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## MULTI-SERVICE DOCTRINE FOR CHEMICAL, BIOLOGICAL, RADIOLOGICAL, AND NUCLEAR OPERATIONS

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JULY 2011

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**Headquarters, Department of the Army**

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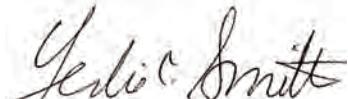
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## Foreword

This publication has been prepared under our direction for use by our respective commands and other commands as appropriate.



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Tyndall Air Force Base, FL**

**1 July 2011**

# **Multi-Service Doctrine for Chemical, Biological, Radiological, and Nuclear Operations**

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# Preface

## SCOPE

This publication provides tactical-level commanders and staffs with keystone doctrine for operations to prevent, counter, defend, and mitigate the entire range of chemical, biological, radiological, and nuclear (CBRN) threats, hazards, and effects—including support to combating weapons of mass destruction (CWMD) activities in all operational environments. It addresses operational concepts, principles, fundamentals, planning, operational considerations, and training and support functions.

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*Note. While certain domestic response plans address high-yield explosives, this publication does not include high-yield explosives as a specific CBRN threat or hazard per Joint Publication (JP) 3-41.*

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## PURPOSE

The purpose of this publication is to guide tactical commanders and staffs while they are conducting operations to shape the CBRN threat and hazard, facilitate the larger joint force mission, and serve military and national strategy. This includes two important objectives:

- To enhance mission effectiveness by preparing personnel, equipment, and facilities to react to, survive, and recover from hazard conditions.
- To prevent, counter, defend, and mitigate to enable deployed forces to continue mission-critical operations under CBRN hazard conditions.

This publication serves as a foundation for developing multi-Service and Service-specific manuals, standing operating procedures, and response standards and for refining existing training support packages, mission training plans, training center and unit exercises, and Service school curricula. It drives the examination of organizations and materiel developments applicable to the military support of CBRN operations. At a minimum, this manual—

- Serves as the overarching and integrating doctrinal bridge to all supporting CBRN multi-Service tactics, techniques, and procedures (MTTP) publications and their application in support of CWMD at the tactical level.
- Provides a link between CBRN operations multi-Service doctrine and the appropriate joint doctrine, namely JP 3-11, JP 3-40, and JP 3-41.
- Provides a reference summary of relevant strategic and operational guidance for CWMD contained within national security and national military policy, strategy, and treaties.
- Introduces and summarizes the challenges associated with global CBRN threats and hazards.

## APPLICATION

This publication applies to the Active Army, the Army National Guard (ARNG)/Army National Guard of the United States (ARNGUS), and the United States Army Reserve (USAR) unless otherwise stated. This publication is designed for use at the tactical level and supports military and nonmilitary commanders and staffs.

## IMPLEMENTATION PLAN

Participating Service command offices of primary responsibility will review this publication, validate the information, and reference and incorporate it into Service and command manuals, regulations, and curricula as follows:

- **Army.** The U.S. Army (USA) will incorporate the procedures in this publication into USA training and doctrinal publications as directed by the Commander, U.S. Army Training and Doctrine Command. Distribution is according to Department of the Army (DA) Form 12-99-R (Initial Distribution [ID] Requirements for Publications).
- **Marine Corps.** The U.S. Marine Corps (USMC) will incorporate the procedures in this publication into training and doctrinal publications as directed by the Deputy Commandant for Combat Development and Integration. Distribution is according to the USMC publications distribution system.
- **Navy.** The U.S. Navy (USN) will incorporate the procedures in this publication into training and doctrinal publications as directed by the Commander, Navy Warfare Development Command. Distribution is according to Naval Supply (NAVSUP) Publication 409.
- **Air Force.** The U.S. Air Force (USAF) will incorporate the procedures in this publication into USAF training and doctrinal publications as directed by the Air Staff. Distribution is according to the USAF publications distribution system.

## SUMMARY OF CHANGE

This revision aligns with Service capstone and joint doctrine, as applicable, by integrating current guidance, lessons learned, and new concepts and technologies that have been fielded since the previous edition was published.

## USER INFORMATION

CBRN defense specialists from the four Services collectively developed this publication under the leadership of the U.S. Army Chemical, Biological, Radiological, and Nuclear School.

The United States Army proponent for this manual is the United States Army Chemical, Biological, Radiological, and Nuclear School (USACBNS). Send United States Army comments and recommendations on the Department of the Army (DA) Form 2028 (Recommended Changes to Publications and Blank Forms) to the Commandant, USACBNS, ATTN: ATZT-CDC, 320 MANSCEN Loop, Suite 270, Fort Leonard Wood, MO 65473-8929.

We encourage recommended changes for improving this publication. Please reference changes by specific page and paragraph and provide a rationale for each recommendation. Send comments and recommendations directly to—

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Terms for which this manual is the proponent publication (the authority) are in boldfaced text and have an asterisk in the glossary.

Unless this publication states otherwise, masculine nouns and pronouns do not refer exclusively to men.

# Introduction

This manual—

- Addresses CBRN threats and hazards.
- Defines CBRN operations and how they support U.S. policy and strategy through weapons of mass destruction (WMD) proliferation prevention, WMD counterforce, CBRN defense, and CBRN consequence management.
- Introduces installation CBRN protection.
- Introduces military health system support in a CBRN environment.

This revision of the March 2003 *Multiservice Tactics, Techniques, and Procedures for Nuclear, Biological, and Chemical Defense Operations* into *Multiservice Doctrine for Chemical, Biological, Radiological, and Nuclear Operations* represents a significant change to our key tactical level doctrine for military operations conducted in environments where potential, threatened, or actual CBRN hazards may be present.

This edition includes several key changes that were necessary to transform former nuclear, biological, and chemical defense doctrine into the broader range of CBRN operations, which are consistent with the current and future operational environments. At the national level, this was recognized by the *National Strategy to Combat Weapons of Mass Destruction* and by the corresponding *National Military Strategy to Combat Weapons of Mass Destruction*. Joint concepts and doctrine have also been updated to reflect the operational environment and the current and projected guidance for conducting military operations.

The publication begins with an overview of CBRN threats and hazards. It explicitly distinguishes between threats (associating them with WMD) and other CBRN hazards, including toxic industrial materials and weapon effects. This deliberate separation of WMD from toxic industrial materials is one of the key underlying themes for this doctrinal update. Adversarial intent in the use of WMD was the traditional defense concern for military operations in the past, but a broader range of hazard potential from toxic industrial materials has proven to be tactically significant during recent military operations. Further, an understanding of the WMD proliferation continuum allows us to address the unique challenges for successful military operations in these and related environments.

From this baseline understanding of CBRN threats and hazards and the nature of the operational environment, we can then turn our attention to U.S. policy and strategy. This manual provides a brief overview of national policy and strategy and related military strategies, policies, and doctrine. From these strategic and operational implications, we then present a current framework for CBRN operations, including a tactical level task taxonomy to support commanders. This framework for CBRN operations represents a major shift from the former, passive defense nature against nuclear, biological, and chemical weapons to a broader, active, and preventive approach toward a wider range of CBRN threats and hazards.

It is important to implement a fundamental framework that is employed in support of tactical, operational objectives. This revision presents a CBRN operations framework that is consistent with strategic themes and presents operational level tasks in a series of chapters that translate them into tactical level tasks for the armed forces. These tactical tasks include activities that directly or indirectly support strategic objectives in an effort to prevent WMD proliferation or to counter WMD proliferation once it has occurred and resulted in the potential or actual employment. The tasks also include consequence management activities that are necessary to mitigate the effects of CBRN hazards, whether or not they are intentionally employed. This material represents a significant doctrinal shift from “reactive” to “proactive” military capabilities. These actions are being performed at the tactical level, perhaps, now more than ever.

This publication also introduces emergency management doctrine for DOD installations to address protection from CBRN and other threats and hazards. Our Services frequently combine CBRN operations with an all-hazard approach to protect DOD installations and related locations such as bases, base camps, and key activities.

## **Introduction**

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Finally, this manual introduces common themes for the military health system support in CBRN operational environments. These measures enable protection and preservation of the force from health hazards associated with the effects of CBRN hazards.

There are three supporting appendixes that provide supplemental material which is fundamental to understanding the nature of CBRN operations. An appendix that addresses CBRN hazards provides additional details (description, physiological actions, and effects) for each of the four hazard types. There is also an appendix with an introduction to key treaties and policies so that the reader may better understand the operational environment in which other nations are involved. The last appendix includes the basic standards of proficiency for multinational operations in CBRN environments as agreed upon by a North Atlantic Treaty Organization (NATO) standardization agreement.

## **PROGRAM PARTICIPANTS**

The following commands and agencies participated in the development of this publication:

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## Chapter 1

# Chemical, Biological, Radiological, and Nuclear Threats and Hazards

This chapter discusses CBRN threats and hazards within the construct of the WMD proliferation continuum and describes how key players, such as state and nonstate actors, attempt to acquire WMD-related materials. Understanding the difference between CBRN threats and hazards; the terms threat reduction cooperation, contamination avoidance, and chemical warfare; and the relationships between individuals and groups that may seek to harm the United States is critical to supporting the nation's strategy to combat WMD.

## OVERVIEW

1-1. *CBRN operations* include the employment of tactical capabilities that counter the entire range of CBRN threats and hazards through WMD proliferation prevention, WMD counterforce, CBRN defense, and CBRN consequence management activities. CBRN operations support operational and strategic objectives to combat WMD and operate safely in a CBRN environment. A CBRN environment consists of conditions found in an area resulting from immediate or persistent effects of CBRN attacks or unintentional releases. The following definitions are provided:

- **WMD.** WMD are CBRN weapons that are capable of causing a high order of destruction or mass casualties and exclude the means of transporting or propelling the weapon if such means are a separate, divisible part of the weapon.
- **Threat reduction cooperation.** Threat reduction cooperation consists of activities that are undertaken with the consent and cooperation of host nation authorities in a permissive environment to enhance physical security and to reduce, dismantle, redirect, and/or improve the protection of a state's existing WMD program, stockpiles, and capabilities.
- **Contamination avoidance.** Contamination avoidance is individual and/or unit measures that are taken to reduce the effects of CBRN hazards.
- **Chemical warfare.** Chemical warfare is all aspects of military operations involving the employment of lethal and incapacitating munitions/agents and the warning and protective measures associated with such offensive operations. Since riot control agents and herbicides are not considered to be chemical warfare agents, they will be referred to separately or under the broader term of *chemical*, which will be used to include all types of chemical munitions/agents collectively.

1-2. It is important to understand that not all terrorist incidents are CBRN incidents and not all CBRN incidents are terrorist incidents. For a terrorist incident to be categorized as a CBRN incident, a CBRN element that results in a high level of destruction must be involved. This definition omits incidents that involve the use of only high-yield explosives. This publication does not include high-yield explosives in the definition of CBRN and would, therefore, not categorize events involving only high-yield explosives as CBRN incidents. However, certain domestic response plans do address high-yield explosives.

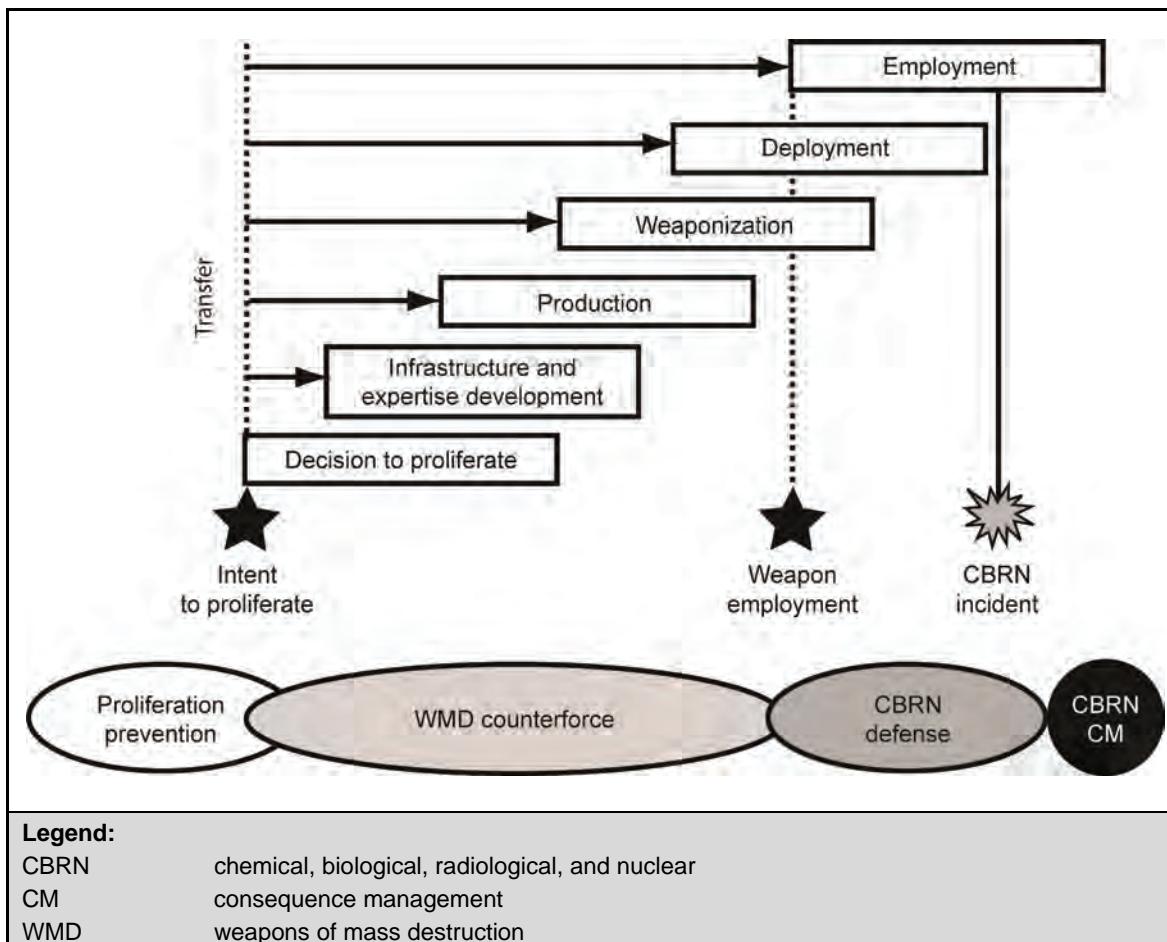
## THREATS

1-3. Hostile state and nonstate actors, including terrorists and supporters of terrorists, seeking to acquire WMD materials may pose a threat to the United States and its allies. *CBRN threats* include the intentional employment of, or intent to employ, weapons or improvised devices to produce CBRN hazards.

## **PROLIFERATION**

1-4. Proliferation refers to the transfer of WMD-related materials, technology, and expertise from suppliers to hostile state or nonstate actors. The proliferation of WMD and supporting technologies and the expansion of terrorism have made the potential use of these weapons against the United States and its allies more likely. In some cases, the entire CBRN development process can be accomplished in hard and deeply buried targets/underground facilities, making it more difficult to generate the intelligence to locate, identify, and characterize CBRN infrastructures.

1-5. The proliferation continuum illustrates how hostile states and terrorists may seek to acquire WMD-related materials in attempts to threaten the United States and its allies and cause chemical, biological, or radiological contamination in military operational areas. The proliferation continuum refers to a series of activities that adversaries may execute to develop and/or acquire WMD. The generic activities of proliferation include the decision to proliferate, infrastructure and expertise development, production, weaponization, deployment, and employment (see figure 1-1). This continuum may be encountered in a nonsequential fashion; for example, an adversary may buy a weapon system that is ready for immediate employment and bypass stages such as production and weaponization.



**Figure 1-1. CBRN operations and the WMD proliferation continuum**

1-6. A proliferant group or nation requires the will, equipment, technical knowledge, people, money, and time to successfully develop and sustain this process. Completely halting proliferation is impossible, but restricting it is vitally important and achievable. To that end, the DOD is playing an active role in technology transfer and export controls and in the implementation of arms control and nonproliferation regimes.

## GLOBALIZATION

1-7. The proliferation of missile technology has enabled many states to acquire delivery systems that can range well outside their immediate regions. A number of states have systems that can strike targets within the United States. Long-range WMD delivery systems enable an adversary to deter U.S. action, deny access to its territory or intermediate staging bases, preempt a pending operation, strike U.S. allies to affect U.S. policy, or simply coerce the United States to alter its policy.

1-8. U.S. forces have global reach and are capable of engaging threats, influencing potential adversaries, assuring friends, and promoting peace and stability with a variety of capabilities. However, global reach and influence are not just the purview of nation-states. Globalization and emerging technologies allow small transnational groups to use asymmetric approaches (including criminal activity, terrorism, or armed aggression with international reach) with relative ease and little cost.

1-9. A program is considered to be a WMD program if it is funded and developed for that purpose and has a process or procedure designated strictly for WMD development. A program need not be sufficiently advanced to yield a weapon or device to be considered a WMD program since it takes years or decades to fully develop that type of program—depending on technology; engineering; funds; materials; and the determination of a state actor, nonstate actor, or terrorist group. The United States acknowledges that some nations have a WMD program. However, when WMD programs are developed by adversaries who may use them to threaten the United States and its allies, the United States and its forces may take actions to disrupt, prevent, deny, dissuade, reverse, reduce, or destroy WMD and related programs through interdiction, elimination, or offensive operations.

1-10. The presence of WMD poses a great challenge within a region. It disrupts U.S. and international efforts to foster stability and curtail proliferation activity. Additionally, the perceived imbalance in power can lead to active proliferation among neighboring states (such as Pakistan and India), delivering a severe blow to ongoing nonproliferation, counterproliferation, or other diplomatic and economic efforts. The challenges of states possessing WMD, even short of employment (presence, proliferation, and stability disruption), may prove to be the most challenging and dangerous to U.S. interests. The growing availability of WMD-related technologies, precursors, and expertise and the sophistication of these technologies compound the threat. Precursors are any chemical reaction that takes place at any stage in the production of a toxic chemical by whatever method, including key components and multicomponent chemical systems.

## **STATE AND NONSTATE ACTORS**

1-11. Threats from the proliferation of WMD come from state and nonstate actors. State actors may have incentives to acquire CBRN weapons in spite of their adherence to international agreements and treaties forbidding such actions, and nonstate groups may not consider themselves bound by such agreements and treaties. State and nonstate actors may have incentives to operate outside the norms of acceptable international behavior, especially when important interests are involved.

1-12. There are no official definitions for state and nonstate actors. However, a state actor can be described as a person or persons who are acting on behalf of a governmental body. Nonstate actors are individuals or groups on the international level who are not governmental representatives; they may reside within a governing state, but they are not recognized by the state. Examples of state and nonstate actors are shown below:

- **State actors.**
  - United States.
  - Germany.
  - Argentina.
- **Nonstate actors.**
  - Terrorist organizations (such as al-Qaida).
  - Militias.
  - Warlords.
  - Rebel opposition forces.
  - Drug cartels.
  - Criminals.
  - Nongovernmental organizations (as part of civil society and generally harmless, but having internal governing powers).

1-13. Key states may assist rogue nations who are attempting to acquire the ability to proliferate WMD through materials, technology, and expertise. However, individuals may also contribute illicitly to the proliferation efforts, despite a state's disapproval or lack of knowledge of such actions occurring; for example, the actions of Pakistani scientist Abdul Qadeer Khan. The following vignette demonstrates how networking across borders (possibly without government knowledge) and operating through black markets have placed nuclear materials and technology into the hands of adversaries who will attempt to threaten the United States and its allies if their nuclear program becomes weaponized.

#### **A.Q. Khan Proliferation Network**

The Khan network was, first and foremost, an elaborate and highly successful illicit procurement network that Khan created in the 1970s to supply Pakistan's gas centrifuge program. The developing program aimed to make highly enriched uranium for nuclear weapons. He built his centrifuge procurement network on an extensive collection of sensitive information that he stole or otherwise acquired in Europe in the middle and late 1970s. In addition, he was involved in acquiring overseas nuclear weapon technology for Pakistan and procuring equipment and materials for this endeavor.

Because of Pakistan's weak industrial infrastructure, it was unable to develop gas centrifuges or nuclear weapons without extensive foreign assistance. Khan relied on the support of many foreign businessmen and experts and on the supply of goods and technologies from foreign countries, especially Europe. Pakistan's nuclear weapons program still depends on the foreign supply of spare parts, special materials, and instruments.

Khan and his associates slowly expanded their import operation into a transnational illegal network that exported (mostly to Muslim countries) whole gas centrifuges, production capabilities, and designs for nuclear weapons. By the late 1990s, the Khan network had evolved into an organization that could provide "one stop shopping" for the wherewithal to produce weapons grade uranium and for nuclear weapon designs and instructions. The motive was to turn a profit while providing additional business for their international collaborators. In addition to money, Khan was also motivated by pan-Islamism and its hostility to Western controls on nuclear technology.

Khan has admitted that his main customers were Iran, Libya, and North Korea. Reports indicate that other countries (including Egypt, Iraq, and Syria) were offered assistance, but they purportedly turned down the offers. However, investigators are still trying to verify these claims and determine exactly what assistance each country accepted or refused. In addition, questions remain as to whether members of the Khan network, including Khan himself, offered nuclear weapon assistance to terrorists in Afghanistan prior to the fall of the Taliban.

1-14. Identifying the potential threats of state and nonstate actors is a continual challenge for the United States and its allies, given the elusive nature of adversaries and the ever-increasing speed of global communications, adversarial adaptability, enhanced networking, and intelligence resources.

## **TERRORISTS**

1-15. The term *terrorism* is defined in JP 1-02 as the calculated use of unlawful violence or threat of unlawful violence to inculcate fear; intended to coerce or to intimidate governments or societies in the pursuit of goals that are generally political, religious, or ideological. A critical factor in the understanding of terrorism is the importance of the emotional impact of the terrorist act on an audience other than the victim.

1-16. *The National Security Strategy of the United States of America* (more commonly known as the *National Security Strategy*) highlights the threat from adversaries possessing WMD. It emphasizes the need to be "prepared to stop rogue states and their terrorist clients before they are able to threaten or use WMD against the United States and our allies and friends" and discusses preemptive options against such adversaries.

1-17. *The National Strategy to Combat Weapons of Mass Destruction* asserts, "We will not permit the world's most dangerous regimes and terrorists to threaten us with the world's most destructive weapons. We must accord the highest priority to the protection of the United States, our forces, and our friends and allies from the existing and growing WMD threat." Protection is the preservation of the effectiveness and survivability of mission-related military and nonmilitary personnel, equipment, facilities, information, and infrastructure deployed or located within or outside the boundaries of a given operational area.

1-18. A terrorist group's selection of targets and tactics is a function of the group's affiliation, level of training, organization, and sophistication. Security forces generally categorize terrorist groups according to their operational traditions:

- **National.** National groups operate within the boundaries of a single nation.
- **Transnational.** Transnational groups operate across international borders.

- **International.** International groups operate in two or more nations and are usually assumed to receive direction and support from a foreign government.

## INCIDENTS

1-19. A CBRN incident is any occurrence involving the emergence of CBRN hazards resulting from the use of CBRN weapons or devices, the emergence of secondary hazards arising from counterforce targeting, or the release of toxic industrial material into the environment. A CBRN incident is characterized on the basis of the intent, opportunity, and capability of the occurrence. There are three basic reasons why a CBRN incident happens, regardless of the type and nature:

- **Intentional.** An intentional CBRN incident may include—
  - Criminal acts such as the deliberate dumping or release of hazmat to avoid regulatory requirements.
  - Malicious acts such as the poisoning of one or more individuals.
  - Terrorist acts that involve serious violence to persons or property for a political, religious, or ideological purpose and/or that are a matter of national interest.
- **Accidental.** An accidental CBRN incident is an event caused by human error or natural or technological reasons. Accidental incidents are usually referred to as *hazmat accidents* and may include—
  - Spills.
  - Releases.
  - Leaks.
- **Natural.** A natural CBRN incident is a second- or third-order effect from a natural disaster. Examples include—
  - Toxic chemical release.
  - Biological waste.

1-20. Intent is the distinguishing difference between the three reasons that CBRN incidents happen. To ensure proper assessment when filtering through the information pertaining to an incident, it is important to know the intent category.

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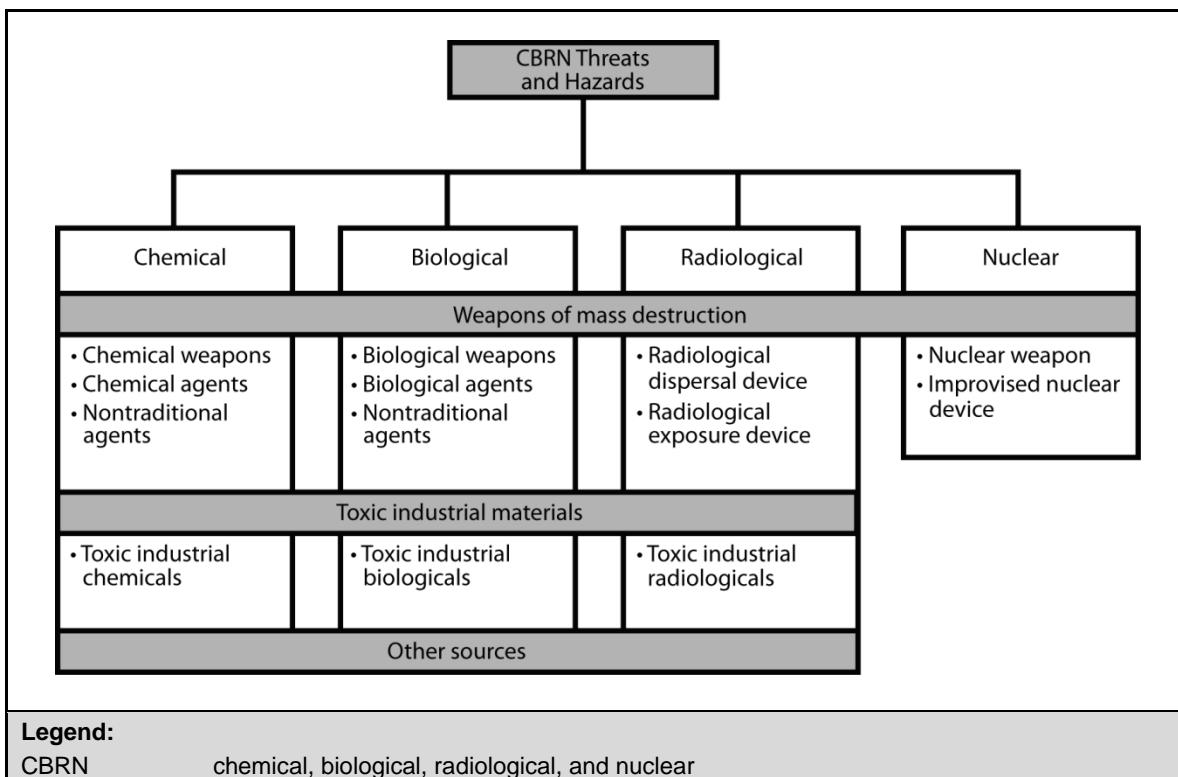
*Note. A CBRN weapon is a fully engineered assembly that is designed for employment to cause the release of a chemical or biological agent or radiological material onto a chosen target or to generate a nuclear detonation.*

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## HAZARDS

1-21. CBRN elements that could cause an adverse effect through accidental or deliberate release, dissemination, or impacts are called *CBRN hazards*. CBRN hazards are often present in conjunction with the incident effects of a WMD device.

1-22. CBRN hazards include those created from accidental or intentional releases of toxic industrial materials, biological pathogens, and radioactive matter. Toxic industrial material is a generic term for toxic or radioactive substances in solid, liquid, aerosolized, or gaseous form that may be used or stored for industrial, commercial, medical, military, or domestic purposes. Toxic industrial material may be chemical, biological, or radiological and are described as toxic industrial chemicals, toxic industrial biologicals, or toxic industrial radiologics. Figure 1-2 shows the sources of CBRN hazards.

**Figure 1-2. CBRN threats and hazards**

1-23. CBRN hazards may result from WMD employment. The key distinction between WMD and CBRN hazards is that WMD refers to the actual weapon, while CBRN refers to the contamination or effects resulting from the employment of WMD and from the dispersal of CBRN materials. When DOD capabilities are called upon to conduct WMD consequence management activities, they will essentially be responding to CBRN hazards or contamination, such as—

- The deposit, absorption, or adsorption of radioactive material or a biological or chemical agent on or near a structure, area, person, or object.
- Food and/or water that is unfit for consumption by humans or animals due to the presence of environmental chemicals, radioactive elements, bacteria or organisms, the byproduct of the growth of bacteria or organisms, decomposing material (includes the food substance itself), or waste in the food or water.

## CHEMICAL HAZARDS

1-24. Historically, chemical hazards of military concern were limited to a small group of uniquely manufactured chemical weapons referred to as *chemical warfare agents*. However, the types of chemical hazards of concern to the military have expanded tremendously over the last decade and now include a large number of toxic industrial chemicals. Chemical hazards are any chemicals (manufactured, used, transported, or stored) that can cause death or other harm through the toxic properties of those materials. This includes chemical weapons (prohibited under the *Chemical Weapons Convention*), chemical agents, and toxic industrial chemicals.

## **Chemical Weapons**

1-25. Together or separately, chemical weapons include—

- A toxic chemical and its precursors, except when intended for a purpose not prohibited under the *Chemical Weapons Convention*.
- A munition or device, specifically designed to cause death or other harm through the toxic properties of the above chemicals, which would be released as a result of the employment of such munition or device.
- Any equipment specifically designed for use directly in connection with the employment of munitions or devices specified above.

## **Chemical Agents**

1-26. A chemical agent is a chemical substance that is intended for use in military operations to kill, seriously injure, or incapacitate, mainly through physiological effects. The term excludes riot control agents when used for law enforcement purposes, herbicides, smoke, and flame. Chemical agents are classified according to—

- **Physical state.** Agents may exist as a solid, liquid, or vapor.
- **Physiological action.** According to their physiological effects, there are nerve, blood, blister, choking, and incapacitating agents. (See Appendix A for detailed information.)
- **Use.** The terms *persistent* and *nonpersistent* describe the time an agent stays in an area. An adversary may have to expend large quantities of chemical agents in order to cause mass casualties or achieve area denial.
  - **Persistent agent.** A chemical agent that, when released, can cause casualties for more than 24 hours to several days or weeks.
  - **Nonpersistent agent.** A chemical agent that, when released, dissipates and/or loses its ability to cause casualties after 10 to 15 minutes.

## **Toxic Industrial Chemicals**

1-27. Toxic industrial chemicals are chemicals that are developed or manufactured for use in industrial operations or research by industry, government, or academia. Examples include pesticides, petrochemicals, fertilizers, corrosives, explosives, and poisons. These chemicals are not primarily manufactured for the specific purpose of producing human casualties or rendering equipment, facilities, or areas dangerous for human use. For example, hydrogen cyanide, cyanogen chloride, phosgene, and chloropicrin are industrial chemicals that can also be military chemical agents.

