Joint Publication 3-11

Joint Doctrine for Operations in Nuclear, Biological, and Chemical (NBC) Environments

11 July 2000

PREFACE

1. Scope

This publication sets forth principles to assist commanders and staffs to plan for and conduct operations in which their forces may encounter the employment or threat of nuclear, biological, and chemical weapons and other toxic materials. These principles apply to joint, multinational, and interagency operations.

2. Purpose

This publication has been prepared under the direction of the Chairman of the Joint Chiefs of Staff. It sets forth doctrine to govern the joint activities and performance of the Armed Forces of the United States in joint operations and provides the doctrinal basis for US military involvement in multinational and interagency operations. It provides military guidance for the exercise of authority by combatant commanders and other joint force commanders and prescribes doctrine for joint operations and training. It provides military guidance for use by the Armed Forces in preparing their appropriate plans. It is not the intent of this publication to restrict the authority of the joint force commander (JFC) from organizing the force and executing the mission in a manner the JFC deems most appropriate to ensure unity of effort in the accomplishment of the overall mission.

3. Application

a. Doctrine and guidance established in this publication apply to the commanders of combatant commands, subunified commands, joint task forces, and subordinate components of these commands. These principles and guidance also may apply when significant forces of one Service are attached to forces of another Service or when significant forces of one Service support forces of another Service.

b. The guidance in this publication is authoritative; as such, this doctrine will be followed except when, in the judgment of the commander, exceptional circumstances dictate otherwise. If conflicts arise between the contents of this publication and the contents of Service publications, this publication will take precedence for the activities of joint forces unless the Chairman of the Joint Chiefs of Staff, normally in coordination with the other members of the Joint Chiefs of Staff, has provided more current and specific guidance. Commanders of forces operating as part of a multinational (alliance or coalition) military command should follow multinational doctrine and procedures ratified by the United States. For doctrine and procedures not ratified by the United States, commanders should evaluate and follow the multinational command's doctrine and procedures, where applicable.

For the Chairman of the Joint Chiefs of Staff:

C. W. FULFORD, JR.
Lieutenant General, US Marine Corps
Director, Joint Staff

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TABLE OF CONTENTS

PAGE

EXECUTIVE SUMMARY vii

CHAPTER I
THE STRATEGIC CONTEXT

- General I-1
- International Environment I-2
- NBC Weapons I-3
- Threat I-4
- Strategic Guidance I-7

CHAPTER II
PEACETIME PREPAREDNESS AND THE TRANSITION TO OPERATIONS

- General II-1
- Preparedness in the United States II-1
- Preparedness in Theater Operational Areas II-3
- Considerations for Supported and Supporting Combatant Command Strategic Planning II-5
- Considerations at the Outset of Operations II-6

CHAPTER III
SUSTAINED COMBAT OPERATIONS

- General III-1
- Principles of Operations in NBC Environments III-1
- Principles of NBC Defense III-6
- Relationship of NBC Defense to Other Offensive and Defensive Capabilities III-13
- Special Considerations for Sustained Combat III-15
- Logistics and Rear Area Operations III-23
- Responsibilities for Operations in NBC Environments III-34

CHAPTER IV
HEALTH SERVICE SUPPORT

- General IV-1
- Campaign Planning IV-1
- Health Service Support IV-2
- Preventive Medicine Principles IV-6
- Countermeasures and Response to NBC Medical Effects IV-7
- Patient Movement IV-8
- Casualty Decontamination and Triage IV-8
- Medical Treatment Facilities IV-9

CHAPTER V
SUPPORTING CONFLICT TERMINATION

- General V-1
- Transition to Conflict Termination V-1
- Post-Conflict Operations V-7

CHAPTER VI
MILITARY OPERATIONS OTHER THAN WAR

- General VI-1
- Overview VI-1
- Peacetime Preparations and Transition to Operations VI-3
- MOOTW Within the United States VI-7

APPENDIX

A Threat Considerations A-1
B Nuclear Hazard Considerations B-1
C Biological Hazard Considerations C-1
D Chemical Hazard Considerations D-1
E Treaty, Legal, and Policy Obligations E-1
F References F-1
G Administrative Instructions G-1

GLOSSARY

Part I Abbreviations and Acronyms GL-1
Part II Terms and Definitions GL-4

FIGURE

I-1 Nuclear, Biological, and Chemical Weapons I-3
I-2 Potential Adversaries Who Might Possess Nuclear, Biological, and Chemical Capabilities I-5
II-1 Considerations for Combatant Command Strategic Planning II-6
II-2 Military Goals at the Outset of Operations II-7
III-1 Protecting the Force from Nuclear, Biological, and Chemical Weapons III-4
III-2 Nuclear, Biological, and Chemical Defense Principles III-7
III-3 Notional Mission-Oriented Protective Posture Levels for Forces Ashore III-8
III-4 Nuclear, Biological, and Chemical Defense Command and Control Considerations III-12
III-5 Joint Force Planning Considerations for Operations in Nuclear, Biological, and Chemical Environments III-19
III-6 Joint Mission Essential Task List Development Process Example III-21
III-7 Nuclear, Biological, and Chemical Logistics Readiness Considerations III-25

IV-1 Preventive Measures in Health Service Support Planning IV-4
IV-2 Department of Defense Immunization Policy, Biological Threat Excerpt IV-7
V-1 Search/Recovery Task Force Sample Organization V-5
V-2 Contaminated Materiel Retrograde Goals V-8
V-3 Deliberate Contaminated Materiel Retrograde Concept V-11
VI-1 Types of Military Operations Other Than War VI-1
A-1 NBC Threat Assessment Framework A-1
A-2 Broad Objectives of Potential Adversaries for Acquisition and Employment of NBC Weapons A-2
A-3 Emerging Global Adversary NBC Employment Profile A-3
A-4 Regional Adversary NBC Employment Profile A-4
A-5 Non-state Adversary NBC Employment Profile A-5
B-1 Primary Products of a Nuclear Explosion B-1
B-2 The Primary and Secondary Products of a Nuclear Air Burst B-2
B-3 Nuclear Weapons Effects B-3
B-4 Radiation Exposure Status Categories B-4
B-5 Radiation Exposure States and Risk Criteria B-4
B-6 Low Level Radiation Guidance for Military Operations B-6
C-1 Potential Biological Agents and Effects C-2
C-2 Weather Effects on Biological Agent Dissemination C-3
D-1 Chemical Weapons Effects D-1
D-2 Threat Chemical Agents D-2
D-3 Weather Effects on Aerosol Chemical Agents D-2
D-4 Industrial Chemical Site Minimum Downwind Hazard Distances D-3
D-5 High Hazard Toxic Industrial Chemicals D-4

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EXECUTIVE SUMMARY
COMMANDER'S OVERVIEW

- **Describes the International Security Environment and the Threat Posed by Adversaries Armed with Nuclear, Biological, and Chemical (NBC) Weapons**
- **Provides Principles for Planning and Conducting Operations in NBC Environments Across the Range of Military Operations**
- **Describes the Role of NBC Defense and Other Offensive and Defensive Capabilities in Sustained Operations**
- **Provides Considerations for Sustaining Logistic and Health Service Support**
- **Addresses Requirements for Conflict Termination and Military Operations Other Than War**

The Armed Forces of the United States, in the United States or abroad, may be required to conduct operations in nuclear, biological, and chemical (NBC) environments. The principles set forth in this publication are designed to enable combatant commanders and subordinate joint force commanders (JFCs) to plan for, train their forces for, and execute their assigned missions in a tumultuous international security environment against a varied set of NBC-capable adversaries.

The International Security Environment

The crises and conflicts that characterize the international security environment pose complex simultaneous challenges to the interests and security of the United States.

The Armed Forces of the United States plan for and conduct operations to overcome complex simultaneous challenges across the range of military operations against adversaries who may be armed with NBC weapons. While any given threat and operation may be focused principally in a particular overseas region, **the adversary may have the motivation and means to extend the conflict to other regions including US territory**.

Threat

Adversaries may be particularly inclined to threaten or use nuclear, biological, and chemical (NBC) weapons in asymmetric operations to overcome the military strengths and assail the vulnerabilities of the United States and its multinational partners.

The worldwide availability of advanced military and commercial technologies (including dual-use) permit adversaries to develop and employ NBC weapons in their geographic regions and beyond. **Potential adversaries include emerging global powers, regional powers, and non-state groups.** Adversary concepts for NBC threats and actual use include selective use before, during, or after a crisis or conflict. NBC targets include not only military units and capabilities, but also US and other country government entities, civilian infrastructures, and populations.

Peacetime Preparedness and the Transition to Operations

Commanders are responsible for continuous assessments of threats to the United States and its interests by adversaries and opportunists who may possess NBC weapons.

Maintaining military preparedness in peacetime for potential operations in NBC environments demands **clear understanding of the threats and unity of effort in the United States and abroad**. Threat assessments include overseas areas of potential conflict as well as US territory, with particular attention to the civilian infrastructure, military forces, and facilities needed to support the range of military operations. Peacetime preparedness includes visibly and successfully exercised joint, multinational, and interagency plans that demonstrate the capability to operate and succeed in NBC environments. Combatant commanders and Services are also responsible for including NBC considerations in force development, training, and leader development activities.

Assuring Sustained Combat Operations

Successful combat operations in NBC environments require integrated planning and synchronized execution of all elements of military capability in conjunction with the specific NBC defense capabilities available to the command.

The commander's focus is mission accomplishment. Planning and execution also include those nonmilitary elements in the theater and in the United States that are essential for sustaining combat operations and achieving US objectives. Moreover, the military instrument of national power is applied in NBC environments as in other situations in conjunction with the diplomatic, economic, and informational instruments of power. **JFCs are responsible for assuring the integration of military operations with the other instruments of national power.**

In applying the principles of war and fundamentals of joint operations in NBC environments, **commanders include the unique NBC aspects of intelligence preparation of the battlespace; take action to reduce force vulnerability to**

NBC attack; and provide for protection of the force commensurate with mission accomplishment. These command responsibilities encompass assuring the effectiveness of the civilian workforce and infrastructures supporting military operations. This includes not only US personnel and assets, but also those of other multinational partners and the host nation that are essential for successful operations and achieving the desired end state in the theater. In the event of an NBC attack, commanders apply the principles of avoidance of NBC hazards — particularly contamination, protection of individuals and units from unavoidable NBC hazards, and decontamination — in order to restore operational capability. The purpose of applying these principles is to minimize vulnerabilities, protect friendly forces, and maintain the force's operational tempo in order to achieve campaign or operation objectives, while complicating adversary targeting. JFCs need to provide specific guidance to ensure the adequacy of NBC reconnaissance detection, and warning systems; and for enforcing mission-oriented protective postures that facilitate mission accomplishment while affording force protection to the maximum extent feasible.

Across the range of military operations, commanders train and plan for inclusion of the military elements of other countries and nonmilitary elements of the United States and other countries. While multinational and interagency operations are anticipated in most cases, the Armed Forces of the United States maintain the capability for unilateral joint military action, including operations in NBC environments.

Logistics

Operations in NBC environments can place significant burdens on the logistic system.

From the outset of concept of operations development, JFCs include logistics. **JFCs include NBC aspects of logistics in planning deployment; reception, staging, onward movement and integration; and support for sustained operations.** JFCs are responsible for ensuring that logistic units of component commands can survive and operate effectively in NBC environments.

Operations in contaminated environments demand close attention by commanders to the joint logistic principles of sustainability, survivability, flexibility, and responsiveness. The geographic combatant commander is responsible for ensuring the ability to maintain logistic support throughout the operation. Logistic planning and training include considerations for reducing vulnerabilities to NBC attacks and assuring logistic

support operations. These measures include protection and alternatives for ports of embarkation and debarkation, en route facilities, and facilities within and outside the theater.

Health Service Support

Operations in NBC environments place unique demands on military and civilian health service systems.

Planning for military operations at all levels inherently includes provisions for adequate health service support. **Commanders are responsible for maintenance of the health of their commands to assure mission accomplishment in the event of NBC attacks.** Planning and training include maintenance of the health of essential civilian workforce members supporting military operations, as well as integration of military capabilities with those of the local public health services, including those of the host nation for operations abroad.

Preparations for operations in potential NBC environments include pre-exposure immunizations, pretreatments, prophylaxis, and medical barrier materials applicable to the entire force, including multinational, interagency, and civilian participants. Post-exposure measures require advanced planning and include continuation of preventive measures for personnel not yet exposed, as well as decontamination, antidotes, and other medical treatments. In contaminated environments, commanders take action to ensure the integrity of their health service support capabilities, including provision of support for decontamination and security from nonmedical resources in order to preserve essential medical capabilities.

Conflict Termination

Combatant commanders include conflict termination considerations in plans for action across the range of military operations.

In operations in NBC environments, the JFC considers the residual NBC capabilities of the adversary, the potential need for a post-conflict inspection and arms control regime, and the decontamination and removal of materiel from the theater. Planning and training for conflict termination include the interaction with host nation and other groups that remain in the theater following military operations, and include international organizations and nongovernmental organizations. The JFC is responsible for planning for and executing liaison operations that ensure success of the military operations, provide support as appropriate for nonmilitary operations, and assure achievement of US post-conflict objectives and end states.

Military Operations Other Than War

All types of military operations other than war, those that involve use or threat of force as well as those that do not involve use or threat of force, may be conducted in NBC environments.

While the general principles of sustained operations apply, additional principles apply to operations other than war in NBC environments. **Domestic operations** routinely are the responsibility of nonmilitary agencies of government in which the commander provides military support to civil authorities under rules and terms of reference established by the National Command Authorities and Federal law. **Operations abroad** may also involve military support to US and other countries' civil authorities either controlled by the US ambassador and country team or provided directly by the JFC according to bilateral or multinational arrangements. In all circumstances, commanders participating in joint operations must reduce their forces' vulnerability to NBC attack and be prepared to mitigate and recover from the consequences of an NBC attack. In military operations other than war, the commander must be cognizant of the possibility that opportunists not party to the events precipitating the conflict may be motivated and able to employ NBC weapons for their own purposes.

CONCLUSION

JFCs at all levels are faced with the possibility that any operation may have to be conducted in an NBC environment. Therefore, NBC considerations are inherent in planning, developing concepts of operations, training, and maintaining peacetime readiness. Responsibility for operations in any theater involves peacetime preparations and transition to operations with forces from areas outside the theater, including other theaters and the United States, and inherently involves joint, multinational, and interagency dimensions. A force trained and ready to fight and win in NBC environments is an essential element in deterring potential adversaries and in assuring successful accomplishment of US objectives should deterrence fail.

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CHAPTER I
THE STRATEGIC CONTEXT

"But even as Third Wave armies hurry to develop damage-limiting precision weapons and casualty-limiting nonlethal weapons, poorer countries . . . are racing to build, buy, borrow, or burgle the most indiscriminate agents of mass lethality ever created, chemical and biological as well as atomic. Once more we are reminded that the rise of a new war-form in no way precludes the use of earlier war-forms — including their most virulent weapons."

Alvin and Heidi Toffler, *War and Anti-War: Survival at the Dawn of the 21st Century*, 1993

1. General

a. **The employment or threat of nuclear, biological, and chemical (NBC) weapons and other toxic materials pose unique challenges to US military operations worldwide.** The disruptive and destructive effects of these weapons and materials merit continuous consideration by the joint force commander (JFC) and supporting commanders.

b. This chapter outlines the strategic context for conducting operations in NBC environments. It explains the setting in which the United States may be required to employ military forces, describes the NBC and other toxic material threats, and summarizes applicable US national strategic guidance. Principles for US employment of nuclear weapons provided in the joint publication (JP) 3-12 series are not further elaborated in this publication. **The term "NBC environments" includes the deliberate or accidental employment or threat of NBC weapons and attacks with other chemical, biological, or radiological materials or toxic industrial materials (TIMs).**

See Appendix B, "Nuclear Hazard Considerations," Appendix C, "Biological Hazard Considerations," and Appendix D, "Chemical Hazard Considerations," for further information.

The gas attacks of World War I, for which forces on both sides were woefully unprepared, ushered in a new era in modern warfare.

2. International Environment

a. A variety of crisis and conflict situations may emerge in the international security environment to challenge US interests. These situations encompass disputes and hostilities between and among states, coalitions of states, and non-state groups (including regional, ethnic, religious, and criminal entities). These crises and conflicts may threaten regional stability, the territory and populations of the United States, its allies, multinational partners, and other friendly states, democratic processes, economic progress, and a range of other US interests. These challenges can occur simultaneously in a number of regions. Their implications can transcend state and regional boundaries. **Military involvement to advance and protect US interests in these situations may include war and military operations other than war (MOOTW) such as peace operations, foreign humanitarian assistance (FHA), and other military support to civil authorities (MSCA).** This environment presents numerous opportunities for US military operations to encounter antagonists possessing NBC weapons or other toxic materials.

b. The worldwide availability of advanced military and commercial technologies (including dual-use), and commonly available transportation and delivery means, may permit adversaries to develop and employ NBC weapons and other toxic materials within their geographic regions and beyond. Moreover, adversaries not party to an ongoing conflict may seize that opportunity to hold US interests at risk for their own purposes, perhaps at locations beyond their geographic regions, including the United States.

c. States may have incentives to acquire NBC weapons in spite of their adherence to international agreements and treaties forbidding such actions. Non-state groups may not consider themselves bound by such agreements and treaties. **States and non-state groups alike may have incentives to operate outside the norms of acceptable international behavior, especially when important interests are involved.** They may seek to overcome US and alliance or coalition strengths by focusing on vulnerabilities to the use of NBC weapons and other toxic materials.

The current proliferation of NBC weapons require US forces to be prepared to deal with any possible threats to military and civilian health and safety.

Appendix A, "Threat Considerations," provides information on categories of potential NBC-capable adversaries, their objectives, capabilities, and employment concepts.

d. These characteristics of the international security environment affect the manner in which the Armed Forces of the United States prepare for and conduct operations. **Commanders have the responsibility to consider the implications of a potential adversary's NBC capabilities not only in the adversary's geographic region, but also in other regions, including the United States.** This responsibility extends to the assessment of adversaries who are belligerents in a conflict as well as opportunists not directly engaged who may take advantage of a conflict to threaten US interests. Military planning to assure sustained operations in potential NBC environments includes joint, multinational, and interagency dimensions.

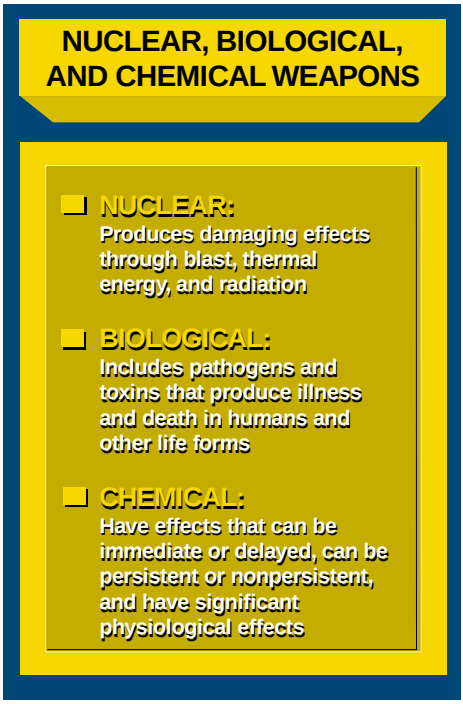

Figure I-1. Nuclear, Biological, and Chemical Weapons

3. NBC Weapons

a. **General.** The descriptions that follow identify significant characteristics and effects of NBC weapons (see Figure I-1) and other selected toxic material. Adversaries may employ NBC weapons and other toxic materials in a widespread manner to achieve extensive effects, or in a limited focused manner to achieve specific effects. **In addition to the physical effects and common to any adversary use or threat of these weapons is the psychological effect**, both in the immediate target area and in other vulnerable areas that may be potential future targets.

b. **Nuclear Weapons. The effects of nuclear weapons are qualitatively different from biological or chemical weapons.** A nuclear detonation produces its damaging effects through blast, thermal energy, and radiation. Radiation includes initial radiation that directly injures humans and other life forms, electromagnetic pulse (EMP) that directly damages a variety of electrical and electronic equipment (EMP may also be produced without a nuclear detonation), and residual radiation directly induced or spread by fallout that may remain at lethal levels for extended periods of time. **A number of potential state and non-state adversaries have or may acquire nuclear weapons.**

Appendix B, "Nuclear Hazard Considerations," provides additional information on nuclear weapons effects and operational considerations for other hazards such as dispersed toxic radioactive materials.

c. **Biological Weapons.** Biological agents include pathogens and toxins that produce illness and death in humans and other life forms. **Biological agents pose a threat due to four factors: small quantities of biological agents can produce lethal or incapacitating effects over an extensive area; they are relatively easily produced;**

they are easily concealed; and the variety of potential biological agents significantly complicates effective prophylaxis and defense. These factors, combined with small employment signatures, delayed onset of symptoms, and detection, identification, and verification difficulties can confer important advantages to adversaries who decide to use biological agents.

