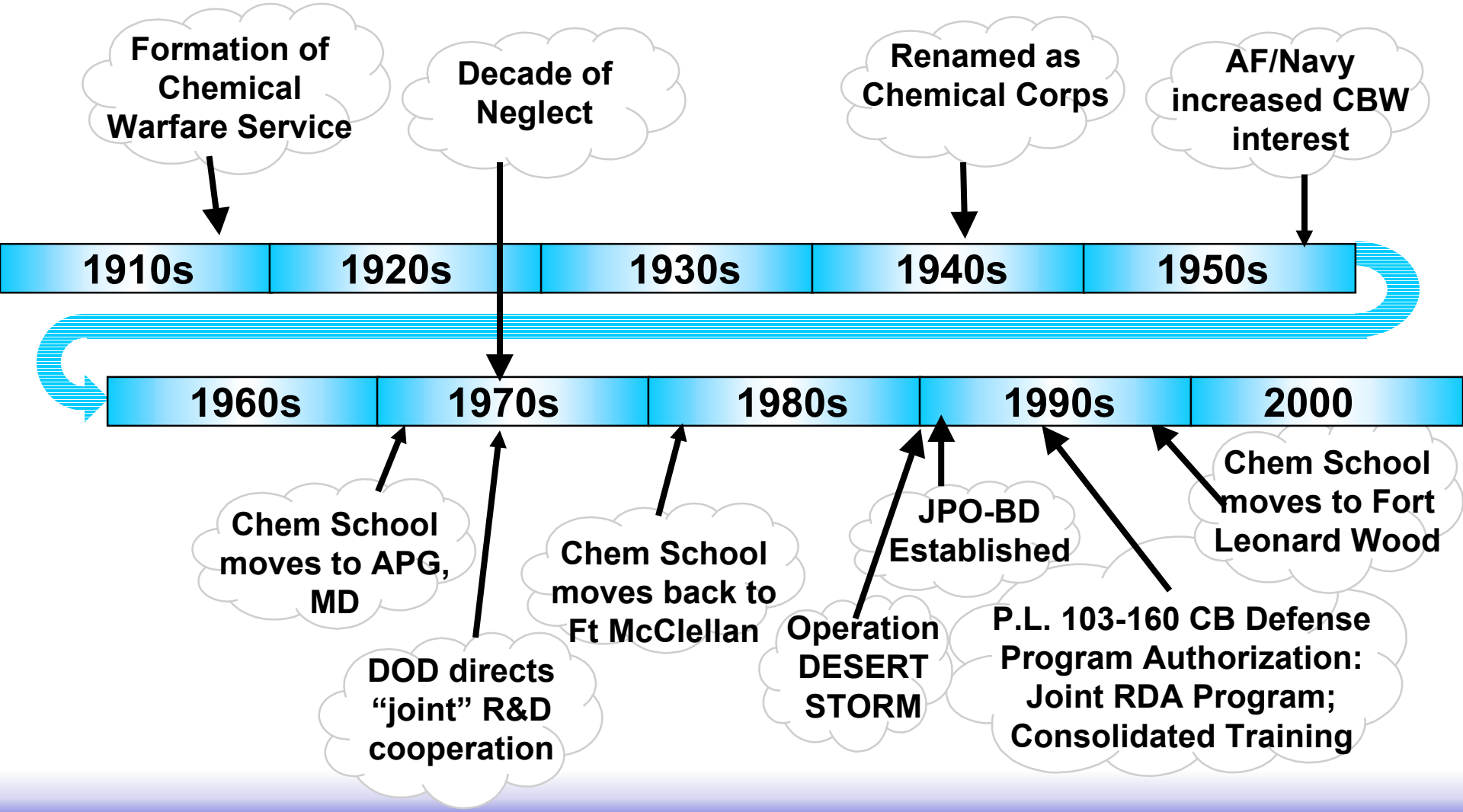
Operation Cloudy Office

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

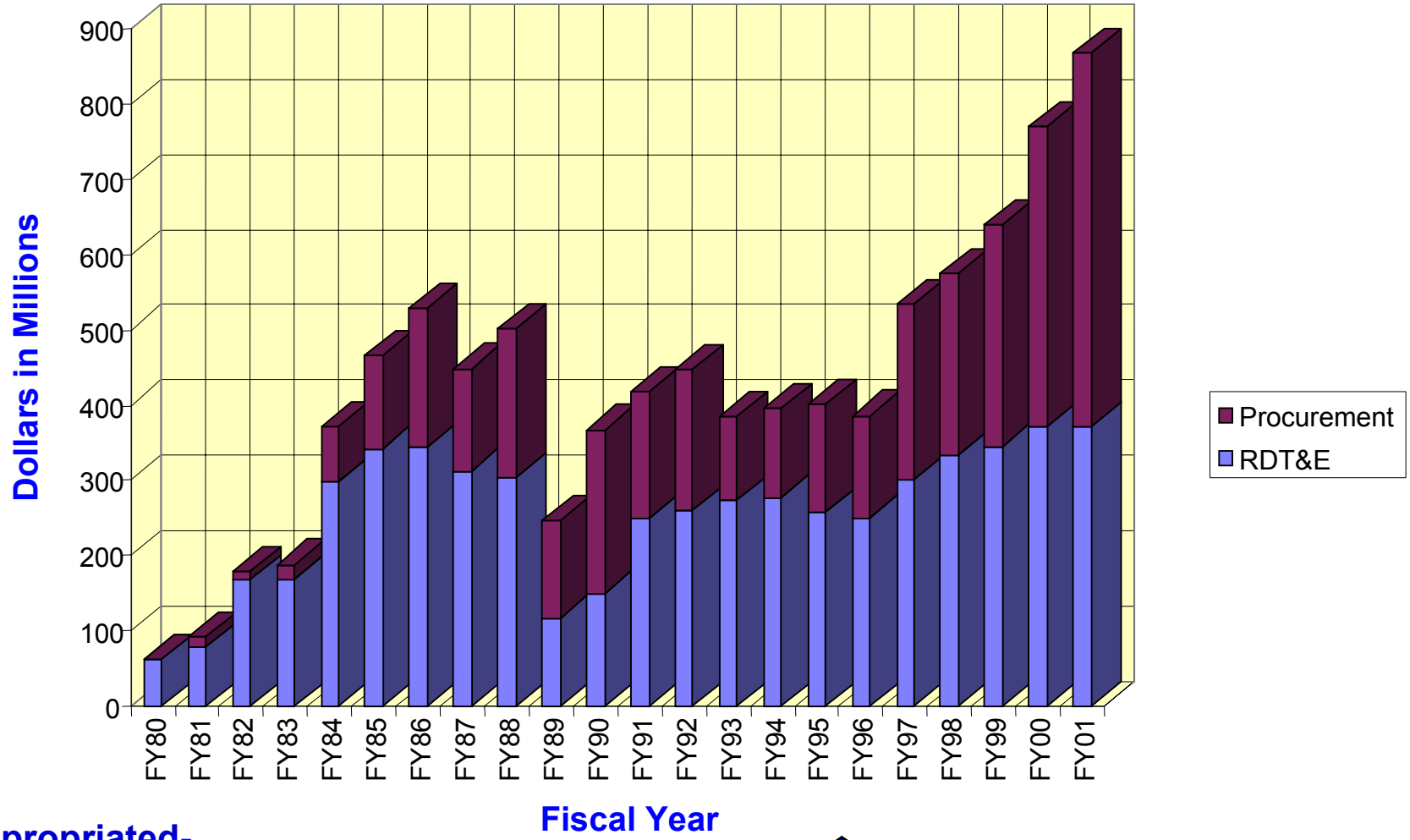


CB Defense Deficiencies Identified in Operation Desert Storm

Detection	Individual Protection	Collective Protection	Decon-tamination	Medical
• No Organic Communication • Limited standoff detection • Limited liquid agent detection • Single biodetection technology • Limited HD detection • Limited recon • No individual detectors • High false alarm rate potential • Slow response time to HQ	<u>Masks</u> • Multiple masks for ground and vehicle functions • Limited aviator masks <u>Clothing</u> • Bulky • Superactivated charcoal • Not launderable • Bulky accessories	• Few shelters • Very limited integrated ship & vehicle protection • Limited deployable collectively protected shelters for tactical applications	• Corrosive decontaminants • Environmentally hazardous sensitive equipment decon • Limited personal decon • Limited large area decon • Water-based decontaminants • Labor intensive	• Limited BD vaccines • No CW prophylaxes • Limited CW pretreatment • Limited medical training for casualty management • Limited diagnostic capability