1-28. Toxic industrial chemicals can pose significant toxic hazards and can damage the human body and equipment. Many industrial chemicals are corrosive, flammable, explosive, or combustible; these hazards may pose greater short-term challenges than the immediate toxic effects. Most toxic industrial chemicals will be released as vapor or highly volatile liquid and can have short- and long-term health effects. The release of large volumes of hazardous industrial chemicals can also produce environmental damage.

## **Other Sources**

1-29. Riot control agents, herbicides, and substances that generate smoke and flame are excluded from classification contained in the *Chemical Weapons Convention* and when used for law enforcement purposes. (See Appendix A for more details on riot control agents and herbicides.) Defoliants are chemicals that are sprayed or dusted onto plants, causing the leaves to fall off prematurely. Unlike herbicides, defoliants do not totally destroy plants.

## **BIOLOGICAL HAZARDS**

1-30. Biological hazards pose unique challenges because they are relatively easy to produce and difficult to detect; their production facilities have no unique signature. A biological hazard is an organism or substance derived from an organism that poses a threat to human or animal health. This can include medical waste or samples of a microorganism, virus, or toxin (from a biological source) that can impact human health.

### **Biological Weapons**

1-31. A biological weapon projects, disperses, or disseminates a biological agent, including arthropod vectors. Militarily significant characteristics for biological aspects of operations in CBRN environments include a normally vulnerable target population, infectious or toxic agents with highly lethal or incapacitating properties, agent availability or adaptability for scaled-up production, agent stability, and agent suitability for aerosol dispersion. Limiting factors include biological properties (particularly rapid decay), environmental factors, and dissemination methods.

### **Biological Agents**

1-32. A biological agent is a microorganism that causes disease in people, plants, or animals or causes the deterioration of materiel. Biological agents are microorganisms that are capable of spreading disease through humans and agriculture. They are categorized as—

- **Pathogens.** Pathogens are disease-producing microorganisms (bacteria, viruses, fungi, rickettsia) that directly attack human, plant, or animal tissue and biological processes.
- **Toxins.** Toxins are poisonous substances that are produced naturally (bacteria, plants, fungi, snakes, insects, and other living organisms), but may also be produced synthetically. Naturally occurring toxins are nonliving byproducts of cellular processes that can be lethal or highly incapacitating.

1-33. Biological agents pose a singular threat due to five factors:

- Small doses can produce lethal or incapacitating effects over an extensive area.
- They are difficult to detect in a timely manner.
- They are easy to conceal.
- They can be covertly deployed.
- The variety of potential biological agents significantly complicates effective preventative or protective treatment.

These factors—combined with small employment signatures; delayed onset of symptoms; detection, identification, and verification difficulties; agent persistence; and communicability—can confer important advantages to adversaries who use biological agents.

1-34. Toxic industrial biologicals include any biological material manufactured, used, transported, or stored for industrial, medical, or commercial processes that could pose an infectious or toxic threat. The release of toxic industrial biological hazards can occur following an incident, attack, or damage at a facility that handles, produces, stores, or recycles biological material. Examples include hospitals, medical facilities, agricultural facilities, and facilities that recycle biological materials for medical, pharmaceutical, or agricultural industries.

### **Other Sources**

1-35. Other biological-related hazards are pandemics and naturally occurring diseases. Pandemics may include Ebola and West Nile viruses or diseases that are widespread and associated with affecting a large portion of the population within a geographic region.

## **RADIOLOGICAL HAZARDS**

1-36. Radiological hazards are an emerging threat to U.S. military operations. These hazards can arise from many sources other than nuclear weapons and can be dispersed in a variety of ways.

1-37. Radiological hazards include any electromagnetic or particulate radiation that is capable of producing ions to cause damage, injury, or destruction. Radiological material causes physiological damage through the ionizing effects of neutron, gamma, beta, or alpha radiation. These types of radiation are referred to as *ionizing radiation*. Radiological materials can be found in a number of military and civilian environments (nuclear power plants, hospitals, universities, construction sites).

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*Note. For the purpose of this publication, the term radiation denotes ionizing radiation unless otherwise stated.*

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1-38. Radiological hazards also include toxic industrial radiologicals (radiological material that is manufactured, used, transported, or stored for industrial, medical, or commercial processes). Possible sources of toxic industrial radiologicals that are capable of producing radioactive hazards are civil nuclear production, research, recycling, and storage facilities; nuclear waste containment sites; industrial and medical nuclear sources; nuclear materials and sources in transit; stolen or smuggled nuclear weapons grade material; medical and fossil fuel manufacturing and waste processing plants; and other industrial sources.

1-39. Adversaries could disperse radioactive material in a number of ways, such as arming the warhead of a missile with radioactive material from a nuclear reactor, releasing low-level radioactive material intended for use in industry or medicine, or disseminating material from a research or power-generating nuclear reactor. Unless radioactive sources are thoroughly shielded, improvised devices employing these materials will more than likely have a significant radiological signature that can be detected before detonation, dispersal, or deployment. The dispersal of radioactive material represents an inexpensive capability that requires limited resources and technical knowledge.

### **Radiological Dispersal Device**

1-40. A radiological dispersal device is an improvised assembly or process, other than a nuclear explosive device, that is designed to disseminate radioactive material in order to cause destruction, damage, or injury.

### **Radiological Exposure Device**

1-41. A radiological exposure device is a radioactive source that is placed to cause injury or death. A radiological exposure device that remains undetected may increase the potential dose to the intended target.

## **NUCLEAR WEAPONS AND EFFECTS**

1-42. A nuclear weapon refers to a complete assembly (implosion, gun, or thermonuclear) in its intended ultimate configuration. Upon completion of the prescribed arming, fusing, and firing sequence, a nuclear weapon is capable of producing the intended nuclear reaction and energy release. With regard to the risk of proliferation and use by terrorists, the gun type weapon is a relatively simple design and is a concern because it does not require as much fine engineering or manufacturing as the other methods. With enough highly enriched uranium, nations or groups with relatively low levels of technological sophistication could create an inefficient, though still quite powerful, nuclear weapon. A nuclear weapon can be detonated in space, in the atmosphere above the earth's surface, on the surface, or below the surface. The data in this chapter focuses on air bursts. When the detonation occurs in the atmosphere, the primary radiation products (X-rays, gamma rays, and neutrons) interact with the surrounding air molecules and are absorbed and scattered as they radiate from the point of detonation.

1-43. Nuclear weapon effects are qualitatively different from biological or chemical weapon effects. The nature and intensity of nuclear detonation effects are determined by the type of weapon, its yield, and the physical medium in which the detonation occurs. Some characteristics of nuclear weapon effects include—

- The distribution of energy and the relative effects of blast, heat, and radiation depend largely on the weapon, the altitude at which it is detonated, and features of the target.
- A typical nuclear weapon releases most of its energy as thermally generated X-rays at the point of detonation.
- The amount of fallout depends on the weapon yield, weapon type, and height of burst.
- The area affected depends heavily on the wind.
- Surface bursts produce the most fallout.
- The hazard to personnel depends on the level of radiation present and the duration of exposure.
- Weather conditions affect fallout immensely.

1-44. The effects of nuclear detonations include—

- **Blast and shock.** The blast produces shock waves, high overpressures, and severe winds. Personnel suffering critical injuries from blast and shock effects would likely suffer lethal radiation exposure as well.
- **Thermal radiation.** Thermal radiation is the heat and light produced by a nuclear explosion. It can cause burns over substantial distances. Secondary fires from blast and heat are additional hazards. Thermal effects can also disrupt operation plans due to fire and melting snow and ice impeding movement.
- **Electromagnetic pulse.** The interaction of gamma radiation with the atmosphere can cause a short pulse of electric and magnetic fields that may damage and interfere with the operation of electrical and electronic equipment and can cause widespread disruption. The effects of electromagnetic pulse can extend to hundreds of kilometers, depending on the height and strength of the nuclear burst. High-altitude, electromagnetic pulse can generate significant disruptive field strengths over a continental-size area. The portion of the frequency spectrum most affected by electromagnetic pulse and high-altitude, electromagnetic pulse is the communications band.
- **Transient radiation.** These effects are generally short-lived and can be extremely hazardous to aircraft and other electronically dense pieces of equipment.
- **Ionizing radiation.** Ionizing radiation includes particulate (alpha, beta, and neutron) and electromagnetic (X-ray and gamma) radiation of sufficient energy to displace electrons from atoms, producing ions. The initial radiation is a significant threat to personnel and materiel, including optical, mechanical, and electronic components. Gamma rays and neutrons have a long range in the air and are highly penetrating. Alpha and beta radiation may cause a hazard to personnel following a nuclear detonation.
- **Potassium iodine.** Potassium iodine may be used to protect the thyroid from radioactive iodine in the event of an accident or attack at a nuclear power plant or another nuclear attack, especially where volatile radionuclides (which contain significant amounts of iodine 131) are released into the environment. Radioiodine is a dangerous radionuclide because the body concentrates it in the thyroid gland. Potassium iodine cannot protect against other causes of radiation poisoning or provide protection against a dirty bomb unless it contains radioactive iodine.
- **Fallout.** In addition to the initial thermal and ionizing radiation and electromagnetic pulse, a nuclear detonation produces residual radiation that results from the dispersal of radioactive materials in the target area and downwind. Fallout may be a lingering, widespread hazard that severely limits military operations in the contaminated area. (See Appendix A for further details.)

## **SUMMARY**

1-45. Depending on the adversary's specific objectives, widespread or limited methods may be used to create CBRN hazards. These hazards present physical and psychological effects well beyond the immediate target area. The preceding subparagraphs described the characteristics and effects of CBRN hazards and selected toxic materials. Appendix A provides additional information on CBRN hazard considerations.

## Chapter 2

# U.S. Policy and Strategy

This chapter briefly discusses policies and strategies that seek to prevent and limit the proliferation of CBRN capabilities through international agreements and treaties, multilateral initiatives, and unilateral actions in which the DOD plays a significant role. This chapter also provides an overview of military objectives that support the U.S. government's political, economic, and diplomatic efforts to carry out the three strategic pillars of CWMD (nonproliferation, counterproliferation, and WMD consequence management) as highlighted in the *National Security Strategy*:

- **Nonproliferation.** Actions taken to prevent the proliferation of WMD by dissuading or impeding access to, or distribution of, sensitive technologies, material, and expertise.
- **Counterproliferation.** Actions taken to defeat the threat and/or use of WMD against the United States and its forces, allies, and partners.
- **Consequence management.** Actions authorized by the President of the United States or the Secretary of Defense to mitigate the effects of a WMD attack or event and provide temporary essential operations and services at home and abroad.

## OVERVIEW

2-1. The deadly, destructive, and disruptive effects of CBRN weapons pose serious challenges to U.S. military operations worldwide and merit continuous consideration by commanders. Conflict situations may emerge in the international security environment to challenge U.S. interests. Additionally, commanders should be aware that interagency and international considerations dealing with WMD may outweigh military considerations and that they may be assigned to support an interagency or international CWMD operation, even during a major contingency.

2-2. National strategic objectives and tactical actions are not unique or different for CWMD. In operations involving WMD, action or inaction at the tactical level can have profound strategic repercussions. While there has been greatly increased emphasis on WMD and CWMD, it is important for commanders and planners to understand that WMD is not an adversary. It is a capability that an adversary may use to coerce or deter actions or to achieve effects during operations. Thus, CWMD operations should not be considered a special or distinct set of activities or a separate mission area to be used only under certain conditions. Rather, commanders must consider CBRN operations as part of their operational planning.

2-3. CBRN operations involve the employment of tactical capabilities that counter the entire range of CBRN threats and hazards through WMD proliferation prevention, WMD counterforce, CBRN defense, and CBRN consequence management activities in support of operational and strategic objectives to combat WMD and operate safely in CBRN environments.

## **POLICY**

2-4. Current U.S. policy is to deter enemy CBRN use through a strong nuclear force in tandem with conventional capabilities that include WMD proliferation prevention, WMD counterforce, CBRN defense, and CBRN consequence management to enable U.S. forces to survive, fight, and win in a CBRN environment. Prevention efforts must be global, regional, and country-specific and directed at—

- Shaping international opinion on WMD.
- Stigmatizing proliferation.
- Influencing the decisions of those seeking, possessing, or supplying WMD.
- Minimizing or eliminating associated CBRN threats and hazards.
- Closing proliferation pathways.

2-5. Military activities must be closely integrated with supporting interagency efforts. Security cooperation is often vitally important in shaping proliferation incentives and fostering cooperation in prevention efforts to dissuade or prevent state and nonstate actors from acquiring or proliferating WMD and to deny them access to WMD-relevant capabilities.

2-6. U.S. policies and strategies aim to prevent and limit the proliferation of CBRN capabilities through deterrence. If deterrence fails, the United States will pursue war to a successful conclusion.

2-7. The United States may use nuclear weapons to terminate a conflict or war at the lowest acceptable level of hostilities. The employment of nuclear weapons by the United States is governed by guidance to the joint force commander as contained in strategic-level directives. The United States is party to treaties and international agreements that limit proliferation, testing, and possession of nuclear weapons.

2-8. The United States will never use chemical weapons. The *Chemical Weapons Convention* (ratified by the United States on 29 April 1997) bans the acquisition, development, production, retention, stockpiling, transfer, and use of chemical weapons.

2-9. The United States will never use biological weapons. Under the terms of the *Biological and Toxin Weapons Convention* (more commonly known as the *Biological Weapons Convention*), which was ratified by the United States on 26 March 1975, parties agreed not to develop, produce, stockpile, or acquire biological agents or toxins of types and in quantities that have no justification other than for prophylactic, protective, or other peaceful purposes.

2-10. The United States does not consider herbicides and riot control agents to be chemical agents, but has adopted policies concerning their use during an armed conflict. The use of herbicides and riot control agents is covered by different policies than those governing chemical warfare agents. Executive Order Number 11850 renounces the first use of herbicides in war (except for specified defensive use) and the first use of riot control agents in war (except for defensive military modes to save lives).

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*Note.* See Appendix B for more information on treaties and agreements.

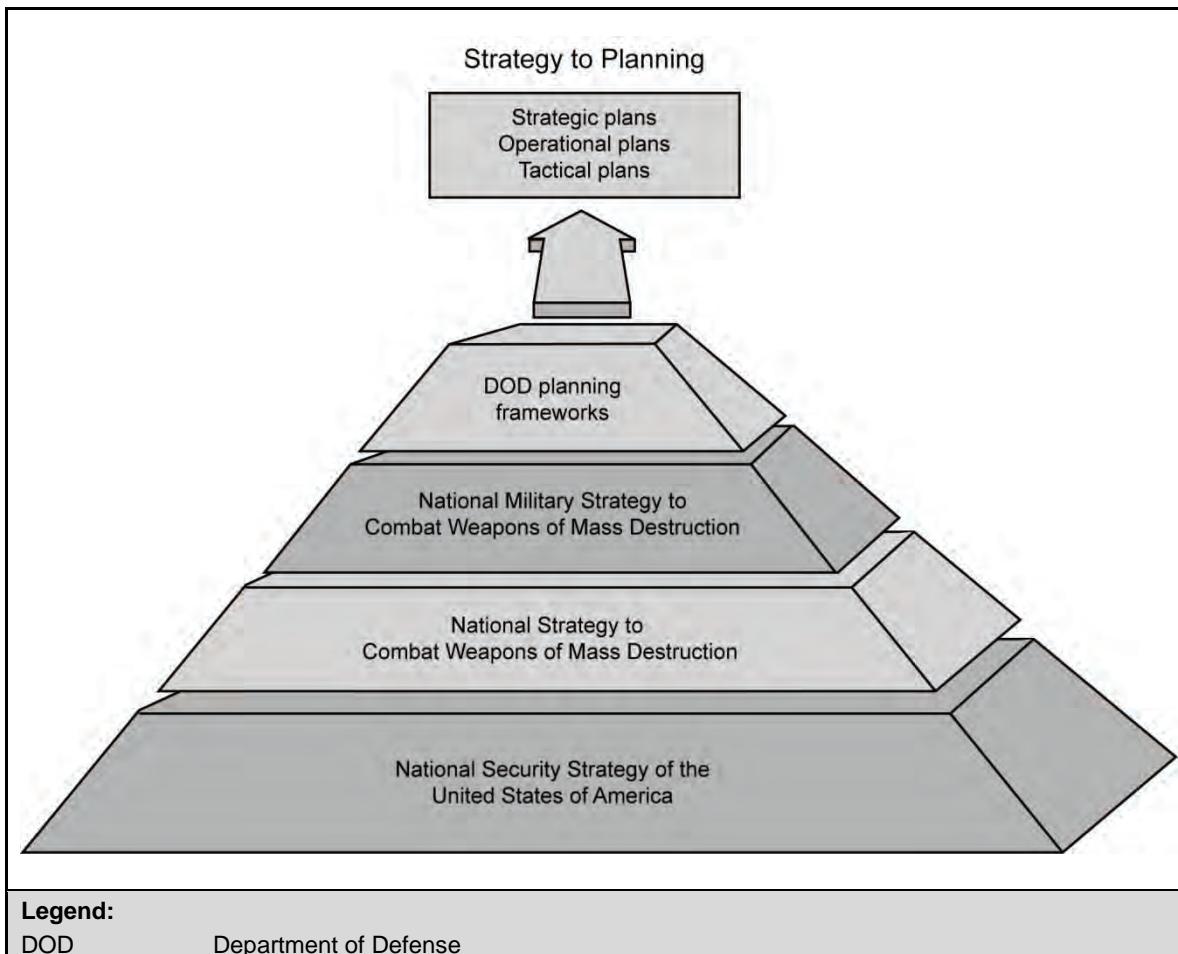
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## **NATIONAL STRATEGIES**

2-11. This keystone publication links multi-Service CBRN doctrine to national strategies. National strategies are documents that are periodically prepared for Congress by the Executive Branch. National strategies outline the major national security concerns of the United States and summarize how the administration plans to deal with them.

2-12. The *National Security Strategy* identifies “preventing our enemies from threatening us, our allies, and our friends with WMD” as an essential task for ensuring national security. To achieve this goal, the *National Security Strategy* sets forth an active strategy to counter transnational terror networks, rogue nations, and aggressive states that possess, or are working to acquire, WMD. It notes that the United States must advance this strategy through strengthened alliances, the establishment of new partnerships, the innovative use of military forces, modern technologies, and increased emphasis on intelligence collection and analysis. The *National Security Strategy* highlights nonproliferation concerns in its examination of the *Treaty on the Non-Proliferation of Nuclear Weapons* (more commonly known as the *Nuclear*

*Nonproliferation Treaty*) and its special emphasis on stemming the spread of materials necessary to develop WMD. Counterproliferation activities are included in the *National Security Strategy*'s focus for disrupting terrorist networks who are seeking to use WMD against U.S. interests. Figure 2-1 outlines the hierarchy of national strategies to DOD planning constructs.



**Figure 2-1. Hierarchy of national strategy**

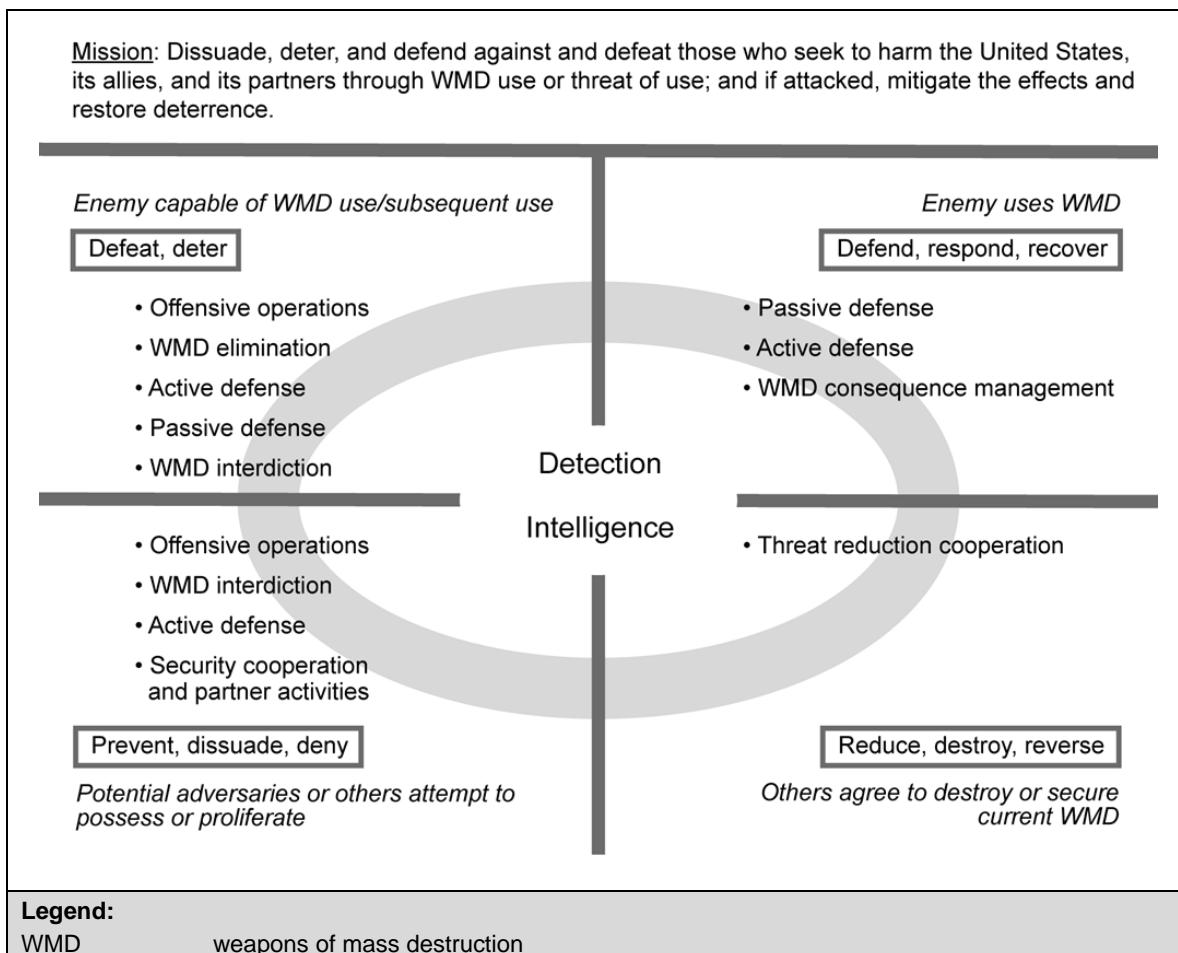
2-13. The *National Strategy to Combat Weapons of Mass Destruction* builds on the *National Security Strategy*; articulates a proactive, comprehensive strategy; and guides all U.S. Government activities to combat WMD. It states that nuclear, biological, and chemical weapons in the possession of hostile states and terrorists represent one of the greatest security challenges facing the United States and that we must pursue a comprehensive strategy to counter this threat in all of its dimensions. The *National Strategy to Combat Weapons of Mass Destruction* is built on three principal pillars:

- Strengthened nonproliferation to combat WMD proliferation.
- Counterproliferation to combat WMD use.
- Consequence management to restore essential operations and services at home and abroad after WMD use.

2-14. These pillars form a common framework for the interagency conduct of CWMD activities that support the critical enabling functions of improved intelligence collection and analysis, research and development, strengthened international cooperation, and targeted strategies against proliferants while providing a strategic foundation for military operations.

2-15. The *National Military Strategy to Combat Weapons of Mass Destruction* defines military strategic objectives and the means to achieve them through the eight mission areas that are conducted across the CWMD continuum. The *National Military Strategy to Combat Weapons of Mass Destruction* supports the *National Security Strategy* by applying the missions across the four pillars to achieve military strategic objectives and accomplish the DOD mission to dissuade, deter, defend against, and defeat those who seek to harm the United States, its allies, and its partners through WMD use (see figure 2-2). The pillars are—

- **Defeat and deter WMD use and subsequent use.** Adversaries must believe that they will suffer severe consequences and that their objectives will be denied if they threaten or resort to the use of WMD.
- **Defend, respond, and recover from WMD use.** The purpose of this objective is to respond to an adversary who has used WMD on the battlefield or against strategic U.S. interests. To defend and recover from WMD use, U.S. armed forces will execute passive defense measures and be prepared to conduct WMD consequence management activities.
- **Prevent, dissuade, or deny WMD proliferation or possession.** To prevent, dissuade, or deny adversaries or potential adversaries from possessing or proliferating WMD, U.S. armed forces will be prepared to conduct offensive operations. The military must also support interdiction efforts, security cooperation, and nonproliferation efforts.
- **Reduce, destroy, or reverse WMD possession.** To reverse WMD programs and reduce WMD and related material stockpiles, the U.S. armed forces will support threat reduction cooperation and be prepared to assist in cooperative stockpile destruction activities.

**Figure 2-2. Strategic context for CWMD**

**Note.** The military activities associated with each of the pillars are discussed in more detail in Chapters 3 through 5.

## STRATEGIC CONTEXT

2-16. Historically, WMD have been used when conventional munitions were unable to provide the necessary advantage to one side or the other. The use of WMD requires the capability and the political will to use them. For a nation, that decision has high potential for significant retribution. WMD in the hands of an adversary poses a grave danger to the United States, at home and abroad.

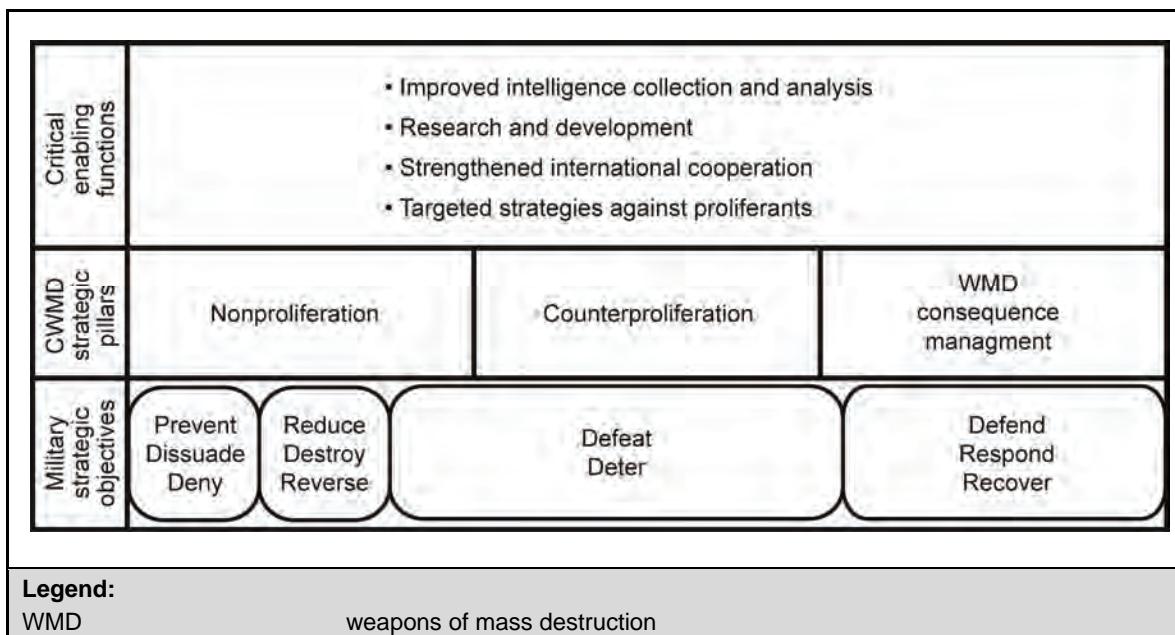
2-17. Today, we describe the employment of WMD as an asymmetrical approach used by hostile state and nonstate actors to counter the qualitative superiority of the U.S. military. The events of 11 September 2001 heightened the concern of DOD leaders for the increased threat of terrorists and rogue nations employing WMD. They recognize the need to integrate CWMD into DOD planning frameworks to ensure more effective command and control (C2), problem solving, and capabilities-based planning.

2-18. One of the most difficult challenges that we face is to prevent, deter, and defend against the acquisition and use of WMD by terrorist groups. The strategic military framework to combat WMD consists of ends (the military strategic goal and associated end state), ways (military strategic objectives), and means (combatant commands, military departments, and support agencies) applied across the pillars of the *National Military Strategy to Combat Weapons of Mass Destruction*. Forces adapt to the requirements of the operational environment and conduct operations within it by using synchronized action, joint

interdependent capabilities, and mission command. The pillars do not stand alone, but rather come together as seamless elements of a comprehensive approach. Underlining that point, figure 2-3 outlines how the *National Military Strategy to Combat Weapons of Mass Destruction* identified four cross-cutting, critical enabling functions (improved intelligence collection and analysis, research and development, strengthened international cooperation, and targeted strategies against proliferants) that are critical to integrating the three pillars of CWMD (nonproliferation, proliferation, and consequence management).

2-19. The following are some strategic issues:

- The proliferation of WMD is a global problem that routinely crosses the regional boundaries of combatant commands.
- The increasing availability of highly destructive technology, combined with a variety of weapons and means of delivery from state and nonstate actors will challenge military operations in the future.
- An adversary's threat or use of WMD will be a likely condition of war, and the proliferation of WMD programs will continue to challenge commanders at all levels.
- WMD programs have the potential to severely disrupt and damage the United States; its forces, allies, and coalition partners; and civilian populations.
- Future adversaries may use WMD to inflict casualties on civilian populations, degrade military effectiveness, or counter U.S. conventional military superiority. Current and future adversaries are state and nonstate actors.
- The nature of the War on Terrorism and the operational realities of terrorist threats mean that the military aspects of the operational environment will be less distinctly defined than in operational environments for other types of operations.



**Figure 2-3. Enabling functions of the National Military Strategy to Combat Weapons of Mass Destruction**

## OPERATIONAL CONTEXT

2-20. The DOD CBRN mission has expanded to address the immense complexities of the strategic context in which we would perform CWMD missions. The war against those adversaries who would use CBRN weapons to inflict massive harm on the United States and its military forces and international allies is a protracted fight that will require a strategic offensive.

2-21. Commanders should harness all capabilities (including those related to information operation capabilities [public affairs, defense support to public diplomacy, civil-military operations], military diplomacy, and interagency coordination) to implement a synergistic operational CWMD effort.

2-22. Effective operational CWMD capabilities will ensure maximum impact on the adversary's selection of CBRN targets, capitalize on CBRN intelligence, and exploit enemy intent.

2-23. The geographic combatant commanders' comprehensive joint, interagency, and host nation efforts in support of sustained CWMD operations should include innovative methods of coordination to effectively deal with the complexities of interdependence. Cohesive operations conducted within the framework of U.S. policy and strategies for CWMD and associated CBRN threats and hazards will ensure that members of the U.S. military are able to operate as a single team and, ultimately, defeat the efforts of our enemies.