Appendix C, "Biological Hazard Considerations," provides additional information on the variety of potential agents and their effects.

d. **Chemical Weapons.** Chemical agents have been the most prevalent NBC agents possessed by potential adversaries, and have been used in regional and internal conflicts by a number of states. Chemical agents have effects that can be immediate or delayed, can be persistent or nonpersistent, and have significant physiological effects. **As in the case of biological agents, a number of toxic chemical agents (including industrial chemicals) are easily produced.** While relatively large quantities of an agent are required to maintain an area contaminated over time, small-scale selective use that exploits surprise can cause significant disruption and may have lethal effects.

Appendix D, "Chemical Hazard Considerations," describes general chemical agent characteristics and their effects and identifies other potential toxic chemical hazards.

e. **Delivery Means.** The means available to adversaries for delivery of NBC weapons range from specially designed, sophisticated weapon systems developed by state actors to relatively inefficient improvised devices employed by terrorists and other disaffected individuals and groups in the theater. State and non-state groups may have or be able to acquire military, civilian, and dual-use technologies and methods that provide adequate reliability for selective attacks against civilian and military targets.

- **For nuclear and radiological attacks**, employment means include aircraft, cruise and ballistic missiles, conventional artillery systems, and clandestine delivery by special operations forces (SOF) and terrorists. Adversaries may disperse toxic radioactive materials using conventional explosives or other devices. They also may be able to generate high-energy transmissions that produce EMP against specific targets.

- **For biological agents**, delivery is feasible with aircraft and missiles, and by aerosol generators employed by SOF and terrorists. SOF and terrorists can also use liquid cultures to contaminate food and water supplies.

- **For chemical agents**, employment options include delivery by mortars, artillery, rockets, mines, aircraft, aerosol generators, and missiles as well as by SOF or terrorists.

4. Threat

a. **General.** A number of potential adversaries have, or could rapidly acquire, biological and chemical weapons and other toxic materials and, in some cases, nuclear capabilities. They may also have or seek to acquire clandestine and long-range delivery systems that can reach beyond their geographic regions. **Potential adversaries who might possess NBC capabilities include emerging global adversaries, regional adversaries, and non-state adversaries** (see Figure I-2). States have territorial and population bases of power. While some non-state adversaries also have territorial and population bases of power, others rely on the shared interests and capabilities of members. Non-state adversaries include terrorist and criminal

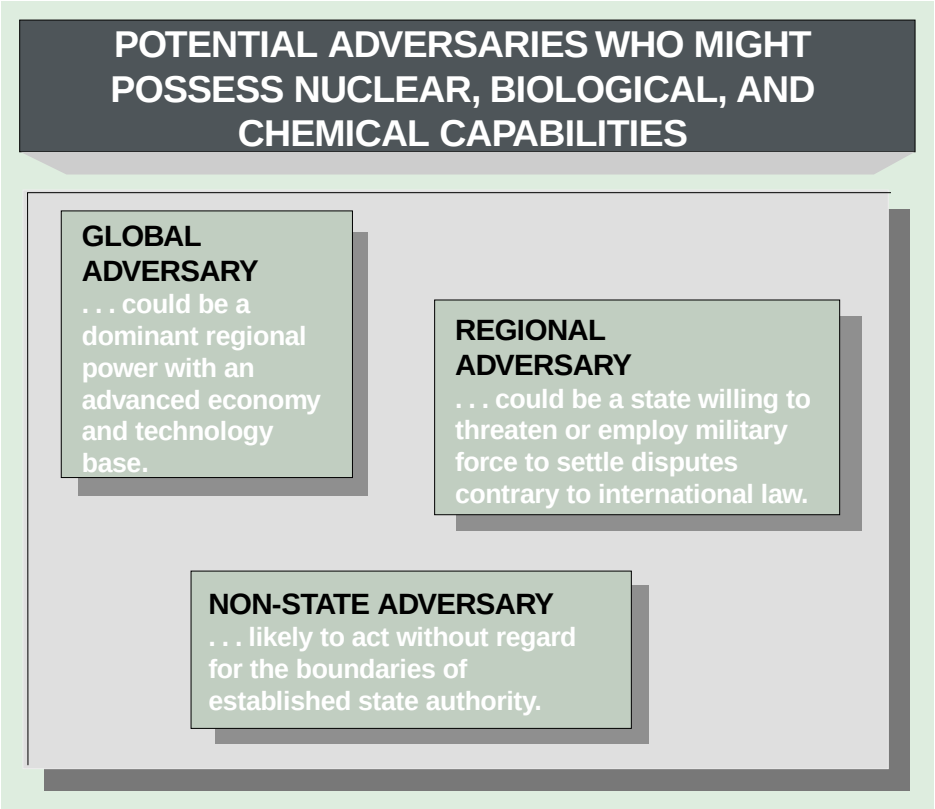

Figure I-2. Potential Adversaries Who Might Possess Nuclear, Biological, and Chemical Capabilities

organizations and individuals with the motivation and resources to hold US interests at risk.

b. **Global Adversaries.** A global adversary could be a dominant regional power with an advanced economy and technology base. Such a state would have programs underway to field a full range of military capabilities, potentially including NBC weapons and delivery vehicles with the capability to project power beyond its geographic region.

c. **Regional Adversaries.** A regional adversary could be a state willing to threaten or employ military force to settle disputes contrary to international law. Regional adversaries may develop or possess NBC weapons to gain international prestige, to use against or threaten neighbors to achieve domination, or to deter other regional or global adversaries. Such a state could have a robust economy and a range of force capabilities, including the means to project power beyond its state boundaries.

d. **Non-state Adversaries.** Non-state adversaries are likely to act without regard for the boundaries of established state authority. Such adversaries could possess or have access to a range of conventional and NBC weapons and other toxic materials, as well as the means to employ them worldwide by overt or clandestine means.

e. **Adversary Objectives for NBC Use**

- A **global adversary** could elect to employ NBC weapons in order to assure

its success or delay its defeat in a regional conflict. A **regional adversary** may threaten with or use NBC weapons for coercion or aggression against US allies or other friendly states. **Transnational and non-state groups** with NBC capabilities may pose similar threats abroad and to US territory.

- States with NBC capabilities may succumb to internal turmoil that creates the possibility for deliberate or accidental detonation of NBC weapons or contamination by NBC materials within their territory, or smuggling of these items to other states or non-state groups.

- Broad adversary objectives for acquisition and employment of NBC weapons may include the capabilities to:

  •• Defeat, influence, intimidate, and deter a regional rival;

  •• Deter US military intervention;

  •• Disrupt US and multinational forces and operations;

  •• Delay defeat by US and multinational forces;

  •• Defeat US and multinational forces in a region;

  •• Punish and inflict revenge on the United States and multinational partners for their policies and actions;

  •• Assure regime survival; and

  •• Inflict political, economic, or military defeat on the United States.

f. **Vulnerabilities. Adversaries may employ NBC weapons to exploit US and multinational vulnerabilities.** Civilian populations and physical infrastructures, and unwarned and unprotected military forces, are especially vulnerable to attack by NBC weapons. Joint and multinational operations in areas where indigenous friendly forces and populations have less protection than US forces present similar vulnerabilities. Adversaries may employ NBC weapons to exploit these vulnerabilities and to seek to overcome US and multinational advantages. In doing so, adversaries may believe they can dictate the terms of the conflict to the disadvantage of the United States.

g. **Adversary Motivation. In preparation for or early in a crisis**, an adversary may have incentives to employ or threaten to employ NBC weapons. Its objective could be to deter US military intervention by raising the perceived costs of action, weakening multinational cohesion, and demonstrating a willingness to escalate the conflict. An adversary could seek to degrade US and multinational forces in order to gain an advantage. Clandestine attacks could seek to cause terror among the populace, inflict unacceptable damage, alter the political objectives of the United States and its multinational partners, and take revenge for US and coalition actions. Adversaries with long-range delivery means could seek to deny the United States a geographic sanctuary, hold hostage civilian populations and infrastructures, and retaliate directly against the United States and multinational partners distant from the operational area. **In an ongoing conflict**, an adversary could employ NBC weapons to prevent, limit, or reverse US involvement as well as fracture multinational public support and unity. **Late in a conflict**, perhaps as a last resort, an adversary could employ NBC weapons in an attempt to delay defeat, avenge itself, or influence the terms of conflict termination.

h. **Adversary NBC Employment Concepts.** Adversary concepts for employment of NBC weapons may include **selective use against US and multinational**

vulnerabilities. An NBC attack in a crisis or during a conflict could seek to secure advantages that avoid or overcome the strengths of US and multinational forces. An adversary could employ NBC weapons to impose terms of combat that are not easily overcome by US and multinational forces, such as holding vulnerable high-value targets at risk.

- **An emerging global adversary** may acquire a sufficient NBC stockpile to establish credible deterrence against US intervention when no vital US interests are involved in a conflict. However, when faced with the certainty of US intervention, this adversary may act largely in the manner of a regional adversary and seek to avoid defeat and survive to engage in the future.

- **Regional adversaries**, including those aspiring to regional ascendancy, may select employment concepts that delay defeat and seek reduction or elimination of US influence and presence in the region. These concepts may include NBC weapons employment directly against US and multinational capabilities early in a crisis with the hope to influence a US decision to forego intervention, thus permitting the adversary to achieve early victory. Once US intervention is a reality, the regional adversary may seek to secure its continued existence through a stalemate rather than risk defeat.

- A number of **regional adversaries** operate routinely to violate the international norms of state conduct, often taking unpredictable, high-risk actions. Their employment concepts may include conventional and clandestine delivery of NBC weapons at the inception, during, or late in a conflict. These adversaries are likely to consider NBC use and escalation (including targets in the US territory) as a last resort to ensure regime survival when faced with overwhelming force or apparent defeat.

- **Non-state and terrorist adversaries** typically operate outside the boundaries of state authority and without concern for the international norms of state conduct. They may use NBC weapons for the purposes of disruption, destabilization, coercion, or revenge against the United States and its coalition partners. Non-state and terrorist adversaries' NBC employment concepts may be characterized by covert delivery so that the attack may not be attributed to them, and may emphasize surprise and shock effect.

5. Strategic Guidance

a. The US approach to military operations is shaped by a set of principles that are derived from national security and military strategies. These same principles guide military operations in NBC environments. They influence peacetime preparedness for operations, mobilization, deployment, employment, sustainment, conflict termination, redeployment, and post-conflict operations. These principles apply in war and MOOTW, including peace operations and FHA.

b. In shaping a peaceful international environment favorable to US interests, **US policies and strategies seek to prevent and limit the proliferation of NBC capabilities through international agreements and treaties, multilateral initiatives, and unilateral actions**. The Armed Forces of the United States support these policies and strategies within their respective roles and functions. The JFC conducts military support activities in accordance with the provisions of this publication whenever and wherever appropriate.

c. Wherever proliferation has occurred, **deterrence of an adversary's NBC**

weapons employment is a principal US national objective. To support deterrence, commanders must ensure that their forces and supporting facilities are visibly able to operate effectively in NBC environments. Should deterrence fail, US forces will need to survive, avoid or mitigate the effects of NBC employment, fight, and win in a contaminated battlespace. Key to operational success may be the joint task force's (JTF's) ability to eliminate or reduce the adversary's NBC capabilities with available and appropriate means, if necessary employing means against the adversary from locations outside the theater.

d. Commanders must be prepared to advance and defend US interests in the face of unpredictable and simultaneous events, crises, and conflicts that characterize the international security environment. These preparations include assessments of the feasibility and probability of US military involvement in crises and conflicts abroad, demands of peace operations and FHA, and other US military participation in MOOTW worldwide. Consideration of NBC risks is integral to these assessments, including NBC use in the adversary's geographic region and in the United States against both civilian targets, military forces, and facilities needed to support the contemplated military operations.

e. When developing theater strategies and plans to execute the national security and military strategies as well as the Joint Strategic Capabilities Plan (JSCP), **JFCs should include specific guidance to ensure that their forces are able to sustain military operations in NBC environments**. This includes actions required to assure successful transition from any existing state of preparedness and engagement to any operation directed by the National Command Authorities (NCA). Peacetime preparations include the joint, multinational, and interagency aspects of deliberate and crisis planning. All organizations of the Armed Forces of the United States subject to joint doctrine are responsible for ensuring that their forces and facilities are prepared to operate in NBC environments, and to provide needed support to JFCs in execution of national military strategy.

f. Supporting and ensuring the attainment of US strategic goals at the end of conflicts conducted in NBC environments call for specific measures that may involve international, multinational, joint, and interagency arrangements. The JFC will ensure that these measures are planned, rehearsed, and put into operation in advance of redeployment of US forces from the region. Planning for these measures is an inherent aspect of regional campaign planning. Abroad, the country team has lead responsibility for coordinating arrangements with host country organizations, supported by the JFC in view of the command's mission requirements.

g. **Preparations in peacetime, mobilization, and subsequent phases of operations in NBC environments include the joint, multinational, and interagency aspects of professional military education, training, and leader development.** These preparations are the purview of combatant commands, subunified commands, and JTFs (e.g., JTF-Civil Support (JTF-CS), which is responsible for consequence management (CM) operations in response to nuclear, radiological, chemical, or biological weapons of mass destruction (WMD) incidents occurring in the United States), and subordinate components of these commands. The Services and the US Special Operations Command (USSOCOM) also must comply with this strategic guidance in performing their duties to organize, train, equip, and sustain forces for joint operations in NBC environments.

CHAPTER II
PEACETIME PREPAREDNESS AND THE TRANSITION TO OPERATIONS

"War is a special activity, different and separate from any other pursued by man. An army's military qualities are based on the individual who is steeped in the spirit and essence of this activity; who trains the capacities it demands, rouses them, and makes them his own; who applies intelligence to every detail; who gains ease and confidence through practice, and who completely immerses his personality in the appointed task."

Major General Carl von Clausewitz, *On War*

1. General

a. Varied and unpredictable challenges to US interests in the international security environment place special requirements on the Armed Forces of the United States. Maintaining adequate preparedness in peacetime to facilitate rapid transition to operations, is a responsibility shared by Services, combatant commands, and subunified commands. **This chapter addresses requirements for force capabilities and unity of effort before and during the initial phases of operations that may be executed in NBC environments.**

b. Peacetime preparedness and planning for the transition to operations are based on national security, military strategies, and supporting plans. The Services and USSOCOM have the primary responsibility for organizing, training, and equipping forces for the full range of potential operations, as well as for professional military education and leader development programs, with emphasis on current threats and combatant command plans. Combatant commands have responsibilities for organization, joint training, and integration of force elements provided by the Services and USSOCOM, to meet peacetime, war, and MOOTW requirements. All elements in the Armed Forces of the United States are responsible for ensuring that their training for individuals and organizations meets the requirements of the combatant commands for operations in NBC environments.

c. **The fundamental elements needed for maintaining adequate preparedness are a clear understanding of the threats and operational requirements, both overseas and in the United States, as well as unity of effort.** The Services and USSOCOM train and prepare forces to meet these requirements for operations in NBC environments in the combatant commands' areas of responsibility (AORs). To support these requirements, commanders' mission analyses identify specific, mission-essential tasks for individuals and organizations that facilitate operations in NBC environments. The Armed Forces of the United States also are responsible for appropriate military support within the United States to counter adversary threats and employment of NBC weapons directly against the United States. Such domestic military activity is subject to constitutional, statutory, and policy restrictions.

2. Preparedness in the United States

a. The nature of the international security environment, and the worldwide NBC threat, have implications for peacetime preparedness in the United States. The peacetime programs

of the Services and USSOCOM are responsible for enabling an adequate and rapid transition of the Armed Forces of the United States, including the Reserve Components, to operations to meet the urgent needs of emerging crisis or conflict situations.

For unique MOOTW considerations, see Chapter VI, "Military Operations Other Than War."

b. Commanders of forces and facilities in the United States are responsible for assessments of vulnerabilities that may compromise peacetime preparedness given the NBC threat and the potential utility to state and non-state actors of NBC attacks against US civilian and military targets. **A number of state and non-state adversaries may choose early NBC employment against the US civilian population and infrastructures as well as military forces and facilities in the expectation of achieving an early, decisive advantage in pursuit of their objectives.** Therefore, peacetime preparedness and planning for transition to operations must take into account the vulnerabilities that, if exploited by adversaries, could impede execution of mission-essential tasks. Commanders' actions to reduce vulnerabilities take into account their assigned missions and supporting plans, as well as the Universal Joint Task List (UJTL).

c. Commanders must maintain current assessments of the NBC threat against the United States, integrating their efforts with other US Government (USG) agencies, including appropriate law enforcement and intelligence organizations. Of particular importance are facilities essential to training, staging, deploying, and sustaining forces for operations. These facilities include aerial and seaports of embarkation as well as essential USG and civilian transportation and related infrastructures.

d. Peacetime planning and supporting actions must include plans to minimize vulnerability to and mitigate the effects of NBC attacks in order to maintain required force preparedness. Combatant command and supporting planning routinely produce Joint Mission Essential Task Lists (JMETLs) that must include appropriate elements to facilitate operations in NBC environments. **Plans must be visibly and successfully exercised in order to provide maximum deterrent effect on potential adversaries.** Commanders are responsible for coordination with civilian authorities and agencies to prevent and, if necessary, mitigate and manage the consequences of deliberate or accidental NBC employment or similar toxic material events in the United States. Detailed interagency processes guide the Armed Forces of the United States in providing MSCA to cope with such events.

e. This JP addresses key requirements in CJCSI 3500.01A, *Joint Training Policy for the Armed Forces of the United States*. This JP supports the following key CJCSI 3500.04B, *Universal Joint Task List (UJTL)*, tasks: SN 3.4 *Protect Strategic Forces and Means*, 8.1.12 *Coordinate Counterproliferation Programs and Activities*, and 8.3.4 *Perform Consequence Management in the Interagency Arena*; ST 6.2.8 *Establish NBC Defense in Theater*, 8.4.4 *Counter Weapons and Technology Proliferation*, and 8.5.4 *Coordinate Theater Consequence Management*; OP 5.7.8 *Coordinate Consequence Management in the JOA*, and 6.2.8 *Establish NBC Protection in the JOA*; Joint Tactical 6.6 *Coordinate Chemical and Biological Defense*.

f. The key tasks to be undertaken in the United States in order to reduce the vulnerability of US forces to NBC attacks are enforcing operations security (OPSEC), maintaining emergency NBC response plans,

ensuring redundant force capabilities, maintaining effective NBC defense equipment, and visible joint and interagency planning, training, and related preparations. OPSEC should emphasize uncertainty to an adversary about the precise units and times associated with any particular US military response.

g. **Attacks at locations essential to deployment may delay operations.** Emergency response immediately after an NBC incident will determine the suitability of that location to continue deployment activities. Redundant capabilities should provide flexible options for shifting responsibilities for deployment to circumvent the effects of any particular NBC attack. Installations supporting deployment must have timely access to specialized equipment, personnel, and units needed to identify and provide early warning of an NBC attack. Joint and interagency plans, training, and exercises should visibly demonstrate the ability of the United States to maintain its essential deployment, sustainment, and employment capabilities while minimizing the effects of plausible NBC attacks. Key audiences for these exercises are potential adversaries as well as domestic and international citizenry and media.