DoD Chemical/Biological Defense Program Historical Review

FY80-01 Total CBDP Procurement, RDT&E *



* Appropriated-
including plus-ups

PL 103-160

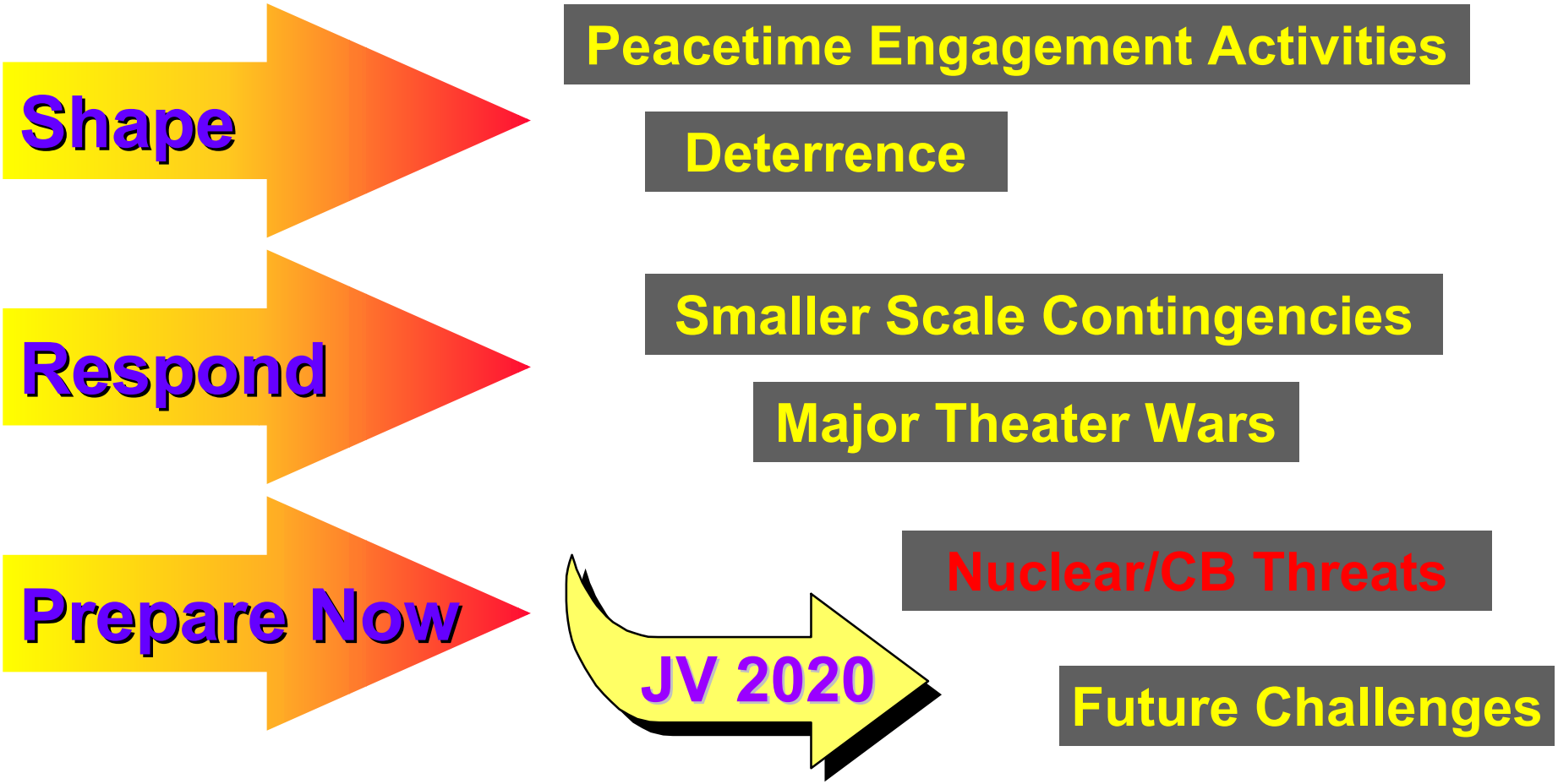
“The grave threat from nuclear, biological and chemical weapons has not gone away with the Cold War. It has evolved into many separate threats, some of them harder to see and harder to answer. And the adversaries seeking these tools of terror are less predictable, more diverse.”