2-24. Support to joint force commanders is based on the following tenets:

- Clearly identified supporting and supported combatant commander roles facilitate the effective interface with the interagency community which is required for operational planning efforts that will reduce vulnerability and minimize the effects of WMD employed against key host nation installations; U.S. installations and facilities; ports of embarkation and debarkation; and the United States and its military forces and international allies.
- Lethal/nonlethal efforts to eliminate the WMD threat, deter the use of WMD and, when necessary, respond to the use of WMD are largely the domain of DOD. In the CWMD context, force applications (from conventional to nuclear and from nonlethal to special operations) are within the operations span of several different DOD communities that have responsibilities and activities relevant to the mission areas.
- WMD counterforce operations require specialized capabilities to defeat WMD targets; therefore, operational concepts must rely heavily on precise, persistent, and timely intelligence to locate and identify targets, understand the characteristics of the effects of CBRN threats and hazards on structures, optimize munitions delivery to minimize collateral effects, and assess combat effectiveness.
- Lead combatant commanders, in conjunction with other key stakeholders, must think and plan strategically to promulgate measures that must be taken to prevent the conventional and unconventional delivery of WMD. These measures include the detection, diversion, and destruction of adversary WMD and delivery systems while en route to their targets.
- The role of nonlethal and special operations force capabilities must be synchronized with combatant command plans related to CWMD.

2-25. The joint force commander does not execute military operations in isolation. Unified action requires the synchronization, coordination, and/or integration of government activities (U.S. Government, allied, and partner) and nongovernment entities with military operations. The joint force commander employs resources through the layered and integrated execution of eight military mission areas to influence the decisions of WMD actors, allies, and partners; to defeat and deter actions of multiple networks of WMD actors; and to mitigate the effects of WMD employment (see figure 2-4). The joint force commander directs actions at critical vulnerabilities (tangible and intangible) within the WMD network, combining direct and indirect effects to render the network incapable or unwilling to perform its WMD-enabling function. As the campaign progresses, the joint force commander must be prepared to execute other branches of strategy as the WMD actor takes unexpected actions or makes unanticipated advances in capability development and employment.

Threats and hazards	Intent to proliferate		Weapon employment	CBRN incident (intentional or accidental)				
CWMD strategic pillars	Nonproliferation activities	Counterproliferation activities			Consequence management activities			
Military mission areas	WMD-SC&P	TRC	WMD-I	WMD-OO	WMD-E	WMD active defense	WMD passive defense	WMD CM
<b>Legend:</b>								
CBRN chemical, biological, radiological, and nuclear CM consequence management CWMD combating weapons of mass destruction TRC threat reduction cooperation WMD weapons of mass destruction WMD-E weapons of mass destruction elimination WMD-I weapons of mass destruction interdiction WMD-OO weapons of mass destruction offensive operations WMD-SC&P weapons of mass destruction security cooperation and partner activities								

**Figure 2-4. Operational context for CWMD**

2-26. CWMD operational objectives require synchronization between the three strategic pillars in the form of eight military mission areas defined below. JP 3-40 establishes doctrine for the integration of the eight military mission areas and the *National Military Strategy to Combat Weapons of Mass Destruction*.

## WEAPONS OF MASS DESTRUCTION SECURITY COOPERATION AND PARTNER ACTIVITIES

2-27. WMD security cooperation and partner activities improve partner and allied capacity to combat WMD across the eight mission areas through military-to-military contact, burden sharing arrangements, combined military activities, and support to international activities. These operations support international efforts and promote improved partnership capacity to combat WMD. Activities include support to treaties and agreements, support to operations and exercises intended to foster capability development, common threat awareness, coalition building, and interoperability. They may be military-led or in support to DOD or other government agencies. These activities also influence adversary decisions through the demonstration of U.S. and partner capabilities to impose cost or deny benefits of WMD development or use. WMD security cooperation and partner activities are conducted in a permissive environment.

## THREAT REDUCTION COOPERATION

2-28. Threat reduction cooperation activities are undertaken with the consent and cooperation of host nation authorities to enhance physical security and to reduce, dismantle, redirect, and/or improve the protection of a state's existing WMD program, stockpiles, and capabilities. This military mission area is the desired successor to the integrated application of other military mission areas that cause WMD actors to renounce WMD. Although not a primary combatant commander responsibility, these activities impact other combatant command operations; and combatant commanders must maintain visibility that is consistent

with these efforts. In some cases, the joint force commander may provide some politico-military support to reduce threat operations that will unequivocally eliminate the WMD networks and programs. For example, the WMD actor may require assistance in securing infrastructure, delivery means, or WMD-related material. The joint force commander might also provide arms control support or support to remove this material to isolate the targeted WMD program and ensure that the actor does not resurrect it. This task is primarily strategic in nature and may include tasks such as inspections, monitoring, verification, and enforcement support for treaties. Threat reduction cooperation activities are conducted in a permissive environment.

## WEAPONS OF MASS DESTRUCTION INTERDICTION

2-29. WMD interdiction operations track, intercept, search, divert, seize, or otherwise stop the transit of WMD, its delivery systems, or related materials, technologies, and expertise. If shaping and deterrence operations are not successful in influencing adversaries to stop proliferating, the President or the Secretary of Defense may direct the joint force commander to employ or support WMD counterforce operations to stop the transit of WMD materiel, expertise, or enabling resources and to delay WMD development. The joint force commander may attack operational targets (using lethal means) or conduct engagements on operational targets using nonlethal means. This interdiction will likely be nonlethal and may be executed by someone other than the joint force. As the WMD actor comes closer to obtaining a WMD employment capability, many nonlethal capabilities will be less effective and lethal interdiction by the joint force is much more likely. If such interdiction results in the seizure of WMD or related material, interdiction may require the joint force commander to reduce the threat by securing and removing (neutralize or transport) WMD and related material. If a CBRN hazard occurs as a result of an accidental release in a permissive or uncertain operational environment, it may be necessary for the joint force commander to execute consequence management operations. Interdiction operations increase the cost and time of WMD acquisition and proliferation to the actor.

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*Note. See Chapter 4 for more information on WMD counterforce operations.*

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## WEAPONS OF MASS DESTRUCTION OFFENSIVE OPERATIONS

2-30. WMD offensive operations disrupt, neutralize, or destroy a WMD threat before it can be used or deter the subsequent use of WMD. In hostile or uncertain environments where interdiction efforts have not been successful in halting rogue behavior, the President or the Secretary of Defense may direct the joint force commander to execute WMD counterforce operations to destroy the WMD network's ability to produce, deploy, or employ WMD. Offensive operations are military-led and may be lethal and/or nonlethal operations. They encompass the detection, identification, disruption, and destruction of an adversary's WMD assets, delivery means, associated facilities, and other high-value targets. If an adversary attempts to use WMD, offensive operations may help disrupt and weaken the attack, thereby increasing the effectiveness of other complementary elements of CMWD such as active and passive defense measures and consequence management. These operations impose substantial cost upon the WMD actor. For nonstate actors with smaller, more centralized WMD production capabilities, offensive operations may result in complete destruction of the program. Offensive operations taken against a WMD program, production, or platform require reliable credible intelligence.

## WEAPONS OF MASS DESTRUCTION ELIMINATION

2-31. WMD elimination operations are undertaken in a hostile or uncertain environment to systematically locate, characterize, secure, disable, or destroy WMD programs and related capabilities. Elimination operations employ many of the same WMD counterforce operation capabilities as offensive operations to reduce the immediate threat and to lay the groundwork to transition the long-term destruction, redirection, and monitoring activities of any remaining elements of the WMD program to the threat reduction cooperation military mission area. These operations also seek to locate and secure key personnel in the program. Since elimination requires some U.S. physical control of the infrastructure to establish attribution, the joint force commander must provide passive defense for executing force elements. The joint force

commander also provides arms control support to unified action to isolate the targeted WMD program and ensure that the actor does not resurrect it.

## **WEAPONS OF MASS DESTRUCTION ACTIVE DEFENSE**

2-32. WMD active defense measures defeat an attack with CBRN weapons by employing actions to divert, neutralize, or destroy them or their means of delivery while en route to their target. Throughout the campaign, the joint force commander also employs active defense capabilities. These are military-led activities to defend against conventionally and unconventionally delivered WMD. Initially, these capabilities present benefit denial aspects to the WMD actor and can influence decisions to pursue or employ WMD. These capabilities also represent benefits to allies and partners and can influence their support.

## **WEAPONS OF MASS DESTRUCTION PASSIVE DEFENSE**

2-33. WMD passive defense measures minimize or negate the vulnerability to, and effects of, CBRN attacks. This mission area focuses on maintaining joint force ability to continue military operations in a CBRN environment. Throughout the campaign, the joint force commander employs passive defense capabilities to reduce or negate U.S. and partner vulnerabilities and minimize the effects of WMD use. Passive defense protects U.S. military interests, installations, and critical infrastructure. These capabilities also represent benefits to allies and partners and can influence their support.

## **WEAPONS OF MASS DESTRUCTION CONSEQUENCE MANAGEMENT**

2-34. The joint force commander employs consequence management capabilities to sustain operations, to mitigate undesired effects such as the release of WMD-related material, and to manage the consequences of such unintended effects. By demonstrating the ability to deny the benefits of WMD use, consequence management capabilities can also influence adversary decisions to employ WMD.

## **TACTICAL CONTEXT**

2-35. CBRN operations include the employment of tactical capabilities that counter the entire range of CBRN threats and hazards through WMD proliferation prevention, WMD counterforce, CBRN defense, and CBRN consequence management activities in support of operational and strategic objectives to combat WMD and operate safely in CBRN environments. CBRN operations include tactical capability employments that support operational and strategic objectives for CWMD. Understanding the tactical context requires defining the tactical construct and identifying what the eight military mission areas mean to military personnel at the tactical level of war.

2-36. It is not feasible to develop a comprehensive approach to CWMD without addressing tactical-level capabilities. CBRN operations employ service-unique capabilities to achieve the CWMD objectives for a given military mission area. For example, the USA or USMC might not have the level of expertise required to conduct dismantling activities during WMD eliminations operations. Commanders at the tactical level are concerned with how the eight military mission areas relate to one another and the joint campaign, and then they determine whether they are supporting the eight military mission areas in CWMD objectives conducting CBRN operations.

2-37. Activities in the eight military mission areas are not necessarily conducted sequentially and discretely in the prosecution of tactical-level military operations; they will occur independently or simultaneously in response to a CBRN threat or hazard, depending on whether tactical units are conducting CBRN operations or supporting CWMD objectives. Figure 2-5 shows the relationship among tactical tasks, tactical objectives, CWMD strategic pillars, and threats and hazards.

2-38. The tactical tasks support the eight military mission areas and the strategic objectives. There are four tactical objectives (proliferation prevention, WMD counterforce, CBRN defense, and CBRN consequence management). If a CWMD program is successful, adversaries are prevented from acquiring WMD; however, successive CWMD program failures may ultimately culminate in a CBRN incident that requires mitigation.

## WEAPONS OF MASS DESTRUCTION PROLIFERATION PREVENTION

2-39. ***WMD proliferation prevention*** is the employment of tactical level capabilities to support operational and strategic nonproliferation objectives of combating WMD. The goal of proliferation prevention is to exert an early influence in the adversary's decision cycle that discourages an interest in (or the decision to seek or acquire) CBRN materials, WMD precursors, sensitive technologies, or expertise that could be used against the United States or our allies. If our proliferation prevention efforts fail and the adversary decides to move forward with the intent of WMD acquisition, the U.S. response options escalate into WMD counterforce (interdiction, offensive operations, and WMD elimination operations).

## WEAPONS OF MASS DESTRUCTION COUNTERFORCE

2-40. ***WMD counterforce*** is a tactical objective to defeat the full range of CBRN threats before they can be employed as weapons. WMD counterforce operations aim to prevent, dissuade, deny, or defeat adversary CBRN capabilities, including research and development, production and storage facilities, fielded forces, and related C2. These operations are intended to deter or defeat a CBRN threat or the subsequent use of WMD and reduce the level of threats to be dealt with by CBRN active or passive defenses.

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*Note. Chapter 4 discusses WMD counterforce operations in more detail.*

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## CHEMICAL, BIOLOGICAL, RADIOLOGICAL, AND NUCLEAR DEFENSE

2-41. CBRN defense consists of measures that are taken to minimize or negate the vulnerabilities and/or effects of a CBRN incident. CBRN defense operations are proactive tactical capabilities that contain reactive characteristics:

- CBRN active defense operations attempt to intercept CBRN weapons en route to their targets.
- CBRN passive defense operations improve the ability to survive and sustain in a contaminated environment through proper planning, training, risk assessment, and vulnerability and hazard mitigation. CBRN passive defense includes measures to minimize or negate the vulnerability to, and minimize effects of, WMD use against U.S. and partner/allied forces and U.S. military interests, installations, and critical infrastructure.

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*Note. Chapter 4 discusses CBRN defense operations in more detail.*

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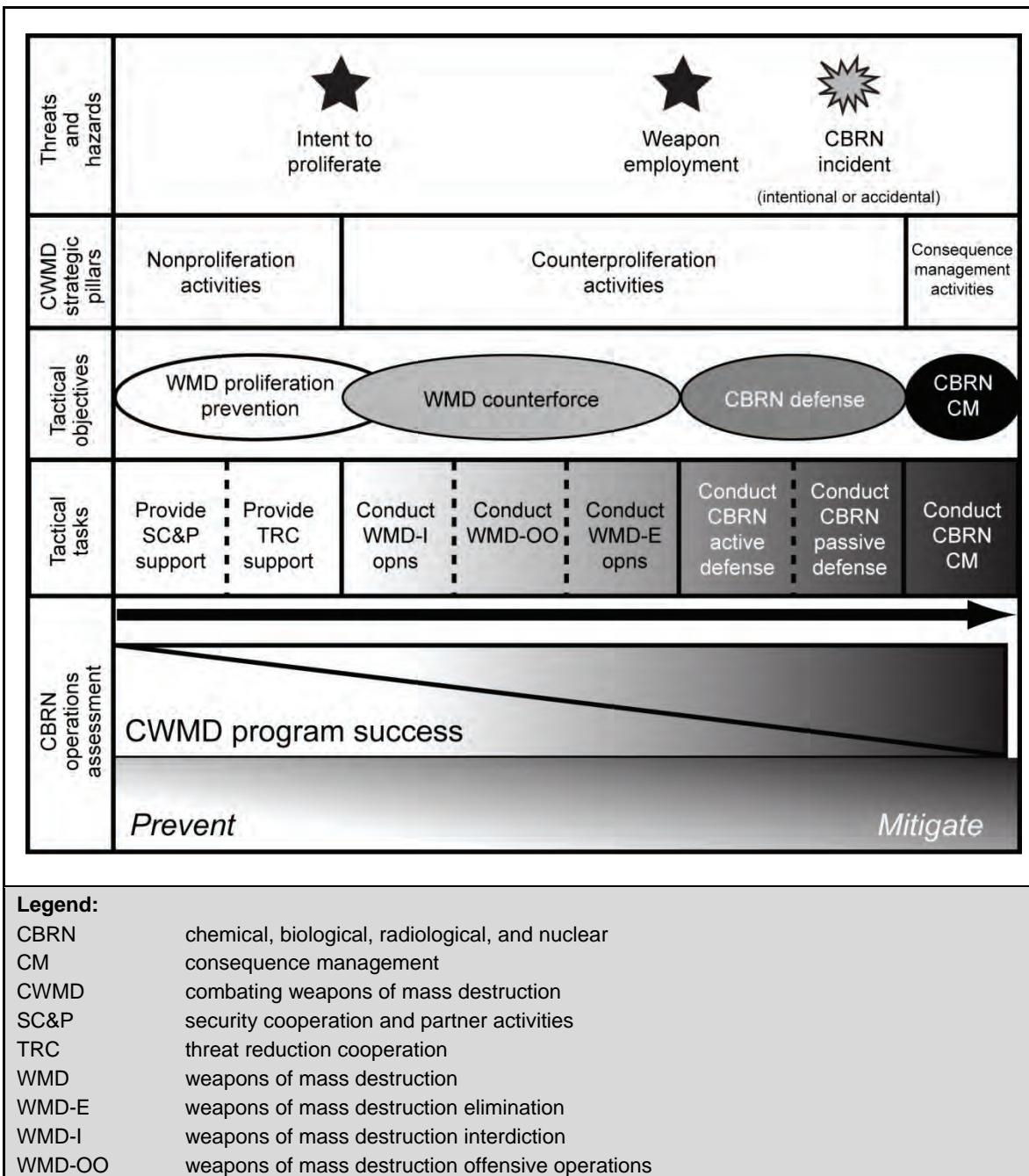


Figure 2-5. Tactical context for CBRN operations

## CHEMICAL, BIOLOGICAL, RADIOLOGICAL, AND NUCLEAR CONSEQUENCE MANAGEMENT

2-42. Consequence management activities are actions that are taken to maintain or restore essential services and manage and mitigate problems that may result from disasters and catastrophes, including natural, man-made, or terrorist incidents. CBRN consequence management activities serve to reduce the effects of a CBRN attack or event and assist in the restoration of essential operations and services at home and abroad in a permissive environment. Consequence management includes actions taken to—

- Respond to, and mitigate the effects of, a WMD attack or event against our homeland and deployed forces or U.S. interests abroad.
  - Provide military assistance to civilian authorities to restore essential operations and services.
- 

*Note. Chapter 5 discusses CBRN consequence management operations in more detail.*

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2-43. CBRN operations at the tactical level must be integrated into all military operations to support the National Military Strategy to Combat WMD, which requires the synchronization of the following tactical tasks:

- Providing security cooperation and partner activity support.
- Providing threat reduction cooperation support.
- Conducting WMD interdiction, offensive, and elimination operations.
- Conducting CBRN active defense, passive defense, and consequence management operations.

## **SUMMARY**

2-44. U.S. policies and strategies seek to prevent and limit the proliferation of CBRN capabilities. The *National Strategy to Combat Weapons of Mass Destruction* articulates a proactive and comprehensive strategy built upon the three pillars of nonproliferation, counterproliferation, and consequence management. DOD awareness, responsibility, and focus have shifted to expand the planning, preparation, and execution activities in support of the CWMD mission. The eight military mission areas provide the framework for ensuring CWMD program success. This multi-Service doctrine provides principles for conducting CBRN operations.

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## Chapter 3

# Nonproliferation Activities

Nonproliferation activities are actions that are taken to prevent the proliferation of WMD by dissuading or impeding access to, or distribution of, sensitive technologies, material, and expertise. Examples of nonproliferation activities include diplomacy, arms control, multilateral agreements, threat reduction assistance, export controls, and WMD interdiction.

## OVERVIEW

3-1. In recent years, the prevention of WMD proliferation has become much more complex and challenging due to the greater availability of components, technologies, expertise, and information. Proliferation is the transfer of CBRN-related weapons, materials, technology, and expertise from suppliers to hostile states or nonstate actors. This availability stems from the willingness of various state suppliers or companies within those states to sell materials and an explosion of more readily accessible information from academic and commercial sources or the Internet. Weakened security at some key CBRN-related facilities in the former Soviet Union, the search for employment by unemployed scientists and technicians associated with active or formerly active Soviet programs, and the transfer or sharing of technology among states trying to develop programs have also contributed to the proliferation of this sensitive information.

3-2. At the tactical level, nonproliferation activities should focus on proliferation prevention as the tactical objective and focus on WMD security cooperation and partner activities and threat reduction cooperation military mission areas as the means. The tactical tasks necessary for the commander to assist in proliferation prevention and dissuade the use of WMD as part of an integrated military objective are conducted in support of the mission areas. A tactical mission task is a specific activity performed by a unit while executing a form of tactical operation or maneuver. It may be expressed in terms of *action by a friendly force* or *effects on an enemy force*. CBRN operations supporting nonproliferation are shown in figure 3-1, page 3-2, and discussed in this chapter.

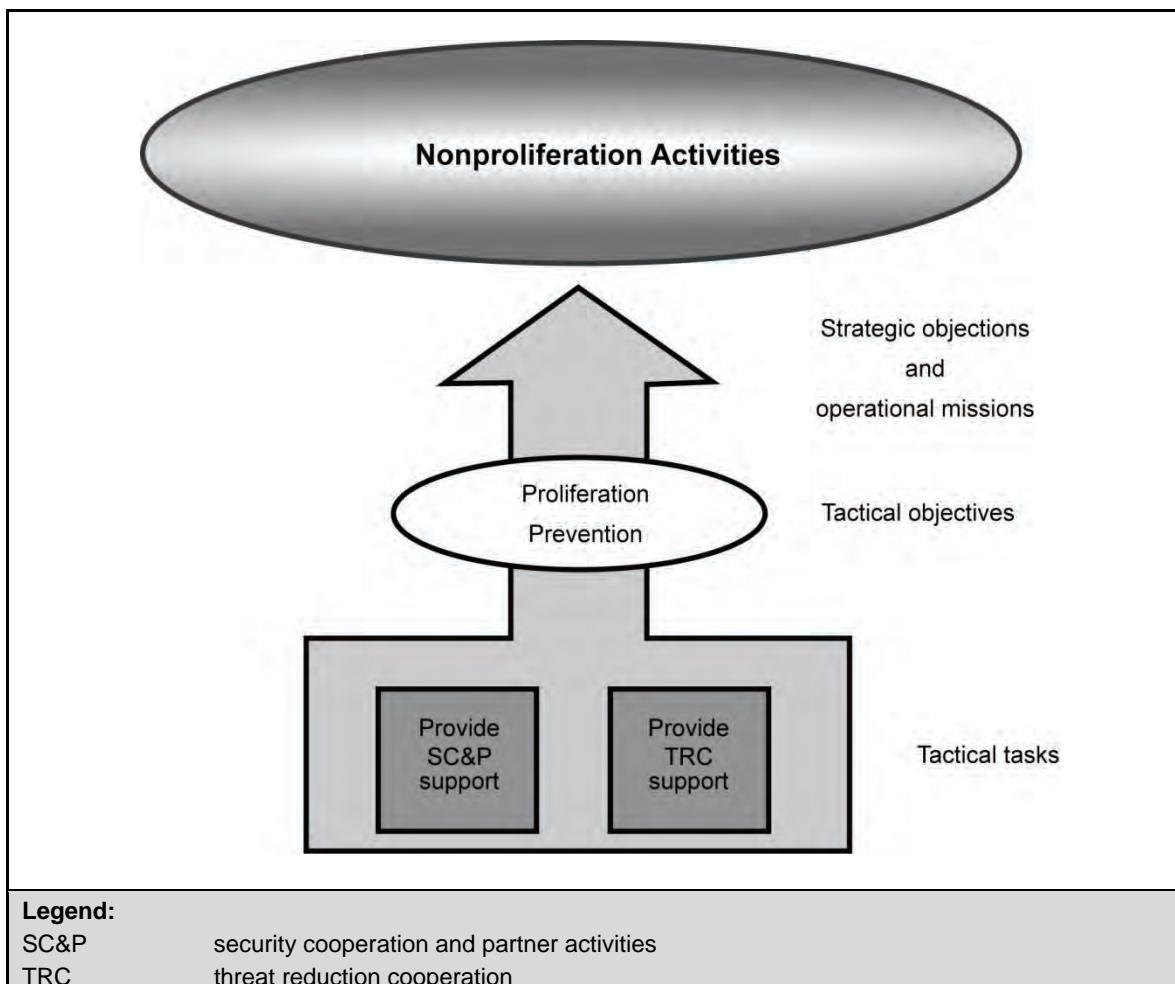
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*Note. The eight military mission areas of CWMD are not conducted sequentially and discretely in the prosecution of tactical-level military operations. They will occur independently or simultaneously in response to the CBRN threat or hazard, depending on whether tactical units are conducting CBRN operations while supporting CWMD objectives.*

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## PROLIFERATION PREVENTION

3-3. Proliferation prevention is the tactical-level implementation of the strategic-level nonproliferation pillar. The goal of proliferation prevention is to exert an early influence in the adversary's decision cycle that discourages their interest in, or decision to seek or acquire, CBRN materials, WMD precursors, sensitive technologies, or expertise that could be used against the United States or its allies. Commanders supporting nonproliferation activities at the tactical level should ensure that forces are trained, equipped, and available to conduct essential tasks that meet the nonproliferation objectives. Tactical tasks include providing support to security cooperation and partner activities and supporting threat reduction cooperation and may include conducting interdiction operations that sustain the military strategic objectives of prevent/dissuade/deny.



**Figure 3-1. CBRN operations supporting nonproliferation**

3-4. The first line of nonproliferation defense is provided by the global nonproliferation treaties—the *Nuclear Nonproliferation Treaty*, *Chemical Weapons Convention*, and *Biological Weapons Convention*. These treaties have established widely accepted norms for the restriction of WMD acquisition, stockpiling, and proliferation; and they continue to advance dialogue and cooperation among nations. Although these treaties have established strong global norms, their ability to prevent WMD acquisition is only as strong as the signatories’ willingness to comply with their treaty-based obligations and the resolve of compliant parties to hold others to their obligations. Experience with North Korea, Libya, Iraq, and Iran provides significant lessons learned regarding noncompliance. The United States may take the following measures to support nonproliferation:

- Pursue active nonproliferation diplomacy by dissuading supplier states from cooperating with proliferant states and inducing states to end their WMD and missile programs.
- Support and seek to improve the effectiveness of existing nonproliferation and arms control regimes.
- Pursue nonproliferation and threat reduction cooperation programs, including the *Defense Against WMD Act of 1998*, designed to address the proliferation threat stemming from the large quantities of Soviet-legacy, WMD- and missile-related expertise and materials.
- Seek to discourage the worldwide accumulation of separated plutonium, minimize the use of highly enriched uranium, and work in collaboration with international partners to develop recycling and fuel treatment technologies that are more proliferation-resistant.

- Strive to ensure that U.S. export controls further nonproliferation and other national security goals while removing unnecessary barriers in the global marketplace.

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*Note. Additional details concerning individual treaties are provided in Appendix B.*

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3-5. United Nations Security Council Resolution (UNSCR)1540 is the latest in a series of internationally directed, concrete measures aimed at preventing WMD proliferation and, most particularly, preventing and countering terrorist acquisition and use of these deadly weapons.

3-6. The multilateral export control regimes—the Nuclear Suppliers Group, Zangger Committee, Missile Technology Control Regime, Australia Group, and Wassenaar Arrangement—are a second, important layer of nonproliferation defense. Each of these export control regimes plays a critical role in identifying key WMD- and missile-related material and technology and appropriate approaches to control access to such items. Limited-membership, export control regimes in the Zangger Committee, Nuclear Suppliers Group, and Australia Group have given greater specificity to items of concern under the *Nuclear Nonproliferation Treaty* and *Chemical Weapons Convention* and have broadened the number and variety of controlled materials and technologies.

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*Note. See Appendix B for detailed information on policies and treaties for the CBRN aspects of CWMD.*

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## SECURITY COOPERATION AND PARTNER ACTIVITIES

3-7. Tactical commanders provide support to security cooperation and partner activities to pursue CWMD objectives. The security cooperation and partner activities mission is a collection of interrelated day-to-day activities to deny, dissuade, and prevent potential adversaries from obtaining or proliferating WMD. DOD plays a significant, but often overlooked, role in this mission. Activities include traditional export control regimes and nonproliferation treaties that allow partner nations to contribute to stemming the proliferation of WMD materials and components. Nonproliferation initiatives such as the Missile Technology Control Regime and the Nuclear Suppliers Group create international norms regarding proliferation and give visibility to export control problems that could otherwise lead to the spread of WMD technology and materials.

3-8. Security cooperation and partner activities are incorporated into the day-to-day military role. Commanders must develop CWMD programs that integrate all DOD security cooperation activities, including multinational exercises, security assistance, multinational training, multinational education, multinational experimentation, defense and military contacts, foreign humanitarian assistance, and Office of the Secretary of Defense-managed threat reduction measures. These actions are conducted to deter, defeat, and respond to WMD threats in areas of responsibility.

3-9. Security cooperation is the primary capability used by the U.S. military to build partner capacity to combat proliferation. Security cooperation allows the transfer of technology and know-how to partners and allows direct observation and interaction to ensure that equipment and training are used properly.

3-10. Partner activities also support other mission areas as the primary tool for building partner capacity. For example, initiatives such as the NATO Multinational CBRN Defense Battalion and Proliferation Security Initiative address such mission areas as defense against WMD attack and interdiction. The U.S. military is uniquely equipped with capabilities that are readily applicable to border security and can be transferred rapidly. Three DOD programs worth noting are the Cooperative Threat Reduction Program, Proliferation Prevention Initiative, and International Counterproliferation Program. Together, they provide the resources to train and equip foreign militaries and civilians to secure WMD facilities and enhance border security.

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*Note. See Chapter 2 and Appendix B for more information on CWMD-related policies, treaties, and agreements.*

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3-11. Theater security cooperation and partner activities integrate and synchronize the large variety of theater security activities being conducted in an area of responsibility. Tactical commanders provide support to the security cooperation effort to prevent, dissuade, and deny proliferation or possession along with the ability to reduce, destroy, or reverse possession of WMD programs. The following organizations/activities directly or indirectly support the security cooperation and partner activities objectives:

- NATO Multinational CBRN Defense Battalion.
- NATO Joint CBRN Defense Center of Excellence.
- NATO WMD Center of Excellence.
- Exchange programs.
  - Student.
  - Liaison.
  - Equipment.
- Multinational training activities and exercises.
  - New equipment.
  - Counterterrorism.
  - Counterproliferation.
  - Counterdrug.
  - Consequence management.
- Multinational support to humanitarian assistance/stability.

## **THREAT REDUCTION**

3-12. Threat reduction cooperation includes those activities undertaken with the consent and cooperation of host nation authorities in a permissive environment to enhance physical security and to reduce, dismantle, redirect, and/or improve the protection of a state's existing WMD program, stockpiles, and capabilities. Tactical commanders provide threat reduction cooperation activities in support of CWMD objectives. The principle purpose of these activities is to deny rogue states and terrorists access to weapons, material, and expertise. Other states may need assistance with more discrete requirements to dismantle or destroy WMD in excess of defense needs; to comply with international treaty obligations (such as the *Chemical Weapons Convention*); or to impose export control, border control, law enforcement, and antismuggling capabilities.

3-13. Threat reduction cooperation also responds to opportunities to roll back or eliminate a state's WMD programs and capabilities on cooperative terms; for example, Libya's decision to voluntarily dismantle its WMD programs. Another challenge is the safety and security of WMD inventories of friendly or nonhostile states. Existing security arrangements may be viewed as inadequate to prevent theft, sabotage, or accidental release. Threat reduction cooperation occurs in a permissive environment, and while not primarily a combatant commander responsibility, combatant commands must maintain visibility of these efforts to ensure that theater security cooperation plans and security measures are consistent with threat reduction initiatives. The following military tasks directly or indirectly support threat reduction cooperation in a permissive environment:

- Provide security for current WMD, related materials, and systems from theft, sabotage, or unauthorized use.
- Support efforts to ensure the safety of WMD and delivery systems from accidental or inadvertent release.
- Maintain situational awareness of WMD safety and security issues, and communicate concerns to senior leaders.
- Integrate commander's safety/security concerns and threat prioritization with operational-level guidance.
- Assign responsibilities for threat reduction cooperation, and coordinate efforts with other commands.