3. Preparedness in Theater Operational Areas

a. Peacetime preparedness for operations in NBC environments includes measures taken by commanders in theater operational areas abroad. Force requirements (including readiness and force protection) in any particular combatant command area may require support not only from the United States but also from other overseas geographic combatant commands. As a result, **all commands must undertake vulnerability assessments and supporting actions similar to those described for US territory**, with appropriate emphasis on aerial and sea ports of embarkation and debarkation, vulnerable foreign civilian populations and infrastructures, nonmilitary and foreign military support personnel, and deployed US forces and facilities. All commands are responsible for cooperative actions in peacetime with governments, armed forces of allies, and potential multinational partners to facilitate sustainment of operations in NBC environments. Commands develop JMETLs

US forces must implement effective defenses and counters to adversary NBC attacks and other toxic material releases.

in order to support the military strategy for every theater. Essential in these JMETLs is the inclusion of key tasks for establishment of effective defenses and counters to adversary NBC attacks and other toxic material releases.

b. **US ambassadors and their country teams have primary responsibility for coordination with the host country government(s).** Commanders in theater operational areas must coordinate their actions with the country team to maintain peacetime preparedness and assure effective transition to operations. Geographic combatant commanders also have special responsibilities for US citizens and civilian assets in their AORs. These responsibilities may include noncombatant evacuation operations (NEOs) and other support to US citizens and interests as defined by current US policies. To assure adequate and timely intertheater transportation support, affected combatant commands and

A MISTY, DEADLY EMBRACE

Late in the afternoon on 22 April 1915, a setting sun cast long shadows over the battle-scarred terrain around the medieval Belgium city of Ypres. In the distance the faint sound of large-caliber guns could be heard. Birds fluttered and swooped, seeking places to roost on the practically treeless landscape. Suddenly, at 1724, three flares rose from an observation balloon over the German lines and burst against the darkening eastern sky. German artillery commenced a fierce bombardment that landed to the rear of the French and British lines in the Ypres sector. Then, at 1800, an eerie silence fell over the area.

Peering across the battlefield, men of two French divisions, the 87th Territorial and the 45th Algerian, saw blue-white wisps of haze rising from the German trenches. The haze swirled about, gathered in a cloud that slowly turned yellow-green, and began to drift across the terrain at a height of up to six feet. As the cloud drifted, it settled into every depression in the landscape. Finally, the gentle north-northeasterly wind brought it spilling into the French trenches, silently enveloping the occupants in a misty, deadly embrace.

To the north and southwest of the now mist-enshrouded French positions, British and Canadian troops looked into the haze and, to their amazement, saw soldiers, many without weapons, emerge from the cloud, "running wildly and in confusion" toward positions to the rear. Terror-stricken Algerians ran by the startled Dominion troops, coughing and clutching their throats. Moments later French soldiers staggered by, "blinded, coughing, chests heaving, faces an ugly purple color, lips speechless with agony." One by one, the guns of the French artillery batteries in the sector stopped firing, and the two French divisions collapsed. The Ypres front now had a gap over four miles wide containing hundreds of men in a "comatose or dying condition." After half an hour, German troops, equipped with cotton wadding tied over their faces – a primitive form of protective mask – cautiously advanced into the breech created by the discharge of chlorine gas.

SOURCE: Leavenworth Papers, No. 10, *Chemical Warfare in World War I: The American Experience, 1917-1918*, by MAJ (P) Charles E. Heller, USAR

Combat Studies Institute, U.S. Army Command and General Staff College, Fort Leavenworth, Kansas 66027-6900, September 1984

US country teams must continuously coordinate their planning with the US Transportation Command.

c. The effectiveness of deterrence abroad may depend on an adversary's appreciation of the ability of US combatant commands and country teams, in conjunction with indigenous military forces, to maintain force readiness while mitigating and managing the effects of NBC attacks.

4. Considerations for Supported and Supporting Combatant Command Strategic Planning

a. Supported and supporting combatant command strategic planning must take into account potential adversary NBC weapons employment concepts in developing theater campaign plans as well as in planning for plausible but unforeseeable crises (see Figure II-1). In particular, **campaign and supporting plans must include options for generating adequate and timely force capabilities (including force protection) in the event of early adversary NBC employment in the supported combatant command AOR or other supporting areas, including the United States**. Combatant commands must establish priority intelligence requirements, take pre-crisis actions to prevent adversary NBC weapons employment, plan counterforce and active defense operations to prevent or minimize NBC attacks, and plan actions to counter, mitigate and manage the effects of an NBC attack. In conjunction with host countries, particular emphasis should be placed on early warning and detection; actions to prepare US and indigenous military forces; and protection of threatened civilian populations, essential infrastructures, and facilities. Combatant commands should also develop and exercise plans to support host country actions to minimize and manage the effects of an NBC attack, especially where the effects may constrain US military freedom of action.

Potential adversaries may be deterred from NBC weaponry use by the visible peacetime demonstration of US preparedness.

b. **Plans and implementing actions to counter potential adversary NBC developments during peacetime and early in crises are crucial.** These plans and actions require aggressive and integrated joint, multinational, and interagency intelligence, surveillance, and reconnaissance (ISR) activities to identify adversary NBC employment concepts and doctrine, weapons developments, activities at suspected or known NBC storage and production sites, and deployments of operational NBC weapon systems.

CONSIDERATIONS FOR COMBATANT COMMAND STRATEGIC PLANNING

- Establish priority intelligence requirements
- Take pre-crisis actions to prevent adversary nuclear, biological, and chemical (NBC) weapons employment
- Plan counterforce and active defense operations to prevent or minimize NBC attacks
- Plan actions to counter, mitigate, and manage the effects of an NBC attack
- Emphasize early warning and detection
- Take actions to prepare US and indigenous military forces
- Protect threatened civilians, infrastructures, and facilities

Figure II-1. Considerations for Combatant Command Strategic Planning

5. Considerations at the Outset of Operations

In the United States and abroad, all elements and commands of the Armed Forces of the United States have basic goals at the outset of operations (see Figure II-2). **A key task is the establishment of protection against NBC attacks in the operational area and in other areas providing forces and sustaining capabilities.** The goals established to carry out military responsibilities in this phase of operations include prevention of adversarial use of NBC weapons either in the United States or abroad, rapid and uninterrupted force preparation and deployment, and comprehensive force protection. These goals should be reflected in joint operation planning, development of branches in campaign plans, redundant assignments of mission essential tasks to forces, and visible exercises that ensure peacetime preparedness and may thereby deter potential adversaries.

MILITARY GOALS AT THE OUTSET OF OPERATIONS

These goals should be reflected in joint operation planning, development of branches in campaign plans, redundant assignments of mission-essential tasks to forces, and visible exercises that assure peacetime preparedness and may thereby deter potential adversaries:

- ***Prevention of adversarial use of nuclear, biological, and chemical weapons either in the United States or abroad***
- ***Rapid and uninterrupted force preparation and deployment***
- ***Comprehensive force protection***

Figure II-2. Military Goals at the Outset of Operations

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CHAPTER III
SUSTAINED COMBAT OPERATIONS

"Immediately there ensued a terrific hissing noise as a huge release of gas commenced. The dense, grey cloud made an awe-inspiring sight as it rolled steadily forward, widening as it went. We watched it pour over our own Front Lines and continued across No-Man's Land. Such a threatening cloud as this we had never before witnessed. Over the enemy lines the gas belt spread wider and wider engulfing them from sight."

Corporal Martin Fox, as quoted by Martin Gilbert,
The First World War — A Complete History

1. General

This chapter provides guidance for the conduct of sustained joint and multinational combat operations when an adversary is capable of employing NBC weapons. It addresses the overall principles of operations in NBC environments, the specific principles of NBC defense, the relationship of NBC defense to other offensive and defensive capabilities and sustained combat, considerations for assuring logistic support, and the distribution of key responsibilities in a theater of war.

2. Principles of Operations in NBC Environments

a. **Applicability.** The Armed Forces of the United States must be prepared to conduct prompt, sustained, and decisive combat operations in NBC environments. **An adversary's NBC capabilities can have a profound impact on US and multinational objectives, campaign plans, and supporting actions, and therefore must be taken into account in JTF planning.** The principles that follow assist the JFC in planning campaigns and major operations, assuring effective execution, and providing essential support to civilian authorities charged with mitigating and managing the consequences of an adversary's use of NBC weapons.

b. **Deterrence.** A fundamental premise of US military preparedness is that adversaries are most likely to be deterred from provocative action when US forces are sufficiently and visibly organized, trained, and equipped to defeat that provocation. **Deterring adversary use of NBC weapons depends to a significant degree on effective preparations by the defender to deny the adversary any meaningful advantage from the employment of such weapons.** The JFC should be prepared to communicate and reinforce US deterrence policies established by the NCA. The JFC should also be prepared to recommend and implement flexible deterrent options (FDOs) in NBC environments consistent with the JSCP and other applicable plans. FDOs may be diplomatic, informational, military, or economic in nature. They may include exercises and demonstrations of NBC defense capabilities in order to convey US preparedness to counter adversary threats and mitigate the consequences of NBC attacks without significant degradation of operations. Credible plans, visibly effective capabilities, and a clearly communicated commitment to hold an adversary and its leadership at risk in response to NBC use are also important elements of deterrence. The adversary should perceive US capabilities and determination with certainty while remaining uncertain about the precise nature and timing of US actions.

c. **Assuring Sustained Combat Operations.** The classic principles of war and fundamentals of joint operations apply to situations in which adversaries possess NBC capabilities. In considering the challenges to sustained combat operations in such situations, **six areas merit special emphasis**: intelligence preparation of the battlespace (IPB), reducing vulnerability to adversary NBC use, preventing adversary employment of NBC capabilities, protecting the force, multinational operations, and synchronization of operations.

- **Intelligence Preparation of the Battlespace.** The continuous IPB process must account for confirmed as well as plausible but unconfirmed adversary capabilities, plans, and actions. An adversary's NBC capabilities may result from deliberate research and development that includes operational testing, theoretical research and development without operational testing, or acquisition of readily usable NBC capabilities from other countries or non-state adversaries. The JFC must take into account these potential adversary NBC capabilities in assessments, estimates, and plans. **The IPB process must address the capabilities and limitations of adversary NBC weapons and delivery systems; their command, control, and release procedures; and the indicators of intent to employ NBC weapons.**

- **Reducing Vulnerability to Adversary NBC Capabilities.** Vulnerabilities should be examined through continuous comprehensive risk assessments that encompass the full range of potential targets that may be subject to adversary NBC attack. Commanders have multiple means to contain, mitigate, and manage the consequences of identified risks and control hazards in order to preserve combat power and minimize casualties. Such means include **planning for branches and sequels in campaign plans, eliminating unique nodes, assuring that multiple units are prepared to assume vital missions, and training and exercising in order to facilitate shifting missions and responsibilities to counter unanticipated NBC attacks**.

  •• When US, host nation (HN), or other civilian populations and infrastructures are at risk to NBC attack, the JFC assists the appropriate military and civil authorities to protect against, mitigate, and manage the consequences of these risks. Of particular concern to the JFC in this regard are NBC risks to civilian areas that may affect execution of the military campaign.

  •• Risk assessment and vulnerability reduction must also address the dangers posed by toxic materials, including radiological contamination and other environmental contamination from industrial operations within the JFC's operational area. Particular care must be taken in identifying the nature of such hazards, because in many cases standard military NBC individual protective equipment (IPE) will not provide the necessary protection. **In some instances, avoiding the hazard may be the most effective or only course of action (COA).** In all circumstances, the JFC should act to minimize immediate and long-term effects of toxic hazards to health.

  See Chapter IV, "Health Service Support," for additional health service support information.

- **Preventing Adversary NBC Weapons Employment.** The JFC should not rely solely on efforts to reduce the force's vulnerability to NBC attacks. **JTF plans**

should include every effort to prevent the adversary from successfully delivering NBC weapons, using the full extent of actions allowed by the rules of engagement (ROE). These actions include interdiction, collateral damage planning and assessments, early and sustained operations to disrupt or destroy NBC capabilities, and establishment of multi-layered defenses against NBC weapons delivery.

- **Protecting the Force.** Fundamentally, protecting the force consists of **those actions taken to prevent or mitigate hostile actions against personnel, resources, facilities, and critical information**. These actions conserve the force's fighting potential so that it can be decisively applied. Offensive and defensive measures are coordinated and synchronized to enable the effective employment of the joint force while degrading opportunities for the adversary. In NBC environments, the JFC must take into account a number of unique considerations that have a significant effect on force protection. As depicted in Figure III-1, these include but are not limited to training and leader development, psychological operations (PSYOP), force health protection, protective equipment, and OPSEC.

•• **Training and Leader Development.** Rigorous and realistic individual and joint unit training across the force ensures readiness to fight and win should an adversary employ NBC weapons. Training and leader development are responsibilities shared by combatant commands, Services, and a number of Department of Defense (DOD) agencies. **Training, exercises, and professional military education and leader development programs should incorporate the principles for operations in NBC environments and include realistic consideration of NBC weapons effects on sustained combat operations.**

•• **PSYOP.** As a means to minimize the potential for and mitigate the effects of adversary NBC use, **PSYOP can decrease an adversary's perception of the utility of NBC weapons**, contribute to deterring their employment, and enhance efforts to reduce an adversary's domestic and international support.

The JFC should not rely solely on efforts to reduce the force's vulnerability to NBC attacks, but should plan to prevent the adversary from delivering NBC weapons.

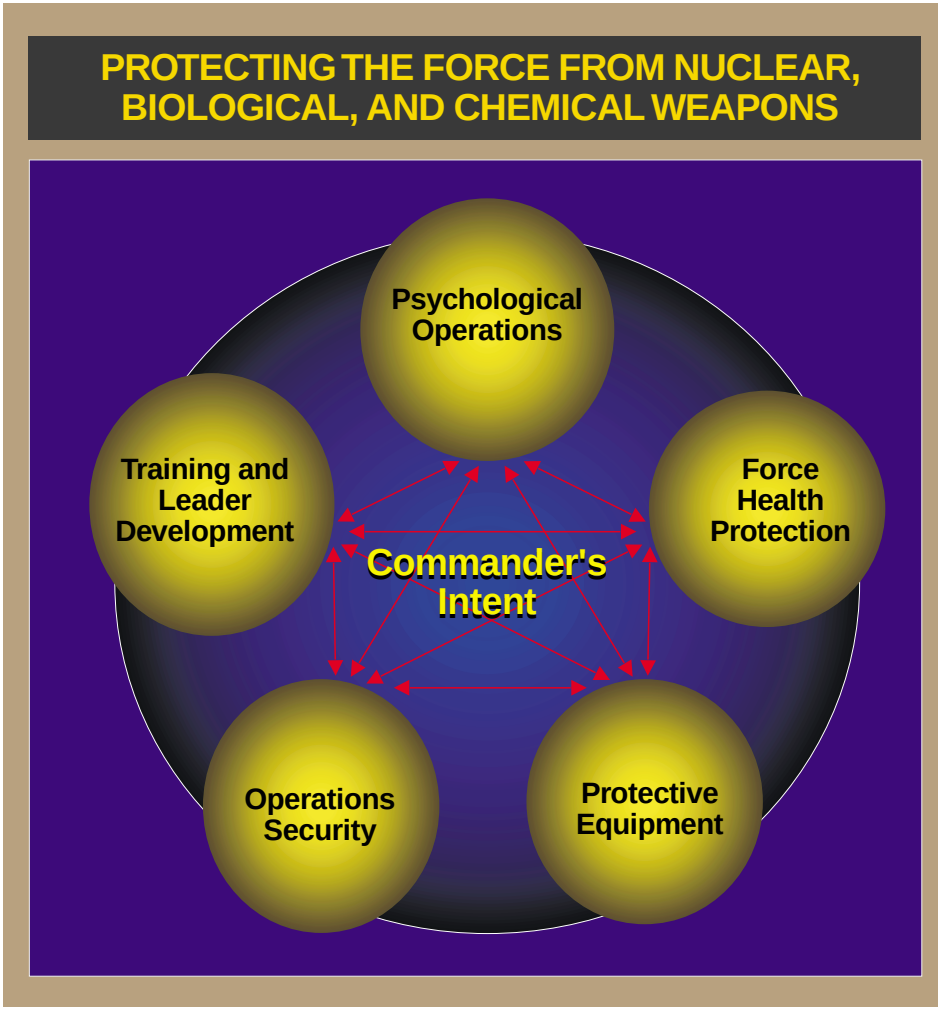

Figure III-1. Protecting the Force from Nuclear, Biological, and Chemical Weapons

•• **Force Health Protection.** Medical protection of the force against NBC threats involves integrated preventive, surveillance, and clinical programs. **The JFC's plans should include preventive medicine, joint medical surveillance, NBC casualty control, medical evacuation, and provision for readily available treatments and supplies to counter the physical effects of NBC exposure.** These plans should take into account the capabilities and requirements of host countries, multinational partners, and essential civilian workers supporting US and multinational forces.

•• **Protective Equipment.** Sufficient equipment must be available to protect not only the uniformed force but also the essential supporting US and civilian work forces. **Individual and unit training for proper sizing, use of, and care for this individual and crew-served equipment is required to take full advantage of its capabilities.**

•• **OPSEC.** In affecting an adversary's intelligence and situational awareness, information operations including OPSEC provide forces with a significant measure of protection by preventing an adversary

from acquiring information necessary to successfully target forces and facilities. **Deception, dispersion of forces, and effective use of terrain are examples of measures that complement OPSEC.**

- **Multinational Operations**

•• US military operations are routinely conducted with forces of other countries within the structure of an alliance or coalition. **An adversary may employ NBC weapons against non-US forces, especially those with little or no defense against these weapons, in an effort to weaken, divide, or destroy the multinational effort.** In planning and conducting combat operations, the JFC must consider the capabilities and limitations of all available forces to maximize their contributions and minimize their vulnerabilities. Peacetime activities with multinational partners, particularly multinational and interagency training and planning exercises, provide means of preparing for multinational combat operations in NBC environments.

•• Multinational operations in many cases will involve the use of HN bases, facilities, and personnel (including other countries' civilian workers supporting US and multinational forces). For some contingencies, HN considerations are the subject of significant peacetime planning in which operational, legal, contractual, and personnel issues are addressed. For other contingency situations, these issues must be addressed in an ad hoc fashion. Due to the complex and vital nature of coordinated action with HN authorities to defend against and mitigate the effects of NBC attacks, advance planning is a high JFC priority. **JFC coordination of HN support activities will involve a number of DOD components as well as the US country team.**

Other issues relating to HN support are addressed in Chapter IV, "Health Service Support," Chapter V, "Supporting Conflict Termination," and Chapter VI, "Military Operations Other Than War."

- **Synchronization of Operations.** The objective in synchronizing operations is

COALITION COORDINATION

The next USCENTCOM [US Central Command] responsibility was to coordinate NBC [nuclear, biological, and chemical] defense operations for all coalition forces. Within the first week after the NBCC [NBC center]'s establishment, Lieutenant Colonel Silvernail was tasked to assist the Saudi Arabian Ministry of Defense and Aviation to form a Saudi joint-level NBC staff. He and Captain Paul Schiele conducted a three-day refresher training class (the first of several) for the Saudi NBC School located at King Khalid Military City; it was attended by fifty Saudi, Syrian, Egyptian, and Kuwaiti officers. Saudi Army NBC defense stocks proved to be woefully low — not that there was any shortage of contractors offering to supply the desert nations. The US government was in no shape to assist the Saudi military logistically, barely having enough protective equipment for its own soldiers. The Saudi government did ask USCENTCOM's NBCC for support in evaluating the capabilities of the many commercial offers, relying on it to get the best value for the money.

SOURCE: *Chemical-Biological Defense: U.S. Military Policies and Decisions in the Gulf War* (Westport, CT: Praeger Publishers, 1998), p. 23.

to maximize the combined effects of all friendly forces while degrading adversary capabilities. **Synchronization entails the interrelated and time-phased execution of all aspects of combat operations**, and is enhanced by superior situational awareness and agility in adjusting ongoing operations to reduce force vulnerability and maximize combat power. In NBC environments, successful synchronization requires proper integration of and sequencing among ISR capabilities; passive defense measures; active defense operations; counterforce operations; and sustainment. The JFC's campaign plan, command and control (C2) arrangements, and tactics, techniques, and procedures (TTP) should facilitate synchronization across all force functions and components.

d. **Public Diplomacy and Information.** JFC planning should consider public diplomacy and information requirements when confronting the threat or use of NBC weapons. **Public interest in NBC-related developments may be intense and may have an effect on NCA and multinational authorities' decision making.** Therefore, the JFC must be a source of timely, accurate information, with particular emphasis on the explanation of actions taken in response to NBC threats or use. Establishing productive relationships with media organizations is an inherent element of JFC planning.