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



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

20th Century	*21st Century*
Industrial Age	Information Age
Nation-States	Globalization
Security Emphasis: *Defense*	Security Emphasis: *Economics/Diplomacy/Defense*
Department of Defense	Integrated National Security Apparatus
Military Forces: *Ground/Maritime/ Air/Space*	Security Forces: *Aerospace/Maritime/Ground/ Homeland/Economic*

A broader range of threats

"Some things do not change. The survival and security of the United States remain our priority." –U.S. National Security in the 21st Century- Hart/Rudman Commission

Spectrum of Military Operations

Changing Perceptions

"1991"	Today
• WMD = Poor man's atomic bomb	• WMDs counter U.S. conventional superiority
• Used against US as weapons of last resort	• Early CB use against US possible, even likely
• Weapons of <u>mass</u> destruction	• Low lethality attractive as well
• Operating "too hard to do"	• BW still (too?) hard to do
• Too hard for adversary to use effectively	• CBW have operational utility; differentiated effects

Changing Perceptions - Continued

"1991"	Today
• CW, esp. BW, not effective vs forces in field	• Extended battlefield: air bases, ports are front line
• BW seen through CW prism	• BW seen as very different
• Effects on coalitions unknown and not planned	• US/Allied concerns about splitting coalitions
• Regional in nature	• U.S. Homeland at risk
• Reliance on deterrence (offensive retaliation)	• Deterrence could fail; emphasize deterrence by denial (strong defense)
• NBC - it's all the same WMD	• $N \neq B \neq C$

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.”

Gen. Colin Powell, then Chairman of the Joint Chiefs of Staff. Testimony before US Congress, House Committee on Armed Services, *Hearings on National Defense Authorization Act FYI 1994* - H.R. 2401, 103rd Cong., 1st sess., H201–33 (Washington, D.C.: Government Printing Office, 1993): 112.

Popular Interest In Bioterrorism

The Challenge of Bio-Defense

B ≠ C

CW

- **CW agent threat and nature**
  - Small number
  - Immediate effects
  - Largely tactical effects
- **Detection and identification**
  - Simple analysis (yes/no)
  - Distinct symptoms
- **Warning & Reporting**
  - Deal with at local level
  - Point of attack easily identified; hazard prediction understood
- **Protection & countermeasures**
  - Self-administered pre-treatment
  - Full IPE and Collective Protection

BW

- **BW agent threat and nature**
  - Potential for large numbers
  - Delayed effects & contagion
  - Potential strategic effects
- **Detection and Identification**
  - Complex analysis
  - Confusing symptoms
- **Warning & Reporting**
  - Local actions limited
  - Attribution of attack difficult to ascertain; models inadequate
- **Protection & countermeasures**
  - Immunizations
  - Respiratory barrier (mask)
  - Disease surveillance (time lag)

Biological Detection is Different From Chemical Detection

Vapor ⟷ Aerosol

Chemical Agents	Emerging Chemical Agents	Bioregulators	Toxins	Microbes	Engineered Microbes
Nerve Agents *Blister Agents* *Blood Agents*	*Toxic Chemicals* *Aerosols*	*Neuropeptides* *Psychoactive Compounds*	*Ricin* *SEB* *Saxitoxin* *Mycotoxin*	*Bacteria* *Viruses* *Spores*	*Genetically Manipulated* *Micro-encapsulates*