3-14. Tactical nonproliferation activities are not conducted sequentially and discretely in the prosecution of tactical-level military operations, but will occur independently or simultaneously in response to security

cooperation and partner activities and threat reduction cooperation. Tactical commanders should be prepared to provide short-notice support to cooperative WMD threat reduction efforts. Supporting tasks that are directly or indirectly related to cooperative WMD threat reduction efforts include emplacing sensors and conducting monitoring, detection, and security operations.

## SUMMARY

3-15. This chapter outlined two of the eight military mission areas in support of nonproliferation activities. These activities are conducted in permissive environments and directed toward the prevention of proliferation. In the event that an adversary decides to proliferate in a permissive, hostile, or uncertain environment, CWMD activities may transition from nonproliferation to counterproliferation activities when diplomacy fails.

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*Note. Counterproliferation activities are discussed in Chapter 4.*

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## Chapter 4

# Counterproliferation Activities

Counterproliferation includes actions that are taken to defeat the threat and/or use of WMD against the United States and its military forces, friends, and allies. The full range of Service capabilities will be required to counter the threat and use of WMD. The objective of counterproliferation operations is to deter, interdict, defend against, and eliminate the WMD threat across the full range of possible WMD acquisition, development, and employment scenarios.

### OVERVIEW

4-1. CWMD has taken on greater national security importance in recent years and has been accorded a higher priority in defense planning. Proliferation networks are diverse and operate globally. Additionally, these networks share many characteristics and even operate in conjunction with terrorist networks. The CWMD challenges demonstrate the need to use a broad construct to combat WMD. To overcome these challenges, the military must work in concert with other elements of national power and leverage actions of other government agencies and multinational partners to achieve coordinated strategic, operational, and tactical effects to combat WMD.

4-2. Counterproliferation activities are focused on WMD counterforce and CBRN defense. The architecture supporting counterproliferation is outlined in figure 4-1, page 4-2. Tactical commanders will primarily focus on the five mission areas that support WMD counterforce and CBRN defense objectives (WMD interdiction, WMD offensive operations, WMD elimination, CBRN active defense, and CBRN passive defense). They will develop the ability to execute the tasks necessary to successfully accomplish missions associated with counterproliferation. This does not preclude the use of tactical units to assist in WMD security cooperation and partner activities and CBRN consequence management to prevent proliferation or mitigate the effects of a CBRN event.

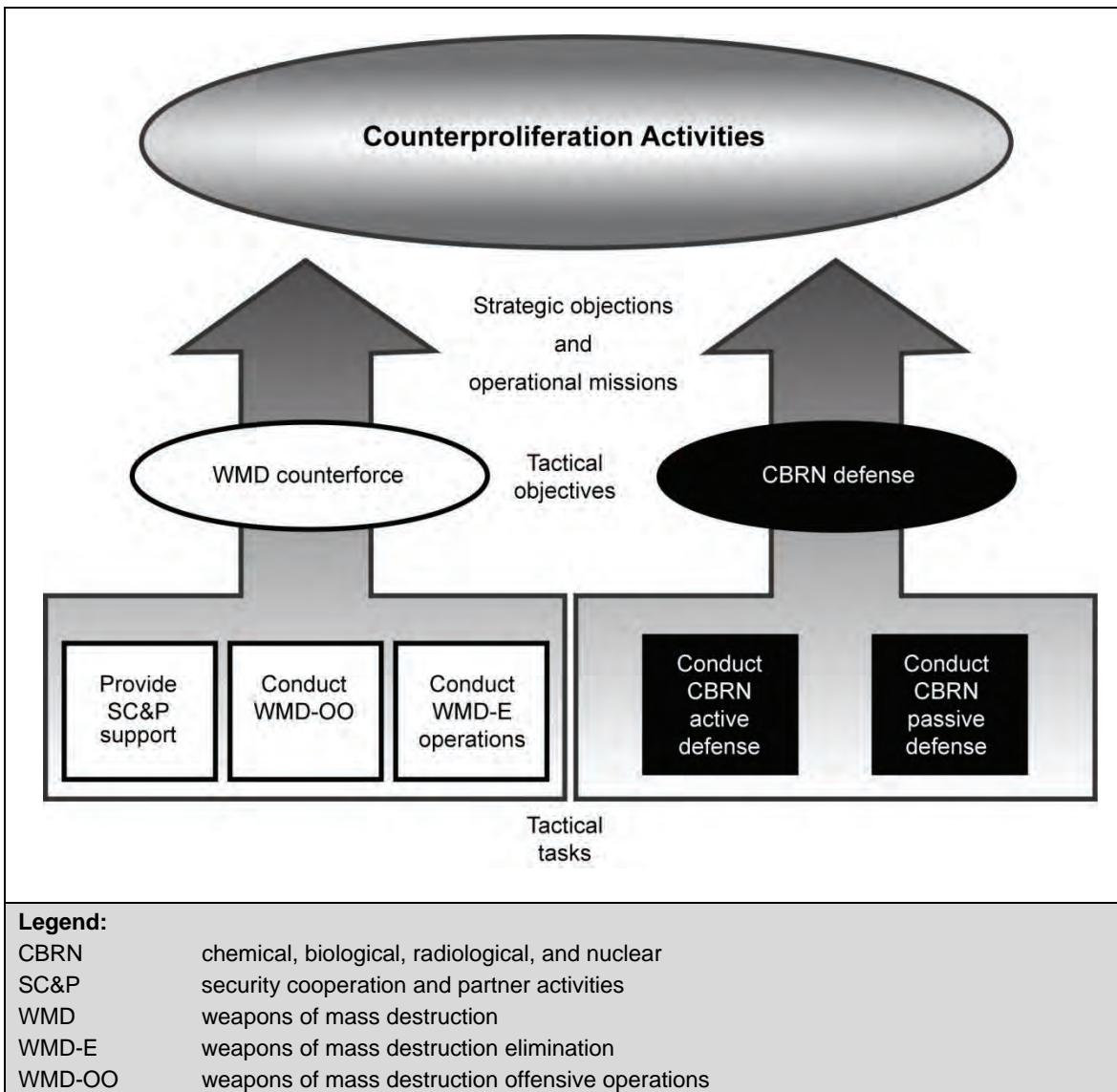
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*Note. The eight military mission areas of CWMD are not conducted sequentially and discretely in the prosecution of tactical-level military operations. They will occur independently or simultaneously in response to the CBRN threat or hazard, depending on whether tactical units are conducting CBRN operations while supporting CWMD objectives.*

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### WEAPONS OF MASS DESTRUCTION COUNTERFORCE

4-3. WMD counterforce is a tactical objective to defeat the full range of CBRN threats before they can be employed as weapons. WMD counterforce refers to tactical offensive operations to strike adversary CBRN weapons and associated production, transportation, and storage facilities prior to use. WMD counterforce includes the tasks of conducting WMD interdiction, WMD offensive operations, and WMD elimination operations, encompassing the detection, deterrence, denial, degradation, and/or destruction of an adversary's WMD assets, means of delivery, and facilities.



**Figure 4-1. CBRN operations supporting counterproliferation**

4-4. Associated WMD counterforce capabilities include the ability to find, fix, track, target, engage, and assess attacks against WMD targets and the ability to defeat or neutralize CBRN material, weapons, and equipment before they can be brought to bear in the area of responsibility, while limiting collateral effects. Targeting is an important consideration that links WMD counterforce objectives to tactical actions and tasks.

4-5. Targeting matches the commander's objectives, guidance, and intent with inputs from each Service and staff element to identify forces and effects necessary to achieve the objectives. Targeting operations are intended to deter or defeat a WMD threat or subsequent use and to reduce the level of threats that are dealt with by CBRN active or CBRN passive defense. WMD targets are integrated into commanders' existing targeting processes and boards, and service publications provide detailed guidance for targeting.

4-6. The following vignette provides an example of counterforce operations.

Iraq is one country that has suffered repeated counterforce strikes as other states have attempted to destroy its WMD capabilities. Starting with the Israeli strike on Iraq's French-supplied nuclear reactor at Osiraq in June 1980 and ending with Operation Desert Fox in December 1998, numerous attacks have been made on Iraq's WMD infrastructure in an attempt to disarm and/or disrupt these threatening programs. While the aerial campaign during the Gulf War represented the most sustained and intensive of these efforts, other selective attacks in response to various UNSCOM [United Nations Special Commission] crises during the 1990s also targeted Iraq's WMD programs.

In 2002, the CIA [Central Intelligence Agency] identified Libya, Syria, Egypt, Sudan, Iran, and Iraq as countries actively seeking to develop WMD. The threat in the Gulf seems particularly high, especially the threat posed to forward-deployed U.S. forces in Kuwait, Saudi Arabia, Bahrain, Qatar, the United Arab Emirates, and Oman. In Iraq, counterforce operations delayed and complicated Saddam's efforts to develop and maintain WMD capabilities.

Counterforce (dependent on intelligence for targeting) is but one tool available to the United States to deal with the emerging threat environment, but it must be employed within the context of a broader campaign using a variety of means to disarm a hostile state's WMD.

## WEAPONS OF MASS DESTRUCTION INTERDICTION OPERATIONS

4-7. WMD interdiction consists of operations to track, intercept, search, divert, seize, or otherwise stop the transit of WMD, its delivery systems, or related materials, technologies, and expertise. WMD interdiction is also called *counterproliferation interdiction*. The transit of WMD-related weapons, materials, or expertise may occur in many combinations—from state-to-state, state-to-nonstate, nonstate-to-state, and nonstate-to-nonstate actors. Commanders must be prepared to intercept and deny or prevent WMD-related materials or expertise from moving to its destination.

4-8. Interdiction may occur more frequently in noncombat situations than during combat operations at sea, on land, or in the air, especially in permissive and uncertain environments. Stopping a terrorist who is en route to transfer WMD material to a hostile government official is one example of interdiction operations. Commanders must be prepared to coordinate with other agencies and multinational partners to execute and support interdiction operations in their area of responsibility.

4-9. Operations to deny and interdict proliferation-related shipments assist the disruption and dismantlement of proliferation networks. These operations track, intercept, search, divert, seize, or stop the trafficking of WMD, delivery systems, related materials, technologies, and expertise from adversaries. Associated activities may include intercepting, identifying, securing, disposing of, or rendering safe suspect WMD-related materials.

4-10. If interdiction results in the seizure of WMD or related material, the commander may be required to reduce the threat by securing and removing (neutralize or transport) the WMD and related material. If there is an accidental release of CBRN in a permissive or uncertain operational environment, the commander may also be required to execute consequence management operations.

4-11. The focus of WMD interdiction and CBRN active defense operations differ. While CBRN active defense focuses on weapons en route to a target, WMD interdiction focuses on stopping the transit of WMD capabilities. For example—

- If a complete nuclear weapon is being delivered to a buyer, WMD interdiction and CBRN active defense are applicable.
- If nuclear weapon pieces and/or parts are being shipped to a buyer, WMD interdiction is applicable.
- If the destination port is the target of nuclear weapon, CBRN active defense is applicable.

4-12. Examples of tactical WMD interdiction tasks include—

- Developing a synchronization plan for joint, tactical air/land/sea interdiction operations.
- Characterizing WMD implications of the tactical situation.
- Conducting tactical WMD interdiction target analysis.
- Issuing tactical WMD interdiction planning guidance to subordinate component forces.
- Developing tactical intelligence for WMD interdiction requirements.
- Exercising C2 in preparation for, and conduct of, WMD interdiction operations.
- Coordinating joint/multinational and interagency support.
- Conducting tactical-level risk assessment to support WMD interdiction operations.
- Establishing CBRN defense information integration and connectivity.
- Diverting, disrupting, delaying, or destroying the enemy's WMD capability before it can be used effectively.
- Integrating CBRN defense capabilities (sampling, monitoring, identification, and reconnaissance).

## **WEAPONS OF MASS DESTRUCTION OFFENSIVE OPERATIONS**

4-13. WMD offensive operations consist of actions to disrupt, neutralize, or destroy a WMD threat before it can be used or to deter the subsequent use of such weapons. WMD offensive operations include raids, strikes, and operations designed to locate and take action against the threat of WMD use.

4-14. In hostile or uncertain environments where interdiction efforts have been unsuccessful in halting rogue behavior, the President or Secretary of Defense can direct the commander to execute offensive operations in order to destroy the WMD network's ability to produce, deploy, or employ WMD. The commander may use WMD offensive operations to attack targets (using lethal means), or he may conduct engagements on targets using nonlethal means. WMD offensive operations are led by the military and encompass the detection, identification, disruption, and destruction of an adversary's WMD assets, delivery means, associated facilities, and other high-value targets.

4-15. The WMD offensive operations mission area is largely the domain of the DOD, albeit interagency cooperation will increase as operational strike capabilities progress toward attacks against WMD targets. Since offensive strike operations against WMD targets may result in the release of hazmat, increased political and legal scrutiny is normally necessary. This mission area also requires maintaining a capability to locate, secure, and recover/destroy stolen WMD.

4-16. In the event that an adversary attempts to use WMD, WMD offensive operations may help disrupt and weaken a WMD attack, increasing the effectiveness of other complementary elements of CWMD, such as CBRN active defense, passive defense, and consequence management. These operations impose substantial cost upon the WMD actor and require substantial refined intelligence.

4-17. The operational distinctions between WMD offensive operations and WMD elimination operations lie in the overall end state of the actions associated with the military mission areas. While WMD elimination operations focus on the systematic elimination of the entire WMD program, WMD offensive operations focus only on distinct targets or nodes of the WMD program or capabilities.

4-18. WMD offensive operations can support WMD elimination operations, but WMD elimination operations do not support WMD offensive operations because the end states differ. Examples of tactical tasks that support WMD offensive operations include—

- Conducting raids to destroy a specific node or target, but not the entire WMD program.
- Conducting air strikes to deny enemy access to, or use of, WMD delivery systems.
- Conducting operations to board and seize control of, or totally destroy, an enemy's nuclear submarine.
- Using special artillery equipment to conduct surveillance operations to detect the enemy's WMD-related activities.

- Gathering intelligence related to the use of WMD through the interrogation of captured personnel or exploitation of material.
- Defeating, degrading, destroying, disrupting, neutralizing, securing, seizing, or denying the enemy's WMD capability before it can be used effectively.
- Integrating CBRN defense capabilities (sampling, monitoring, identification, and reconnaissance).

## WEAPONS OF MASS DESTRUCTION ELIMINATION OPERATIONS

4-19. WMD elimination operations consist of those actions undertaken in a hostile or uncertain environment to systematically locate, characterize, secure, disable, or destroy WMD programs and related capabilities. The United States may decide to conduct military operations within the territory of a WMD possessor state or against terrorist programs that are operating within a state during WMD elimination operations. Expedient WMD elimination operations may be required to ensure the safety of troops, secure the freedom of action for combat operations, or protect noncombatants.

4-20. To an increasing degree, hostile nations and nonstate enemies are developing WMD for potential deterrence against the United States and/or to threaten other opponents. More ominously, enemies may regard the use of such weapons as politically or militarily expedient. Deterrence strategies may prove ineffective against irrational actors. Therefore, completely eliminating an enemy's capability to acquire, store, and employ these weapons becomes a crucial component of any future campaign's end state. Eliminating enemy WMD may be the principal objective of a campaign; the defeat or destruction of the enemy's other military capability would be a necessary step to achieve the larger goal.

4-21. WMD elimination operations must focus, initially, on the immediate tasks of security (securing sites and preventing the looting or capture of WMD and related materials) and the disablement or destruction of weapons, materials, agents, and delivery systems that pose an immediate or direct threat to forces and the civilian population. The next priority is the exploitation of program experts (for intelligence purposes) and previously secured weapons and material to secure, exploit, and disable WMD production capabilities and advance the elimination process prior to transitioning elimination operations to an international or host nation body.

4-22. WMD capabilities that are candidates for WMD elimination operations include, but are not limited to—

- Weapon systems and associated stockpiles.
- Raw material/agents or precursor stockpiles.
- Artillery/rocket delivery systems, such as mortars, howitzers, multiple rocket launch systems, motor vessels, missiles and missile systems, aircraft, unmanned aircraft systems, and other unconventional delivery systems.
- Dual-use facilities, such as commercial nuclear power facilities, research reactors, research and development facilities, laboratories, production facilities, radioisotope thermoelectric generators, pharmaceutical/formulation programs, agriculture and fertilizer facilities, and food irradiation facilities.
- Dual-use expertise, including personnel and documents associated with research, production, testing, storage, or proliferation networks or operations.

4-23. WMD elimination operations employ many of the same counterforce operations capabilities as offensive operations to—

- Reduce the immediate threat (secure and destroy/remove WMD and related material/resources).
- Lay the groundwork to transition the long-term destruction, redirection, and monitoring activities of remaining elements of the WMD program to threat reduction cooperation.

4-24. WMD elimination operations also seek to locate and secure key personnel in the program. Since WMD elimination requires some U.S. physical control of the infrastructure to establish attribution, the commander must provide CBRN passive defense for the executing force elements.

4-25. WMD elimination and threat reduction cooperation are two military mission areas that are habitually linked, but very different. The difference comes down to the consent and cooperation of the host nation and the operational environment in which the missions take place. While the ultimate goal may be the same—to characterize and reduce or eliminate the threat of WMD—the operational aspects are very different. Threat reduction cooperation activities occur in a permissive environment. Since WMD elimination operations are conducted in hostile or uncertain environments, they require intense intelligence efforts to penetrate the program. WMD elimination operations may ultimately transition to threat reduction cooperation activities as the operational environment changes. WMD elimination tasks may include—

- Issuing tactical WMD interdiction planning guidance to subordinate component forces.
- Conducting a course-of-action assessment of a CBRN/toxic industrial material incident for the WMD mission force.
- Moving forces in support of the WMD elimination mission.
- Searching facilities/spaces during the WMD elimination mission.
- Detecting WMD-related material during the WMD elimination mission.
- Characterizing WMD-related material during the WMD elimination mission.
- Containing suspect WMD-related material for further disposition.
- Gathering forensic evidence in support of the WMD elimination mission.
- Performing the immediate decontamination of WMD elimination force personnel and equipment.
- Conducting medical surveillance based on syndromic information/data.
- Maintaining the control of materials related to the WMD elimination mission.
- Initiating medical prophylactic measures to counter CBRN/toxic industrial material effects.
- Transporting WMD-related material for further disposition.
- Training for WMD elimination operations.
- Conducting WMD elimination target analysis.

## **CHEMICAL, BIOLOGICAL, RADIOLOGICAL, AND NUCLEAR DEFENSE**

4-26. CBRN defense is measures taken to minimize or negate the vulnerabilities and effects of a CBRN incident. The combination of active and passive defense measures reduces the effectiveness or success of CBRN weapon employment. It is imperative that all commanders integrate CBRN defense into their mission planning, regardless of the mission type.

### **ACTIVE DEFENSE OPERATIONS**

4-27. ***CBRN active defense comprises measures taken to defeat an attack with CBRN weapons by employing actions to divert, neutralize, or destroy those weapons or their means of delivery while en route to their target.*** CBRN active defense operations to defend against conventionally and unconventionally delivered WMD include, but are not limited to—

- Missile defense (ballistic and cruise).
- Air defense.
- Special operations.
- Security operations.

4-28. There is a difference between CBRN active defense and WMD interdiction operations. The goal of active defense operations is to achieve a layered capability to defeat the full scope of delivery means in defense of the homeland, expeditionary forces, and other assets and interests in forward regions. However, WMD interdiction operations focus on stopping the transit of WMD capabilities. Examples of CBRN active defense tasks include—

- Destroying CBRN-capable artillery battery using counterbattery fires, air strikes, or missiles directly on an enemy position. The destruction leverages lethal and nonlethal means.
- Destroying enemy aircraft armed with WMD through air-to-air or ground-to-air engagements.

- Delivering air strikes on trucks that are loaded with ammunition while they are en route to the detonation location.
- Diverting the enemy's intent to position WMD for delivery.
- Detecting planned terrorist actions. For example, detect a suicide bomber and neutralize him or her before detonation is possible. Maximize the use of intelligence assets to discover who, what, when, where, and how.
- Intercepting, engaging, neutralizing, or destroying WMD en route to a target by using surface-to-air missiles. This includes disrupting enemy theater missile operations (ballistic missiles; air-to-surface missiles; and air-, land-, and sea-launched cruise missiles) through an appropriate mix of mutually supportive passive missile defense, active missile defense, attack operations, combat air patrol, and supporting information systems.

## PASSIVE DEFENSE OPERATIONS

4-29. CBRN passive defense includes measures taken to minimize or negate the vulnerability to, and effects of, CBRN attacks. This mission area focuses on maintaining the joint force's ability to continue military operations in a CBRN environment. CBRN passive defense measures enable air and ground military operations to be sustained in a CBRN environment. Success depends on the effective integration of equipment; CBRN training; and proven tactics, techniques, and procedures.

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*Note. Appendix C provides basic standards of proficiency for individuals and organizations and additional standards of proficiency for selected personnel, CBRN defense specialists, medical personnel, and commanders.*

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4-30. If an adversary succeeds in launching a CBRN attack and CBRN active defense measures fail to eliminate the delivery vehicle and/or weapons, CBRN passive defense measures become critical. These passive defense measures are designed to mitigate the immediate effects of a CBRN incident and to protect U.S. forces who are conducting military missions in a CBRN environment.

4-31. CBRN passive defense has historically been based on three general principles that specifically address the hazards created by CBRN incidents or accidents. The application of the following principles helps minimize vulnerabilities, protects friendly forces, and maintains the force's operational tempo in order to achieve objectives:

- CBRN contamination avoidance of CBRN hazards.
- CBRN protection of individuals, units, and equipment from unavoidable CBRN hazards.
- CBRN decontamination to restore operational capability.

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*Note. Although C2 is not one of the CBRN principles, it is the mechanism that integrates.*

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4-32. Within the DOD, principles associated with CBRN passive defense are organized under the four CBRN operational elements:

- Sense.
- Shape.
- Shield.
- Sustain.

4-33. These elements are linked with and provide the capabilities to support the principles of CBRN passive defense as outlined in figure 4-2, page 4-8.

## Contamination Avoidance

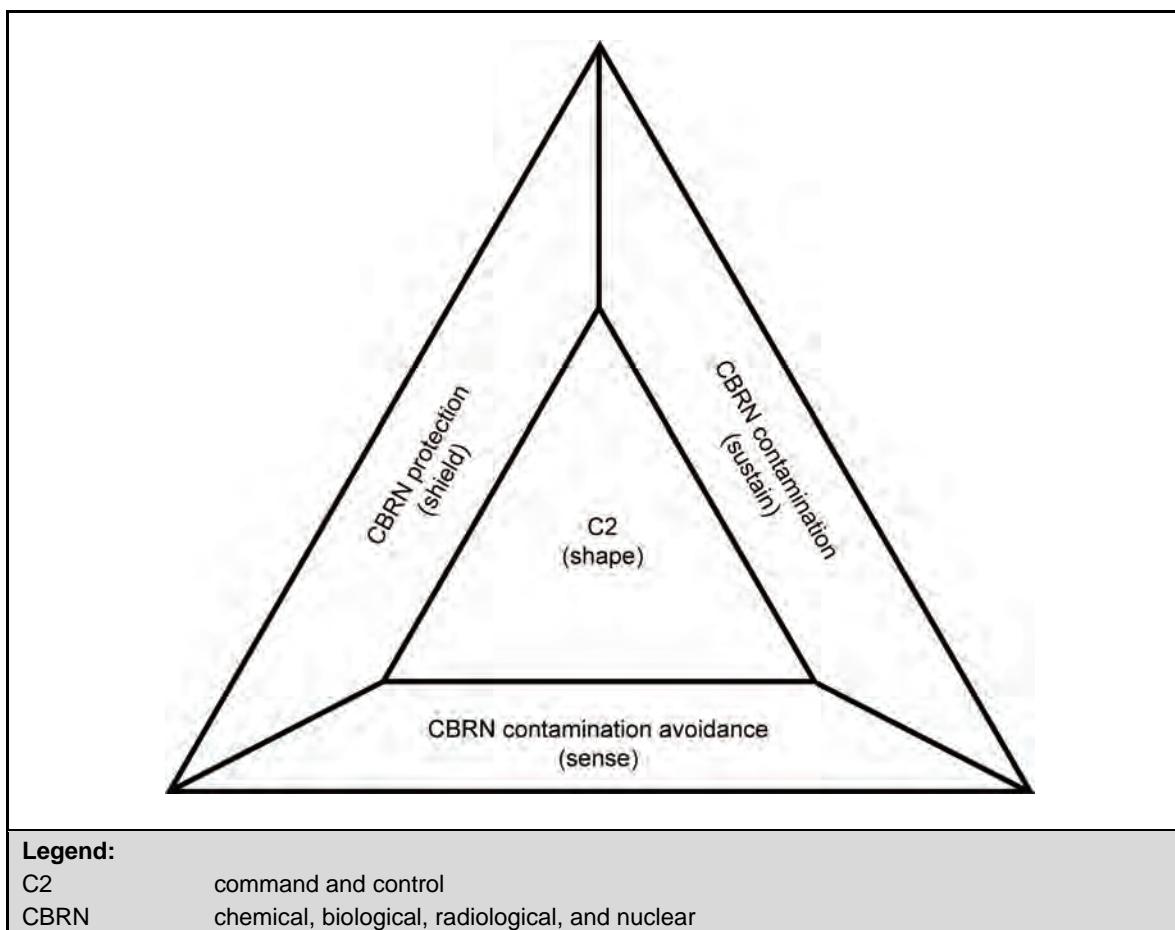
4-34. Successful contamination avoidance prevents disruption to operations and organizations by eliminating unnecessary time in cumbersome protective postures and decontamination requirements. Avoiding contamination requires the ability to detect and report the presence of CBRN hazards.

4-35. The CBRN sense function is a capability to achieve CBRN contamination avoidance. CBRN sense is defined as activities that continually provide CBRN threat and hazard information and intelligence in a timely manner to support the common operational picture. CBRN sense is key to contamination avoidance because it is intended to continually provide critical information about potential or actual CBRN hazards in a timely manner through early detection, identification, and determination of the scope of hazards.

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*Note. See Multiservice Tactics, Techniques, and Procedures for Chemical, Biological, Radiological, and Nuclear Contamination Avoidance for a more detailed discussion of contamination avoidance.*

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**Figure 4-2. Principles of CBRN passive defense**

## Chemical, Biological, Radiological, and Nuclear Protection

4-36. CBRN protection includes those measures that are taken to keep CBRN threats and hazards from having an adverse effect on personnel, equipment, and critical assets and facilities. Commanders must implement protective measures that are appropriate to all anticipated threats, including terrorists and the use of WMD or other CBRN hazards. CBRN protection often requires capabilities from CBRN active and passive defense and also requires the planning, preparation, training, and execution of physical defenses to

negate the effects of CBRN weapons and hazards on personnel and materiel. CBRN protection conserves the force by providing individual and collective protection postures and capabilities. CBRN shield comprises the individual and collective protection measures that are essential to mitigating the effects of CBRN hazards. Protecting the force from CBRN hazards may include hardening systems and facilities, preventing or reducing individual and collective exposures, or applying medical prophylaxes.

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*Note. See Multiservice Tactics, Techniques, and Procedures for Nuclear, Biological, and Chemical (NBC) Protection for a more detailed discussion of CBRN protection.*

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## Decontamination

4-37. Decontamination is the process of absorbing, destroying, neutralizing, making harmless, or removing chemical and biological agents or removing radioactive material that is around or clinging to a person, object, or area in order to make it safe. Decontamination is a key component of the overarching concept of contamination control and supports the postattack restoration of forces and operations to a near-normal capability. Decontamination and contamination control are intended to minimize the time required to return personnel and mission-essential equipment to a mission-capable state. Commanders must prioritize requirements and decontaminate only what is necessary because assets are limited and decontamination is often labor-intensive.

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*Note. See Multiservice Tactics, Techniques, and Procedures for Chemical, Biological, Radiological, and Nuclear Decontamination for a more detailed discussion of decontamination.*

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4-38. Contamination control addresses—

- Controlling contaminated waste.
- Establishing contaminated-equipment holding and exclusion areas.
- Minimizing the levels of contamination where it cannot be avoided.
- Conducting split mission-oriented protective posture (MOPP) operations. (Split MOPP is the concept of maintaining heightened protective posture only in those areas or zones that are contaminated, allowing personnel in uncontaminated areas to continue operations in a reduced protective posture.)

4-39. CBRN sustain comprises the decontamination and medical activities conducted to restore combat power and continue operations. Mitigation includes planning, initiating, and continuing operations, despite threats from CBRN materials, by conducting contamination control and medical countermeasures that enable the quick restoration of operational capability.

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*Note. See Multiservice Tactics, Techniques, and Procedures for Installation Chemical, Biological, Radiological, and Nuclear Defense for a more detailed discussion of contamination control.*

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## Command and Control

4-40. C2 is associated with the CBRN shape function. As information is characterized, commanders are able to make decisions that will support the CBRN principles to—

- Plan, conduct, and integrate CBRN defense with other defenses.
- Optimize the capability to operate in a CBRN environment.
- Minimize negative psychological effects.

4-41. CBRN shape is the C2 activities that integrate the CBRN sense, shield, and sustain operational elements to characterize CBRN hazards and threats and employ necessary capabilities to counter their effects.

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**Note.** See *Multiservice Tactics, Techniques, and Procedures for Chemical, Biological, Radiological, and Nuclear Aspects of Command and Control*.

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## **SUMMARY**

4-42. This chapter outlined WMD counterforce, CBRN defense, and five of the eight military mission areas in support of counterproliferation activities. These activities are conducted in nonpermissive environments and directed toward defeating the threat or toward the use of WMD against the United States and our forces, friends, and allies. WMD counterforce and CBRN defense activities may transition from counterproliferation to consequence management activities when CWMD programs fail.

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**Note.** Consequence management activities are discussed in Chapter 5.

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## Chapter 5

# Consequence Management Activities

**CBRN consequence management** consists of actions taken to plan, prepare, respond to, and recover from CBRN incidents that require force and resource allocation beyond passive defense capabilities. CBRN consequence management activities performed by U.S. military forces encompass actions taken to mitigate the consequences from deliberate and inadvertent releases of CBRN agents or substances and assist in the restoration of essential operations and services at home and abroad. Properly executed CBRN consequence management mitigates the effects of the event and serves as a deterrent for future attacks.

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*Note. See Multiservice Tactics, Techniques, and Procedures for Chemical, Biological, Radiological, and Nuclear Consequence Management Operations for detailed information.*

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## OVERVIEW

5-1. The counterproliferation activities of WMD counterforce and CBRN defense actions may not eliminate or reduce the effects of deliberate and inadvertent releases of CBRN agents and material that have the potential to cause high casualties and large levels of destruction. As technology becomes increasingly available, terrorists seek new ways to acquire, manufacture, weaponize, and deploy CBRN agents and materials. Addressing the impact of an accidental, intentional, or natural release of CBRN material is the basis for the CBRN consequence management activities performed at the tactical level.