3. Principles of NBC Defense

a. **General**

- The capability to defend against NBC attacks and sustain combat operations in NBC environments requires forewarning and properly trained and equipped forces throughout the theater. US forces must be prepared to conduct and sustain operations in NBC environments with minimal degradation. NBC defense is based on the general principles noted above for operations in NBC environments and **three additional principles** that specifically address the hazards created by NBC weapons: **avoidance** of NBC hazards, particularly contamination; **protection** of individuals and units from unavoidable NBC hazards; and **decontamination** in order to restore operational capability. Application of these principles (see Figure III-2), help to minimize vulnerabilities, protect friendly forces, and maintain the force's operational tempo in order to achieve campaign objectives while complicating adversary targeting.

- Sustaining combat operations in NBC environments presents major challenges to air, land, maritime, space, and special operations forces. Logistic operations and facilities are at particular risk to NBC attack to the degree that they rely on fixed sites (e.g., ports and airfields) or must remain in particular locations for extended periods of time. **The need to operate in NBC environments is likely to add to the physical and psychological demands of military operations**, with potentially significant effects on the performance of individuals and units. Force-specific and logistic considerations are described later in this chapter.

Chapter IV, "Health Service Support," describes the requirements for health service support.

b. **Contamination Avoidance.** Successful contamination avoidance prevents disruption to operations and organizations by eliminating unnecessary time in cumbersome protective postures and minimizing decontamination requirements. **Avoiding contamination requires the ability to recognize the presence or absence of NBC hazards in the**

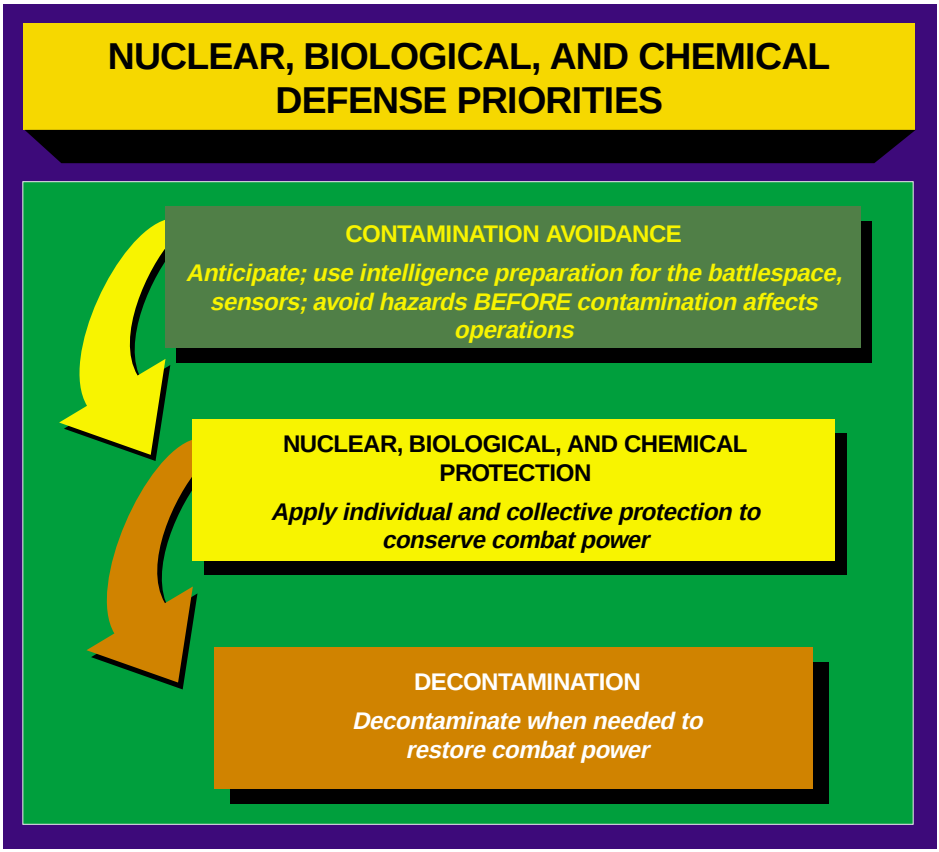

Figure III-2. Nuclear, Biological, and Chemical Defense Principles

air, on water, land, personnel, equipment, and facilities, at both short and long range. Surveillance and detection capabilities enable forces to recognize the invisible NBC hazards. The fusion of these capabilities with information from other sources yields an overall surveillance picture supporting decisions for specific avoidance, protection, and decontamination actions. These surveillance and detection results also establish requirements for other avoidance measures such as sounding alarms, marking hazards, and warning forces. To support JFC decisions on contamination avoidance, specific TTP guide essential implementation measures designed to avoid or limit exposure, such as increased use of shelters during NBC employment windows, and providing key information for movement before, during, and after NBC attacks. In planning for contamination avoidance, the JFC must include an assessment of the capabilities of available detection systems. Particular challenges include unanticipated use of biological agents and the capabilities and limitations of current remote and standoff detection systems.

c. **NBC Protection.** NBC protection requires the planning, preparation, training, and execution of physical defenses to negate the effects of NBC weapons and hazards on personnel and materiel. As staffs analyze their mission requirements and conditions, the planning process will yield specific actions required before, during, and after NBC attacks. As commanders anticipate and identify NBC risks, these actions should be clearly communicated and rehearsed from command to individual levels. **NBC**

protection conserves the force by providing individual and collective protection postures and capabilities.

- **Individual Protection**

  •• **Commanders adopt a mission-oriented protective posture (MOPP) to establish flexible force readiness levels for individual NBC protection.** MOPP analysis (the process of determining a recommended MOPP) integrates NBC protection requirements — derived from NBC threat assessments — with mission requirements in light of the performance degradation caused by wearing protective equipment. MOPP analysis relies on accurate IPB and NBC hazard prediction as well as a clear understanding of the force's ability to quickly increase its NBC protection. To facilitate adapting to varying mission demands across a combatant command's AOR, MOPP decisions should be delegated to the lowest level possible and retained at higher levels only in exceptional cases. **The JFC has overall responsibility for providing guidance for levels of protection and ensuring timely warning of NBC risks.** Figure III-3 depicts notional MOPP levels. Force components may require variational configurations, such as "mask only" for identified situations, but should standardize configurations where possible. Service TTP address specific techniques and procedures for MOPP analysis and donning protective equipment (e.g., masking, unmasking).

  •• Ordinary clothing can provide some protection against the thermal effects of a nuclear detonation. More sophisticated protection is required against biological

NOTIONAL MISSION-ORIENTED PROTECTIVE POSTURE LEVELS FOR FORCES ASHORE

ITEM	LEVEL 0	LEVEL 1	LEVEL 2	LEVEL 3	LEVEL 4
Over-garment	Readily Available	Worn	Worn	Worn	Worn
Overboots	Readily	Carried	Worn	Worn	Worn
Mask & Hood	Carried	Carried	Carried	Worn	Worn
Gloves	Readily Available	Carried	Carried	Carried	Worn

These notional mission-oriented protective posture (MOPP) levels apply to personnel on land. Personnel operating in the air and at sea adopt MOPP levels tailored to their environments as determined by their component or subordinate commanders.

Figure III-3. Notional Mission-Oriented Protective Posture Levels for Forces Ashore

and chemical agents. These measures include medical prophylaxis, pretreatments, protective masks and clothing, antidotes, immunizations, and other medical treatments. Wearing a correctly sized and maintained protective mask provides the best protection to the respiratory tract against a biological aerosol attack. Protective mask filters are designed to remove aerosol particles and vapors of chemical and biological agents. NBC overgarments provide protection from a wide range of chemical and biological agents. Likewise, individual equipment and supplies gain some protection from covers. These covers may be as simple as plastic sheathing, which provides limited protection against large-scale use of liquid agents, or NBC protective covers which provide improved protection.

- **Collective Protection. Sustaining operations in NBC environments may require collective protection equipment, which provides a toxic free area (TFA) for conducting operations** and performing life support functions such as rest, relief, and medical treatment. Contamination transfer into the TFA compromises the health and safety of all occupants and jeopardizes their ability to support the mission. Therefore, training must include procedures for TFA entry and exit. When collective protection is not available, plans must be developed, exercised, and evaluated to move personnel to alternative TFAs that are well away from the contaminated areas. If evacuation is not possible, building occupants may be able to gain limited protection by closing all windows and doors, turning off ventilation systems, and moving to closed, inner rooms. If there is some advance warning, occupants may be able to increase protection by sealing windows, doors, and openings, while recognizing that the building or space may quickly become uninhabitable without cooling or ventilation.

d. **Decontamination.** Decontamination supports the post-attack restoration of forces and operations to a near-normal capability. **Decontamination is intended to minimize the time required to return personnel and mission-essential equipment to a mission-capable state.** Because decontamination may be labor intensive and assets are limited, commanders must prioritize requirements

The goal of immediate decontamination is to minimize casualties, save lives, and help to limit contamination exposure and spread.

and decontaminate only what is necessary. Commanders may choose to defer decontamination of some items and, depending on agent type and weather conditions, opt to either defer use of equipment or allow natural weathering effects (temperature, wind, and sunlight) to reduce hazards. **Decontamination is organized into three categories** that reflect operational urgency: **immediate**, **operational**, and **thorough**. Decontamination also entails special considerations for patients, sensitive equipment, aircraft, fixed sites, and the retrograde of equipment. The extent and time required for decontamination depends on the situation, mission, degree of contamination, and decontamination assets available. Service publications provide detailed TTP for the technical aspects of decontamination.

- **Immediate Decontamination.** The goal of immediate decontamination is to minimize casualties, save lives, and help to limit contamination exposure and spread. Upon becoming contaminated, an individual carries out immediate decontamination, which includes three tasks: skin decontamination, personal wipedown (hood, mask, gloves, and individual equipment), and operator spraydown of frequently touched equipment surfaces using on-site decontamination equipment.

- **Operational Decontamination.** Operational decontamination limits contamination exposure and spread, and helps to sustain operations by providing temporary and, in some cases, long-term relief from wearing protective equipment. Operational decontamination includes two techniques: MOPP gear exchange for personnel, and operator washdown for mission-essential equipment.

- **Thorough Decontamination.** Thorough decontamination reduces or eliminates the need for wearing of protective equipment. Thorough decontamination is supported by specialized decontamination units and personnel. There are three thorough decontamination techniques: detailed personnel decontamination, detailed equipment decontamination, and detailed aircraft decontamination. Thorough decontamination is required for total

Thorough decontamination is supported by specialized decontamination units and personnel.

reconstitution and return to unrestricted use of personnel and materiel.

- **Additional Decontamination Considerations.** There are situations that require unique application of decontamination principles, procedures, and methods.

  •• **Patient decontamination** reduces the threat of contamination-related injury to health service support (HSS) personnel and patients. Patient decontamination will have to be accomplished as the operation and patient load allows. The JFC or subordinate commanders may provide support personnel to assist in patient decontamination at medical facilities.

  •• **Sensitive equipment decontamination** considers the delicate nature of certain types of equipment (e.g., avionics and/or electrical, electronic, and environmental systems); vehicle interiors; associated cargo; and some weapon systems.

  •• **Aircraft pose unique decontamination challenges.** JFC plans

COMMANDER CONCERNS

Lieutenant Colonel Kenneth Silvernail and Major Patrick Fogelson arrived in Dhahran as the USCENTCOM [US Central Command] NBC [nuclear, biological and chemical] Defense Division of J-3 (Operations) on August 9, with the USCENTCOM advance party. Silvernail, designated as the Theater Chemical Staff Officer, would receive seven more Army chemical officers by mid-September to form the USCENTCOM NBC Center (NBCC). On 23 August, Captain Paul Schiele and three chemical officers from CRDEC joined the forward-deployed Chemical Division. Between late August and mid-September, three [continental United States]-based chemical officers arrived to compose the USCENTCOM Chemical Division (Rear). His initial priorities were to develop the chemical unit infrastructure and coordinate the entire coalition's [chemical-biological] defense logistics. USCENTCOM would recommend that all soldiers deploy with three unopened sets of protective clothing, a protective mask, three Nerve Agent Antidote Kits and M258A1 skin decon kits, and a set of replacement mask filters. Army units would discover this goal could not be realistically met, nearly all units lacking adequate quantities of protective clothing and masks. The Marines, upon inspecting their pre-positioned stocks, found their protective suits damaged by heat and petroleum, their protective masks dry-rotted, and mask filters aged past their shelf life. All the Marine Corps's M8A1 alarms were in an Albany depot supposedly because they had not instituted a radioactive control program (required for the americium isotope inside the detector). The Air Force and Navy were having similar difficulties, finding severe shortages in both protective suits and decontamination supplies. Lieutenant Colonel Silvernail began immediate discussions with the Joint Chiefs of Staff and the Army Office of the Deputy Chief of Staff for Operations and Plans over options to increase or accelerate the delivery of any recently fielded or about to be fielded chemical defense equipment to include the M1 CAM, the XM21 RSCAAL, and the XM93 NBCRS. The top priority was increasing the quantities of protective masks, protective clothing, and medical antidotes.

SOURCE: ***Chemical-Biological Defense: U.S. Military Policies and Decisions in the Gulf War*** **(Westport, CT: Praeger Publishers, 1998), p. 23.**

must take into account these challenges in considering employment of aircraft into, within, and from contaminated areas.

•• **Fixed site decontamination** techniques focus on fixed facilities and mission support areas, such as command, control, communications, computers, and intelligence (C4I) facilities, supply depots, aerial and sea ports, medical facilities, and maintenance sites. Paragraph 6c of this chapter addresses in greater detail decontamination considerations for critical fixed sites supporting logistic operations.

•• Retrograde cargo may require extensive decontamination measures; specialized, highly sensitive monitoring equipment; extended weathering; or destruction. Retrograde of previously contaminated equipment may be delayed until after conflict termination.

e. **NBC Defense Command and Control Considerations.** Effective C2 is essential to fully utilizing available NBC defense assets (see Figure III-4). In particular, the unique aspects of communications, intelligence operations, and decision making in NBC environments present challenges to commanders and staffs. **Developing sound NBC defense COAs will require timely exploitation of all ISR data sources.** Such COAs often must be developed and executed rapidly. Sensors, detection systems, and warning and reporting networks that provide

NUCLEAR, BIOLOGICAL, AND CHEMICAL DEFENSE COMMAND AND CONTROL CONSIDERATIONS

To ensure unity of effort focused on the joint force commander's intent, staffs must:

- **Translate all-source information into an understanding of the nuclear, biological, and chemical (NBC) threat and the operational environment for NBC defense actions**
- **Conduct timely vulnerability assessments**
- **Recommend specific courses of action for reducing vulnerabilities and countering specific threats**
- **Integrate warning and reporting on potential and actual NBC attacks into joint force commander command, control, communications, computers, and intelligence systems to facilitate risk assessments and actions to minimize the short-and long-term health effects of toxic exposures to the deployed force**

Figure III-4. Nuclear, Biological, and Chemical Defense Command and Control Considerations

accurate, real time information for JFC decision making must be fully integrated into the overall C2 systems to make the best use of available decision time.

f. **Other NBC Defense Considerations. NBC defense principles should be coupled with aggressive programs of intelligence, PSYOP, OPSEC, deception, and obscuration.** All-source intelligence assets gather information on the battlespace and enemy capabilities and intentions. PSYOP support deterrence measures and, in the event deterrence fails, enhance response capabilities as a force multiplier. Deception at the theater level supports the campaign plan and its large-scale operations. Obscuration increases the survivability of operations, including those at ports and airfields.

4. Relationship of NBC Defense to Other Offensive and Defensive Capabilities

While a necessary part of the solution to the NBC threat, passive NBC defense is insufficient in and of itself. In addition to passive defense measures, **neutralizing the threat will require the effective application of other military capabilities, in particular active defense measures and counterforce operations**. While each of these capabilities has unique aspects and associated command and control requirements, they are most effective when applied in a synchronized combination, in response to specific adversary NBC concepts of operations. The following considerations are intended to guide the JFC's assessment of how best to synchronize the combined capabilities represented by available passive defense, active defense, and counterforce assets in an integrated concept of operations.

a. **General Considerations**

- **An adversary capable of sustaining a prolonged period of attack with NBC weapons poses an especially serious threat to operations.** Extended periods in a protective posture and exposure to toxic hazards will degrade the operational tempo of US and multinational forces and complicate the performance of key missions and tasks. The cumulative effect of prolonged enemy NBC attack may be an increasingly contaminated environment in which passive defenses are likely to experience reduced capabilities.

- **Adversary ballistic missile capabilities pose a particularly dangerous threat in this regard**, and have the potential to be highly effective against US and multinational fixed sites, especially in a developing theater or early in a conflict. Both active defense and counterforce operations will be required to contain missile threats and thereby enhance the effectiveness of in-place passive defenses.

- **Active defenses** play an important role in a coordinated operational concept to counter NBC threats by reducing the number of missiles and aircraft arriving at key defended sites, thereby limiting the extent and intensity of the resulting contamination and compelling the adversary to consider expenditure of additional high value systems in re-attack operations. If active defense systems sufficiently reduce the scope of initial strikes, it may be possible to rely on contamination avoidance at key sites. Further, mitigation and recovery operations will be easier to accomplish.

- In countering missile and air threats, **counterforce operations** — particularly in combination with active defenses — have the potential to complicate an adversary's planning. Counterforce operations should seek to divert, deny, degrade, or destroy the adversary's

ability to execute the types of attacks (including NBC attacks) that most seriously threaten theater defenses; particularly large, tightly coordinated aircraft and missile raids that can saturate and overwhelm active defense systems. Counterforce operations also help to constrain the adversary's re-attack capability by targeting adversary NBC systems as well as production, transport, and storage facilities. Measures of effectiveness for counterforce planning should emphasize minimizing any collateral damage while causing meaningful degradation of the adversary's missile and air attack capabilities to the point where in-place active and passive defenses can effectively neutralize those attacks that are launched. This will not require complete elimination of enemy missile capabilities.

- In the design of campaign and operation plans for operations in NBC environments, the JFC should include integrated operational concepts that achieve the maximum synergy from the complementary contributions of all force elements. These operational concepts should reflect AOR-specific NBC threats and the general principles of operations in NBC environments.

b. **Planning Considerations**

- **Threat and Capability Assessments**

•• Understanding the complementary roles of passive defense, active defense, and counterforce operations requires a rigorous assessment of how the NBC threat is likely to present itself. **Joint force intelligence staffs, in addition to assessing the full range of adversary NBC capabilities, should also assess concepts of operations for delivery of NBC weapons.** In light of the considerations discussed above, attention should be given to identifying missile, clandestine, and covert delivery operational concepts that would stress in-place US defenses — especially prior to a major US force build-up.

•• Development of integrated operational concepts to counter the NBC threat must be based on realistic assessments of available passive defense, active defense, and counterforce capabilities. Even with effective counterforce and active defense capabilities, some attacks will succeed, forcing reliance on passive defenses in order to survive and operate. If there are more serious shortfalls in counterforce and active defense assets, the burden on passive defenses will be correspondingly greater.

- **Considerations for Immature Theaters**

•• **In the transition to war or early stages of hostilities, the NCA may place a high priority on neutralizing enemy NBC capabilities** in order to counter the operational threat to US and multinational forces and civilians, limit the coercive potential of NBC attacks, and generally reassure multinational partners, particularly in the theater. In an immature theater characterized by only a limited US force presence prior to a major force build up, achieving this objective may present challenges. In-place active defenses may be limited, and the conditions to support counterforce operations from within the theater may not have been achieved.

•• In these circumstances, the JFC will need to consider how best to allocate scarce resources to counter the NBC threat, and how best to rapidly augment forces in theater. Reliance on forces capable of operations from outside the

theater may be required until the proper mix of forces is available where needed. For instance, counterforce operations may be conducted using cruise missiles, long-range strike aircraft, low-visibility aircraft, and SOF.

•• Allocation of forces is not static. As the theater matures, continuous reassessment of the allocation of forces and the priorities attached to passive defense, active defense, and counterforce operations will be required. Reallocation of forces and priorities will be affected by changes in the nature and scope of the NBC threat, build-up of forces in the theater, transition from build-up activities to sustained operations, and US and multinational operational tempo.

- **Coordination.** Maximizing available passive defense, active defense, and counterforce capabilities through an integrated operational concept will require careful coordination among joint force intelligence, planning, and operational elements. Organizations with a responsibility for active defense and counterforce planning must have an understanding of theater passive defense capabilities, current threat assessments, and the results of relevant analytic work. Pre-conflict wargames and training (including joint and multinational field exercises) should endeavor to advance the development of integrated operational concepts that exploit offensive and defensive force linkages. Critical to this effort are C2 concepts that link active defense warning and detection elements to counterforce and NBC defense mission planning elements.