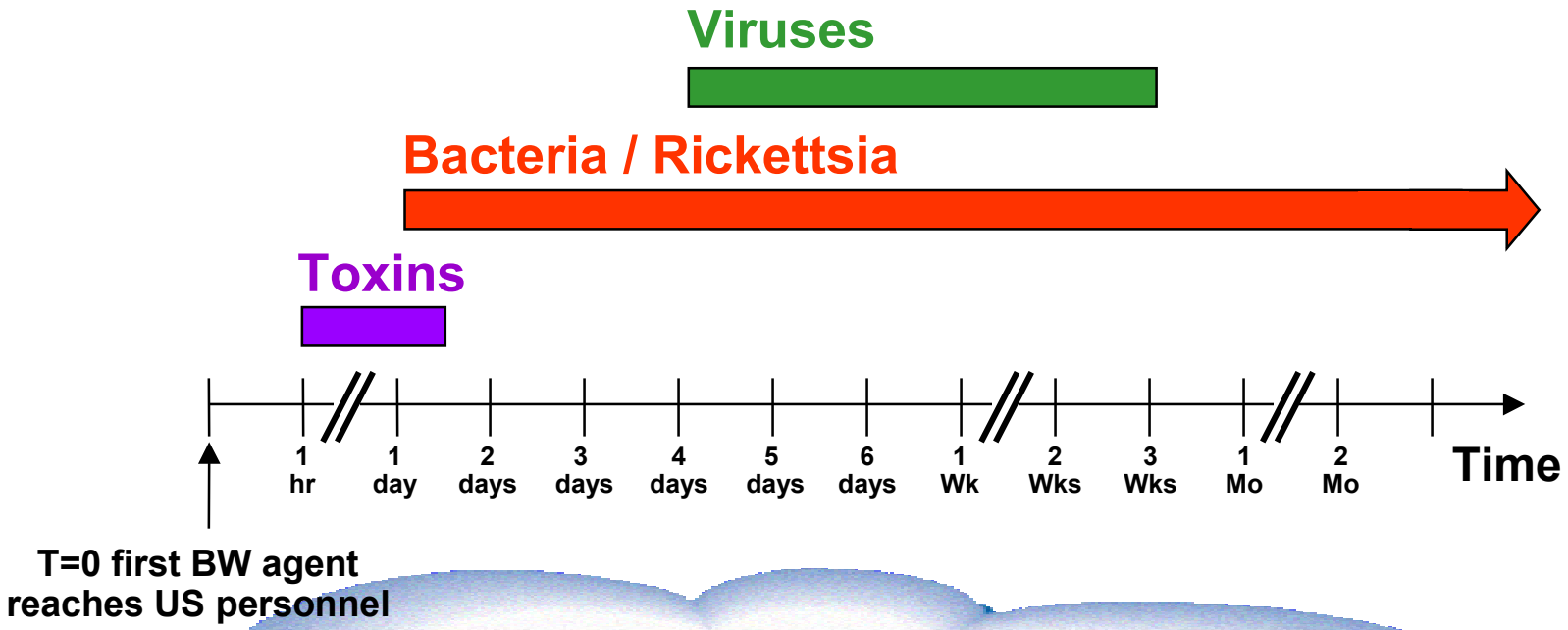
10^{-3} g/Person "Toxicity" 10^{-12} g/Person

Fast Detection Time Slower

The Bottom Line:

$B \neq C$

Timeline for Medical Intervention



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*.

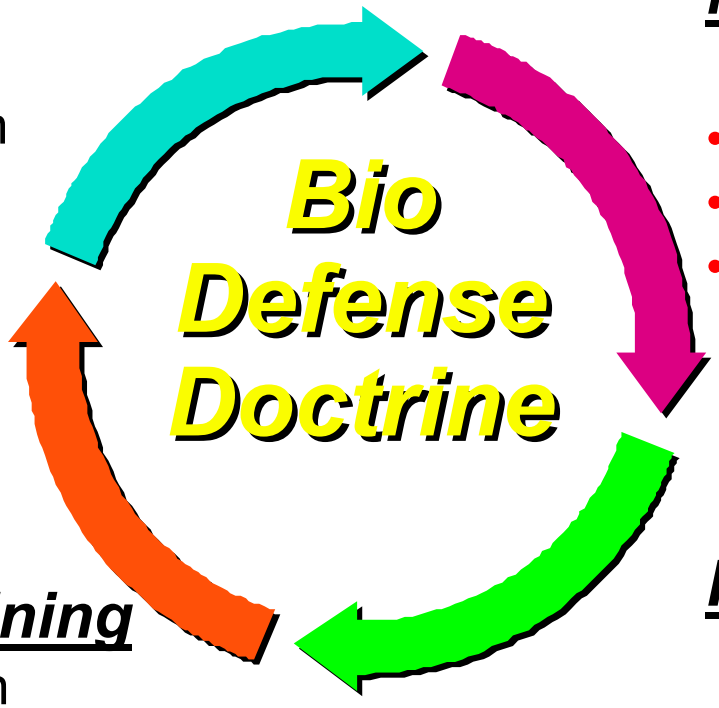
Challenges for Future Bio Defense Doctrine

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

Future Challenges/Chemical Corps/Service CBD Specialists

Homeland Security

Institutional

Reform

Joint Warfighter Requirements

Science and Technology Development and Procurement

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**
- **1991—GAO Report,** "Chemical Warfare: Soldiers Inadequately Equipped and Trained to Conduct Chemical Operations"
- **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

Challenges for the Chemical Corps/Service CBD Specialists

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 can not be solved with the same thinking that created them.”**

Albert Einstein

DEPARTMENT OF DEFENSE
CBDP
CHEMICAL AND BIOLOGICAL DEFENSE PROGRAM

Chemical Corps Regimental Association

Membership Benefits

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Membership Card
Membership Decal
Retorts
The Yellow Book
Army Chemical Review
$25.00 Per Year

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