5-2. CBRN consequence management is normally managed at the strategic and operational levels (U.S. or host nation government), with DOD providing support as directed. During combat operations, DOD leads the operational response in reaction to an incident involving U.S. forces and allies. When directed or authorized by the President, the Secretary of Defense may authorize civil support operations. Abroad, when requested by a host nation, the President may authorize, and the Secretary of Defense may direct, DOD support to U.S. Government foreign consequence management operations.

5-3. The DOD conducts CBRN consequence management in support of civil authorities to mitigate the effects of accidental or intentional CBRN event, usually in support of a primary agency. CBRN consequence management operations occur in foreign and domestic settings. DOD must be prepared to conduct CBRN consequence management operations when called upon. The Department of Homeland Security is the primary agency for a continental United States (CONUS) WMD event. On foreign territory, the Department of State is the primary agency for coordinating responses to host nation requests for support. DOD leads the operational response for an incident involving U.S. forces and allies.

5-4. The primary goals of CBRN consequence management are to—

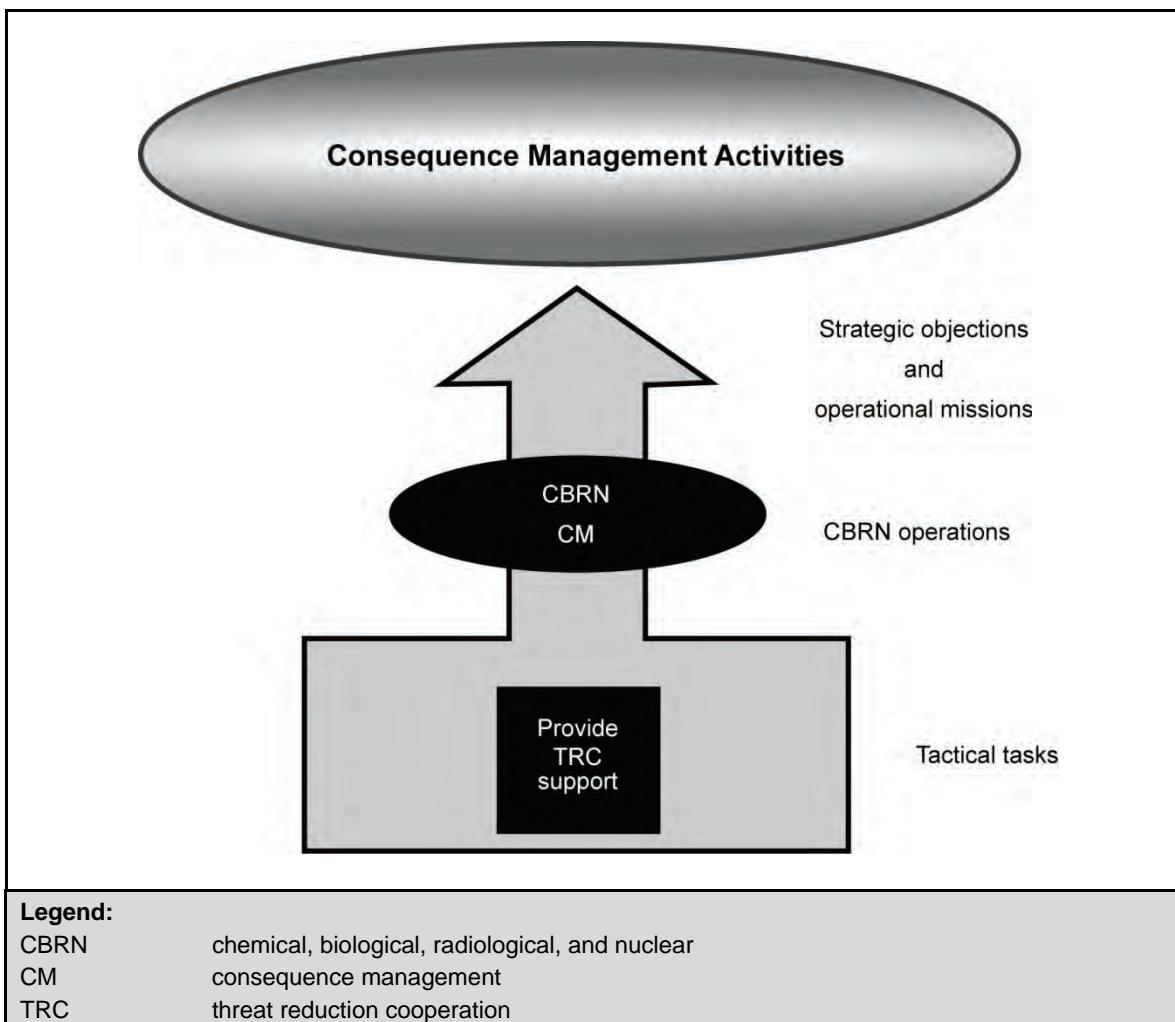
- Save lives.
- Prevent injury.
- Provide temporary critical life support.
- Protect critical infrastructure, property, and the environment.
- Contain the event.
- Preserve national security.

5-5. Currently, U.S. forces may conduct consequence management operations in a designated joint operations area to sustain operations, mitigate undesired effects (such as the release of CBRN hazards), and

manage the consequences of such effects. By demonstrating the ability to deny the benefits of WMD use, consequence management capabilities can also influence adversary decisions to employ WMD.

5-6. CBRN consequence management tasks at the tactical level support strategic and operational objectives and must be tailored to make the preservation of life a priority. This is a significant shift in mind-set for commanders, staff, and CBRN consequence management planners. CBRN consequence management operations supporting consequence management activities are outlined in figure 5-1.

*Note. The eight military mission areas of CWMD are not conducted sequentially and discretely in the prosecution of tactical-level military operations. The missions will occur independently or simultaneously in response to the CBRN threat or hazard, depending on whether tactical units are conducting CBRN operations while supporting CWMD objectives.*



**Figure 5-1. CBRN operations supporting CBRN consequence management**

## PROCESS

5-7. CBRN consequence management goals focus the conduct of DOD operations and provide a common understanding of the purpose of CBRN consequence management. The method of response will use standing contingency plans and procedures to determine what forces and capabilities are required and committed in support of requests for assistance.

5-8. CBRN consequence management includes planning, preparing for, responding to, and recovering from the consequences of CBRN incidents, no matter what their causes. Accidents may occur at chemical plants, nuclear power plants, or other facilities that have the potential for releasing CBRN material or during the transport of toxic industrial material. Intentional acts include the use of WMD by adversaries (global, regional, or nonstate), sabotage, and other acts of terrorism. CBRN materials present immediate and delayed hazards. In some instances, the delayed effects can cause greater problems for joint forces and may alter CBRN consequence management response activities.

5-9. CBRN consequence management planning and preparation activities support the *National Response Framework* prevention efforts, while the response and recovery actions support the *National Response Framework* mitigation efforts. The four CBRN consequence management activities are (see figure 5-2, page 5-4)—

- **Plan.** Planning involves the assessment of the operational environment and enables commanders to identify minimum standards for training, organizing, equipping, and protecting resources. The response unit's planning process drives preparation and facilitates response and recovery operations.
- **Prepare.** Preparation implements the approved plan and relevant agreements to increase readiness through training, exercises, and certification. Vulnerability reduction measures are initiated by the response unit to support prevention and mitigation functions.
- **Respond.** The respond process addresses the short-term, direct effects of an incident. Response measures initiated by the response unit include those actions taken to save lives, prevent human suffering, protect property, and establish control.
- **Recover.** The response unit initiates the recover process, focusing on restoring mission capability and essential public and government services interrupted by the incident. The recovery phase also includes completing the mitigation of the immediate hazard.

## CONSEQUENCE MANAGEMENT OPERATIONS

5-10. An operational environment is a composite of the conditions, circumstances, and influences that affect the employment of capabilities and bear on the decisions of the commander. DOD conducts CBRN consequence management operations in three operational environments:

- **Defense support of civil authorities during a domestic response.** This response includes assisting federal agencies within the United States and its territories and possessions according to guidance in the *National Response Framework*. DOD supports operations, within its capabilities, through liaison with the incident commander.
- **Defense support to a foreign request.** DOD supports the Department of State with operations originating from a foreign request. Tasks originate from the host nation through the Department of State. However, DOD commanders may take appropriate action in life-threatening situations while awaiting DOD or Department of State tasking.
- **DOD-led operations.** DOD leads the operational response for an incident involving U.S. forces and its allies across the operational environment. This also includes responding on a DOD installation.

5-11. Depending on the threat and the political and physical environments of the consequence management response location, the operational environments may be further characterized as permissive, uncertain, or hostile. Given the nature of their actions, most consequence management response operations are conducted in a permissive environment.

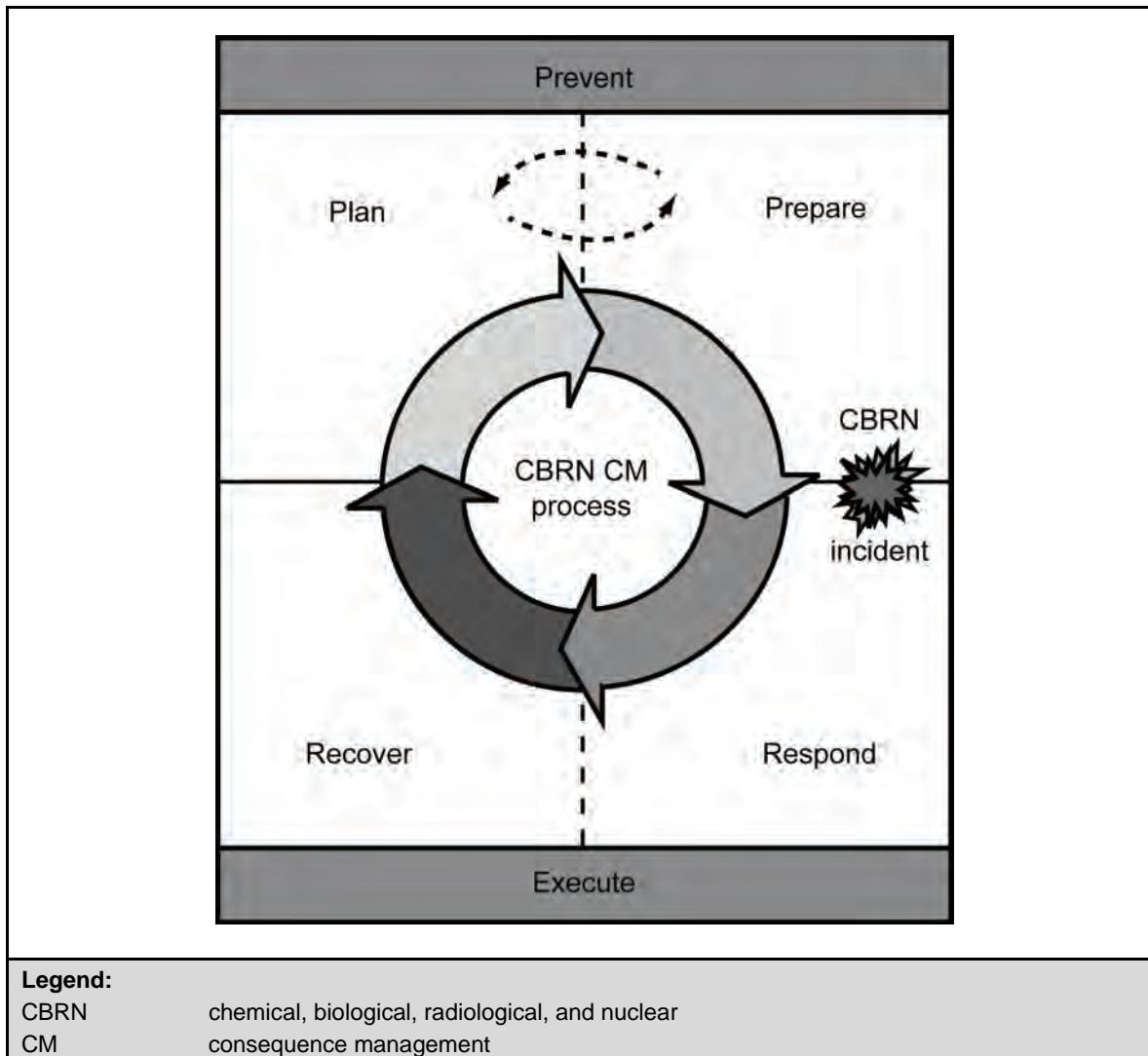


Figure 5-2. CBRN consequence management process

## RESPONDERS

5-13. **CBRN responders** are DOD military and civilian personnel who are trained to respond to CBRN incidents and certified to operate safely at the awareness, operations, technician, or installation level according to Section 120, Part 1910, Title 29, Code of Federal Regulations and National Fire Protection Association 472. They may be responsible for tactical planning and the conduct of CBRN consequence management operations in domestic, foreign, or theater operational environments, including military installations. The levels of CBRN responders are—

- **Awareness.** Awareness level responders witness or discover a CBRN agent or hazmat release and are trained to initiate an emergency response sequence. They take no further action beyond notifying the authorities.
- **Operations.** Operations level responders react to releases or potential releases of CBRN agents or hazmat as part of the initial response to the site for the purpose of protecting nearby persons, property, or the environment from the effects of the release. They are trained to respond in a defensive fashion without actually trying to stop the release.

- **Technician.** Technician level responders react to releases or potential releases of CBRN or hazmat for the purpose of mitigation.
- **Installation.** Installation level responders provide technical level expertise to the installation commander. They coordinate with internal and external agencies (including local, federal, and host nation governments) to provide emergency support for the installation.

5-14. The incident commander is responsible for all aspects of an emergency response, to include quickly developing incident objectives, managing incident operations, applying resources, and assuming responsibility for persons involved. The incident commander sets priorities and defines the organization of the response teams and the overall incident action plan. The incident commander role may be assumed by a senior or higher-qualified officer upon his or her arrival or as the situation dictates. Even if subordinate positions are not assigned, the incident commander position is always designated or assumed.

## **SUMMARY**

5-15. This chapter outlined CBRN consequence management tasks conducted in support of consequence management activities. CBRN consequence management operations are conducted when CWMD programs fail.

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## Chapter 6

# Installation Emergency Management

Installation CBRN protection consists of measures taken to anticipate, recognize, warn, evaluate, control, respond to, and recover from CBRN events in order to preserve life, prevent human suffering, mitigate an incident, protect critical assets, and maintain critical missions. The key elements of installation CBRN protection are detecting, assessing, warning, defending, and recovering.

### OVERVIEW

6-1. Since 11 September 2001, installation protection has been a topic of increasing concern for the DOD. The overarching goal is to maintain DOD warfighting capabilities when under attack or after disruption. Department of Defense Instruction (DODI) 2000.18 states “The Combatant Commanders and Services shall develop Service-wide scenarios designed to establish baseline capabilities needed to allow installation emergency responders to protect personnel and infrastructure, facilities, other assets, and identify vulnerabilities.”

6-2. Historically, terrorist acts against U.S. interests have been committed abroad. However, the bombings of the World Trade Center in 1993 and the Murrah Federal Building in 1995, the attacks of September 2001, and the anthrax letters of 2001 demonstrate the willingness of terrorists to also commit acts of violence against U.S. interests on American soil. In response, the DOD has begun to implement additional measures to address threats to the U.S. homeland and to U.S. military installations at home and abroad.

6-3. The installation CBRN protection process relies on the persistent detection of threats in an integrated, shared understanding of the operational environment and timely dissemination of accurate decisions, warnings, and tasking that enable DOD installations and facilities to protect themselves against specific attacks and threats. Some installation CBRN protection capability requirements are—

- Detect and identify CBRN incidents on an installation.
- Issue a warning and report a CBRN attack and the presence of contamination.
- Protect personnel, maintain critical military missions, and resume essential operations.
- Provide appropriate medical protection, diagnosis, and treatment for CBRN effects.
- Be compatible with existing installation power and communication systems.
- Employ decision support tools.
- Ensure that all installation emergency response personnel are trained to respond to a terrorist CBRN attack.

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*Note. Memorandums of understanding and agreement will determine the appropriate policy.*

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6-4. Installations may not have the resources to support a separate, independent program developed exclusively for preparing for, responding to, and recovering from CBRN incidents. Therefore, installation CBRN protection must fit into the framework of an installation all-hazards emergency management program to be effective. Additionally, the ability to receive emergency support from, and provide mutual aid to, the local community depends on common response and incident management protocols developed for all hazards. Employing an all-hazards approach encourages interoperability; enables the effective use of resources; and protects critical operations, personnel, assets, and the environment during likely emergency events. An all-hazards approach to CBRN installation protection also facilitates the coordination of programs and resources resulting in rapid, effective response and hazard mitigation.

*Note. See Multiservice Tactics, Techniques, and Procedures for Installation CBRN Defense for more information on installation CBRN protection.*

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## **INSTALLATION OPERATIONAL ENVIRONMENT**

6-5. The installation operational environment is a composite of the conditions, circumstances, and influences that affect the employment of capabilities and bear on the decisions of the commander. Some examples are—

- **Permissive environment.** An operational environment in which host country military and law enforcement agencies have the control, intent, and capability necessary to assist operations that a unit intends to conduct.
- **Uncertain environment.** An operational environment in which host government forces, whether opposed or receptive to operations that a unit intends to conduct, do not have totally effective control of the territory and population in the intended operational area.
- **Hostile environment.** An operational environment in which hostile forces have the control, intent, and capability necessary to effectively oppose or react to the operations that a unit intends to conduct.

6-6. U.S. military installations support operational forces in domestic and foreign environments. The particular location of the installation is critical in determining the laws and regulations that must be applied and the level of military authority that the installation commander may have in determining response actions, including the level of personal protection for the response force.

6-7. DODI 2000.21 defines foreign locations as any geographic area not reflected in the definition of domestic locations, and it lists the following as domestic locations:

- CONUS.
- Alaska.
- Hawaii.
- Commonwealth of Puerto Rico.
- U.S. Virgin Islands.
- U.S. territories of Guam.
- American Samoa.
- Jarvis Island.
- Commonwealth of the Northern Marianas Islands.
- Freely Associated States of Micronesia.
- Republic of Palau.
- Republic of the Marshall Islands.
- U.S. possessions of Wake Island.
- Midway Island.
- Johnston Island.
- Baker Island.
- Howland Island.
- Palmyra Atoll.
- Kingman Reef.

6-8. An installation is a grouping of facilities that are located in the same vicinity and support particular functions. Installations may include, but are not limited to—

- Posts or bases.
- Ports (sea or air).
- Airfields.
- Base clusters.
- Staging areas.
- C2 nodes.
- Logistics nodes.
- Other facilities or fixed sites, including expeditionary bases and camps.

6-9. An emergency management program consists of the following phases that can occur sequentially or simultaneously:

- Planning.
- Preparation.
- Response.
- Recovery.

6-10. As discussed in Chapter 5, the U.S. military (due to its unique capabilities and resources) may also be asked to provide temporary, short-duration support to civil authorities during an emergency when local and state resources are overwhelmed.

## **INSTALLATION COMMAND AND STAFF RESPONSIBILITIES**

6-11. The installation commander is responsible for establishing the installation CBRN defense plan, including threat assessment, vulnerability analysis and reduction, emergency response, and immediate recovery operations across the range of possible CBRN hazards. A summary of tasks is provided in table 6-1, page 6-4.

## **COORDINATION**

6-12. Responding to a CBRN emergency on an installation may require all first and emergency responder assets and may exceed the consequence management capabilities of organic installation resources. Installation commanders may require extensive federal, state, local, other Service, and/or private or host nation support to effectively respond to, and recover from, a CBRN emergency. Close liaison with these agencies and departments is essential before an emergency to ensure that civil authorities are responsive in protecting DOD resources.

6-13. Each installation emergency operations center should be a National Incident Management System-compliant, multiagency coordination system that uses the incident/unified command system's organizational structure to provide a collaboration point and operations center for the installation staff. The emergency operations center supports the execution of the installation emergency management and antiterrorism plans, defense support of civil authorities, operational/contingency plans of assigned unit commanders, *National Response Framework*, and other supporting plans.

**Table 6-1. Commander and staff responsibilities**

<b><i>Responsibilities of Installation Commanders in CONUS</i></b>
Develop a comprehensive installation CBRN defense plan.
Train, rehearse, and exercise the CBRN defense plan.
Allocate installation activities and resources to support the installation CBRN defense plan.
Continuously assess and improve the installation CBRN defense plan.
Inspect and assess installation CBRN readiness and preparedness.
Execute applicable memorandums of understanding and agreement with activities that will provide mutual aid.
<b><i>Additional Responsibilities of Installation Commanders in Foreign Operational Environments</i></b>
Integrate installation and host nation emergency response capabilities to support the sustainment of installation capabilities and readiness.
Coordinate installation CBRN defense measures with respective area or base cluster commanders if applicable.
Identify interoperability requirements and mitigation measures to help meet emergency response requirements.
Monitor or support negotiations, memorandums of understanding implementation, and defense and emergency response assistance.
Coordinate training opportunities with supporting host nation resources that will periodically exercise existing memorandums of understanding and agreement.
Review and approve scenarios for CBRN exercises that are consistent with the regional threat assessment.
<b><i>Responsibilities of Installation Staffs</i></b>
Develop, implement, and supervise the organizational CBRN defense program.
Coordinate with the appropriate command intelligence section(s) to provide a continuous CBRN threat assessment.
Conduct CBRN vulnerability assessments.
Develop, coordinate, and assess CBRN defense training execution.
Integrate installation CBRN emergency response initiatives into installation resource planning, and coordinate with local authorities to ensure that the installation CBRN emergency response plan is integrated with local emergency response plans.
Identify roles for tenant and transient units.
Ensure that point, standoff, and medical CBRN reconnaissance and surveillance assets support the common operational picture.
Coordinate with supporting medical and nonmedical laboratory(s) for sample analysis.

6-14. Emergency management plans and emergency responses are typically based on mutual assistance between the respective agencies and departments. Under the CBRN passive defense operational elements of CBRN sense, shape, shield, and sustain, the coordination of installation CBRN and emergency management resources includes—

- Fixed detection and surveillance systems.
  - Fixed chemical detection units.
  - Fixed biological particle collectors.
  - Radiation monitoring portals.
- Individual and collective protection systems.
  - Level A, B, and C personal protection suits and respiratory protection devices.
  - Escape hoods.
  - Structural collective protection systems (employment is consistent with the threat and installation protection plan).

- Portable detection and sampling systems.
  - Handheld radiation isotope identifiers and chemical vapor survey meters.
  - Chemical-agent detector paper and handheld test kits.
  - Personal dosimeters and radiation monitors.
  - Handheld assays and biosampling kits.
  - Toxic industrial chemical sampling and testing equipment.
- Decontamination systems.
  - Man-portable, wash-down systems.
  - Handheld equipment decontamination kits.
  - Personal skin decontamination kits.
  - Hazmat spill containment kits.
- Medical systems.
  - Mass casualty decontamination systems.
  - Medical surveillance systems.
  - Various pharmaceuticals for the treatment of chemical, biological, or radiological exposure.
  - Installation protection medical treatment solutions (provided for exclusive populations, including critical-mission and limited, essential-operations personnel).
- Information management systems.
  - Decision support system applications, including Defense Threat Reduction Agency reachback services coordinated through the Joint Program Manager Guardian.
  - Technical reference material for incident response and management personnel.
  - Sensor management systems.
  - Warning and notification systems.

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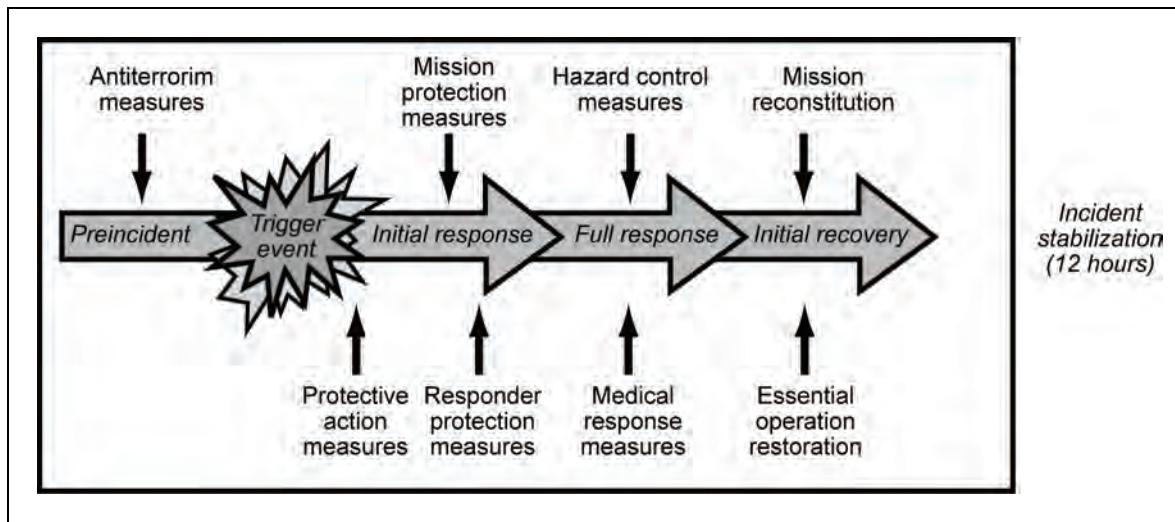
*Note. Information management systems provided under installation protection focus primarily on providing critical information to installation decisionmakers and do not include automated reporting to higher command authorities. Information management system components provided under installation protection are intended to leverage preexisting telecommunications infrastructures at installations for connectivity.*

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6-15. Figure 6-1, page 6-6, is a simplified, notional sequence of CBRN incident phases that illustrates when CBRN mitigation measures and supporting installation protection solutions would be implemented. Terrorist incidents involving CBRN hazards that occur within the United States, including those occurring on DOD installations and facilities, are addressed in the appropriate incident annexes of the *National Response Framework*.

6-16. The incident annexes of the *National Response Framework* describe the concept of operations to address specific contingency or hazard situations that require emergency response. For installation emergency management purposes, the definition of an incident will be based on the appropriate *National Response Framework* definition.

6-17. Installation CBRN protection solutions enhance mission assurance and consequence management efforts during the first 12 hours of a CBRN incident. It is assumed that the response and recovery activities of installations after the initial 12 hours will be supported largely by resources of national response organizations—which may not arrive at an affected installation until 6 to 12 hours after incident reporting. The response time depends on the time required for the resources to be mobilized, the location of the affected installation, and other situational factors.



**Figure 6-1. CBRN incident phases and mitigating measures**

6-18. The coordination of installation emergency management and CBRN solutions aims to improve the abilities of affected installations to stabilize attack effects for the short term, followed by the provision of national assistance to facilitate long-term community recovery. Emergency management solutions are not intended to facilitate the full recovery of installations to preincident conditions.

### COORDINATION ACTIVITIES WITH THE SERVICES

6-19. Coordination activities between the installation emergency management staff, tenant commands, and representatives of organizations directly or indirectly supporting the installation commander focus on developing an installation level concept of operations and complementary protection concepts. Installation level, concept-of-operations development activities will aim to develop installation level emergency operations plan templates that are interoperable and leverage the capabilities of each Service colocated on an installation.

### COORDINATION ACTIVITIES WITH DEPARTMENT OF DEFENSE AGENCIES AND JOINT ORGANIZATIONS

6-20. Installation emergency management staff members will liaise with DOD agencies who are managing programs and providing services to installations that are related to protection and CBRN consequence management, including—

- Defense Threat Reduction Agency for technical and operational reachback services.
- Defense Information Systems Agency for the development of complementary relationships with area security operations C2 applications and the certification and accreditation of installation information systems.
- Assistant Secretary of Defense for homeland defense.
- Office of the Assistant Secretary of Defense for Health to address the provision of pharmaceutical items to installations.
- Joint program management offices, such as the Joint Requirements Office and the Joint Project Manager for Information Systems for program management.

## COORDINATION ACTIVITIES WITH CIVILIAN GOVERNMENT AGENCIES

6-21. Members of the installation emergency management staff will work with non-DOD agencies such as the Department of Homeland Security and local government agencies, where applicable, to leverage services provided through federal programs and existing consequence management capabilities of communities in proximity to installations. Specific activities with federal agencies include information sharing with—

- Domestic Nuclear Detection Office for radiation portal monitor testing and evaluation.
- Federal Emergency Management Agency for disaster management interoperability service to installations.
- Federal Bureau of Investigation for sample and evidence handling procedures.

## EMERGENCY MANAGEMENT PROGRAM

6-22. *Emergency management*, as a subset of incident management, concerns the coordination and integration of activities that are necessary to build, sustain, and improve the capability to prepare for, protect against, respond to, recover from, or mitigate threatened or actual natural disasters, acts of terrorism, or other manmade disasters. Consequence management involves actions that are taken to maintain or restore essential services and manage and mitigate problems resulting from disasters and catastrophes, including natural, manmade, or terrorist incidents.

6-23. The National Incident Management System and the *National Response Framework* provide overarching guidance for federal, state, and local governments to work effectively and efficiently to prepare for, respond to, and recover from domestic incidents, regardless of cause, size, or complexity. The construction of the National Incident Management System and *National Response Framework* focuses on the importance of a nationally mandated incident management system. Within the construct, the multiagency coordination system establishes nationally recognized coordination procedures that DOD emergency management entities use in partnership with local, state, and other federal agencies. The intent is to gain a higher level of cooperation between local, state, and federal (when required) assets.

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*Note.* Further information on the National Incident Management System and National Response Framework is located at <<http://www.dhs.gov>> and <<http://www.fema.gov>>.

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6-24. The ongoing threat of terrorist attacks on U.S. soil and the lessons learned as the nation has responded to multiple, large-scale natural disasters, such as Hurricane Katrina in 2005, have reinforced the need to fully coordinate and integrate military and civilian consequence management at all levels of government. While cooperative arrangements between civilian and military agencies are commonplace, there is a need for improved coordination and integration of emergency management planning.

6-25. Installation emergency management incorporates a number of existing civilian standards and guidelines, many of which are statutory, nonnegotiable, and applicable to disaster preparedness/emergency management and the specific issue of DOD installation CBRN incident response.

6-26. In foreign settings, the Department of State is the primary agency for U.S. government foreign consequence management operations, unless otherwise directed by the President. Host nation requests for assistance and U.S. Government offers of assistance are made through the primary agency. The DOD recognizes that it may be directed to act as the primary agency for U.S. Government foreign consequence management operations by the President.

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*Note.* See *Multiservice Tactics, Techniques, and Procedures for Chemical, Biological, Radiological, and Nuclear Consequence Management Operations and Multiservice Tactics, Techniques, and Procedures for Installation CBRN Defense* for additional information and specific guidance for handling CBRN incidents on an installation.

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## **SUMMARY**

6-27. This chapter outlined installation CBRN protection, command and staff responsibilities for installation protection, and emergency management activities to protect DOD facilities worldwide, while integrating support from other government agencies. Installation CBRN protection also requires the integration of various support functions, including a CBRN defense plan that provides the “what” and “how” that define “when,” “where,” by “whom,” and in “what” manner that specific CBRN defense measures are conducted and coordinated.