5. Special Considerations for Sustained Combat

As the theater campaign transitions from initial combat to sustained operations, **the JFC focuses on operations in depth to ensure successful accomplishment of campaign objectives**. Adversary use of NBC weapons can have a significant impact on the outcome of the theater campaign and attainment of US and multinational objectives. Given this potential impact, joint force plans should consider the following factors in order to assure sustained combat operations in NBC environments.

> *"[joint force commanders] seek to extend operations throughout the breadth and depth of the operational area. JFCs conduct sustained operations when a 'coup de main' is not possible."*
>
> **JP 3-0, *Doctrine for Joint Operations***

a. **NBC Weapons Effects on Joint Forces**

- Operational tempo, logistic operations, the HSS system, and reconstitution efforts may be profoundly affected by the introduction of NBC weapons by an adversary. However, components of US and multinational forces may experience the effects of NBC use differently. NBC weapons present separate and distinct threats to personnel, units, equipment, and operations. **Planning should address the unique characteristics of each threat.** The ability to assess the varying impact of NBC attacks on the force will be important to deciding priorities for NBC protection and efficiently allocating resources.

Chapter I, "The Strategic Context," Appendix B, "Nuclear Hazard Considerations," Appendix C, "Biological Hazard Considerations," Appendix D, "Chemical Hazard Considerations," and Service publications provide information on NBC threats and agents.

- Generally, **operations will slow as tasks, both simple and complex, are performed by personnel encumbered by protective equipment or exposed to NBC effects**. Contamination hazards may require abandonment or limited use of facilities, transfer of forces to uncontaminated facilities, and avoidance of planned terrain and routes. In all cases, time penalties will be incurred. Additionally, adversary NBC use could severely hamper the component commanders' capabilities for force generation and sustainment if there is major disruption of normal personnel and materiel replacement processes in the theater. Force reconstitution requirements may also dramatically increase. Even when sufficient protection has been afforded to individuals and units, the increased number of casualties may severely tax reorganization and reconstitution systems as well as the deployed medical treatment capabilities.

  Some of the sustainment considerations that should be reviewed by the JFC are outlined in paragraph 6 of this chapter, "Logistics and Rear Area Operations."

- **The use of protective equipment degrades individuals' and units' ability to perform assigned tasks and missions.** The use of IPE can adversely impact unit capabilities, and commanders must conduct assessments and ensure the conduct of actions that mitigate the impact of any performance degradation. Degradation could take the form of increased movement times for tactical operations and logistics, degraded communications requiring increased numbers of electronic transmissions, longer response times on requests for fire support, and degraded C2. The impact of the use of protective equipment, such as reduced sensory awareness and work rates as well as increased fatigue and water requirements, requires that individuals and units conduct realistic mission-oriented training while using their IPE.

- All units can expect deficits in performance because of the impact of protective clothing and equipment. Commanders at every level can prepare their units by engaging in realistic training at a variety of MOPP levels to

All units can expect deficits in performance because of the impact of protective clothing and equipment and must train accordingly.

build confidence and cohesion. Training with protective clothing and equipment should take special account of those tasks particularly affected (e.g., those that require clear vision; precise hearing; fine motor skills; social and emotional support; or communication by facial expression, gestures, and inflections in voice). Individuals and organizations that train often and realistically under restrictive MOPP levels will be better prepared for the constraints imposed by protective clothing and equipment on communication, vision, and movement.

- The Armed Forces of the United States routinely tailor force packages for employment by the combatant commanders. This tailoring includes maintaining force elements outside the operational area in order to reduce in-theater logistic requirements and minimize vulnerabilities. Joint force components may establish supporting and supported relationships that provide adequate and timely support in theater from locations outside the theater. The ability of in-theater components to call for, and receive, timely support, assists in reducing vulnerabilities in theater to adversary employment of NBC weapons.

b. **Impact on Air and Space Forces**

- NBC attacks have the potential to significantly degrade the aerospace operating environment and the contribution of air and space forces to operational objectives. Nuclear detonations and EMP can directly affect the aerospace environment, while contamination from a variety of NBC weapons can degrade air operations and disrupt the entire joint operation. As fixed or semi-fixed installations, air bases are lucrative targets for NBC attacks. The lethality of NBC weapons and the operational tempo of air operations create requirements for timely and effective NBC detection and warning. Near real time warning from US and coalition information systems will reduce the possibility of operational degradation by NBC contamination and ensure the sustainment of sortie generation. The use of shelters, particularly hardened shelters, offers aircraft protection from the effects of NBC weapons. Similarly, maintaining the ability to sustain air operations from alternate bases limits the potential damage of any particular NBC attack. Aircraft contaminated with NBC agents present unique challenges for decontamination that make prioritization of NBC defense asset allocation and application of contamination avoidance policies paramount for effective sustained operations.

- The JFC integrates air forces into plans for operations against adversary NBC capabilities. Air and space forces should be prepared to execute such operations, according to the priority assigned by the JFC.

c. **Impact on Land Forces.** The ability of land forces to maneuver must not be constrained by unforeseen areas of contamination. **Contaminated areas must quickly be identified, delineated, and avoided.** Alternate routes, assembly, and support areas must be identified during preplanning. To the extent possible, units should be dispersed and thereby reduce vulnerability to NBC attacks, physically massing only when required. Avoiding contamination will preclude the twin burdens of assuming a higher MOPP and undertaking decontamination operations. Higher levels of MOPP may affect joint fire support as well as C2. Radio transmissions may become longer in duration or may frequently need to be repeated. Incidents of fratricide could increase. Fixed facilities and relatively immobile organizations that support

maneuver forces (e.g., maintenance and supply) are lucrative targets for NBC attack.

d. **Impact on Maritime Forces**

- **Maritime forces are most vulnerable to NBC attacks when in proximity to land, such as when in port, during amphibious operations, and when constrained by restrictive water transits** (e.g., canals, locks, straits, and shallow water). Both the ship's crew and embarked personnel are vulnerable to clandestinely disseminated chemical and biological agents. Biological agents designed to defeat shipboard filtration or purification systems could be clandestinely introduced into the food and water supply.

- With sufficient warning time, ships may be able to put to sea to avoid NBC attack as they routinely put to sea to avoid hurricanes or typhoons. At sea, all ships are inherently able to maneuver to avoid identified NBC threats. Ships with collective protection systems may be able to operate for a period of time in contaminated areas. However, not all ships have collective protection systems and may encounter difficulties in protecting crewmembers. Forces afloat are mobile and thus more difficult to target than a fixed site. They can exploit this mobility to remain clear of areas of contamination, provided these areas have been identified and characterized. Amphibious forces may have more difficulty avoiding areas threatened with chemical and biological hazards.

- The operational advantages provided by coastal operations can be negated by adversary employment of NBC weapons, especially during the early phases of operations ashore. Naval forces in port and their fixed host installations may have less flexibility to avoid contamination. Port facilities, ships in dry dock, aircraft under repair, and naval construction units located at these fixed facilities may not have the opportunity to relocate from NBC threat areas.

e. **Impact on Special Operations Forces**

- The threatened use or actual effects of NBC weapons employment pose significant challenges to SOF. **Due to their unique nature (small, self-sufficient, operating independently in hostile, denied, or politically sensitive areas), SOF operations can be affected by the limited NBC defense assets found within SOF elements, in particular with respect to equipment and personnel decontamination.** A number of SOF mission profiles require rapid deployment into contaminated areas. The requirement for rapid worldwide mobility limits SOF to an austere NBC defense structure. Accordingly, SOF rely heavily upon preventive health measures, early detection and, when possible, contamination avoidance in NBC environments. Timely and accurate intelligence and maximum use of weather and terrain are also key considerations.

- Deployed SOF units often operate "dismounted" and carry with them all essential equipment. If threat assessments do not identify NBC threats, commanders may reduce requirements for protective clothing and equipment to minimum deployment packages. When units must operate with deliberate risk of exposure to contamination, extended periods at high MOPP levels may be necessary for mission accomplishment.

- Army SOF include small NBC reconnaissance teams and chemical detachments. The reconnaissance teams

are capable of infiltrating into areas not accessible to conventional reconnaissance elements and conducting limited sampling and field identification of NBC agents. These teams are also capable of assessing an adversary's NBC capability. The chemical detachments assist Army SOF units in NBC planning, warning, reporting, training, and small-unit decontamination operations.

f. **Joint Force Planning Considerations**

See Figure III-5.

- Joint force **intelligence collection, analysis, and production** must give appropriate attention to regional NBC threats. Peacetime assessments emphasizing order of battle and operational concepts should support

JOINT FORCE PLANNING CONSIDERATIONS FOR OPERATIONS IN NUCLEAR, BIOLOGICAL, AND CHEMICAL ENVIRONMENTS

Intelligence collection, analysis, and production

Situational awareness

Common planning, training, and equipment standards

Medical nuclear, biological, and chemical (NBC) defense

Protection of the joint rear area and theater sustainment capabilities

Logistic burden of NBC attacks

In-theater active defense systems

Preplanning for counterforce operations

Effects of NBC attacks on command, control, communications, and computers

Capabilities and limitations of multinational forces

In-theater consequence management

Figure III-5. Joint Force Planning Considerations for Operations in Nuclear, Biological, and Chemical Environments

focused assessments of indications and warning in crisis and transition to war. Of particular importance is ensuring the dissemination of threat data and assessments to units down to the lowest level, including sub-components of US and multinational commands. Assessments should include identification of industrial sites containing toxic materials that would present a hazard to deployed forces if sabotaged or destroyed.

- **Ensuring adequate situational awareness is a central concern for planning.** An integrated warning and reporting system provides a significant measure of protection by allowing friendly forces to minimize exposure to the hazard. Accurate and timely understanding of the hazard and its effects minimizes the possibility of either excessive or inadequate protection of the force, maintaining a protective posture longer than necessary, or misusing NBC defense assets. These assets are combat multipliers and must be managed effectively to support the campaign plan and protect capabilities with high vulnerabilities to the effects of NBC weapons.

- **Common standards for NBC defense**, especially in training, exercises, and equipment maintenance, must be established in order to maximize effectiveness and prevent inadvertent vulnerabilities in joint force capabilities. Gaps in the NBC defense capabilities of multinational forces must be addressed in order to ensure multinational cohesion and effectiveness in both planning and operations. Joint and multinational exercises must include realistic standards for conducting operations in NBC environments. The joint force mission analysis may produce joint mission-essential tasks (JMETs). For each task, the conditions under which implementation must be conducted will facilitate establishing realistic standards which, in turn, form the basis for training and for assessing readiness. This process is facilitated by the UJTL, which provides a standard description of key joint tasks for action across the range of military operations. An example of the development of JMET is shown in Figure III-6.

Medical NBC defense should be fully integrated into the deliberate planning process in order to maximize readiness.

- **Medical NBC defense** should be fully integrated into the deliberate planning process in order to maximize readiness. Key elements include casualty estimation, prophylaxis (including immunizations), active medical surveillance, diagnostics, mass casualty management, evacuation, and patient decontamination requirements for HSS

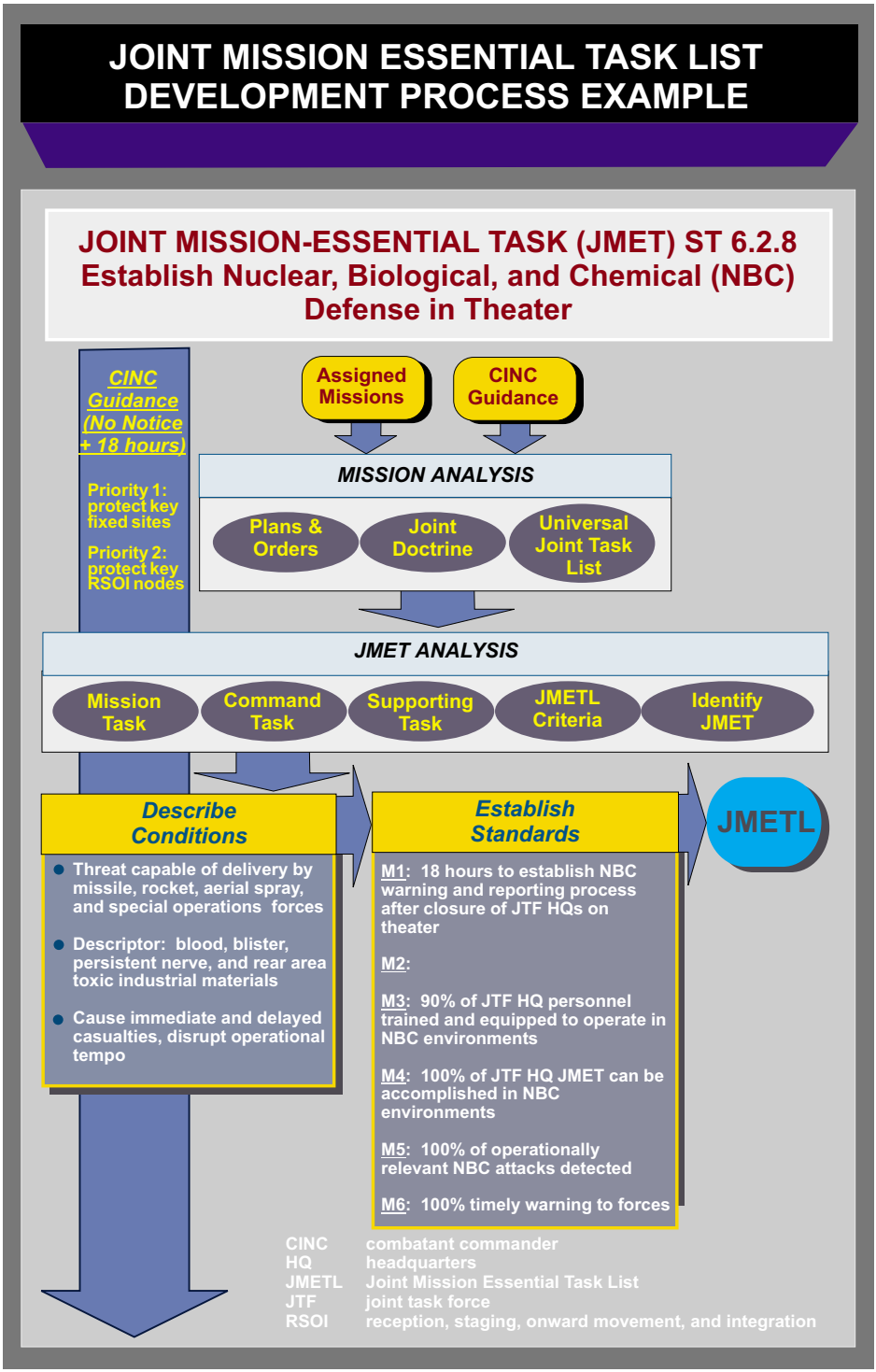

Figure III-6. Joint Mission Essential Task List Development Process Example

operations. Joint force plans should recognize that NBC attacks have the potential to create mass casualties. The treatment and evacuation of NBC casualties will be difficult and hazardous both to the patients and to medical personnel and facilities. The potential for high casualties may make HN medical facilities unavailable to the joint force.

Chapter IV, "Health Service Support," addresses HSS in NBC environments.

- **The joint rear area (JRA) and theater sustainment capabilities must be protected.** A successful adversary NBC attack on an essential port of debarkation or other critical logistic facility can dramatically alter the campaign. Measures to prevent and, if necessary, mitigate the effects of NBC attacks must focus on maintaining support to combat operations and rapidly restoring the degraded capabilities. Under some circumstances it may be necessary to use alternate facilities.

- **Protecting forces from the effects of NBC attack is logistically taxing.** The resupply of protective clothing and equipment and repair parts, medical supplies (antidotes and antibiotics), and other resources needed for recovery from NBC attacks can strain the theater logistic system and have unanticipated effects on combat operations.

  Paragraph 6 of this chapter, "Logistics and Rear Area Operations," addresses logistic operations in NBC environments.

- **In-theater active defense systems will be allocated according to the JFC's defended asset list.** Planning should consider deployment configurations and concepts of operations that maximize the defended areas of available systems.

  Doctrine for active defense operations can be found in JP 3-01, Joint Doctrine for Countering Air and Missile Threats, *and JP 3-01.5,* Doctrine for Joint Theater Missile Defense.

- **Preplanning for counterforce operations** should be integrated into the deliberate planning processes at multinational, joint, and component levels. Counterforce operations may be a high NCA priority at any point in a crisis, during the transition to war, and during hostilities as a means to deny an adversary the capability to produce, store, transport, or employ NBC weapons. Because counterforce operations rely largely on general-purpose forces that support multiple missions, conducting such operations in a developing theater may conflict with the requirement to perform other high priority missions.

- **NBC attacks can degrade command, control, communications and computers (C4) operations and systems.** Limitations will result from the requirement to operate in NBC protective equipment, from contamination of equipment, and from the effects of EMP on electrical and electronic equipment. In order to assure information superiority, joint force plans must take into account the vulnerability of C4 architectures (equipment, personnel, and networks) to NBC attacks. US and multinational forces must plan ways to compensate for potential shortfalls.

- Where multinational operations are envisioned, joint force planning must include **a rigorous and realistic assessment of multinational member capabilities for NBC defense and interoperability with US forces in NBC environments**. The planning process should consider the implications and

feasibility of diverting US assets and capabilities to support HNs and other multinational members in meeting common operational objectives.

- **The JFC must plan for in-theater consequence management**; that is, mitigation and management of the effects of NBC attacks. For purposes of multinational cohesion, maintaining access to basing and logistic facilities, and minimizing casualties and damage, every effort should be made within available resources to reduce HN vulnerability to NBC attacks and improve HN ability to mitigate the effects of such attacks. This will require close joint force coordination and cooperation with USG civilian agencies, HN military and civil authorities, and possibly international organizations (IOs), and nongovernmental organizations (NGOs). Here, too, it may be necessary to provide US military assets (equipment, personnel, and supplies) to support HNs.

6. Logistics and Rear Area Operations

The ability to sustain combat operations with an appropriate level of logistic support is vital to operational success. Operations in NBC environments can place significant burdens on the logistic system. Plans supporting deployment; reception, staging, onward movement, and integration (RSOI); and sustainment must continually be reviewed. The JFC must ensure that logistic units of component commands can survive and operate effectively in NBC environments.

a. Overview and Assumptions

- **Theater Maturity.** US forces may be deployed to theaters that provide a wide range of infrastructure and support activities. **Mature theaters** have forward-deployed forces with a significant amount of logistic infrastructure already in place. Quantities of pre-positioned supplies and equipment may be stored in environmentally controlled warehouses or covered shelters to reduce their vulnerability to contamination. Host-nation support (HNS) agreements may be in place and routinely exercised. **Immature theaters** have few, if any, deployed forces and minimal logistic infrastructure; pre-positioned supplies and equipment may be stored in the elements with no overhead cover. Other supplies and equipment may be stored at an intermediate staging base outside the theater until the theater logistic infrastructure matures to accept them. HNS agreements may not have been negotiated prior to the onset of hostilities.

- **Logistic Operational Areas.** Logistic elements may operate throughout the theater. Logistic elements directly supporting engaged forces may be small, mobile units. Logistic elements providing area support may involve larger, more complex transportation and supply activities conducted at fixed or semi-fixed sites. Mobile units seek to avoid NBC contamination to the maximum extent possible. If contaminated, units identify clean areas, and on order move along pre-designated routes from contaminated areas. Units decontaminate equipment and exchange protective garments during the move to clean sites. Logistic units in the JRA, in contrast, may be required in emergency situations to conduct operations from contaminated fixed sites until they can relocate to clean areas.

- **Workforce Composition.** In most circumstances, the logistic infrastructure in a theater operates with a **substantial complement of nonmilitary personnel**. In a typical theater, sustained logistic operations will rely heavily on military personnel, DOD civilians, HNS personnel, other nation support personnel, and contractor-provided logistic support personnel. During the early phases of deployment, the logistic infrastructure may rely on HNS personnel for port operations and transportation requirements.

- **Key Threat Considerations.** Logistic units accompanying engaged forces may fall within range of adversary air and surface weapon delivery systems armed with chemical, biological, or possibly nuclear warheads. **Logistic support areas may be threatened by ballistic missiles, cruise missiles, aircraft or SOF.** Adversaries may elect to use nonpersistent agents on targets in proximity to their own forces, and persistent agents on deep, fixed sites, main supply routes (MSRs), or flank areas. Industrial facilities subject to attack may release toxic materials which could produce hazards to personnel.

b. **Logistic Operations in Contaminated Environments.** Logistic operations are particularly vulnerable to NBC attack. During a major conflict, NBC weapons may be employed early in order to disrupt and delay the build-up of forces in the theater. There may be certain advantages to the adversary in using chemical or biological weapons in such operations. When assessing the likely nature and frequency of possible attacks on logistic facilities, the JFC will consider the number of available delivery means and chemical and biological warheads, and the ability of the adversary to deliver an agent in quantities sufficient to significantly disrupt JRA operations. For example, while the effects of chemical and biological weapons can be devastating on unprotected equipment and untrained personnel and can disrupt the best-prepared organizations, the impact can be mitigated by well-conceived plans and procedures that are routinely practiced. Commanders must consider several factors.

- **Areas of Vulnerability**. The areas of greatest vulnerability are large fixed sites (e.g., ports of debarkation), staging and marshalling areas, hubs and bases, assembly areas, and MSRs adjacent to sites involved in early force build-up activities.

- **NBC Logistic Readiness.** Adequate logistic support, which must be maintained under all conditions, is vital to operations in NBC environments. **The key considerations**, as depicted in Figure III-7, **are application of the joint logistic principles of sustainability, survivability, responsiveness, and flexibility to ensure adequate NBC equipment stocks, interoperability, and training**.

•• **Applying Joint Logistic Principles.** Operations in contaminated environments demand close attention by commanders to the joint logistic principles of sustainability, survivability, responsiveness, and flexibility. The geographic combatant commander will ensure the ability to maintain logistic support throughout the operation. (1) **Sustainability.** Sustainability is the measure of the ability to maintain logistic support to all users throughout the theater for the duration of the operation. In NBC environments, constant, long-term consumption of NBC defense supplies requires careful planning and anticipation of future requirements. (2) **Survivability.** Theater logistic sites and units present an adversary with lucrative and often static high value targets for

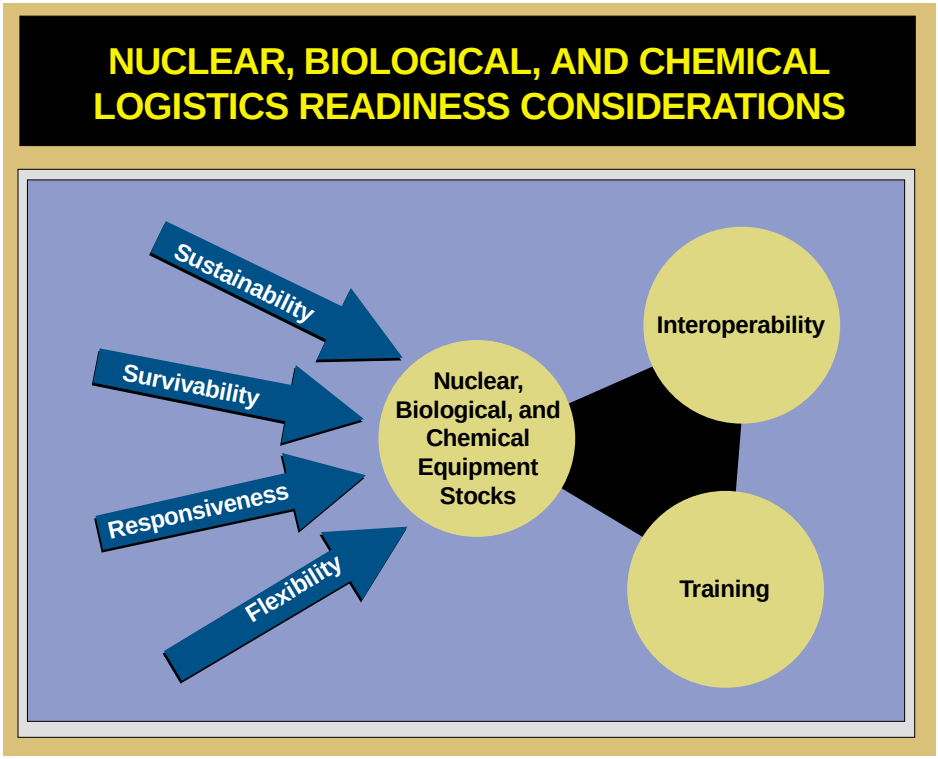

Figure III-7. Nuclear, Biological, and Chemical Logistics Readiness Considerations

attack with NBC weapons. Logistic planners must plan for both active and passive measures to minimize the risks of NBC weapons attacks while satisfying the needs of the joint force for uninterrupted logistic support. (3) **Responsiveness.** The hazards and potential damage caused by NBC attack may require relocation of bases and HSS facilities, major redirection of supply flow, reallocation of transportation and engineering services, and short-notice transfer of replacement personnel or units from one part of the theater to another. joint force plans should allow for surges in logistic requirements for NBC defense consumables and equipment items to appropriate units. (4) **Flexibility.** Maintaining logistic flexibility in NBC environments requires that logistic units be capable of rapid alteration of work schedules. NBC attacks can cause degradation of logistic operations due to operating in protective clothing and the requirement to handle and decontaminate supplies and equipment. Logistic planners will plan for deliberate and expedient covers and shelters to protect essential items from contamination. Commanders will prioritize and focus efforts on accomplishment of mission-essential tasks.

For a complete discussion of all joint logistic principles see JP 4-0, Doctrine for Logistic Support of Joint Operations, *especially Chapter II, "Logistic Principles and Considerations."*

•• **NBC Equipment Stocks.** Logistic support for NBC readiness requires adequate supplies and transportation of chemical and biological defense equipment, as well as sustainment of

supporting NBC defense organizations responsible for carrying out reconnaissance, decontamination, and supporting tasks.

•• **Interoperability.** In operations abroad, the JTF will be working with HN and other forces. While each member of the multinational effort is responsible for its own NBC defense, the ability to exploit logistic interoperability (e.g., in equipment and supplies) can contribute to the effectiveness of the collective force.

•• **Training.** Individual and unit survival skills and the ability to perform mission-oriented tasks while in protective clothing are vital to theater logistic activities. Mission-essential tasks will be identified in theater plans and unit standing operating procedures, and regular training will be conducted to establish individual and unit proficiency. Examples of essential tasks that may be required include driving; rail loading and equipment movement operations; aerial port of debarkation (APOD) and seaport of debarkation

THEATER LOGISTICS PRIOR TO THE GROUND OFFENSIVE

Resolving the 1st Infantry Division issue [dedicated recon assets] still left the last nine Fox vehicles of the sixty-Fuchs to go. The 490th Chemical Battalion sent a team to Germany on February 16 to escort the nine vehicles to Dhahran. By February 21, they were ready to return to Saudi Arabia, delivering three vehicles each on the 21st, 24th, and 25th, but the Air Force was not ready to deliver. Last-minute theater airlift priorities had prevented their immediate return, although they had been third priority for in-bound logistics (first being Patriot missiles, second being 120-mm tank ammunition).

On the eve of the ground offensive, there were a total of fifty-one operational Fox vehicles in the US forces, not including the one "Nunn" float. VII Corps had twenty-four of the vehicles on-line, while XVIII [Airborne] Corps retained seventeen. The ARCENT Support Command would not have its planned Fox reconnaissance vehicles, but it could still rely on chemical troops in APC recon vehicles. MARCENT had the other ten vehicles, split between their two divisions. The XM21 and bio-detection sampling teams increased their vigilance to cover the division marshaling areas. While the greatest concern was focused on the threat of Iraqi chemical strikes against [US Central Command] forces in the breach operation, there was equal interest in the possibility of chemical Scud attacks and Iraqi air attacks against the rear area supporting the offensive operations. ARCENT [nuclear, biological, and chemical center] counted on the inbound nine Fox vehicles to supply the needed capability. Also, the oil wells burning constantly in Kuwait presented new problems to the Marines and VII Corps. In addition to posing health problems because of the hydrogen sulfide fumes, the heavy, oil-laden smoke clogged the M8A1 filter paddles responsible for filtering particulates from the air sampling mechanism. The limited airflow caused increasing numbers of false alarms, until many units simply turned off the detectors rather than constantly checking for chemical agents.

SOURCE: ***Chemical-Biological Defense: U.S. Military Policies and Decisions in the Gulf War*** **(Westport, CT: Praeger Publishers, 1998), p. 23.**

(SPOD) operations; HSS activities; and C4I functions.

- **Command, Control, Communications, Computers, and Intelligence Systems.** C4I systems are integral to maintaining logistic support in NBC environments. **The JFC will ensure that C4I systems supporting logistic operations are sufficiently self-reliant and robust to operate through NBC attacks.** C4I-related vulnerability assessments will include: a review of plausible NBC attacks; the NBC warning and reporting system; equipment redundancy; availability and proficiency in the use of protective clothing and equipment; proficiency of military and nonmilitary personnel in the performance of individual and unit tasks at various levels of MOPP; and the degree of reliance on and compatibility of HN equipment and support (e.g., utilities and transmission facilities).

- **NBC Defense Planning Responsibilities**

•• Theater-level logistic support is generally furnished from Service-operated and other functional fixed sites throughout the JRA. Logistic NBC defense operations in the JRA are based on Service and site requirements, but will be coordinated with the joint rear area coordinator (JRAC) and base cluster commanders (when designated). **One of the JRAC's responsibilities is NBC defense integration.** Component commanders will incorporate NBC plans, exercises, equipment considerations, individual decontamination measures, and preventive measures into their area and base cluster defense plans. They will also position NBC defense personnel and assets to support current mission requirements and facilitate future operations, in accordance with JFC and area commander directives and priorities. *JP 3-10,* Doctrine for Joint Rear Area Operations, *provides additional guidance on JRAC and component commander roles and responsibilities.*

•• The JFC must consider the adequacy of equipment and training of nonmilitary and non-US logistic personnel to survive and operate in NBC environments. While it is a Service responsibility to train and equip the forces they provide to the joint force, the JFC is responsible for establishing the requirements based on the command's assessment of the NBC threats. If there are deficiencies in NBC equipment and training, resources must be requested through Service and joint channels.

c. **Logistic Planning Considerations for Fixed Sites. Ports, airfields, and related fixed sites are choke points vulnerable to NBC attack.** Combat forces are vulnerable to NBC attack during entry operations and during movement to areas of military operations. Fixed sites can be centers of gravity because they are vital for sustaining, enhancing, and controlling combat power. As a consequence, they may be high-value targets for adversary NBC attack. Common fixed-site defense measures can reduce their vulnerability.

- **Attack Warning and Dissemination**

•• In order for individuals and units to take necessary self-protection measures, timely warning of NBC attacks and subsequent spread of contamination is essential in order to ensure that individuals and units can take necessary self-protection measures. **The JFC has the responsibility, in coordination with the HN, to establish an effective and timely warning system and to exercise this system on a recurring basis.** In a high threat environment, fixed site commanders should monitor NBC

warning systems continuously and should be capable of passing warnings to workers and units throughout their sites.

•• Because of the variety of delivery methods for NBC weapons and the limitations of detection capabilities, personnel and units may not receive warning before exposure occurs. **Warning architectures should be designed to alert workers promptly upon initial detection of an attack.** Because workers may be widely dispersed throughout the area, a site-wide alarm system, capable of being activated immediately upon receipt of warning, must be available, maintained, and exercised regularly.

- **Protective Postures**

•• At many sites, military throughput will rely on civilian labor. **Logistic planners must consider the vulnerability of HN and other civilian workers to attack, and plan accordingly.** The JFC is responsible for ensuring that mission-essential civilian workers receive appropriate equipment and training and are integrated into area NBC defense plans. This may involve coordinating with HN representatives and the US country team.

•• Upon hearing an alarm, workers must be trained to protect themselves by rapidly donning protective clothing and moving to the nearest overhead cover. Planners must ensure that overhead cover is available at appropriate locations throughout the area.

•• Typically, even during high capacity operations, much of the materials handling equipment (MHE) at a facility is not in use. Commanders should protect idle MHE from exposure to chemical or biological agents in the event of attack. Housing and covering MHE with plastic, or otherwise protecting it from exposure, can ensure that it will be readily available to resume operations after the attack.

- **Post-Attack Reconnaissance.** Understanding the nature of possible contamination by NBC agents is central to adopting an effective concept of

Timely warning of NBC attacks and subsequent spread of contamination is essential in order to ensure that individuals and units can take necessary self-protection measures.

operations that reduces the risk of casualties and cross-contamination, while ensuring rapid resumption of operations after an attack. This requires coordinated reconnaissance, detection, and marking. Workers should be trained to conduct self-assessment activities to detect possible contamination in their work areas; however, a military unit trained and equipped to deal with NBC contamination normally will be necessary to support these surveys.

- **Decontamination**

•• A chemical or biological attack may contaminate essential operating areas. **Local commanders, accordingly, must have available the capability to decontaminate operating surfaces, MHE, aircraft, and exposed military cargo to the extent required to sustain operations.** Large area facilities (e.g., ports) with throughput capacity higher than required allow flexibility to shift operations to uncontaminated locations within the facility. At smaller facilities, however, an attack could reduce throughput capacity to a level below the requirement.

•• Decontamination of equipment and operating surfaces at fixed sites is required to restore full operational capacity. The mission and required operational tempo at a contaminated site will determine the MOPP level and degree of decontamination. Full reconstitution will require thorough decontamination. **When possible, decontamination will concentrate first on removal of persistent agent.** Contaminated areas and equipment should be clearly marked. Until the area is fully cleaned and verified, the pick-up and transfer hazard from the residual agent on operating surfaces requires that workers be in the appropriate MOPP.

•• Operational decontamination operations should commence in parallel with resuming operations in protective posture, starting with high-traffic areas and high-use equipment. This may require support of a decontamination unit. Given proper procedures, it may be possible to conduct operations at piers that were contaminated by persistent agents prior to thorough decontamination. Before selecting this option, however, commanders must carefully weigh the operational necessity of disembarking unit equipment against the risk of operating in a contaminated environment.

- **Considerations for Ports of Embarkation (POEs) and En Route Facilities**

•• POEs and en route fixed sites may be targeted in order to disrupt or inhibit US military deployments. Because these sites may be located in the continental United States (CONUS) and other regions outside the threatened theater, **they are subject to clandestine (including terrorist) attack**. Commanders of POEs must take action to protect their facilities (including supporting staging areas as well as rail and road networks) against and mitigate the effects of NBC attacks.

•• Intermediate logistic bases and infrastructure are also vulnerable to NBC attack. **For some large-scale operations, the en route structure is limited and may be a particularly lucrative target.** Commanders must protect and be prepared to deal with attacks at these facilities.

- **Considerations for Aerial Ports of Debarkation**

•• While each APOD is unique, a few general considerations are important.

The size and operational flexibility of the site will affect the commander's options for contamination avoidance. Because it is unlikely that all of the operational areas of an APOD will be contaminated at any one time, it is particularly important that the commander know the location of hazard areas, requirements for working and parking areas, and the availability of runways and taxiways. APOD plans should include expedited offload procedures (e.g., engines running, no crew changes or refueling) within the NBC threat area to minimize the number of aircraft exposed at any one time during ground operations.

•• Contaminated aircraft must be thoroughly decontaminated (both exterior and interior) to meet JFC and HN requirements before returning to the air mobility flow. The JFC is responsible for establishing aircraft decontamination operations at appropriate sites.

•• Regardless of an aerial port's NBC preparedness, some aircraft will not be able to land at or depart from contaminated areas. Of particular importance are limitations in NBC environments on the employment of the Civil Reserve Air Fleet, civilian, and other aircraft under contract to support military operations. Combatant command plans must provide for replacing these aircraft with other airlift assets or conducting transload operations from bases outside the immediate threat area. These replacement aircraft would have to operate from transload airbases to shuttle the affected cargo and passengers to the theater. If that is not feasible, alternate means (e.g., sea, rail, or wheeled transport) must be made available.

•• The availability of alternative aerial ports to accomplish the transload of personnel and materiel from intertheater to intratheater airlift can minimize potential deployment interruptions by adversary NBC use. The supported combatant commander is responsible for designating transload aerial ports.

- **Considerations for Seaports of Debarkation**

•• In large-scale operations, the US equipment and materiel normally enter the theater on strategic sealift ships and offload at SPODs. **The vital importance of these seaports to US power projection capability makes them an attractive target for NBC attack.** However, conducting successful attacks against SPODs presents significant challenges to the adversary. If port managers and operators are properly prepared to survive the attack and sustain operations, NBC attacks may not cause significant long-term degradation of military logistic throughput capacity. This is especially true at large ports where many piers, storage areas, and much of the MHE may escape contamination. Operations in these cases may be limited more by the effects of the attacks on the local workforce and nearby civilian population.

•• Analysis of SPOD vulnerability, impact of WMD attack on throughput, and timelines for restoration of operations is not as complete as for the APOD. Though similarities concerning the impact of WMD attack on SPOD and APOD operations exist, there are substantial differences. For example, assignment of overall responsibility for decontamination efforts is more complex.

•• Each port provides unique capabilities and has different vulnerabilities in NBC environments, but contamination avoidance is an essential element of sustaining throughput operations. In normal circumstances, a port is but one node of a complex, theater-wide logistic network. Plans should include options for redirecting incoming ships when possible from contaminated ports to those that are uncontaminated. However, when alternate ports with adequate capacity and berths to handle large cargo ships are not available, it may be necessary to continue operations at contaminated ports. In considering alternate ports, planners must take into account the requirements for unit equipment to arrive in proximity to the marshalling areas for unit personnel, ammunition, and sustainment supplies in order to ensure a coherent RSOI for affected units.

•• **In some cases, it will be possible to continue operations at a contaminated port.** While NBC attacks may result in contamination of some operating surfaces, the size of the contaminated area may be small compared to the size of the port. The capability to shift operations to those areas and facilities within the port that escaped contamination is key to sustaining throughput operations. Proper preparation can significantly reduce the impact of NBC attacks on a SPOD.

d. **Logistic Planning Considerations for Reception, Staging, Onward Movement, and Integration.** The permanency of sites for RSOI of arriving forces can vary widely between theaters. Theaters with large forward-deployed forces rely on fixed sites for a wide variety of activities, such as pre-positioned stock maintenance and control, supply and maintenance, materiel and transportation management, and logistic C4I. Theaters with limited forward presence normally rely more heavily on temporarily fixed sites (e.g., facilities that are transportable or mobile but, due to ongoing operational constraints, may not be rapidly moved). Area commanders will ensure that adequate detection, personnel protection, and decontamination assets are available to meet the threat and that alternative sites, along with rehearsed activation plans, are identified and prepared. Consideration of RSOI in NBC environments encompasses a number of specific functional areas.

- **Staging Areas.** Staging areas for personnel or equipment near APODs and SPODs may be attractive targets for NBC attack. Logistic planners must assess the relative value of the convenience provided by establishing large centralized facilities, which are more easily targeted, and the enhanced security that results from a larger number of smaller, dispersed facilities that are more difficult to command and control but less vulnerable to NBC attack. While the anticipated threat will influence the staging area selection process, adequate facility and area space availability may be the determining considerations. Planning must consider **equipment marshalling areas and rail yards** (which may not be in close proximity of APOD and SPOD facility complexes); **theater logistic hubs and bases** (which may be fixed facilities in theaters with large forward-deployed forces); and **force integration assembly areas** (where deploying units complete deployment recovery, equipment receipt, and processing and prepare for movement to tactical assembly areas).

- **Main Supply Routes.** The vulnerability of MSRs to NBC attack may vary widely among theaters. In theaters that rely on a few major MSRs and have limited alternative routes and off-road capability,

NBC attacks may have a greater impact on operations than in theaters with more extensive supply routes and where obstacles can more easily be traversed.

e. **External Support for US Military Operations**

- In many operations, US military forces will receive significant logistic support from US and foreign nonmilitary personnel. In some theaters, foreign military sources will also augment nonmilitary support. These support personnel fall into the following categories: USG civilians (to include non-DOD personnel), HN government civilians, HN military personnel (in direct support of US forces), other multinational partner military personnel, and contractors. Support and services that depend heavily on nonmilitary and foreign military personnel include, but are not limited to: transportation; stevedore and port operations; general engineering; personnel marshalling area operations (including supply of basic necessities); rail workers; emergency utility operations; selected maintenance activities; administrative activities (e.g., contracting specialists and local communications experts); and MSR security and control. **Theater logistic support is provided through a wide array of Service, multinational, contract, and cross-Service agreements and will vary from theater to theater.**

- **The three basic categories of external support for US military operations are wartime HNS, contingency contracts, and current contract agreements.** These usually exist in conjunction with one another and collectively provide to the theater its full logistic capability. Contracts or agreements will clearly specify services to be provided during periods of crisis or war.