## Chapter 7

# Military Health System

The military health system is a complex system of interdependent and interrelated systems that require synchronization and coordination at all levels of command. It is the primary intent of this chapter to enhance mission success by providing information for use by commanders who are responsible for the military health system in a CBRN environment.

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*Note. See Multiservice Tactics, Techniques, and Procedures for Health Service Support in a Chemical, Biological, Radiological, and Nuclear Environment for more information.*

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## OVERVIEW

7-1. The military health system is responsible for the operational management of health service support and force health protection missions for training, predeployment, deployment, and postdeployment operations in a CBRN environment:

- **Health service support.** Health service support encompasses all services performed, and support provided or arranged, to promote, improve, conserve, or restore the mental and physical well-being of personnel.
- **Force health protection.** Force health protection encompasses preventive measures to promote, improve, or conserve the mental or physical well-being of Service members. These include preventive measures performed by dental, preventive medicine, behavioral health, and veterinary services. These measures enable a healthy and fit force, prevent injury and illness, and protect the force from health hazards, including CBRN effects.

## HEALTH SERVICE SUPPORT

7-2. Commanders are responsible for maintaining the health of their commands to ensure mission accomplishment in the event of CBRN attacks. Maintaining the physiological and psychological health of military forces is a basic requirement for combat effectiveness. All commanders are faced with the possibility that any operation may have to be conducted in a CBRN environment.

7-3. The component command surgeons are responsible for guiding and integrating all military health system capabilities available to the command to support mission accomplishment in a CBRN environment. In planning for health service support in potential CBRN environments, preparations should consist of planning for the effective quantification of contingency requirements for medical personnel; medical materiel stockpiles; patient transport or evacuation capabilities; and facilities needed for patient decontamination, triage, treatment, and supportive care applicable to the entire force (multinational, interagency, and civilian participants).

## FORCE HEALTH PROTECTION PLANNING

7-4. Medical personnel must include the unique characteristics and effects of CBRN weapons/agents in their health service support and force health protection plans. Assessment and vulnerability reduction must also address the dangers posed by toxic industrial materials, including radiological contamination and other environmental contamination from industrial operations within the commander's operational area. Particular care must be taken when identifying the nature of such hazards because, in many cases, standard military CBRN individual protective equipment will not provide the necessary protection. In some instances, avoiding the hazard may be the most effective or only course of action. In all circumstances, the

commander should act to minimize immediate and long-term effects of toxic hazards, including low-level hazards, to health and mission objectives.

7-5. Medical personnel should be trained to treat CBRN casualties and to operate in a CBRN environment. Force health protection measures are usually initiated before an attack and become vulnerability reduction measures.

7-6. Force health protection against CBRN threats involves integrated intelligence, reconnaissance, and surveillance support from nonmedical units and the effective implementation of preventive medicine, health surveillance, and clinical programs. Pre- and postdeployment health assessment surveys provide a baseline and identify personnel who require long-term follow-up.

7-7. Medical units and personnel must be afforded physical protection, such as individual protective equipment and collective protection systems, to shield them from exposure so that they can sustain the force through medical treatment.

7-8. Medical countermeasures (such as vaccines, barrier creams, and other medical CBRN defense materiel) are identified based on the threat. These items help protect the force from injury or provide immediate life-saving treatment.

7-9. Another often-overlooked force health protection measure is psychological preparedness. Training, information, and confidence can reduce the number of casualties caused by CBRN combat operations.

## **MEDICAL INTELLIGENCE**

7-10. Accurate and timely all-source intelligence is a critical health service support tool for planning, preparing, executing, assessing, and sustaining military operations. A clear and commonly shared assessment of adversary CBRN capabilities and U.S., multinational, and host nation health service support capabilities and limitations in countering adversary CBRN use are of great importance. Therefore, a supporting intelligence element should exist in the medical unit chain of command.

7-11. The health threat is a composite of ongoing or potential enemy actions; adverse environmental, occupational, geographic, and meteorological conditions; and endemic diseases that have the potential to affect the short- or long-term health (including psychological health) of personnel. Weapons or environmental conditions that produce qualitatively different wound or disease processes are also major health threats. Added to the combat operational, disease, and nonbattle injury health threats are the adversary's use of the CBRN weapons, agents, and devices described in Chapter 1 and Appendix A. Medical readiness provides the means to mitigate these threats. Information provided by ongoing comprehensive health surveillance is critical to counter CBRN threats and supports passive defense and tactical surveillance for casualty prevention.

7-12. The National Center for Medical Intelligence responds to requests from the U.S. armed forces for emergency, up-to-date medical intelligence assessments. It is the nation's premier producer and coordinator of all-source medical intelligence. The National Center for Medical Intelligence produces intelligence for global and homeland health protection to safeguard U.S. interests worldwide and is an integral part of the Defense Intelligence Agency.

7-13. The following specialized DOD organizations provide expert information resources on medical aspects of CBRN threats, casualty prevention, sample and specimen collections, and medical care and management of casualties:

- Defense Threat Reduction Agency.
- Armed Forces Radiobiology Research Institute.
- Naval Medical Research Center.
- U.S. Army Medical Research Institute of Infectious Diseases.
- U.S. Army Medical Research Institute for Chemical Defense.
- U.S. Army Nuclear and Combating Weapons of Mass Destruction Agency.
- U.S. Army Center for Health Promotion and Preventive Medicine.

7-14. Accurate medical intelligence aids in the risk and vulnerability assessment processes by identifying hazards and developing measures to mitigate vulnerability. The fusion of medical intelligence with all-source intelligence and other data sources enhances the integrated early warning of CBRN attacks.

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*Note. For more information on medical intelligence, see the National Center for Medical Intelligence Web site at <<http://afmic.detrick.army.mil>> and the U.S. Army Center for Health Promotion and Preventive Medicine at <<http://chppm-www.apgea.army.mil>>.*

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## MEDICAL ESTIMATES

7-15. Medical planner estimates (such as casualty, logistics, evacuation, and personnel cross leveling) must be modified for the CBRN environment. New decision support tools are under development and have various levels of capability to estimate the number and types of casualties from CBRN events. The data from these models can be used to develop medical estimates. Information such as the units affected, number of casualties, severity, and course of illness can be obtained in order to estimate the medical force structure and Class VIII supply (medical materiel) requirements and to develop and war-game medical support courses of action.

7-16. The joint tool approved for calculating medical requirements is the joint medical analysis tool, which provides the capability to generate medical requirements for CBRN casualties. The Services are responsible for generating their respective casualty estimates and tracking casualty rates for contingency operations.

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*Note. CBRN medical workload estimates can be found in NATO Standardization Agreements (STANAGs) 2475, 2476, 2477, and 2478.*

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## COMPREHENSIVE HEALTH SURVEILLANCE

7-17. Health surveillance is the regular or repeated collection, analysis, and interpretation of health-related data and the dissemination of information to monitor the health of a population and to identify potential risks to health, thereby enabling timely interventions to prevent, treat, or control disease and injury. It includes occupational and environmental health surveillance and medical surveillance. Deployment health surveillance includes identifying the deployed population at risk, recognizing and assessing potentially hazardous health exposures and conditions, employing specific preventive countermeasures, monitoring real-time health outcomes daily, and reporting disease and injury data appropriately.

7-18. Medical surveillance is the ongoing, systematic collection, analysis, and interpretation of data that is derived from medical care or evaluation. It includes the reporting of population-based information for characterizing and countering threats to a population's health, well-being, and performance (such as disease and nonbattle injury reporting).

7-19. Occupational and environmental health surveillance is the regular or repeated collection, analysis, archiving, interpretation, and dissemination of occupational and environmental health-related data (such as air monitoring for the detection of contaminants) that may impact the health of a population. It includes timely intervention to prevent, treat, or control the occurrence of disease or injury as necessary.

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*Note. For more information, see Department of Defense Directive (DODD) 6490.02E, DODI 6490.03, and Chairman of the Joint Chiefs of Staff (CJCS) memorandum MCM 0028-07.*

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7-20. Regardless of who conducts CBRN monitoring and sampling, the results must be documented and submitted via the Defense Occupational and Environmental Health Readiness System data portal. It is imperative that suspected CBRN-related results be reported to the appropriate chains of command. Prompt epidemiological investigations must begin and preventive measures must be implemented to control the disease, start chemoprophylaxis, or reduce the number of cases. If required to submit information to Service-specific data collection systems, do so according to Service-specific instructions. Newly identified significant risks should be communicated to all appropriate organizations, including the Defense Intelligence Agency through the National Center for Medical Intelligence, joint task forces, combatant

commanders, Services, and Service occupational and environmental health centers. As operations allow, report sample results and risk assessments as quickly as possible to local medical units and the joint task force surgeon according to the theater policy (see DODI 6490.03, table E4.T4).

7-21. The determination of unit-specific rates of illness and injuries of public health significance (including related CBRN casualties) is the foundation of these health surveillance programs. Disease, nonbattle injury, and battle injury rates are important risk management tools at the unit level. Abnormal rates and trends indicate that a problem may exist and negatively impact mission readiness; additional preventive medicine countermeasures may need to be implemented. Surveillance is closely integrated with the timely dissemination of data to those who are responsible for the prevention and control of disease and injury.

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**Notes.**

1. *Implementing guidance is found in DODI 6490.03.*
  2. *The establishment of uniform and standardized health surveillance and readiness procedures for all deployments is contained in DODD 6490.02E, DODI 6025.19, DODI 6490.03, and MCM 0028-07.*
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7-22. Combatant commanders must ensure compliance with the deployment health policy (for example, DODI 6490.03 and MCM 0028-07) as it relates to personnel exposed to CBRN hazards. The key aspects of policy requirements include—

- Identifying CBRN hazards and assessing personnel exposures using the military operational risk management process.
- Ensuring the communication of health risks to the population.
- Ensuring the reporting and archiving of exposure data and related medical information (disease and injury, reportable medical events, occupational and environmental health surveillance data).

## **SAMPLING**

7-23. The collection of environmental and food samples is conducted by preventive medicine detachments, CBRN specialists, veterinary services personnel, public health officers, bioenvironmental engineers, or technical intelligence collection teams. Medical personnel in a clinic or hospital setting will collect radiation exposure information and clinical specimens (serum, blood, and other body fluids) and provide them to the laboratory for analysis. The collection team transports samples between the collection site and the laboratory analysis site. The laboratory team provides consultation, as needed, regarding the types and sources of samples/specimens to collect.

7-24. Clinical specimen collection and laboratory analysis must be integrated into the sample analysis plan to aid in the rapid identification of CBRN agents. These procedures must also be regularly exercised.

## **LABORATORY ANALYSIS**

7-25. Various types of laboratories in CONUS and outside the continental United States (OCONUS) will use CBRN identification analysis systems, although in somewhat different ways, depending on the role and capabilities of the individual laboratory. Precisely which organizations will process which samples will be determined by the joint force commander, medical command, or medical treatment facility.

## **PATIENT DECONTAMINATION AND TRIAGE**

7-26. Medical personnel must include the unique characteristics and effects of CBRN weapons/agents in their health service support and force health protection plans. Most essential medical care is rendered in a nontactical environment that is outside the area of immediate combat; however, triage, patient decontamination, and initial resuscitative care are necessary in the combat area. With the employment of CBRN weapons/agents, a mass casualty situation can present itself at any time and during any role of care. Treatment is often limited to life- or limb-saving care, and triage must be conducted within strict

guidelines. All casualties are decontaminated as far forward as the situation permits and must be decontaminated before they are admitted into a clean medical treatment facility.

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*Note. See Multiservice Tactics, Techniques, and Procedures for Health Service Support in a Chemical, Biological, Radiological, and Nuclear Environment and Multiservice Tactics, Techniques, and Procedures for Chemical, Biological, Radiological, and Nuclear (CBRN) Decontamination for detailed information on patient decontamination and triage.*

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## MEDICAL TREATMENT

7-27. The identification of chemical warfare agents greatly assists in the diagnosis and treatment of chemical injuries. Medical management consists of those procedures that optimize medical care to ensure the maximum return to duty on the battlefield, including triage, basic medical treatment, decontamination, emergency medical treatment, advanced trauma management, evacuation, and the continued protection of chemical warfare agent casualties.

7-28. The impact of biological warfare agents on health service support may be as simple as a few casualties with diarrhea or as complex as a mass casualty situation. Biological warfare agents will most likely be delivered covertly and by aerosol. Compared with chemical warfare agents, most biological warfare agents have a long incubation period from exposure to the onset of clinical symptoms. Therefore, the first indication of a biological warfare attack will most likely be casualties arriving at a medical treatment facility with an illness. The treatment depends on the biological warfare agent used.

7-29. The management of military casualties injured by the immediate effects of nuclear weapons (flash, blast, thermal) is the same as for conventional battlefield injuries, although the injury severity may be greater. First aid (self-aid, buddy aid, and combat lifesaver aid) is performed for lacerations, broken bones, and burns.

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*Notes.*

1. *See Multiservice Tactics, Techniques, and Procedures for Treatment of Chemical Agent Casualties and Conventional Military Chemical Injuries for additional information on the treatment procedures for chemical warfare agent casualties.*
  2. *See Treatment of Biological Warfare Agent Casualties for more information on the treatment procedures for biological warfare agent casualties.*
  3. *See Treatment of Nuclear and Radiological Casualties for more information on the treatment procedures for nuclear and radiation casualties.*
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## PATIENT EVACUATION

7-30. Patient treatment, patient evacuation, and the protection of medical staffs from exposure to CBRN agents are the core missions of medical personnel during a CBRN incident. A CBRN environment forces unit leaders to consider the extent of medical evacuation asset commitment to the contaminated area. The movement of CBRN-contaminated casualties can spread the contamination to clean areas. If the unit or task force is operating in a contaminated area, most or all of the organic medical evacuation assets will operate there. However, efforts should be made to keep some evacuation assets free of contamination.

7-31. After the presence of CBRN agent/exposure has been confirmed and areas of contamination identified, subordinate commanders must decide the extent of medical evacuation assets that are not already contaminated during the attack. Depending on the situation, there may already be adequate numbers of vehicles, watercraft, and aircraft operating within the affected areas to transport the casualties. The full use of medical evacuation assets should be made, while keeping the safety and operational exposure of the personnel operating them in mind. All patients must be decontaminated before aeromedical evacuation.

7-32. Patient movement in combat areas uses organic assets (personnel, surface vehicles, and aircraft) and is normally a Service responsibility. Due to the likelihood of mass casualties, the use of nonmedical

evacuation assets must be planned. The combatant commander, with advice from the command surgeon, is responsible for moving patients within the theater and deciding the extent of evacuation asset commitment to contaminated areas. The commander of the U.S. Transportation Command establishes, operates, trains, and maintains a common-user, aeromedical evacuation system for intratheater and intertheater patient movement. The U.S. Transportation Command provides aeromedical evacuation support to operations. However, in a contaminated environment, the U.S. Transportation Command may limit the transportation of contagious/contaminated casualties. The commander of the U.S. Transportation Command, in consultation with the Secretary of Defense and the combatant commander, has waiver authority on the movement of contaminated/contagious patients. At this time, there is limited capability to move contaminated/contagious patients without undue risks to medical personnel and aircrew members. In the case of a contagious disease, it is DOD policy to move treatment forward to prevent the spread of disease.

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*Note. See Multiservice Tactics, Techniques, and Procedures for Health Service Support in a Chemical, Biological, Radiological, and Nuclear Environment for more information on CBRN and conventional medical evacuation operations.*

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## **MORTUARY AFFAIRS OPERATIONS**

7-33. If CBRN activity is suspected or present, commanders and health service support planners must have procedures in place for CBRN fatality management and must request mortuary affairs decontamination collection point support to perform recovery operations and the subsequent decontamination of remains. The joint mortuary affairs office acts as the theater central point of contact for coordination with the mortuary affairs decontamination collection point.

7-34. Mortuary affairs personnel are responsible for coordinating the disposition of contaminated remains, including the decontamination of remains when required. In CBRN environments, medical personnel will coordinate with mortuary affairs personnel for the transport of contaminated remains from the medical treatment facility and the morgue. In coordination with appropriate CBRN and operational elements, preventive medicine personnel should help determine if remains are safe for normal processing or if they pose a residual CBRN hazard.

7-35. Human remains from a CBRN environment may not be contaminated. Contamination depends on the type and form of agent, the conditions of the release, and/or the results from available monitoring equipment. Preventive medicine personnel should go through established military channels for reachback preventive medicine subject matter expertise (for example, U.S. Army Center for Health Promotion and Preventive Medicine) to ascertain the most current guidance and criteria for decontamination verification. Medical personnel will monitor mortuary affairs personnel for any adverse health effects during mortuary affairs decontamination collection point operations.

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*Note. The effective care and management of CBRN fatalities requires planning to process contaminated remains as discussed in Multiservice Tactics, Techniques, and Procedures for Health Service Support in a Chemical, Biological, Radiological, and Nuclear Environment.*

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## **SUMMARY**

7-36. This chapter outlined the military health system support and challenges in a CBRN environment. Force health protection and health service support include emphasis on fitness, preparedness, and preventive measures; improvements in the monitoring and surveillance of threats and forces engaged in military operations; and personnel awareness of the health threat before it affects the force. Maintaining the physiological and psychological health of military forces is a basic requirement for combat effectiveness.

## Appendix A

# Chemical, Biological, Radiological, and Nuclear Hazards

CBRN hazards exist in all operational environments, and commanders must decide the best course of action to cope with hazards that will place Service members in immediate danger. In biological and chemical warfare, “persistency” is the agent characteristic that pertains to the duration of its effectiveness under determined conditions after its dispersal. Persistency of the agent is critical to the duration and effects of chemical hazards. Other considerations include the type of agent used, the weather effects on the agent, and the agent affects on personnel and the environment. The commander’s first step in preparing for CBRN hazards is to complete a threat vulnerability assessment. The start point is intelligence reporting, which assesses the capability and intent of the adversary to deliver CBRN weapons for a given operational environment. Intelligence gathering, warning, and reporting are the tools that allow a commander to take action against CBRN attacks and avoid hazards associated with such attacks. As with any military operation, commanders must assess the situation in terms of the event and the level of personnel readiness to mitigate the effects of CBRN hazards.

## CHEMICAL HAZARDS

- A-1. Chemical hazards of concern to the military can be divided into the following categories:
- **Chemical warfare agents.** These are specific agents (such as nerve or blister) that are developed as military weapons and designed to kill or severely incapacitate personnel. Chemical warfare agents are generally considered lethal.
  - **Military chemical compounds (other than chemical warfare agents).** These are chemical compounds that are developed, in part, for military use (riot control agents, smokes, obscurants), but not as weapons. Toxic properties are primarily associated with improper use.
  - **Toxic industrial chemicals.** These are widely available, commercial chemicals that are acutely toxic and pose a risk of direct and immediate harm to personnel. These same chemicals are considered plausible candidates for terrorist activities. In general, the risk of a toxic industrial chemical being used as a weapon depends on the severity of effects that it may cause and the probability that it may be obtained and released in large quantities.

A-2. U.S. forces frequently operate in environments where toxic materials are present, particularly toxic industrial chemicals, which can significantly interfere with campaigns. Toxic industrial chemicals may be released as gases, liquids, liquefied gases, or solids. The greatest concern to military operations is large numbers of personnel being exposed to a release of a significant vapor/gas plume of an acutely toxic industrial chemicals. The emission rate of a vapor/gas to the atmosphere largely depends on its physical state at the time of release. Toxic industrial chemicals that are stored/transported as liquefied gases are a key concern since a release typically involves large quantities of material and the resulting plume amount will be greater than that for liquids or compressed gases. The dissemination characteristics of toxic industrial chemicals are similar to those described for chemical agents. High concentrations may remain in buildings, woods, or any area that has low air circulation. Explosions may create and spread liquid hazards, and vapors may condense to liquids in cold air.

A-3. If time and mission requirements permit, immediate evacuation outside the path of the hazard will eliminate or minimize the impact of the release. The greatest risk from a large-scale toxic chemical release occurs when personnel are unable to escape the immediate area and are overcome by vapors or blast

effects. Military respirators and protective clothing may provide only limited protection against toxic industrial chemicals and may perform better or worse than similar commercial equipment.

**Note.** For detailed information on toxic industrial chemical hazard exposure and response, consult the U.S. Army Center for Health Promotion and Preventive Medicine Technical Guide 230, the National Institute for Occupational Safety and Health Publication 2005-149, and the U.S. Department of Transportation 2008 Emergency Response Guidebook.

A-4. When planning operations in areas where toxic materials may be present, the commander addresses these potential hazards as part of the intelligence preparation of the operational environment. These hazards could occur from a massive, deliberate or accidental release from an industrial site or a storage or transport container. Particular emphasis should be placed on toxic industrial chemicals that produce acute effects when inhaled because military respirators may not be effective. Commanders must be alert for potential hazards and must monitor for their release.

A-5. Major rail transport, sea transfer, off-loading facilities, and production facilities may exist adjacent to or near many military installations. The purposeful release of material from these facilities may adversely impact military operations and personnel on the installation. The CBRN staff will use the most current combatant commander-classified toxic industrial chemicals list, the hazardous chemicals list, and site surveys to determine the priorities for protection against toxic industrial chemicals. Table A-1 identifies the physiological action and hazard effect of chemical warfare agents and military chemical compounds that are not considered to be chemical warfare agents.

**Table A-1. Chemical hazards and potential employment**

<b>Category</b>	<b>Description</b>	<b>Common Agents by Group</b>
<b>Nerve</b>	A potentially lethal chemical agent that interferes with the transmission of nerve impulses. Listed on Schedule 1, <i>Chemical Weapons Convention</i> , and considered key WMD threats.	G Agents <ul style="list-style-type: none"><li>• Tabun (GA)</li><li>• Sarin (GB)</li><li>• Soman (GD)</li><li>• Cyclosarin (GF)</li></ul>
	<b>Physiological Action</b>	
	Inhalation, ocular, and contact hazards. Nerve agents cause effects by inhibiting the enzyme cholinesterase, which is essential to control nerve cells. While the same effect is caused by organophosphate pesticides, nerve agents are much more potent and may cause effects within seconds and death within minutes. This category includes G and V agents that are less volatile (more persistent) and more toxic than other nerve agents.	V Agents <ul style="list-style-type: none"><li>• VX</li><li>• V-sub X (Vx)</li></ul>
	<b>Chemical Hazard Effect</b>	
	Target of Choice: <ul style="list-style-type: none"><li>• <b>Persistent.</b> Terrain, material, logistics, and C2 facilities.</li><li>• <b>Nonpersistent.</b> Personnel.</li></ul> Target Effects: <ul style="list-style-type: none"><li>• <b>Persistent.</b> Operations tempo reduction and mission degradation; lethal or casualty-producing.</li><li>• <b>Nonpersistent.</b> Immediate and lethal.</li></ul>	

**Table A-1. Chemical hazards and potential employment (continued)**

<b>Category</b>	<b>Description</b>	<b>Common Agents by Group</b>
<b>Blister/ Vesicant</b>	<p>A chemical agent that injures the eyes and lungs and burns or blisters the skin. Listed on Schedule 1, <i>Chemical Weapons Convention</i>. Sulfur mustards and arsenicals are considered key WMD threats. Urticants are considered possible, but not highly likely, WMD.</p> <p><b>Physiological Action</b></p> <ul style="list-style-type: none"> <li>• <b>Sulfur mustard and arsenicals.</b> Inhalation, ocular, and contact hazard. Although sometimes referred to as mustard gas, these relatively persistent chemical warfare agents cause deoxyribonucleic acid (commonly known as DNA) changes at a cellular level, resulting in delayed (hours) occurrence of tissue damage to the eyes, lungs, and skin. Low vapor exposures may only cause eye irritation; higher levels and liquid contact can result in debilitating, fluid-filled blisters. While referred to as burns, these effects are not like an acid burn.</li> <li>• <b>Urticants.</b> Inhalation, ocular, and contact hazard. Not a true vesicant because they do not produce blisters; instead, contact produces solid lesions and tissue necrosis. The effect is somewhat similar to a strong acid reaction.</li> </ul> <p><b>Chemical Hazard Effect</b></p> <p>Target of Choice: Persistent blister; personnel, terrain, material, logistics, and C2 facilities.</p> <p>Target Effects: Persistent blister; operations tempo reduction and mission degradation; lethal or casualty-producing.</p>	<p>Mustards</p> <ul style="list-style-type: none"> <li>• Sulfur mustard (H)</li> <li>• Distilled mustard (HD)</li> <li>• Nitrogen mustard (HN)</li> <li>• Thickened mustard (HT)</li> </ul> <p>Arsenicals</p> <ul style="list-style-type: none"> <li>• Lewisite (L)</li> <li>• Mustard lewisite (HL)</li> </ul> <p>Urticants</p> <ul style="list-style-type: none"> <li>• Phosgene oxime (CX)</li> </ul>
<b>Blood</b>	<p>A chemical compound, including the cyanide group, that affects bodily functions by preventing the normal utilization of oxygen by body tissues. Also identified as priority toxic industrial chemicals.</p> <p><b>Physiological Action</b></p> <ul style="list-style-type: none"> <li>• <b>Inhalation hazard.</b> Cyanides prevent the normal transfer of oxygen from blood to body tissues. Arsine causes hemolysis of red blood cells.</li> </ul> <p><b>Chemical Hazard Effect</b></p> <p>Target of Choice: Nonpersistent; personnel.</p> <p>Target Effects: Nonpersistent; quick-acting casualty agent that is potentially deadly.</p>	<p>Cyanides</p> <ul style="list-style-type: none"> <li>• Cyanogen chloride (CK)</li> <li>• Hydrogen cyanide (AC)</li> </ul> <p>Other</p> <ul style="list-style-type: none"> <li>• Arsine (SA)</li> </ul>

Table A-1. Chemical hazards and potential employment (continued)

Category	Description	Common Agents by Group
<b>Choking</b>	Agents that attack lung tissue (primarily causing pulmonary edema), cause irritation to the eyes, and damage the respiratory tract. Also identified as priority toxic industrial chemicals.	Phosgene (CG) Diphosgene (DP)
	<b>Physiological Action</b>	
	<ul style="list-style-type: none"> <li><b>Inhalation hazard.</b> These chemicals attack and damage lung tissue. At high levels, membranes swell, lungs become filled with liquid (pulmonary edema), and death results from the lack of oxygen, thus choking an unprotected person. Fatalities of this type are called <i>dry-land drowning</i>.</li> </ul>	
	<b>Chemical Hazard Effect</b>	
	Target of Choice: Personnel.	
	Target Effects: Potentially lethal casualty agent.	
<b>Incapacitant</b>	A chemical agent that produces temporary disabling conditions. Unlike those caused by riot control agents, effects can be physical or mental and persist for hours or days after exposure to the agent has ceased. Not generally considered likely WMD.	Deliriant <ul style="list-style-type: none"> <li>3-quinuclidinyl benzilate (BZ)</li> </ul>
	<b>Physiological Action</b>	Stimulant <ul style="list-style-type: none"> <li>Amphetamines</li> <li>Cocaine</li> <li>Metrazole</li> </ul>
	Incapacitating agents differ from other chemical warfare agents in that they are not designed to cause serious, permanent or lethal effects. They are designed to interfere with higher functions of the brain (attention, orientation, judgment) to render individuals incapable of concerted efforts in the performance of assigned duties.	Depressant <ul style="list-style-type: none"> <li>Morphine</li> <li>Barbituates</li> <li>Fentanyl</li> </ul>
	<b>Chemical Hazard Effect</b>	Psychedelic <ul style="list-style-type: none"> <li>Lysergic acid diethylamide (LSD)</li> <li>Phencyclidine (PCP)</li> </ul>
	Target of Choice: Personnel.	
	Target Effects: The inability to perform any military task effectively.	
<b>Riot Control Agent</b>	Less-lethal lachrymatory (tearing) agents produced or sold commercially and used by a variety of law enforcement personnel and military forces. Not considered chemical warfare agents or likely WMD.	O-hlorobenzylidene (CS) Dibenz (b,f)-1:4-oxazepine (CR)
	<b>Physiological Action</b>	Mace or tear gas (CN) Bormobenzylcyanide (CA)
	Can rapidly produce sensory irritation or disabling physical effects that usually disappear within 15 minutes (tear gas) and up to 2 hours (pepper spray). Riot control agents are of limited toxicity by design; however, some are more toxic and/or persistent than others. For example, Mace® or tear gas and bormobenzylcyanide are particularly toxic and not in the U.S. military inventory. Pepper spray is sold with varying potency.	Capsaicin or pepper spray (OC)
	<b>Chemical Hazard Effect</b>	
	Target of Choice: Personnel.	
	Target Effects: Short-term inability to perform tasks effectively.	

**Table A-1. Chemical hazards and potential employment (continued)**

<b>Category</b>	<b>Description</b>	<b>Common Agents by Group</b>
<b>Lung/ Respiratory Irritant</b>	Previously referred to as “vomiting agents” although their primary effect is irritation of the lungs and respiratory tract. Chlorine is considered a chemical warfare agent due to its prominent intentional use during World War I. It was also used in 2007 to intentionally cause harm during conflicts in Iraq. Because of its toxicity and wide commercial availability, chlorine is a priority, acutely toxic industrial chemical. It is not considered to be a likely WMD	Chlorine (Cl) Adamsite (DM) Diphenylchloroarsine (DA) Diphenylcyanoarsine (DC)
	<b>Physiological Action</b>	
	<ul style="list-style-type: none"> <li><b>Chlorine.</b> Primarily lung irritants; highly volatile and acutely toxic via inhalation.</li> <li><b>All others.</b> The irritation effects (cough; burning in nose, throat, and chest) are slightly delayed (minutes) after exposure and can be followed with systemic effects such as headaches, vomiting, and diarrhea.</li> </ul>	
	<b>Chemical Hazard Effect</b>	
	<p>Target of Choice: Personnel.</p> <p>Target Effects: Intended purpose is to penetrate the canister, forcing personnel to remove their masks and be exposed to more toxic materials.</p>	
<b>Smoke/ Obscurant</b>	Generated or projected particulates. Smoke and obscurants have long been employed by the military as a means of concealing battlefield targets. Smoke is an aerosol that owes its ability to obscure to its composition of many small particles suspended in the air. These particles scatter or absorb the light, reducing visibility.	Hexachloroethane (HC) White phosphorous (WP) Red phosphorous (RP) Fog oil smoke Titanium tetrachloride (FM) smoke Signaling smoke
	<b>Physiological Action</b>	
	Most smokes are not hazardous in the concentrations that are useful for obscurant purposes. However, high concentrations and long durations in smoke may be hazardous to the eyes and respiratory tract.	
	<b>Hazard Effect</b>	
	<p>Target of Choice: Personnel, terrain, infrastructure, and buildings.</p> <p>Target Effects: To conceal or obscure targets.</p>	

## BIOLOGICAL HAZARDS

A-6. Biological agents are dispersed or employed as pathogens or toxins that cause disease in personnel, animals, and plants. Pathogens require an incubation period to establish themselves in the body of a host and produce disease symptoms. The onset of visible symptoms may occur days or weeks after exposure. Some toxins can remain active for extended periods in the natural environment. This stability creates a persistent transfer hazard. Unlike chemical, radiological, and nuclear hazards, biological hazards are unpredictable; and it is difficult to classify the extent of the hazard.