- Logistic and area commanders should not expect unprotected or untrained individuals to continue to provide essential logistic services under the threat of NBC attack or during operations in NBC environments. Massive worker absenteeism is possible, and a lack of adequate protective clothing and equipment could result in significant casualties should an attack occur. The area commander is responsible for ensuring that mission-essential personnel receive appropriate equipment and training, working in coordination with HN authorities and the US country team. NBC protection includes individual and collective survival skills as well as operational training. **Survival skills** refer to the capability to take required, immediate action upon NBC attack, to include masking, proper wear and care of protective clothing and equipment, personal decontamination, and buddy aid. **Operational training** refers to the ability to continue to perform essential functions under MOPP conditions and resume normal operations after an attack. Essential functions and tasks include convoy driving, supply and equipment loading, refueling operations, and materiel decontamination.

f. **Handling of Contaminated Materiel and Equipment and Human Remains**

- **Materiel and Equipment**

  •• The geographic combatant commander is responsible for ensuring that all materiel and equipment that is returned to stock or retrograded from the theater is decontaminated and safe for transport. Joint and Service TTP are required to protect individuals against low-level NBC hazard exposure, conserve valuable assets, identify requirements for the return of equipment and personnel to the United States, and

maintain DOD life cycle control of previously contaminated equipment. In view of the limitations of decontamination technology in meeting all safety and health standards, some equipment may require extensive weathering to meet safety objectives. **In some cases, equipment may be so grossly contaminated that reuse or repair is not practical and in-theater destruction will be required.**

•• **For nuclear and biological contaminants, residual hazards are defined by nuclear and biological decay rates.** For residual radiation, if the particles cannot be removed, the time required for natural decay is a function of the half-life of the isotope and cannot be accelerated. Distance and shielding between personnel and the equipment is the only means of reducing exposure risks. Biological agents generally decay to acceptable levels within hours after dissemination or exposure to ultraviolet light (sunlight). For more robust biological agents, thorough decontamination and preparation of equipment to US Department of Agriculture import standards will eliminate most health threats.

•• As a rule, contaminated materiel and equipment will be marked, segregated, and disposed of or decontaminated after the cessation of hostilities. Theater campaign plans and orders will provide guidance and procedures for retrograde of contaminated materiel and prioritize selected items that, due to their essential nature and short supply, require immediate retrograde, repair, and subsequent return to the theater.

More detailed treatment of retrograde of equipment and personnel is in Chapter V, "Supporting Conflict Termination," paragraph 3h, "Retrograde of Contaminated Materiel from the Theater."

- **Human Remains**

•• The geographic combatant commander has the responsibility to search, recover, tentatively identify, and evacuate US remains from the AOR. To complete this task, **the combatant command's affected area commander establishes a Mortuary Affairs Decontamination Collection Point (MADCP)**. The MADCP is an operational element under the oversight of the Joint Mortuary Affairs Office (JMAO), and is manned by specialized mortuary affairs and NBC defense personnel. Unique MADCP equipment is maintained as kits in operational project stocks and supplemented as required by theater assets.

•• The area commander's principal responsibility, with respect to contaminated remains, is to ensure that all remains are rendered safe for transport into the United States and for release to mortuaries. Remains contaminated with chemical agents can generally be rendered safe by external decontamination. Biologically contaminated remains must be embalmed and transported in appropriate containers — or other equivalently effective contamination control methods authorized by qualified medical authority — prior to movement from the theater. When conditions permit, personnel remains will be evacuated to primary military port mortuaries in CONUS.

•• In some circumstances (such as large-scale NBC casualties), the area commander may need to authorize alternative procedures for the disposition of human remains. **If decontamination capabilities are not available,**

contaminated remains may have to be buried in place following emergency burial procedures. In instances of mass fatalities, the area commander, on advice of the JMAO, may authorize mass burials. The JMAO will direct and control subsequent disinterments.

For joint policy and detailed instructions for handling contaminated remains, see JP 4-06, Joint Tactics, Techniques, and Procedures for Mortuary Affairs in Joint Operations, *and Service manuals Field Manual (FM) 10-63,* Handling of Deceased Personnel in Theater of Operations, *AFI 34-501, and FM 4-8.*

7. Responsibilities for Operations in NBC Environments

This paragraph summarizes joint, component, and HN responsibilities throughout the theater, including the JRA, ports, airfields, and other key fixed sites.

a. Joint and Component Responsibilities

- The JFC must plan for and integrate US and multinational force capabilities to sustain the multinational operational tempo in all mediums (air, sea, land, and space), regardless of the nature and targets of an adversary's NBC attack. The JFC will establish and implement a deliberate process for assessing the vulnerability of manpower and materiel to NBC attack. This process will integrate all offensive and defensive capabilities to reduce the threat of NBC use and sustain operations if attacks occur. The process will also include executing mitigation and restoration plans to reduce the operational impact of NBC contamination and other toxic hazards.

- **Combatant commanders must be able to execute the campaign under NBC conditions through unified action at the theater level.** Unified action for subordinate JFCs is equally important for combat, combat support, and combat service support units of all Services and multinational partners. Unified action encompasses not only NBC-related actions but also all other actions that permit continuation of theater operations and focus on attaining the single theater military objective in line with the JFC's intent.

- The JFC has the responsibility, consistent with available capabilities and the operational mission, to provide protection to US civilians in the joint operations area (JOA) who accompany the force to provide mission-essential services or who are sponsored by the force. The Service or other component sponsoring the civilians in the theater normally discharges responsibilities in this area. These responsibilities may include, but are not limited to, the issuance of protective clothing and equipment, training on this equipment, instructions regarding movement into and within high NBC threat areas, and procedures to implement in the event of attack. Protective clothing and equipment will be made available to US civilians consistent with supply availability and their risk of exposure. In the event of shortages of masks or overgarments, limitations on movement by unequipped civilians into high-threat areas may be necessary. Sufficient quantities of the necessary clothing and equipment may be obtained as the theater matures. In response to a request from the US country team, the combatant commander or subordinate JFC may assume responsibility for US civilians who are neither mission essential nor sponsored.

- **Enemy prisoners of war (EPWs) and civilian internees (CIs) must be**

safeguarded from all attacks, to include NBC attacks. EPWs and CIs may not have protective clothing that is adequate or compatible with that of US and multinational partners, and may require the issue and training on the use of US equipment. Appropriate medical treatment must be provided to EPWs and CIs in the event of injury, to include injury from NBC exposure. Where the NBC threat to EPWs and CIs is high, this may place additional requirements on US and multinational forces for training, liaison, decontamination, HSS, and other logistic support. If conditions permit, consideration may be given to moving EPWs and CIs out of NBC threat areas.

- **NBC defense force structure and force development activities are the responsibility of individual Services and USSOCOM.** Combatant commanders remain aware of the salient factors that pertain to NBC defense requirements and USSOCOM or Service components' responses to their requirements through the Joint Operation Planning and Execution System. **The combatant commander is responsible for ensuring proper placement of NBC defense assets in theater in advance of a crisis or conflict, and in the time-phased force and deployment data prepared to support movement to the theater.** In particular, the combatant commander should be cognizant of any significant shortfalls in the capability or availability of NBC defense assets.

- In multinational operations, the JFC has responsibility to establish appropriate command, planning, and operational relationships. The JFC has responsibility for ensuring that coalition and HN weaknesses do not compromise US forces or missions. It may be necessary in this regard to apply US resources to support multinational partners and HNs before, during, and after NBC attacks. The JFC must identify requirements for support from US resources and develop plans and procedures that integrate and obtain maximum value from multinational forces and HN capabilities to support the continuation of operations. The JFC is responsible to establish the necessary support agreements that would make available US assets (e.g., units, equipment, personnel, and supplies) to support NBC defense and mitigate and manage the consequences of adversary NBC use in the theater.

b. **Multinational Force Responsibilities**

- Subject to the provisions of mutual support agreements and available means, multinational partners may assume the responsibility for providing support and assistance to US and other multinational forces operating in their areas. This support and assistance may involve the full spectrum of NBC defense activities, offensive actions to reduce or eliminate the NBC threat, and actions to mitigate and manage the consequences of adversary NBC use in the theater. Within available means and mutual support agreements, support and assistance may involve the full spectrum of NBC defense activities, offensive actions taken to reduce or eliminate the NBC threat and defend against, mitigate, and manage the consequences of adversary NBC use in the theater.

- The protection of forces and supporting civilians of other countries participating with the United States in multinational operations is the responsibility of the multinational force chain-of-command within the theater of operations. In order to provide maximum protection to all forces, the JFC should, to the greatest extent possible, involve other participating forces in NBC defense and related activities.

c. **Host Nation Responsibilities**

- Based in applicable agreements and proper coordination, **the HN has the responsibility to provide support and assistance to US and other forces operating in its territory**. This support and assistance may entail HSS personnel, supplies, facilities, decontamination, and transportation.
- In the event of adversary NBC attack, the HN is responsible for protecting its forces, citizens, and infrastructure. The JFC will respond to requests for NBC defense or mitigation and management of the consequences of adversary NBC use in coordination with the US country team, consistent with support agreements and available resources.

CHAPTER IV
HEALTH SERVICE SUPPORT

"Even in theory the gas mask is a dreadful thing. It stands for one's first flash of insight into man's measureless malignity against man."

Reginald Farrer, *The Void of War*

1. General

Maintaining the physiological and psychological health of military forces is a basic requirement for combat effectiveness. This chapter provides principles and considerations for the HSS of combatant command and subordinate joint forces operating in NBC environments. An NBC attack in an operational area will affect both military and civilian populations. HSS considerations in NBC environments, therefore, include civilian public health service (PHS) matters. The command surgeon is responsible for ensuring the integration of PHS matters into the command HSS plans and activities in order to support mission accomplishment.

2. Campaign Planning

a. HSS is integral to theater strategic, deliberate, and crisis planning and execution. **To provide adequate HSS, definitive planning and coordination are required.** HSS activities must maintain peacetime preparedness to ensure adequate preparations before and during the transition to operations. The JFC must consider and plan for HSS requirements when preparing for war or MOOTW. Planning for HSS must include all aspects of HSS requirements. Failure to plan for preventive medicine (PVNTMED) support as part of the early entry force can cause mission failures due to disease and non-battle injuries. Planning for and maintaining a sound medical surveillance program for all operations can maximize force effectiveness by eliminating or reducing the effects of medical threats. **Planning and training before conflicts or crises occur is essential.** Commanders should participate visibly in HSS activities to reinforce and demonstrate Armed Forces of the United States resolve to operate effectively in NBC environments.

b. HSS supports all phases of operations, taking into account the unique characteristics and effects of the range of NBC weapons. While US policy and doctrine acknowledge that HSS is primarily a Service responsibility, **the command surgeon is responsible for guiding and integrating all HSS capabilities available to the command to support the mission**. HSS planning for post-NBC attack must include efforts to conserve available HSS personnel for medical treatment. Although most definitive care is rendered outside the area of immediate combat in a non-tactical environment, triage, patient decontamination, and initial resuscitative care may be necessary in the combat area. HSS planners must ensure that units can locate clean areas in which to operate a medical treatment facility (MTF) or, if available, employ collective protective shelter systems to provide life and limb care in combat areas. Commanders and medical leaders must also plan to prevent or reduce the numbers of stress-related cases in this environment.

c. The geographic combatant commander establishes the command's HSS requirements and uses directive authority to ensure the proper coordination of all HSS capabilities in the force (to include general HSS services, shelter, food, water, environmental and occupational health, medical prophylaxis, medical pre-treatments, immunizations, antidotes, and fluids).

Basic doctrine for HSS operations is in JP 4-02, Doctrine for Health Service Support in Joint Operations.

3. Health Service Support

a. **Effects of NBC Weapons Employment.** Adversary use of NBC weapons can cause large numbers of military and civilian casualties. **Commanders and HSS planners must ensure that a process is in place to cope with and treat NBC casualties.** Additionally, the potential for accompanying widespread disruption and destruction will require special patient handling and challenge HSS capabilities and resources. Consequently, pre-deployment and employment intelligence collection, reporting, analyses, and risk assessments must be timely and accurate for PVNTMED protocols to be effective. Timely and complete intelligence and risk assessments assist commanders to prevent casualties and prepare forces for immediate or long-term treatments, if required, prior to deployment and employment.

b. **Intelligence**

- Operations in NBC environments place particular HSS demands on intelligence. Especially important are a clear and commonly shared assessment of adversary NBC capabilities, NBC use effects, and US, multinational, and HN HSS capabilities and limitations in countering adversary NBC use. The Armed Forces Medical Intelligence Center (AFMIC) is responsible for intelligence products to support HSS aspects of JFC intelligence requirements. AFMIC can assist by producing epidemiological and environmental threat assessments associated with specific geographical locations. **Threat assessments should include the identification of industrial sites in the theater that can produce toxic industrial hazards.** TIM could become a health hazard to deployed forces if these sites are accidentally or intentionally destroyed or damaged. Further, TIM could pose a hazard to deployed forces even when the sites are in normal operation.

- In the theater, HSS activities supporting the continuous IPB process include investigations of disease and injury resulting from known or suspected biological and chemical agents, and integration of HSS information from medical and non-medical units. Effective preventive and curative HSS for the forces requires production of complete, timely, and accurate HSS intelligence products and their integration into overall theater intelligence assessments and estimates.

c. **Other Information Resources.** In addition to AFMIC, other specialized organizations provide expert information on medical aspects of NBC threats, casualty prevention, NBC agent sample and specimen collection, and medical care and management of casualties. These include the Defense Threat Reduction Agency, the Armed Forces Radiobiology Research Institute, the Naval Medical Research Center, the US Army Medical Research Institute of Infectious Disease, the US Army Medical Research Institute of Chemical Defense, and the US Army Nuclear and Chemical Agency.

d. **Preventive Measures.** Effective HSS includes a combination of preventive and curative measures. Commanders must ensure that all the command's personnel train to survive and accomplish their missions in NBC environments. **The command's HSS activities must be able to effectively care for NBC casualties while providing all other required health services.** Commanders must ensure that personnel keep immunizations current (including full use of the Military Immunizations Tracking System), use available prophylaxis and pre-treatments

Commanders must ensure that personnel keep immunizations current.

against suspect agents, and apply contamination avoidance procedures. Preventive measures in HSS planning for NBC environments (see Figure IV-1) include, but are not limited to the following.

- Development of the body's natural defenses through individual and unit health and fitness programs.

- Integration of military PVNTMED and civilian PHS preventive capabilities to the extent feasible and permissible by mission requirements.

- Integration of HSS considerations into ISR activities to detect NBC and other toxic agents and materials; provide early warning to maximize the effectiveness of PVNTMED and curative HSS.

- Protection of medical supplies and equipment by using chemical agent-resistant coatings or protective coverings.

- Frequent testing of all food and water sources and supplies for NBC contamination.

- Establishment and maintenance of a medical surveillance system to identify populations at risk, to anticipate, recognize, and assess hazardous exposures, to monitor health outcomes, and to employ new countermeasures.

- Force protection measures extended to HSS organizations and facilities based on JFC priorities to ensure HSS availability in the event of adversary NBC attacks.

- Integration of HSS units and facilities into joint force plans and activities to limit NBC exposure and contamination following an NBC attack, through application of NBC defense principles.

e. **Care and Management of NBC Casualties**

- Effective care and management by HSS organizations of casualties caused by NBC weapons, and in particular biological agents, requires planning to treat large numbers of individuals exposed to infectious disease or toxins, chemical agents, and the effects of nuclear and radiological weapons. Each element of the medical evacuation and treatment process requires careful evaluation to assure it best conserves and restores the command's combat

PREVENTIVE MEASURES IN HEALTH SERVICE SUPPORT PLANNING

- *Development of the body's natural defeses through individual and unit health and fitness programs*
- *Integration of military preventive medicine (PVNTMED) and civilian public health service preventive capabilities*
- *Integration of health service support (HSS) considerations into intelligence, surveillance, and reconnaissance activities; provide early warning to maximize the effectiveness of PVNTMED and curative HSS*
- *Protection of medical supplies and equipment*
- *Frequent testing of all food and water sources and supplies for nuclear, biological, and chemical contamination*
- *Establishment and maintenance of a medical surveillance system*
- *Force protection measures extended to HSS organizations and facilities based on joint force commander priorities*
- *Integration of HSS units and facilities into joint task force plans and activities*

Figure IV-1. Preventive Measures in Health Service Support Planning

capability. Consideration of multinational coalition partner and HN requirements and capabilities that affect the JFC mission and the ability of US HSS units to function effectively is especially important. **Demand for PVNTMED services increases commensurate with the NBC threat.** PVNTMED personnel and the command surgeon assist the JFC in determining the health risks associated with NBC hazards; the safety of drinking water; the appropriate time for using pre-treatments, prophylaxis, and immunizations; and other PVNTMED measures. PVNTMED personnel must remain aware of the potential medical threats in the local environment. They must establish and maintain a medical surveillance program that provides a database on actual medical threats in their command's area; names and units of personnel exposed to the medical threats; and treatments provided to exposed personnel. The medical surveillance program must be established before the first personnel enter the theater, whenever possible, and be maintained and continued after the personnel depart. To conserve, restore, or maintain combat effectiveness, commanders and HSS personnel within the evacuation and treatment processes must continually evaluate capabilities and make adjustments to conform to JFC priorities. All patients must be checked for NBC contamination and decontaminated, if required, prior to being admitted to MTFs to reduce the

hazard to medical personnel and other patients and to prevent contamination of the MTF. Treatment of life- or limb-threatening conditions must be accomplished in the patient decontamination area prior to and during decontamination. Medical personnel must support this mission, either by providing the actual patient decontamination function, or assisting with the patient decontamination process.

- Units have primary responsibility for decontaminating their casualties as soon as possible and prior to moving them to MTFs. However, operational circumstances may prevent them from doing so; this has a serious impact on the command's ability to maintain uncontaminated medical facilities. **Decontamination and collective protection following NBC attacks are essential if MTFs are in a presumptively contaminated area.** The JFC, with advice from the command surgeon, must consider MTF needs when establishing priorities for allocating decontamination assets. Components may make available to the JFC dedicated decontamination assets such as the US Air Force Wartime Medical Decontamination Teams.

- Demands for military medical support to neighboring civilian populations following an NBC attack may be substantial, especially in areas with a concentration of very young, very old, and other individuals already suffering from underlying disease or other forms of weakening stress. In consultation with the command surgeon, the combatant commander must establish, at the beginning of the operation, the scope of care to be rendered to civilian populations.

- In accordance with their missions, medical organizations assist with providing adequate shelter, establishing safe food and water sources, and ensuring that preventive measures and curative treatments are available. Enemy action and the potential need to deal with panic among the civilian population require physical security measures at facility that permit uninterrupted medical treatment. The JFC may decide to assign the physical security mission to non-medical units, if operational requirements and priorities permit.

- Although the source and means of exposure to NBC hazards affect incidence and the severity of injuries, basic principles of prevention and treatment do not change. For instance, in the event of a biological attack, rapid detection and accurate identification of the agent are important factors in providing operationally relevant information to the JFC and HSS units. This allows the command to mitigate effects on the force, facilitate adequate casualty management, and provide effective medical treatment. **The first indication of biological attack may be the appearance of numerous casualties in which medical specialists are challenged to differentiate endemic disease occurrence from enemy attack.**

- In the case of a biological attack, casualties may not occur during the attack as they would during large-scale conventional bombardment or attack with nerve agents against unprotected personnel. Moreover, the degree of agent exposure and personal resistance (natural or acquired) may delay illness. HSS units must anticipate increasing casualty loads beginning with relatively few initial casualties and escalating to a peak over successive hours or days. An exception to this aspect would be an attack with biological agents that might create an immediate and dramatic mass casualty

situation. Since some biological agents are transmissible among humans, the implementation of methods that minimize spread after the initial attack will be essential for military PVNTMED and civilian PHS organizations.