A-7. The operational considerations for biological agents are—

- **Dissemination.** Biological agents may be dispersed or deposited as aerosols, liquid droplets, or dry powders. Live microorganisms usually grow in a moist environment; therefore, these agents may be disseminated in a liquid medium as wet aerosols. However, microbiological materials may also be stored and released in more stable powder mediums. In general, agents dispersed as dry powder will survive longer than those dispersed as wet aerosols.

- **Persistency.** The persistency of biological agents varies greatly and depends on specific agent characteristics and environmental conditions. These conditions include solar (ultraviolet) radiation, relative humidity, wind speed, and temperature gradient. Ultraviolet light accelerates the decay of most biological agents. However, encapsulation or genetic engineering may protect agents from natural decay and increase their persistency.
- **Immunization.** All personnel must have current immunizations for the diseases known to exist in the area where they are operating. Commanders must review the intelligence threat and identify the biological warfare agents that are posing a threat in the current operational environment. The knowledge of short- and long-term exposure effects of these biological warfare agents is key because physiological symptoms may be indicators of biological hazards, especially if accompanied by illness that is not due to a natural epidemic. Table A-2 outlines the classification of biological agents.

Table A-2. Biological agents

<b>Group</b>	<b>Description</b>	<b>Class</b>	<b>Description</b>
<b>Pathogens</b>	Pathogens are also referred to as "infectious agents." The primary biological warfare pathogens are disease-causing bacteria, viruses, and rickettsia. These broad categories or classes include a variety of microorganisms that may be free-living or require host cells to replicate and persist. They enter the body through the lungs, digestive tract, skin, or mucous membranes of body openings. Once they enter the body, they multiply and overcome the body's natural defenses. Pathogens are naturally occurring, and outbreaks of disease may occur spontaneously in specific regions of the world. Certain pathogens, but not all of them, may spread between people.	<b>Bacteria</b>	Bacteria are microorganisms that are capable of reproduction outside living cells. They may be found in almost any environment. Bacteria enter the body through the lungs or digestive tract and will multiply and possibly incapacitate the host if proper treatment is not provided. They often respond to antibiotics.
		<b>Rickettsia</b>	Rickettsia are bacteria that are unable to multiply unless they are inside a living cell. Most rickettsia spread via insect vector.
		<b>Virus</b>	Viruses replicate inside a cell and take over the cellular metabolism, causing it to produce additional viruses instead of normal cellular activity. After producing hundreds to thousands of virus particles, the host cell is often destroyed as these particles are released (a process known as <i>lysis</i> ). Viruses are much smaller than bacteria, ranging from 0.02–0.2 microns, and normally do not respond to antibiotics. Certain viruses may respond to antiviral compounds, but there are few of these available.

**Table A-2. Biological agents (continued)**

<b>Group</b>	<b>Description</b>	<b>Class</b>	<b>Description</b>
<b>Toxin</b>	Toxins are essentially chemical poisons that are produced by, or extracted from, living organisms (bacteria, fungi, animals). Some microbial toxins are only released or created once the microorganism has been internalized/metabolized in the human body. Toxins exert their lethal or incapacitating effects by interfering with certain cell and tissue functions. They can produce a wide variety of signs and symptoms that are often similar to those associated with exposure to chemical agents. While toxins cannot spread from person to person, their toxicity can be much greater than that of nerve agent VX, the most toxic chemical warfare agent. Botulinum is considered one of the most toxic substances known.	<b>Neurotoxin</b>	Neurotoxins disrupt nerve impulses. Like nerve agents, neurotoxins may cause paralysis or convulsive seizures that lead to coma and death.
		<b>Cytotoxin</b>	Cytotoxins destroy cells by disrupting cell respiration and metabolism. They may cause vomiting, diarrhea, choking, blistering, radiation-like symptoms, weakness, coma, and death.

## RADIOLOGICAL HAZARDS

A-8. The Services are responsible for enforcing precautions and establishing tactics, techniques, and procedures for handling conventional munitions that employ radioactive materials, such as depleted uranium. This includes enforcing standards that protect personnel against alpha particle inhalation and ingestion and external beta, gamma, and neutron exposure. In addition, dangerous levels of radiation can result from damaged industrial radiation hazard areas. Due to the downwind hazards that such damage can produce, avoidance is the most effective individual and unit protective measure against industrial radiation hazards.

## NUCLEAR HAZARDS

A-9. The severity of nuclear hazards depends on the weapon yield, emission spectrum, and distance to the target. Residual radiation effects are due to emissions (typically, alphas, betas, and low-energy gammas) from fission fragments (heavy atom products produced during fission) and activated environmental materials (material that absorbs radiation and become radioactive itself). Collectively, these sources are called *fallout*. Table A-3, page A-8, shows the typical effects of nuclear weapons.

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*Note.* See *Multiservice Tactics Techniques and Procedures for Chemical, Biological, Radiological, and Nuclear Contamination Avoidance* for more information on nuclear hazards.

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**Table A-3. Nuclear weapons effects**

<b>Source</b>	<b>Target Effects</b>
Blast	Crushes, deforms, tumbles, shocks, and creates missiles and obstacles.
Thermal radiation	Causes fires, burns, and eye damage.
Electromagnetic pulse and high-altitude, electromagnetic pulse	Causes permanent or temporary impairment of electrical, electro-optical, and electronic equipment.
Transient radiation	Affects electronics systems and associated circuitry, including radios and computers. Through a high-altitude, low-yield surface or a near-surface (low-air) burst, transient radiation may reach targets that are not damaged by blast and thermal radiation.
Ionizing radiation	Can destroy human cells and lead to severe illness or death due to acute radiation doses from initial or residual radiation. Intense ionizing can damage objects, including optical, mechanical, and electronic components by altering their physical properties.
Potassium iodine	May be used to protect the thyroid from radioactive iodine in the event of an accident or attack at a nuclear power plant or another nuclear attack, especially where volatile radionuclides (which contain significant amounts of iodine 131) are released into the environment.
Fallout	Can remain at lethal levels for extended periods of time. Ionizing radiation and electromagnetic pulse produce residual radiation. Radioactive material dispersal creates widespread hazards and limits military operations.

## Appendix B

### Treaties and Agreements

The proliferation environment is dynamic, and proliferation activities are influencing the CWMD agenda. Alone, the United States cannot prevent the proliferation of CBRN capabilities, but we have achieved significant reductions by supporting international policies and participating in international agreements and treaties and multilateral initiatives. For example, because illicit trafficking in CBRN materials represents a serious threat to the security of individual states and the international community, treaties such as the *Nuclear Nonproliferation Treaty* and *Chemical Weapons Convention* have been established to provide international standards by which the global community can gauge and address the activities of potential proliferators. The Armed Forces of the United States support these policies and strategies within their respective roles and functions. They plan and conduct operations to overcome complex simultaneous challenges involving adversaries who may be armed with CBRN weapons and pose threats to homeland security and CONUS and OCONUS military forces and installations. While any given threat or operation may be focused in a particular overseas region, the adversary may have the motivation and means to extend the conflict to other regions, including U.S. territory. This appendix contains brief descriptions of treaties, legal statutes, and policy strictures on the proliferation, testing, possession, and employment of CBRN weapons.

#### **CHEMICAL WEAPONS CONVENTION**

B-1. Arms control and nonproliferation treaties and regimes establish global norms against the proliferation of WMD precursors, weapons, their means of delivery, and weapons-manufacturing equipment. Currently, there are 187 state parties that are members of the *Chemical Weapons Convention*, which prohibits the development, production, stockpiling, and use of chemical weapons. The *Chemical Weapons Convention* does not prohibit the production, processing, consumption, or trade of related chemicals for peaceful purposes; but it does establish a verification regime to ensure that such activities are consistent with the objective and purpose of the treaty.

B-2. The *Chemical Weapons Convention* is enforced through the Organisation for the Prohibition of Chemical Weapons, which ensures that all state parties adhere to the articles of the convention and follow the constraints outlined in the articles. The Organisation for the Prohibition of Chemical Weapons monitors elimination operations or the transformation of chemical production facilities and chemical weapons stockpiles.

B-3. The *Chemical Weapons Convention* is the first multilateral arms control and nonproliferation treaty to widely affect the private sector. Although the United States does not manufacture chemical weapons and is in the process of destroying its stockpile, it does produce, process, consume, export, and import a number of dual-use toxic chemicals and precursors that can be used to produce chemical weapons. The U.S. companies who are engaged in activities involving these chemicals may be required to submit declarations and/or reports to the Bureau of Industry and Security and may be subject to inspection by the Organisation for the Prohibition of Chemical Weapons. In addition, trade in certain chemicals with states who are not party to the *Chemical Weapons Convention* may be prohibited or subject to an export license and/or end-use certificate.

B-4. The *Chemical Weapons Convention* lists 24 articles that all state parties must follow and declare to the Organisation for the Prohibition of Chemical Weapons. Table B-1 lists the articles included in the *Chemical Weapons Convention*. Figure B-2, page B-3, provides key excerpts from selected articles to demonstrate the validity and strength of the convention as an important tool for the enforcement of the nonproliferation of WMD and WMD elimination.

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**Note.** For more information, see the Organisation for the Prohibition of Chemical Weapons Web site at <<http://www.opcw.org>> or the Chemical Weapons Convention Web site at <<http://www.cwc.gov>>.

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**Table B-1. Articles of the Chemical Weapons Convention**

<b>Article</b>	<b>Title</b>
Article I	General Obligations
Article II	Definitions and Criteria
Article III	Declarations
Article IV	Chemical Weapons
Article V	Chemical Weapons Production Facilities
Article VI	Activities not Prohibited Under This Convention
Article VII	National Implementation Measures
Article VIII	The Organization
Article IX	Consultations, Cooperation and Fact-Finding
Article X	Assistance and Protection Against Chemical Weapons
Article XI	Economic and Technological Development
Article XII	Measures to Redress a Situation and to Ensure Compliance, including Sanctions
Article XIII	Relation to Other International Agreements
Article XIV	Settlement of Disputes
Article XV	Amendments
Article XVI	Duration and Withdrawal
Article XVII	Status of the Annexes
Article XVIII	Signature
Article XIX	Ratification
Article XX	Accession
Article XXI	Entry into Force
Article XXII	Reservations
Article XXIII	Depositary
Article XXIV	Authentic Text

## ARTICLE I. GENERAL OBLIGATIONS

1. Each State Party to this Convention undertakes never under any circumstances:
  - (a) To develop, produce, otherwise acquire, stockpile or retain chemical weapons, or transfer, directly or indirectly, chemical weapons to anyone;
  - (b) To use chemical weapons;
  - (c) To engage in any military preparations to use chemical weapons;
  - (d) To assist, encourage or induce, in any way, anyone to engage in any activity prohibited to a State Party under this Convention.

## ARTICLE II. DEFINITIONS AND CRITERIA

For the purposes of this Convention:

1. "Chemical Weapons" means the following, together or separately:
  - (a) Toxic chemicals and their precursors, except where intended for purposes not prohibited under this Convention, as long as the types and quantities are consistent with such purposes;
  - (b) Munitions and devices, specifically designed to cause death or other harm through the toxic properties of those toxic chemicals specified in subparagraph (a), which would be released as a result of the employment of such munitions and devices;
  - (c) Any equipment specifically designed for use directly in connection with the employment of munitions and devices specified in subparagraph (b).

2. "Toxic Chemical" means:

Any chemical which through its chemical action on life processes can cause death, temporary incapacitation or permanent harm to humans or animals. This includes all such chemicals, regardless of their origin or of their method of production, and regardless of whether they are produced in facilities, in munitions or elsewhere.

(For the purpose of implementing this Convention, toxic chemicals which have been identified for the application of verification measures are listed in Schedules contained in the Annex on Chemicals.)

3. "Precursor" means:

Any chemical reactant which takes part at any stage in the production by whatever method of a toxic chemical. This includes any key component of a binary or multicomponent chemical system.

(For the purpose of implementing this Convention, precursors which have been identified for the application of verification measures are listed in Schedules contained in the Annex on Chemicals.)

## ARTICLE IV. CHEMICAL WEAPONS

3. All locations at which chemical weapons specified in paragraph 1 are stored or destroyed shall be subject to systematic verification through on-site inspection and monitoring with on-site instruments, in accordance with Part IV (A) of the Verification Annex.
4. Each State Party shall, immediately after the declaration under Article III, paragraph 1 (a), has been submitted, provide access to chemical weapons specified in paragraph 1 for the purpose of systematic verification of the declaration through on-site inspection. Thereafter, each State Party shall not remove any of these chemical weapons, except to a chemical weapons destruction facility. It shall provide access to such chemical weapons, for the purpose of systematic on-site verification.
5. Each State Party shall provide access to any chemical weapons destruction facilities and their storage areas, that it owns or possesses, or that are located in any place under its jurisdiction or control, for the purpose of systematic verification through on-site inspection and monitoring with on-site instruments.

**Figure B-2. Chemical Weapons Convention extracts**

**ARTICLE V. CHEMICAL WEAPONS PRODUCTION FACILITIES**

1. The provisions of this Article and the detailed procedures for its implementation shall apply to any and all chemical weapons production facilities owned or possessed by a State Party, or that are located in any place under its jurisdiction or control.
4. Each State Party shall cease immediately all activity at chemical weapons production facilities specified in paragraph 1, except activity required for closure.
5. No State Party shall construct any new chemical weapons production facilities or modify any existing facilities for the purpose of chemical weapons production or for any other activity prohibited under this Convention.
8. Each State Party shall destroy all chemical weapons production facilities specified in paragraph 1 and related facilities and equipment, pursuant to the Verification Annex and in accordance with an agreed rate and sequence of destruction (hereinafter referred to as "order of destruction"). Such destruction shall begin not later than one year after this Convention enters into force for it, and shall finish not later than 10 years after entry into force of this Convention. A State Party is not precluded from destroying such facilities at a faster rate.
11. Each State Party, during the destruction of chemical weapons production facilities, shall assign the highest priority to ensuring the safety of people and to protecting the environment. Each State Party shall destroy chemical weapons production facilities in accordance with its national standards for safety and emissions.
14. The chemical weapons production facility shall be converted in such a manner that the converted facility is not more capable of being reconverted into a chemical weapons production facility than any other facility used for industrial, agricultural, research, medical, pharmaceutical or other peaceful purposes not involving chemicals listed in Schedule 1.

**ARTICLE X. ASSISTANCE AND PROTECTION AGAINST CHEMICAL WEAPONS**

1. For the purposes of this Article, "Assistance" means the coordination and delivery to States Parties of protection against chemical weapons, including, inter alia, the following: detection equipment and alarm systems; protective equipment; decontamination equipment and decontaminants; medical antidotes and treatments; and advice on any of these protective measures.
2. Nothing in this Convention shall be interpreted as impeding the right of any State Party to conduct research into, develop, produce, acquire, transfer or use means of protection against chemical weapons, for purposes not prohibited under this Convention.
3. Each State Party undertakes to facilitate, and shall have the right to participate in, the fullest possible exchange of equipment, material and scientific and technological information concerning means of protection against chemical weapons.

**Figure B-2. Chemical Weapons Convention extracts (continued)**

**BIOLOGICAL WEAPONS CONVENTION**

B-5. The Convention on the Prohibition of the Development, Production and Stockpiling of Bacteriological (Biological) and Toxin Weapons and on Their Destruction, more commonly known as the *Biological Weapons Convention*, bans the development, production, stockpiling, acquisition, and retention of microbial or other biological agents or toxins in types and quantities that have no justification for prophylactic, protective, or other peaceful purposes. It also bans weapons, equipment, and means of delivery that are designed to use such agents or toxins for hostile purposes or in armed conflict. Currently, there are 171 state parties who are signatories to the *Biological Weapons Convention*, with 155 ratifications and accessions.

B-6. The *Biological Weapons Convention* entered into force on 26 March 1975, reaffirming the Geneva Protocol of 1925 that prohibits the use of bacterial poisonous gases and liquids during warfare conflicts and maintains strict compliance. The *Biological Weapons Convention* text is shown in figure B-3.

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*Note. For a complete list of articles and state parties and additional information, see the Biological and Toxin Weapons Convention Web site at <<http://www.opbw.org/>>.*

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**Convention on the Prohibition of the Development, Production and Stockpiling of  
Bacteriological (Biological) and Toxin Weapons and  
on Their Destruction**

*Signed at London, Moscow and Washington on 10 April 1972.*

*Entered into force on 26 March 1975.*

*Depositaries: UK, US and Soviet governments.*

The States Parties to this Convention,

Determined to act with a view to achieving effective progress towards general and complete disarmament, including the prohibition and elimination of all types of weapons of mass destruction, and convinced that the prohibition of the development, production and stockpiling of chemical and bacteriological (biological) weapons and their elimination, through effective measures, will facilitate the achievement of general and complete disarmament under strict and effective international control,

Recognizing the important significance of the Protocol for the Prohibition of the Use in War of Asphyxiating, Poisonous or Other Gases, and of Bacteriological Methods of Warfare, signed at Geneva on June 17, 1925, and conscious also of the contribution which the said Protocol has already made, and continues to make, to mitigating the horrors of war,

Reaffirming their adherence to the principles and objectives of that Protocol and calling upon all States to comply strictly with them,

Recalling that the General Assembly of the United Nations has repeatedly condemned all actions contrary to the principles and objectives of the Geneva Protocol of June 17, 1925,

Desiring to contribute to the strengthening of confidence between peoples and the general improvement of the international atmosphere,

Desiring also to contribute to the realization of the purposes and principles of the United Nations,

Convinced of the importance and urgency of eliminating from the arsenals of States, through effective measures, such dangerous weapons of mass destruction as those using chemical or bacteriological (biological) agents,

Recognizing that an agreement on the prohibition of bacteriological (biological) and toxin weapons represents a first possible step towards the achievement of agreement on effective measures also for the prohibition of the development, production and stockpiling of chemical weapons, and determined to continue negotiations to that end,

Determined for the sake of all mankind, to exclude completely the possibility of bacteriological (biological) agents and toxins being used as weapons,

Convinced that such use would be repugnant to the conscience of mankind and that no effort should be spared to minimize this risk,

Have agreed as follows:

**Article I**

Each State Party to this Convention undertakes never in any circumstances to develop, produce, stockpile or otherwise acquire or retain:

(1) Microbial or other biological agents, or toxins whatever their origin or method of production, of types and in quantities that have no justification for prophylactic, protective or other peaceful purposes;

(2) Weapons, equipment or means of delivery designed to use such agents or toxins for hostile purposes or in armed conflict.

**Figure B-3. Biological Weapons Convention text**

## **Appendix B**

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### **Article II**

Each State Party to this Convention undertakes to destroy, or to divert to peaceful purposes, as soon as possible but not later than nine months after entry into force of the Convention, all agents, toxins, weapons, equipment and means of delivery specified in article I of the Convention, which are in its possession or under its jurisdiction or control. In implementing the provisions of this article all necessary safety precautions shall be observed to protect populations and the environment.

### **Article III**

Each State Party to this Convention undertakes not to transfer to any recipient whatsoever, directly or indirectly, and not in any way to assist, encourage, or induce any State, group of States or international organizations to manufacture or otherwise acquire any of the agents, toxins, weapons, equipment or means of delivery specified in article I of this Convention.

### **Article IV**

Each State Party to this Convention shall, in accordance with its constitutional processes, take any necessary measures to prohibit and prevent the development, production, stockpiling, acquisition, or retention of the agents, toxins, weapons, equipment and means of delivery specified in article I of the Convention, within the territory of such State, under its jurisdiction or under its control anywhere.

### **Article V**

The States Parties to this Convention undertake to consult one another and to cooperate in solving any problems which may arise in relation to the objective of, or in the application of the provisions of, the Convention. Consultation and Cooperation pursuant to this article may also be undertaken through appropriate international procedures within the framework of the United Nations and in accordance with its Charter.

### **Article VI**

(1) Any State Party to this convention which finds that any other State Party is acting in breach of obligations deriving from the provisions of the Convention may lodge a complaint with the Security Council of the United Nations. Such a complaint should include all possible evidence confirming its validity, as well as a request for its consideration by the Security Council.

(2) Each State Party to this Convention undertakes to cooperate in carrying out any investigation which the Security Council may initiate, in accordance with the provisions of the Charter of the United Nations, on the basis of the complaint received by the Council. The Security Council shall inform the States Parties to the Convention of the results of the investigation.

### **Article VII**

Each State Party to this Convention undertakes to provide or support assistance, in accordance with the United Nations Charter, to any Party to the Convention which so requests, if the Security Council decides that such Party has been exposed to danger as a result of violation of the Convention.

### **Article VIII**

Nothing in this Convention shall be interpreted as in any way limiting or detracting from the obligations assumed by any State under the Protocol for the Prohibition of the Use in War of Asphyxiating, Poisonous or Other Gases, and of Bacteriological Methods of Warfare, signed at Geneva on June 17, 1925.

### **Article IX**

Each State Party to this Convention affirms the recognized objective of effective prohibition of chemical weapons and, to this end, undertakes to continue negotiations in good faith with a view to reaching early agreement on effective measures for the prohibition of their development, production and stockpiling and for their destruction, and on appropriate measures concerning equipment and means of delivery specifically designed for the production or use of chemical agents for weapons purposes.

**Figure B-3. Biological Weapons Convention text (continued)**

**Article X**

(1) The States Parties to this Convention undertake to facilitate, and have the right to participate in, the fullest possible exchange of equipment, materials and scientific and technological information for the use of bacteriological (biological) agents and toxins for peaceful purposes. Parties to the Convention in a position to do so shall also cooperate in contributing individually or together with other States or international organizations to the further development and application of scientific discoveries in the field of bacteriology (biology) for prevention of disease, or for other peaceful purposes.

(2) This Convention shall be implemented in a manner designed to avoid hampering the economic or technological development of States Parties to the Convention or international cooperation in the field of peaceful bacteriological (biological) activities, including the international exchange of bacteriological (biological) and toxins and equipment for the processing, use or production of bacteriological (biological) agents and toxins for peaceful purposes in accordance with the provisions of the Convention.

**Article XI**

Any State Party may propose amendments to this Convention. Amendments shall enter into force for each State Party accepting the amendments upon their acceptance by a majority of the States Parties to the Convention and thereafter for each remaining State Party on the date of acceptance by it.

**Article XII**

Five years after the entry into force of this Convention, or earlier if it is requested by a majority of Parties to the Convention by submitting a proposal to this effect to the Depositary Governments, a conference of States Parties to the Convention shall be held at Geneva, Switzerland, to review the operation of the Convention, with a view to assuring that the purposes of the preamble and the provisions of the Convention, including the provisions concerning negotiations on chemical weapons, are being realized. Such review shall take into account any new scientific and technological developments relevant to the Convention.

**Article XIII**

(1) This Convention shall be of unlimited duration.

(2) Each State Party to this Convention shall in exercising its national sovereignty have the right to withdraw from the Convention if it decides that extraordinary events, related to the subject matter of the Convention, have jeopardized the supreme interests of its country. It shall give notice of such withdrawal to all other States Parties to the Convention and to the United Nations Security Council three months in advance. Such notice shall include a statement of the extraordinary events it regards as having jeopardized its supreme interests.

**Article XIV**

(1) This Convention shall be open to all States for signature. Any State which does not sign the Convention before its entry into force in accordance with paragraph (3) of this Article may accede to it at any time.

(2) This Convention shall be subject to ratification by signatory States. Instruments of ratification and instruments of accession shall be deposited with the Governments of the United States of America, the United Kingdom of Great Britain and Northern Ireland and the Union of Soviet Socialist Republics, which are hereby designated the Depositary Governments.

(3) This Convention shall enter into force after the deposit of instruments of ratification by twenty-two Governments, including the Governments designated as Depositaries of the Convention.

(4) For States whose instruments of ratification or accession are deposited subsequent to the entry into force of this Convention, it shall enter into force on the date of the deposit of their instruments of ratification or accession.

(5) The Depositary Governments shall promptly inform all signatory and acceding States of the date of each signature, the date of deposit of each instrument of ratification or of accession and the date of entry into force of this Convention, and of the receipt of other notices.

(6) This Convention shall be registered by the Depositary Governments pursuant to Article 102 of the Charter of the United Nations.

**Article XV**

This Convention, the English, Russian, French, Spanish and Chinese texts of which are equally authentic, shall be deposited in the archives of the Depositary Governments. Duly certified copies of the Convention shall be transmitted by the Depositary Governments to the Governments of the signatory and acceding states.

**Figure B-3. Biological Weapons Convention text (continued)**

## **TREATY ON THE NON-PROLIFERATION OF NUCLEAR WEAPONS**

B-7. The *Treaty on the Non-Proliferation of Nuclear Weapons* aims to prevent the spread of nuclear weapons and weapons technology, to foster the peaceful use of nuclear energy, and to further the goal of disarmament. The treaty establishes a safeguard system under the responsibility of the International Atomic Energy Agency, which also plays a central role under the treaty in areas of technology transfer for peaceful purposes. Figure B-4 lists key excerpts from this treaty.

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*Note. For a full list of all 15 articles , see the International Atomic Energy Agency Web site at <<http://www.iaea.org/Publications/Documents/Infocircs/Others/infocirc140.pdf>>.*

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### **ARTICLE I**

Each nuclear-weapon State Party to the Treaty undertakes not to transfer to any recipient whatsoever nuclear weapons or other nuclear explosive devices or control over such weapons or explosive devices directly, or indirectly; and not in any way to assist, encourage, or induce any non-nuclear-weapon State to manufacture or otherwise acquire nuclear weapons or other nuclear explosive devices, or control over such weapons or explosive devices.

### **ARTICLE II**

Each non-nuclear-weapon State Party to the Treaty undertakes not to receive the transfer from any transfer or whatsoever of nuclear weapons or other nuclear explosive devices or of control over such weapons or explosive devices directly, or indirectly; not to manufacture or otherwise acquire nuclear weapons or other nuclear explosive devices; and not to seek or receive any assistance in the manufacture of nuclear weapons or other nuclear explosive devices.

### **ARTICLE III**

1. Each non-nuclear-weapon State Party to the Treaty undertakes to accept safeguards, as set forth in an agreement to be negotiated and concluded with the International Atomic Energy Agency in accordance with the Statute of the International Atomic Energy Agency and the Agency's safeguards system, for the exclusive purpose of verification of the fulfillment of its obligations assumed under this Treaty with a view to preventing diversion of nuclear energy from peaceful uses to nuclear weapons or other nuclear explosive devices. Procedures for the safeguards required by this Article shall be followed with respect to source or special fissionable material whether it is being produced, processed or used in any principal nuclear facility or is outside any such facility.
2. Each State Party to the Treaty undertakes not to provide: (a) source or special fissionable material, or (b) equipment or material especially designed or prepared for the processing, use or production of special fissionable material, to any non-nuclear-weapon State for peaceful purposes, unless the source or special fissionable material shall be subject to the safeguards required by this Article.

**Figure B-4. Treaty on the Non-Proliferation of Nuclear Weapons extracts**

## **COMPREHENSIVE NUCLEAR-TEST-BAN TREATY**

B-8. A comprehensive test ban treaty is the cornerstone of the international regime on the nonproliferation of nuclear weapons and the oldest item on the nuclear arms control agenda. The test ban will constrain the development and qualitative improvement of current nuclear weapons and the development of new nuclear weapons. It also mandates a broad, thorough monitoring regime with an intrusive verification regime that permits on-site inspections if treaty breaches are suspected. The comprehensive test ban treaty prohibits all nuclear explosions for military or civilian purposes in all environments. The treaty opened for signature in New York on 24 September 1996; it was signed by 71 states, including five of the eight states that were nuclear-capable at that time.

B-9. The Preparatory Commission for the Comprehensive Nuclear-Test-Ban Treaty Organization has oversight of the treaty and is responsible for establishing the global verification regime. The verification regime consists of an international monitoring system that is supported by an international data center. The monitoring system comprises a network of 321 monitoring stations and 16 radionuclide laboratories that monitor the earth for the evidence of nuclear explosions.

B-10. At the time of this publication, the treaty has been signed by 180 states and ratified by 146. The United States has signed the treaty, but has not ratified it. There is an ongoing debate of whether or not the United States should ratify the comprehensive test ban treaty.

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*Note. For current information on the number of signatories and ratifications, see the Preparatory Commission for the Comprehensive Nuclear-Test-Ban Treaty Organization Web site at <<http://www.ctbto.org/treaty>>.*

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## **PROLIFERATION SECURITY INITIATIVE**

B-11. The Proliferation Security Initiative is a global initiative that is aimed at stopping shipments of WMD, their delivery systems, and related materials worldwide. The initiative was announced by President George W. Bush on 31 May 2003 in response to the *National Strategy to Combat Weapons of Mass Destruction*, which was issued in December 2002. That strategy recognizes the need for more robust tools to defeat the worldwide proliferation of WMD and specifically identifies interdiction as an area where greater focus will be placed.

B-12. In September 2003, 11 countries agreed to and published the Interdiction Principles for the Proliferation Security Initiative. This set of principles identifies specific steps for effectively interdicting WMD shipments and preventing proliferation facilitators from engaging in this deadly trade. Participation in the Proliferation Security Initiative is voluntary, and support for the Proliferation Security Initiative is an acknowledgment of the need for stronger measures to defeat proliferators through cooperation with other countries.

B-13. The Proliferation Security Initiative is a set of activities, not a formal treaty-based organization. It is best understood as a set of partnerships that establishes the basis for cooperation on specific activities when the need arises. It does not create formal obligations for participating states, but does represent a political commitment to establish best practices to stop proliferation-related shipments.

B-14. The goal of the Proliferation Security Initiative is to create a more dynamic, creative, and proactive approach to preventing proliferation to or from nation-states and nonstate actors of proliferation concern. Actions will be taken in support of the Proliferation Security Initiative, consistent with national legal authorities and relevant international laws and frameworks. The Proliferation Security Initiative seeks to use existing authorities—national and international—to defeat proliferation.

B-15. The Proliferation Security Initiative focuses on establishing greater coordination among its partner states and promoting readiness to act effectively when a particular action is needed. Actual interdictions will likely involve only a few Proliferation Security Initiative participants with geographic and operational access to a particular Proliferation Security Initiative target of opportunity. Interdiction training exercises and other operational efforts will help states work together in a more cooperative, coordinated, and effective manner to stop, search, and seize shipments.

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*Note. For more information about the Proliferation Security Initiative, see the U.S. Department of State's Web site at <<http://www.state.gov/t/isn/c10390.htm>>.*

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## **NORTH ATLANTIC TREATY ORGANIZATION AGREEMENTS**

B-16. NATO is an alliance of 26 countries from North America and Europe who are committed to fulfilling the goals of the North Atlantic Treaty that was signed on 4 April 1949. NATO provides a forum in which the United States, Canada, and European countries can consult together on security issues of common concern and take joint action in addressing them.

B-17. NATO's military structure is a multinational force planning, organization, and command system. It provides joint planning, training, exercising, and operations under the command of NATO's strategic commanders. As the nature of threats change, NATO is reorienting its defense capabilities toward today's threats by adapting its forces and developing new, multinational approaches to deal with terrorism, failed states, and other security threats such as WMD. All NATO decisions are made by consensus, after

discussion and consultation among member countries. Consensus decisionmaking means that there is no voting at NATO; consultations continue until a decision is reached that is acceptable to everyone.

B-18. Extensive efforts are made to improve cooperation and to eliminate duplication in the research, development, production, procurement, and logistics support of defense systems, primarily through the use of STANAGs. Standardization makes a vital contribution to the combined operational effectiveness of the military forces of the alliance and enables the exploitation of opportunities to make better use of economic resources. STANAGs are developed and promulgated by the NATO Military Agency for Standardization in conjunction with the Conference of National Armaments directors and other authorities concerned.

B-19. The implementation of STANAGs helps countries achieve required levels of interoperability; better accomplish their common strategic, operational, and tactical tasks; understand and execute command procedures; and employ techniques and materiel more efficiently.

B-20. The principal forum for the elaboration of standardization policy is the NATO Standardization Organization, which aims to incorporate standardization as an integral part of alliance planning and acts as a coordinator between senior NATO bodies addressing standardization requirements. The NATO Standardization Organization comprises the NATO Committee for Standardization, NATO Standardization Staff Group, and NATO Standardization Agency. The NATO Standardization Organization's role is to enhance interoperability and contribute to the ability of alliance forces to train, exercise, and operate effectively, together and with the forces of partner countries and other non-NATO countries, in the execution of their assigned tasks.

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*Note. For current information on STANAGs, visit the NATO Web site at <<http://www.nato.int/docu/standard.htm>>.*

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## **QUADRIPARTITE STANDARDIZATION AGREEMENT**

B-21. The American, British, Canadian, Australian, and New Zealand Armies' Program has been in place since 1947 and is instrumental to ensuring interoperability and commonality of equipment among the program's forces. In terms of nonproliferation to combat WMD, counterproliferation to combat WMD, and consequence management, gathering and sharing information and intelligence among strategically located member states clearly supports the three pillars of the *National Strategy to Combat Weapons of Mass Destruction*. Today, the focus of the program is on interoperability—the ability of alliance forces, and when appropriate, forces of partner and other nations, to train, exercise, and operate effectively together in the execution of assigned missions and tasks.

B-22. The mission of the American, British, Canadian, Australian Armies' Program is to optimize interoperability through cooperation and collaboration in the continuous pursuit of standardization and mutual understanding in order to integrate the capabilities of the program armies in multinational operations. The benefits are being realized through enormous cost savings in all of the armies and in the increased operational readiness rates for deployed military personnel. Although this effort has been aimed at interoperability and commonality among the armies, several activities that originated under the Quadripartite Working Group have been expanded to include interoperability among all NATO nations.

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*Note. For more information, see the American, British, Canadian, Australian Armies' Program Web site at <<http://www.abca-armies.org>>.*

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## **AIR AND SPACE INTEROPERABILITY COUNCIL**

B-23. The Air and Space Interoperability Council, formed in 1948 and previously known as the Air Standardization Coordinating Committee, is an active and productive international organization that works for the air forces of Australia, Canada, New Zealand, the United Kingdom, and the United States of America. Its principal objective is to ensure that member nations are able to fight side by side as airmen in joint and multinational operations. The Air and Space Interoperability Council objectives are achieved by the standardization of doctrine, operational procedures, material, and equipment. The council also

exchanges technical information and arranges the free loan of equipment between member nations for test and evaluation purposes. The results of these tests are usually distributed to all member nations.

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*Note. For more information, see the Air and Space Interoperability Council Web site at <<http://www.dtic.mil/asic/>>.*

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## RIOT CONTROL AGENTS AND HERBICIDES

B-24. Since the end of the Cold War, conflicts have become increasingly intrastate, and civilians and combatants have become far more intermixed. In order to be prepared for the full spectrum of conflict, the U.S. military and law enforcement officers must be equipped and trained to deal with nonstate actors and their tactics. The pressure to do this in a humane way logically leads to a desire for nonlethal weapons. The development and use of nonlethal weapons is a legitimate approach to this new security environment and military structure. Chemical-derived riot control agents represent one type of nonlethal weapon.

B-25. Commanders must clearly understand the appropriate uses of riot control agents and herbicides, especially in light of their classification under the terms of the *Chemical Weapons Convention*. Combatant commanders must be aware of the views of states that are party to the *Chemical Weapons Convention* and anticipate the potential impact of the use of riot control agents and herbicides by U.S. forces. The *Chemical Weapons Convention* states that the use of riot control agents is acceptable for law enforcement activities. The definition of law enforcement should mean domestic law enforcement within the recognized, sovereign borders of a country and activities undertaken in conjunction with a United Nations mandate. In other words, riot control agents should only be used in a state's own jurisdiction, unless otherwise deemed permissible by the United Nations. All other use must be deemed an act of warfare, which is specifically prohibited by the *Chemical Weapons Convention*. The use of riot control agents is not limited or restricted under other conditions, such as training and peacetime riot control around U.S. bases and installations.

## RIOT CONTROL AGENTS AND HERBICIDES POLICY

B-26. The global community classifies riot control agents as chemical agents that are prohibited under the terms of the *Chemical Weapons Convention*. The United States ratified the *Chemical Weapons Convention* in April 1997; however, we do not consider riot control agents to be chemical agents. The United States maintained this position consistently throughout *Chemical Weapons Convention* negotiations, and our position is understood by the global community. The use of herbicides in war or military combat operations is also prohibited and requires Presidential approval for domestic use to control vegetation on U.S. bases and installations and around immediate defensive perimeters.

B-27. A riot control agent is any chemical not listed in a schedule, which can produce rapidly in humans sensory irritation or disabling physical effects which disappear within a short time following termination of exposure. The point that a riot control agent must be classified as a chemical is not included in the schedules published by the *Chemical Weapons Convention* and the Organisation for the Prohibition of Chemical Weapons. These schedules essentially classify chemicals according to their toxicity and dual-use applicability in order to prevent their use as weapons. For example, a Schedule 1 chemical is toxic and has little to no industrial application, whereas a Schedule 3 chemical can be weaponized and has a broad peaceful application.

B-28. The United States renounces the first use of riot control agents in war except when they are used defensively to save lives. The use of riot control agents is not governed by the same policy as chemical agents. Riot control agents are not used to injure or kill, and their effects are short-lived; consequently, situations arise when using them is more appropriate than using conventional weapons.

B-29. The United States also renounces the first use of herbicides in war except when they are used to control vegetation on U.S. bases and installations. Herbicides can also be used around the immediate defensive perimeters to clear observation and fields of fire. They have the potential to destroy food production and defoliate large areas.

B-30. Presidential Executive Order 11850 (figure B-5) prescribes policy for the use of chemical herbicides and riot control agents. Commanders should consult their legal advisors on the implementation of this policy on a case-by-case basis.

**Executive Order 11850—Renunciation of certain uses in war of chemical herbicides and riot control agents**

The United States renounces, as a matter of national policy, first use of herbicides in war except use, under regulations applicable to their domestic use, for control of vegetation within U.S. bases and installations or around their immediate defensive perimeters, and first use of riot control agents in war except in defensive military modes to save lives such as:

- (a) Use of riot control agents in riot control situations in areas under direct and distinct U.S. military control, to include controlling rioting prisoners of war.
- (b) Use of riot control agents in situations in which civilians are used to mask or screen attacks and civilian casualties can be reduced or avoided.
- (c) Use of riot control agents in rescue missions in remotely isolated areas, of downed aircrews and passengers, and escaping prisoners.
- (d) Use of riot control agents in rear echelon areas outside the zone of immediate combat to protect convoys from civil disturbances, terrorists and paramilitary organizations.

I have determined that the provisions and procedures prescribed by this Order are necessary to ensure proper implementation and observance of such national policy.

NOW, THEREFORE, by virtue of the authority vested in me as President of the United States of America by the Constitution and laws of the United States and as Commander-in-Chief of the Armed Forces of the United States, it is hereby ordered as follows:

**Section 1.** The Secretary of Defense shall take all necessary measures to ensure that the use by the Armed Forces of the United States of any riot control agents and chemical herbicides in war is prohibited unless such use has Presidential approval, in advance.

**Section 2.** The Secretary of Defense shall prescribe the rules and regulations he deems necessary to ensure that the national policy herein announced shall be observed by the Armed Forces of the United States.

(Signed)  
GERALD R. FORD  
President of the United States  
8 April 1975

**Figure B-5. Executive Order 11850**

## Appendix C

# Basic Standards of Proficiency

Service commanders and their staffs at the tactical level must be capable of surviving CBRN attacks and continuing operations in hazardous conditions. This appendix discusses the basic standards of proficiency delineated in STANAG 2150 for individuals, selected personnel, CBRN staff, commanders, and organizations. This appendix also discusses the medical CBRN training requirements established in 2004 under the direction of the Assistant Secretary of Defense for Health Affairs.

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*Note. This appendix is the implementation of standards of proficiency as it reads in STANAG 2150.*

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## BASIC STANDARDS OF PROFICIENCY FOR INDIVIDUALS

C-1. Individuals must be trained in the concepts of CBRN defense in order to survive a CBRN-related attack and contribute to the survivability and operating proficiency of the organization in a CBRN environment. Individual standards of proficiency include basic—

- **Survival standards.** Survival standards are those that the individual must master in order to survive a CBRN attack.
- **Operating standards.** Operating standards are those that the individual must master in order to contribute to the continued operation of the organization as a whole under CBRN conditions.

C-2. Service members receive initial CBRN defense training upon entering military service and receive refresher training at regular intervals thereafter. DOD support personnel receive basic survival training and the training necessary to support commanders and sustain in a CBRN environment.

C-3. Table C-1, page C-2, provides the basic survival and operating standards for military personnel and DOD support personnel who must perform under CBRN conditions.

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*Note. Additional information may be found in Service-specific regulations and publications.*

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**Table C-1. Individual standards of proficiency**

<b>Basic Survival Standards</b>
Recognize indications of a possible CBRN attack or unintentional release, and take appropriate protective action.
Recognize and give CBRN alarms and signals.
Recognize indications of a chemical, biological, or radiological hazard; and take appropriate protective action according to associated standing operating procedures.
Properly don, seat, clear, and check a respirator or protective mask within 9 seconds and complete the adjustment and/or attachment of the hood (if available) within 6 seconds (for a total of fifteen 15 seconds) following an alarm or recognition of a chemical or biological attack.
Properly don protective clothing, and properly perform assigned missions.
Take appropriate protective measures against thermal radiation (light, flash, and heat), blast wave, and nuclear radiation effects of a nuclear explosion.
Complete the immediate individual decontamination drill, and follow procedures for the removal of contaminated CBRN individual protective equipment.
Recognize contaminated casualties, and perform first aid (self-aid and buddy aid).
Practice good personal health and hygiene as a protective measure against the spread of disease.
<b>Basic Operating Standards</b>
Maintain CBRN individual protective equipment in a high state of serviceability at all times.
Be proficient in taking specific actions required to maintain operating efficiency before, during, and after a CBRN attack in order to mitigate the effects of CBRN weapons.
Recognize or detect <i>chemical-agent</i> contamination; and perform immediate decontamination of self, clothing, personal equipment, individual weapon and position, vehicles, and crew-served equipment.
Recognize standard marking signs that indicate areas with chemical, biological, or radiological contamination.
Cross or bypass marked CBRN-contaminated areas with minimum personal danger.
Demonstrate proficiency in performing primary military duties, to include the use of crew/personal weapon(s), while wearing individual protective equipment for extended periods.
Be familiar with decontamination procedures that are specific to the branch of military service.
Be familiar with the principles of collective protection, including passage through contamination control areas. (For detailed application, see STANAG 2515.)
Demonstrate familiarity with available equipment, such as dosimeters and chemical and biological detection and monitoring equipment.

## **ADDITIONAL STANDARDS OF PROFICIENCY FOR SELECTED PERSONNEL**

C-4. To accomplish operational tasks beyond the scope of mere survival, selected personnel require training in addition to that required for individuals, but less than that required for specialists. Additional training supports leadership activities and such tasks as CBRN monitoring, survey, reconnaissance, and contamination control. Personnel who require additional training include the following:

- Aircrews, rescue and survival personnel, and ground personnel are required to know the correct use of their CBRN ensemble, CBRN protection for air personnel, and donning and doffing the equipment as outlined in STANAGs 2515 and 3497.
- All military personnel are required to have knowledge appropriate to their rank and operational role in addition to the previously identified individual requirements.
- All DOD civilian staff and support personnel are required to have the necessary knowledge, skills, and abilities appropriate to their position or duties in support of the tactical command.

C-5. Table C-2 identifies additional standards of proficiency for selected personnel. These are in addition to the basic standards outlined above.

**Table C-2. Additional standards of proficiency for selected personnel**

<b>Additional Standards for CBRN Monitoring, Survey, and Reconnaissance Personnel</b>
Perform operational decontamination of supplies, equipment, and areas for which they are responsible in the performance of their primary duties.
Operate and maintain assigned decontamination equipment.
Establish and operate a personnel decontamination station, where applicable.
Take measures before an attack to prevent contamination and after an attack to avoid the spread of contamination.
Operate and maintain CBRN specialist equipment that is applicable to the task.
Recognize CBRN attacks and unintentional releases, and fully understand organizational procedures for implementing warnings and providing protection.
Detect and identify CBRN contamination, and organize and conduct CBRN-related monitoring and survey operations.
Monitor personnel, food, drinking water, and equipment for CBRN contamination and the effectiveness of decontamination measures.
Collect samples of suspected biological contamination and forward them as directed.
Collect samples of liquid or solid chemical agents.
Mark CBRN-contaminated areas, equipment, and supplies with standard marking signs in accordance with STANAG 2002 (not applicable to Navy afloat).
Provide data for the compilation of CBRN reports in accordance with STANAG 2103.
Operate detection and survey equipment to recognize and detect hazards resulting from unintentional releases.
Demonstrate the ability to perform the duties of a CBRN sentry or observer.
<b>Additional Standards for Officers and Noncommissioned Officers</b>
Deploy CBRN sentries or observers and detection devices.
Understand CBRN monitoring, survey, and reconnaissance procedures.
Understand survival procedures before, during, and after a CBRN attack or friendly nuclear strike.
Have knowledge of CBRN downwind hazards.
Have knowledge of radiation dose control, exposure rules, and record keeping.
Understand general protective values of material against radiation, including the selection of buildings and construction of shelters.
Have knowledge of contamination control.
Understand the role of the military to support other authorities following a CBRN attack or unintentional release, and assist in managing the consequences of such an event.

## **ADDITIONAL STANDARDS OF PROFICIENCY FOR CHEMICAL, BIOLOGICAL, RADIOLOGICAL, AND NUCLEAR DEFENSE SPECIALISTS**

C-6. Additional training is required for officers, enlisted personnel, and civilian support personnel whose primary duties are concerned with the planning, coordination, supervision, and conduct of unit CBRN defense activities. These personnel should receive formal training that meets the requirements consistent with those duties.

C-7. The following are CBRN defense specialists:

- Command CBRN defense officers, enlisted personnel, and DOD civilian support personnel (including private contractors) who are assigned to full-time duty in CBRN defense. Such personnel will normally perform duties in organizations that are above the level of company, squadron, or Service-equivalent unit.

- Unit CBRN defense officers, enlisted personnel, and DOD civilians (including private contractors) assigned on an additional-duty basis to form the CBRN control party. These personnel should be at the company, squadron, task unit, or service-equivalent level, but may be at a higher level, depending on the organizational structure.

C-8. Table C-3 identifies additional standards of proficiency for CBRN defense specialists. These are in addition to the standards outlined in previous paragraphs that apply according to their rank and function.

**Table C-3. Additional standards of proficiency for CBRN defense specialists**

<b>Additional Standards for Officers, Enlisted Personnel, and Civilian Staff with CBRN Primary Duties</b>
Assist commanders in providing policy and guidance to lower echelons in all matters pertaining to the development of a CBRN capability.
Plan, conduct, and monitor CBRN training within the command.
Evaluate the capability of lower echelons to survive a CBRN attack and continue operations in a CBRN environment.
Keep abreast of new tactics, techniques, and procedures for CBRN defense.
Act as an advisor to the commander on all matters pertaining to the CBRN defense of subordinate units/formations. When augmented, be responsible for the CBRN warning and reporting system.
Recommend the employment of special CBRN elements/units, if available.
Operate and use automated systems for calculations and data processing, where appropriate. If an automated system is not available, personnel in CBRN centers must be able to perform the same tasks manually.
Act as an advisor to commanders on all matters pertaining to CBRN cooperation with units/agencies of other nations.
<b>Additional Standards for Unit CBRN Defense Officers and Enlisted Personnel</b>
Provide technical assistance to commanders and staffs on CBRN training and operations.
Provide CBRN training to achieve basic operating standards of proficiency for individuals and the unit.
Plan and supervise the CBRN training aspects of operational training exercises and maneuvers.
Supervise the preparation of unit CBRN standing operating procedures, and adapt them to existing plans of other units as required.
Determine (by dosimetry or calculation, as appropriate) the total dose and time of stay in, or transit through, radiological-contaminated areas to avoid exceeding the command operational exposure guide.
Prepare fallout prediction patterns, and perform the tasks of the CBRN warning and reporting system (may be assigned to meteorological, operational, and/or navigational officers).
Plan CBRN reconnaissance, and advise commanders on the best routes to cross or bypass a CBRN contaminated area.
Plan and coordinate decontamination within the unit, and advise the commander.
Maintain records of the unit's radiation exposure.
Estimate downwind hazards for chemical and biological attacks and unintentional releases.
Report CBRN data to the next higher headquarters, and perform the CBRN reporting and warning tasks.
Operate and use data processing devices; and where appropriate, possess a basic knowledge of the structure of programs used in CBRN warning and reporting.
Identify the hazards related to risks of low-level radiation, unintentional releases, and toxic industrial material.
Make contingency plans for units facing CBRN and toxic industrial material hazards (including low-level radiation and unintentional releases).
Act as an advisor to the commander on all matters pertaining to CBRN and toxic industrial material hazards (including low-level radiation and unintentional releases).

## ADDITIONAL STANDARDS OF PROFICIENCY FOR MEDICAL PERSONNEL

C-9. Medical personnel protect themselves, patients, and medical facilities against exposure to CBRN agents (CBRN defense) and, in accordance with the latest developments in science and technology, carry out the measures necessary to maintain and restore the health of personnel exposed to CBRN environments (CBRN medical defense).

C-10. Table C-4 identifies additional standards of proficiency that are required for medical personnel. These are in addition to the standards outlined in previous paragraphs that apply according to their rank and function.

**Table C-4. Additional standards of proficiency for medical personnel**

<b>Additional Standards for Medical Personnel</b>
Effectively protect casualties in a CBRN scenario during first aid, triage, resuscitative and emergency treatment, holding, evacuation, and hospital treatment.
Act in a way that medical material, vehicles, and facilities are provided an optimum of protection against CBRN hazards.
Be familiar with fielded collective protection systems for facilities and vehicles, if appropriate.
Possess good knowledge of the acute symptoms of CBRN injuries and their specific countermeasures and potential side effects.
Possess good knowledge of decontamination procedures for CBRN-contaminated patients.
<b>Additional Standards for Trained Medical Officers and Noncommissioned Officers</b>
Have specialized knowledge in contamination control procedures for CBRN-contaminated patients and associated equipment (radiac monitor and chemical-agent monitor) (selected medical personnel).
Have task-oriented, specialized knowledge of the diagnosis and treatment of CBRN injuries and the detection and identification of chemical and biological agents and radiation (medical personnel assigned to perform special CBRN medical defense tasks during missions [anesthesiologists, surgeons, internists, microbiologists, food chemists]).
Be able to convert scientific expert reports into clear advice to the commander (staff and command surgeons).
Have knowledge of the acute and long-term health effects of CBRN hazards in the deployment area and resulting consecutive medical support requirements (personnel with scientific background).
Have knowledge of the risk benefit balance from wearing individual protective equipment and prophylactic medical CBRN countermeasures (personnel with scientific background).
<b>Standards for Action Before, During, and After an Operation</b>
Establish an inventory of CBRN hazards and infectious endemic diseases in the deployment area and establish the resulting medical support requirements in relation to countermeasures.
Document and register the position of personnel during possible exposures and the level of protection from that exposure.
Coordinate investigations of unusual sickness and fatalities in situations involving CBRN hazards and endemic diseases directed at the verification.
Conduct outbreak management in the case of highly contagious diseases in a biological scenario.
Conduct postconflict surveillance for illnesses and follow-up in exposed or potentially exposed forces.

## ADDITIONAL STANDARDS OF PROFICIENCY FOR COMMANDERS

C-11. Commanders are required to have knowledge and competence in CBRN defense beyond the scope of that demonstrated by individual personnel, but not to the degree required for CBRN defense specialists. Commanders, with the assistance of their CBRN defense specialists, should be aware of hazards arising from CBRN attacks and/or unintentional releases in order to plan and conduct operations under the influence of such hazards. All commanders should also consider the risks associated with toxic industrial material and low-level radiation.

C-12. Table C-5 identifies additional standards of proficiency required for commanders.

**Table C-5. Additional standards of proficiency for commanders**

Understand the principles of CBRN defense.
Know the defense organization and the CBRN equipment available.
Assess the capabilities of unit CBRN forces.
Assess the effects of CBRN munitions on unit/formation, especially on operations to be conducted.
Issue orders and take measures depending on the situation and mission.
Plan operations while taking into account the CBRN threat and the readiness of units for operations in a CBRN environment.
Estimate the effects of wearing CBRN individual protective equipment for an extended period of time, and understand what measures can be taken to mitigate those effects on combat effectiveness and the well-being of forces.
Be familiar with available medical prophylactic countermeasures.
Be familiar with the integration of CBRN training in exercises.
Understand the risks of toxic industrial radiological material, particularly the effects of low-level radiation.
Understand the risks of toxic industrial chemicals.
Understand the risks of toxic industrial biological agents.

## **STANDARDS OF PROFICIENCY FOR ORGANIZATIONS**

C-13. Each organization must be able to accomplish their mission in a CBRN or unintentional-release environment. Planning and training for this capability will include the preparation of a CBRN standing operating procedure and frequent exercises to ensure familiarity in the application of the standing operating procedure.

C-14. Table C-6 identifies the basic standards of proficiency for organizations.

**Table C-6. Basic standards of proficiency for organizations**

Take immediate and corrective action upon the warning of an imminent CBRN attack, chemical or biological agent, or radiological fallout.
Determine the presence and nature of CBRN hazards in the unit's area, and take effective measures to mitigate the effects of a CBRN attack to the extent possible.
Properly use unit CBRN protection equipment and supplies, and maintain them in a high state of serviceability and readiness.
Enforce a high order of health, hygiene, and sanitation to minimize the spread of disease.
Maintain a degree of protection that is appropriate to the risk, while continuing to conduct the primary mission of the unit.
Perform necessary decontamination of supplies, equipment, and areas.
Cross, bypass, or function in contaminated areas with minimum loss of efficiency, decontaminating where necessary.
Operate efficiently over an extended period of time (to be determined by the commander based on such factors as weather conditions and equipment specifications) with personnel in full protective equipment that includes a protective mask.
Report nuclear detonations, chemical and biological attacks, unintentional releases, and associated hazards and hazard areas.

## **Source Notes**

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# Glossary

## SECTION I – ACRONYMS AND ABBREVIATIONS

<b>AFB</b>	air force base
<b>AFDD</b>	Air Force doctrine document
<b>AFH</b>	Air Force handbook
<b>AFI</b>	Air Force instruction
<b>AFMAN</b>	Air Force manual
<b>AFPAM</b>	Air Force pamphlet
<b>AFPD</b>	Air Force policy directive
<b>AFRRI</b>	Armed Forces Radiobiology Research Institute
<b>AFTTP</b>	Air Force tactics, techniques, and procedures
<b>AMedP</b>	allied medical publication
<b>AT</b>	antiterrorism
<b>ATP</b>	allied tactical publication
<b>attn</b>	attention
<b>C2</b>	command and control
<b>CBRN</b>	chemical, biological, radiological, and nuclear
<b>CDD</b>	capabilities development directorate
<b>CJCS</b>	Chairman of the Joint Chiefs of Staff
<b>CJCSI</b>	Chairman of the Joint Chiefs of Staff instruction
<b>CJCSM</b>	Chairman of the Joint Chiefs of Staff manual
<b>COLPRO</b>	collective protection
<b>CONUS</b>	continental United States
<b>CWMD</b>	combating weapons of mass destruction
<b>DA</b>	Department of the Army
<b>DC</b>	District of Columbia
<b>DCB</b>	doctrine control branch
<b>DHHS</b>	Department of Health and Human Services
<b>DHS</b>	Department of Homeland Security
<b>DOD</b>	Department of Defense
<b>DODD</b>	Department of Defense directive
<b>DODI</b>	Department of Defense instruction
<b>DSN</b>	Defense Switched Network
<b>EM</b>	emergency management
<b>FCM</b>	foreign consequence management
<b>FL</b>	Florida
<b>FM</b>	field manual
<b>FMI</b>	field manual interim
<b>FOUO</b>	for official use only
<b>GAO</b>	General Accounting Office

<b>HSPD</b>	Homeland Security Presidential directive
<b>ID</b>	initial distribution
<b>IDN</b>	initial distribution number
<b>IMR</b>	individual medical readiness
<b>JP</b>	joint publication
<b>MANSSEN</b>	Maneuver Support Center of Excellence
<b>MCCDC</b>	Marine Corps Combat Development Command
<b>MCDP</b>	Marine Corps doctrine publication
<b>MCRP</b>	Marine Corps reference publication
<b>MCWP</b>	Marine Corps warfighting publication
<b>MID</b>	Marine air-ground task force integration division
<b>MILSTRAP</b>	military standard transaction reporting and accounting procedures
<b>MILSTRIP</b>	military standard requisitioning and issue procedures
<b>MO</b>	Missouri
<b>MOPP</b>	mission-oriented protective posture
<b>MTTP</b>	multi-Service tactics, techniques, and procedures
<b>NATO</b>	North Atlantic Treaty Organization
<b>NAVAIR</b>	Naval Aviation Command
<b>NAVMED</b>	Naval Medical Command
<b>NAVSUP</b>	Naval supply
<b>NBC</b>	nuclear, biological, and chemical
<b>NBCC</b>	nuclear, biological, chemical, and conventional
<b>NFPA</b>	National Fire Protection Association
<b>NIOSH</b>	National Institute for Occupational Safety and Health
<b>NSC</b>	National Security Council
<b>NTRP</b>	Navy tactical reference publication
<b>NTTP</b>	Navy tactics, techniques, and procedures
<b>NWP</b>	Navy warfare publication
<b>OCONUS</b>	outside the continental United States
<b>OEH</b>	occupational and environmental health
<b>OPNAVIST</b>	Office of the Chief of Naval Operations instruction
<b>PDD</b>	Presidential decision directive
<b>RI</b>	Rhode Island
<b>SOH</b>	safety and occupational health
<b>STANAG</b>	standardization agreement
<b>TG</b>	technical guide
<b>UNSCR</b>	United Nations Security Council resolution
<b>USA</b>	U.S. Army
<b>USACHPPM</b>	U.S. Army Center for Health Promotion and Preventive Medicine
<b>USAF</b>	U.S. Air Force
<b>USAMRICD</b>	U.S. Army Medical Research Institute for Chemical Defense

<b>USAMRIID</b>	U.S. Army Medical Research Institute for Infectious Diseases
<b>USMC</b>	U.S. Marine Corps
<b>USN</b>	U.S. Navy
<b>VA</b>	Virginia
<b>vol</b>	volume
<b>WMD</b>	weapons of mass destruction

## SECTION II – TERMS

**\*chemical, biological, radiological, and nuclear active defense**

Chemical, biological, radiological, and nuclear active defense comprises measures taken to defeat an attack with chemical, biological, radiological, and nuclear weapons by employing actions to divert, neutralize, or destroy those weapons or their means of delivery while en route to their target.

**\*chemical, biological, radiological, and nuclear consequence management**

Chemical, biological, radiological, and nuclear consequence management consists of actions taken to plan, prepare, respond to, and recover from chemical, biological, radiological, and nuclear incidents that require force and resource allocation beyond passive defense capabilities.

**\*chemical, biological, radiological, and nuclear operations**

Chemical, biological, radiological, and nuclear operations include the employment of tactical capabilities that counter the entire range of chemical, biological, radiological, and nuclear threats and hazards through weapons of mass destruction proliferation prevention; weapons of mass destruction counterforce; chemical, biological, radiological, and nuclear defense; and chemical, biological, radiological, and nuclear consequence management activities. Chemical, biological, radiological, and nuclear operations support operational and strategic objectives to combat weapons of mass destruction and operate safely in a chemical, biological, radiological, and nuclear environment.

**\*chemical, biological, radiological, and nuclear responders**

Chemical, biological, radiological, and nuclear responders are Department of Defense military and civilian personnel who are trained to respond to chemical, biological, radiological, and nuclear incidents and certified to operate safely at the awareness, operations, technician, or installation level according to Section 120, Part 1910, Title 29, Code of Federal Regulations and National Fire Protection Association 472.

**\*chemical, biological, radiological, and nuclear threats**

Chemical, biological, radiological, and nuclear threats include the intentional employment of, or intent to employ, weapons or improvised devices to produce chemical, biological, radiological, and nuclear hazards.

**\*emergency management**

Emergency management, as a subset of incident management, concerns the coordination and integration of activities that are necessary to build, sustain, and improve the capability to prepare for, protect against, respond to, recover from, or mitigate threatened or actual natural disasters, acts of terrorism, or other manmade disasters.

**\*weapons of mass destruction counterforce**

Weapons of mass destruction counterforce is a tactical objective to defeat the full range of chemical, biological, radiological, and nuclear threats before they can be employed as weapons.

**\*weapons of mass destruction proliferation prevention**

Weapons of mass destruction proliferation prevention is the employment of tactical level capabilities to support operational and strategic nonproliferation objectives of combating weapons of mass destruction.

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- Treaty on the Non-Proliferation of Nuclear Weapons, <<http://www.state.gov/www/global/arms/treaties/npt1.html>>.
- U.S. Chemical Weapons Convention, <<http://www.cwc.gov/>>.
- U.S. Department of Homeland Security, <<http://www.dhs.gov>>.

## DOCUMENTS NEEDED

These documents must be available to the intended users of this publication. Unless otherwise indicated, DA Forms can be downloaded from the APD Homepage, <http://www.apd.army.mil/>.

DA Form 12-99-R. *Initial Distribution (ID) Requirements for Publications*.

DA Form 2028. *Recommended Changes to Publications and Blank Forms*.

## READINGS RECOMMENDED

These sources contain relevant supplemental information.

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