4. Preventive Medicine Principles

a. The damage caused by biological and chemical attacks will vary according to geographic and climatic conditions. Nevertheless, **adherence to both the principles of PVNTMED and public health standards can mitigate the effects of NBC attacks**, particularly if these are implemented before an outbreak. PVNTMED specialists assist the JFC by identifying health hazards and providing assessments of the susceptibility of the force to these hazards. They also identify hazards associated with contamination; identify safe food and water sources and their vulnerabilities; conduct continuous medical surveillance; and recommend when to use prophylaxis, pre-treatments, immunizations, quarantines, insect and rodent control, destruction of livestock, and other preventive measures associated with NBC defense.

b. In the aftermath of an NBC attack, HSS and PHS facilities may be strained beyond their capacities. Demands for medical support to both military and civilian populations could be intense. PVNTMED specialists must assist the JFC in establishing priorities and effectively using available HSS and PHS resources. To assure adequate support to the joint force, JFC directives concerning treatment of civilian populations must be clear and adhered to by the joint force HSS personnel and facilities.

c. Carelessness in emergency situations regarding food and water sanitation, general hygiene, and other common disease control measures can significantly contribute to secondary spread of disease. **Enforcing satisfactory personal hygiene and field sanitation is a leadership responsibility.** Washing with soap and water is the most effective, and often simplest, personal hygiene measure for controlling communicable diseases. All personnel must apply standard, individual hygiene and sanitation measures. Strict procedures are required for waste treatment and sewage, including water surveillance and sanitation control measures. Generally, the best method of sanitizing water is purification or boiling. However, these are

The primary responsibility for decontamination of casualties prior to transportation to medical treatment facilities rests with the unit.

not effective against certain biological agents such as viruses, spores, or toxins if the water will be used for human consumption and hygiene purposes. The reverse osmosis water purification unit can remove most NBC agents, and provide a safe water supply for these uses. In all cases, the designated medical authorities must approve all water supplies before distribution and consumption.

d. Maintaining safe food and water supplies is vital in NBC environments. Following an attack, all food except canned or similarly protected items should be thoroughly inspected for contamination. If the situation demands that suspect items be consumed, they should be decontaminated. Foods determined to be safe must be protected against secondary contamination. Protective measures must be practiced by those who transport, store, prepare, and serve food as well as by those who consume the food. In addition, commanders must consider applying control measures to prevent contamination of foodstuffs by insects, rodents, and other vectors.

5. Countermeasures and Response to NBC Medical Effects

Countermeasures and responses to the medical effects of NBC agents include immunizations, medical prophylaxis, medical treatments, antidotes, and medical fluids. These actions occur before exposure to high-risk, NBC conditions (e.g., pre-treatments and immunizations) as well as after exposure to NBC agents (e.g., treatments and fluids). The timeliness and accuracy of intelligence including any warning can directly enhance the success of medical countermeasures and response. Figure IV-2 highlights DOD biological threat immunization policy.

a. **Pre-Exposure.** Commanders must ensure that all their personnel have up-to-date immunizations, begin required pre-treatments and prophylaxis, and/or use designated medical barrier materials as ordered before exposure to NBC agents.

DEPARTMENT OF DEFENSE IMMUNIZATION POLICY, BIOLOGICAL THREAT EXCERPT

... the following personnel ... should be immunized against validated biological warfare threat agents for which suitable vaccines are available ...

Personnel assigned to high-threat areas.

Personnel predesignated for immediate contingency deployment.

Department of Defense Directive 6205.3
November 26, 1993

Figure IV-2. Department of Defense Immunization Policy, Biological Threat Excerpt

b. **Post-Exposure.** HSS personnel will assist commanders by ensuring that all exposed personnel continue prophylaxis, pre-treatments, and the use of medical barrier materials, and to administer antidotes as required. Exposed personnel should seek medical assistance as soon as possible.

c. **Psychological Impact.** NBC incidents will generate confusion, panic, and hysteria. Therefore, the use of combat stress control teams is essential in preparing for and responding to NBC incidents.

6. Patient Movement

a. Patient movement in combat areas is normally a Service responsibility using organic assets (personnel, surface vehicles, and aircraft). US Air Force aircraft with specialized aeromedical evacuation (AE) crews can assist with movement of decontaminated patients. **The combatant commander, with advice from the command surgeon, is responsible for moving patients within the theater and deciding the extent to which evacuation assets will be committed to contaminated areas.** The Commander in Chief, US Transportation Command establishes, operates, trains, and maintains a common-user AE system for intratheater and intertheater patient movement.

b. Commanders operating in NBC threat environments must consider the commitment of evacuation assets to contaminated areas. In planning for evacuation, the JFC considers the nature of the actual contamination hazard. **Radiological contamination and radioactive fallout impose different operating conditions than persistent or nonpersistent chemical agents or lethal or nonlethal biological agents.** When evacuation personnel are sent into a radiologically contaminated area, an operational exposure guide (OEG) must be established. Prolonged wearing of individual protective equipment under MOPP conditions, climate, workload, and fatigue combine to limit personnel effectiveness and consequently hamper casualty evacuation. Based on factors such as missions, priorities, and OEG, commanders decide which evacuation assets will be sent into the contaminated area. As a general principle, to limit contamination of evacuation assets, patients should be decontaminated before evacuation.

7. Casualty Decontamination and Triage

a. **Decontamination of casualties protects them from the detrimental effects of additional contaminants and protects those who evacuate and treat them.** The control and treatment of contaminated casualties will vary with the tactical situation and the specific contaminants. Although the primary responsibility for decontamination of casualties prior to transportation to MTFs rests with the unit, a medical unit must be prepared to receive contaminated casualties. **Within the theater, decentralization of casualty decontamination is necessary.** Casualties must not be forced to wait at central points for decontamination. All medical units should have readily available, and be proficient in the use of, the necessary decontamination equipment for self and patient decontamination. MTFs supporting operations in potential NBC environments must establish appropriate procedures for casualty decontamination and triage.

b. **Triage of contaminated casualties takes place with due regard to the type NBC agent that is known or likely to have caused the contamination.** The triage officer takes account of the significant differences between and among nuclear, radiological, biological, and chemical hazards. When casualties arrive at the MTF, the triage officer will determine decontamination priorities based on the

Exposed personnel should seek medical assistance as soon as possible.

urgency of patient treatment needs. Patients with life- or limb-threatening conditions will receive emergency medical treatment before decontamination.

8. Medical Treatment Facilities

The success of MTFs in treating arriving casualties in NBC environments depends on prior planning and adaptability. The geographic combatant commander is responsible for directing and guiding planning and exercises to ensure adequate HSS, including the operations of MTFs.

a. NBC weapons are capable of producing mass casualties. In the hours immediately following an NBC attack, MTFs can be overwhelmed with casualties that exceed their capacity. The JFC, supported by the command surgeon, establishes HSS priorities for treatment of mass casualties. MTF commanders are responsible for planning and training to cope with this situation in line with joint force plans and priorities.

b. Whenever possible, an MTF should be located such that it is maximally protected from an NBC attack.

c. To facilitate operations in NBC environments, MTFs should have collective protective shelters (CPSs) which enable them to operate in contaminated environments and ensure contamination-free areas are available to treat casualties after their decontamination. CPSs supplement, but cannot replace, MTF capabilities for continuing care. They provide emergency capabilities until relocation from the contaminated area or decontamination eliminates the threat of further contamination.

d. HSS operations at MTFs should avoid diversion of medical specialists to non-medical tasks. Whenever possible, in line with joint force priorities and assets, augmentation will be made available to perform tasks such as decontamination, physical security, and maintenance of contamination-free areas and CPSs.

e. The JTF is responsible for providing MTFs with adequate logistic support in theater, including damage control, relocation, and resupply, in line with joint force priorities and assets.

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CHAPTER V
SUPPORTING CONFLICT TERMINATION

"If you concentrate exclusively on victory, with no thought for the after-effect, you may be too exhausted to profit by the peace, while it is almost certain that the peace will be a bad one, containing the germs of another war. This is a lesson supported by abundant experience."

CPT Sir B.H. Liddell Hart, *Strategy*

1. General

a. Successful conflict termination is the culmination of actions taken and conditions established that end hostilities and other conflicts not involving the use or threat of force. **The conflict termination process must create an environment that supports long-term US security objectives, regional stability, and reconciliation.** NBC weapons in the possession of belligerents or opportunists in the operational area can have a significant impact on conflict termination, making it more complex, challenging, and politically charged. Conflict termination considerations should be included in combatant commander peacetime strategic guidance and campaign planning processes, and adjusted in conflicts to reflect the current situation as well as NCA and multinational objectives.

b. Conflict termination operations in NBC environments should be directed toward **two NBC-specific basic objectives: ensuring the safety of all personnel in the theater and establishing the foundation for long-term control or elimination of adversary NBC capabilities**. There are two stages to conflict termination: transition to conflict termination and post-conflict operations. This chapter addresses major considerations affecting joint force planning for, and execution of, conflict termination under conditions where NBC weapons, or other toxic materials, are in or threaten the theater of operations. This chapter focuses on conflicts involving the use of force. *For MOOTW not involving the use or threat of force, see the additional considerations in Chapter VI, "Military Operations Other Than War." For the broad principles relating conflict termination to US and multinational strategic goals see JP 3-0,* Doctrine for Joint Operations, *especially Chapter I, "The Strategic Context."*

2. Transition to Conflict Termination

a. **Overview.** Conflict termination is a deliberate process of concluding hostilities and preparing for peace. It should not be confused with culmination, although an adversary's culmination may lead directly to termination. Conflict termination should seal the accomplishment of tactical, operational, and strategic objectives. These objectives may encompass specific goals related to the adversary's NBC weapons and supporting capabilities.

b. **End States.** Reaching specific objectives and conditions related to the adversary's NBC weapons may be central to the achievement of overall campaign end states, and joint force plans should account for this likelihood. At the same time, it is possible that the NCA may decide to terminate the conflict before attaining all previously established objectives and conditions. If the basic termination preconditions have been met before attainment of NBC-related objectives and conditions, there will be a requirement to continually assess adversary NBC capabilities

and identify possible post-hostility actions to neutralize any remaining NBC threats. Even when objectives and conditions related to NBC weapons are achieved, verification and monitoring may be necessary and important to establishing normal post-conflict relations.

c. **Transition from Combat Operations.** Normal actions and missions undertaken during the campaign will have utility for the transition to conflict termination. For example, intelligence collection and analysis will already be focused on adversary NBC capabilities. Likewise, NBC defense operations will have been underway, and may need to continue if residual toxic hazards and adversary threats remain. **As conflict termination approaches, the JFC must also consider actions to attain specific NBC-related objectives and conditions, particularly those associated with disabling or destroying NBC capabilities.** At a minimum, the JFC must ensure continuous surveillance of adversary NBC assets (e.g., known or suspected NBC capabilities that have yet to be captured or destroyed) as the basis for post-hostilities planning.

d. **Cease-Fire and Negotiating an End to Hostilities**

- During the transition to conflict termination, a major milestone will be the establishment of a cease-fire, which may be arranged through diplomatic channels. **The cease-fire may be a precursor to formal cessation of hostilities as part of peace accords.** The time period between cease-fire and conflict termination may be a matter of hours, months, or years. **Among the primary aims of the JFC during the negotiations or imposition of cease-fire conditions is to ensure that enemy NBC capabilities are identified and secured under joint force control rapidly during the initial phases of post-conflict operations.** Ideally the provisions should:

•• Require adversary military and civilian authorities to specify the location of all NBC weapons, production and storage facilities, and delivery systems, as well as chemical minefields and contaminated areas;

POST-HOSTILITIES CONSIDERATIONS

A staffer in USCENTCOM [US Central Command] headquarters brought up the question of what would happen if the units captured biological munitions. Up to this time, no one had considered what exactly combat units should do with munitions filled with biological agents. Normally, one would call the explosive ordnance disposal (EOD) teams to disarm munitions, but weren't special circumstances present here? While the United States had established ways to demilitarize biological munitions at US production sites in the 1970s, there was no mobile capability to do this in Southwest Asia. The Joint Staff began working on procedures to permit a field destruction capability for biological weapons, in the event that USCENTCOM might capture armed biological munitions. Guidance finally came through on February 27. Authorization to destroy small quantities of biological munitions using field methods was granted. Bulk quantities of biological agent munitions were to be secured and not destroyed, due to the possibility of international implications of finding and disposing of the munitions.

SOURCE: ***Chemical-Biological Defense: U.S. Military Policies and Decisions in the Gulf War*** **(Westport, CT: Praeger Publishers, 1998), p. 112.**

•• Establish rules against access to and transport of the weapons and delivery systems;

•• Provide for measures to mitigate residual hazards, to include the immediate securing of all disclosed facilities and searches to examine suspected sites;

•• Establish procedures preventing the removal or introduction of weapons or toxic materials from or to other countries or parties; and

•• Establish rules for transition to long-term disarmament, monitoring, and inspection regimes.

- Prevailing conditions during negotiations for cessation of hostilities will affect specific US objectives and plans. Required US activities related to adversary NBC weapons should not be constrained by a demarcation line. Rather, a range of permissible verification and enforcement activities should be identified including movement of friendly forces into adversary areas as necessary.

e. **Intelligence Considerations.** Intelligence on adversary NBC capabilities will be critical to conflict termination and the negotiation of cease-fire terms, and may require increased collection, analysis, and production activities. **Intelligence objectives in this phase should emphasize developing a complete picture of the adversary's residual NBC assets and capabilities,** including: location and disposition of weapons, delivery means, production and research facilities, documentation, key military and civilian personnel, and operational units. Intelligence objectives should also include assessment of potential adversary COAs as the end of hostilities approaches. As the preconditions for conflict termination are attained, the JFC must consider how the adversary, presumably still in possession of NBC weapons, may react. The adversary may act cooperatively; undertake passive resistance; act to hide or disassemble NBC weapons, delivery systems, and production means; seek to transfer certain capabilities to other countries or confederate terrorist groups; or even decide to use NBC weapons in desperation or for revenge.

f. **Mitigation of Residual Hazards**

- Identifying, assessing, and mitigating residual hazards in the theater of operations will be an important aspect of transition to conflict termination. **US and other multinational forces must be able to detect and evaluate hazardous areas in order to contain and mitigate contamination hazards.** They must be capable of providing immediate life-saving support and emergency disposal (or containment) of leaking, unstable, or otherwise dangerous toxic materials. Joint force plans must also provide for the transfer of custody of contaminated materials and sites and associated monitoring tasks to the HN or follow-on forces or organizations.

- Operations may require the application of specialized ISR assets; continued NBC defense actions in selected zones even as hostilities are terminated; NEOs; and the execution of in-theater plans to manage the consequences of deliberate or accidental contamination. These activities may require intensive coordination and cooperation with multinational forces and HN civil authorities, as well as IOs and NGOs that offer specialized capabilities and skills.

- **The JFC will determine when emergency or routine equipment retrograde procedures will be undertaken.** This JFC decision entails accepting higher contamination risk

when warranted by immediate (emergency) mission requirements. As conflict termination appears more certain, commanders must weigh the risks to personnel safety against operational requirements prior to cessation of hostilities.

- The geographic zone in which mitigation activities will be conducted may be quite extensive as adversary and friendly occupied territory come under US and multinational control, and may be further complicated by the need to interact with local populations, both friendly and unfriendly. The potential complexity of this mission calls for detailed planning before transition to conflict termination. Plans should include provisions for maintaining detailed written and visual (e.g., photographic, video) records of contamination caused by NBC weapons and other toxic materials. These records may be essential for determining accountability and reparations requirements.

g. **Search, Identification, Control, and Recovery of Adversary NBC Capabilities**

- **The transition to conflict termination must include a comprehensive effort to locate and secure residual NBC capabilities.** This effort may have begun during hostilities. However, if adversary NBC weapons and facilities have not been captured by friendly forces during the campaign, gaining control of them before cessation of hostilities is likely only if the adversary has collapsed to the point where cease-fire terms can be dictated. Completion of search, identification, control, and recovery tasks provides a critical foundation for post-conflict planning to eliminate adversary capabilities and establish effective monitoring and other controls.

- A recovery, search, identification, and control plan should be established and executed with sufficient forces to gain timely control of NBC capabilities. **Specifically designated search and recovery task forces (S/RTFs) should be responsible to the JFC and include personnel with the technical proficiency necessary to identify and evaluate NBC weapons, equipment, and associated materiel.** Figure V-1 depicts a notional S/RTF organization.

A recovery, search, identification, and control plan should be established and executed with sufficient forces to gain timely control of NBC capabilities.

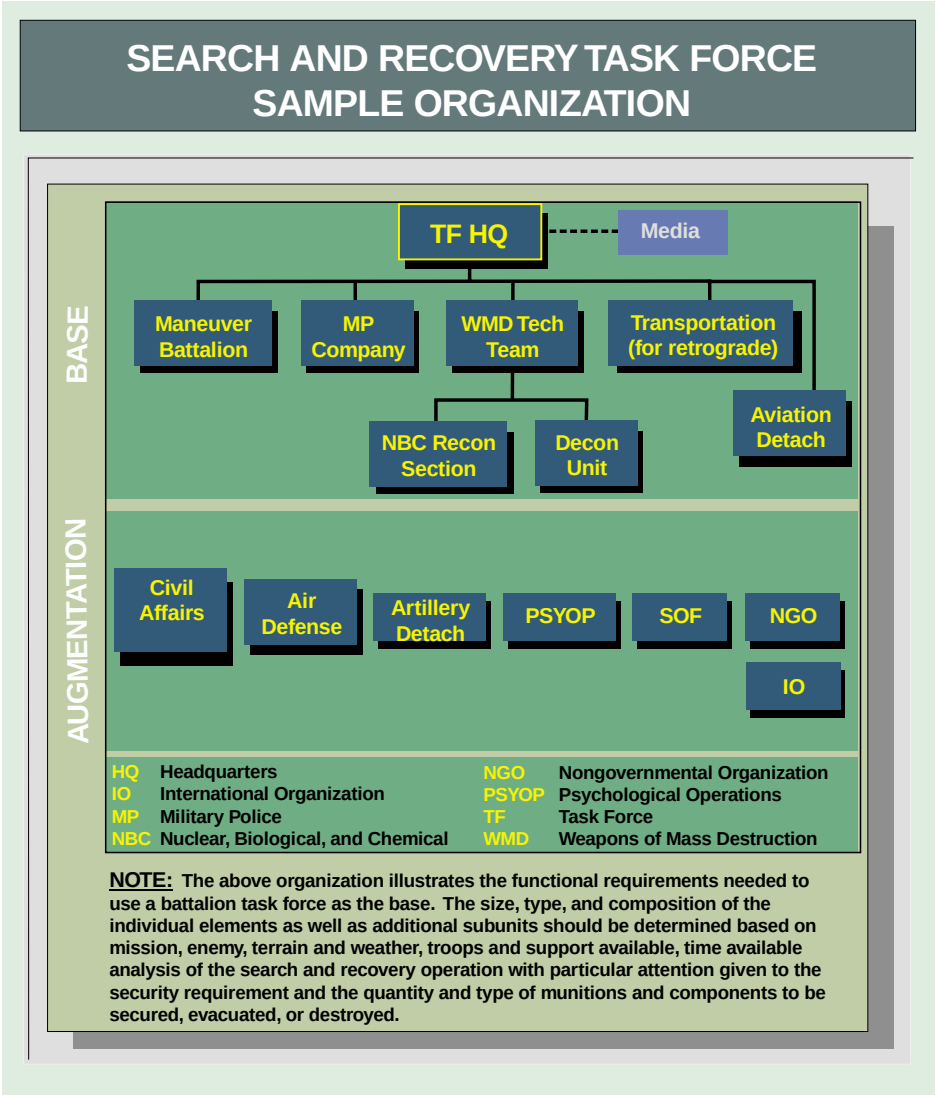

Figure V-1. Search/Recovery Task Force Sample Organization

S/RTFs should also be capable of emergency response to NBC accidents or incidents. S/RTFs should be prepared to initiate operations as soon as a cease-fire is in effect or, at the latest, upon the formal cessation of hostilities. Assuming ongoing efforts by the adversary to disperse, conceal, or remove NBC capabilities, early expansion of the area under positive US and multinational control is a central concern.

- S/RTFs will require clear ROE for execution of their missions, which could encompass a diverse set of tasks, to include the following:

  - Securing NBC-related sites;

  - Disabling or confiscating NBC weapons and materiel, including emergency operations to dispose of toxic materiel that cannot wait for normal

processing during all phases of operations in peace, war, and MOOTW;

•• Detaining adversary or third country nationals who may be associated with NBC weapons, accountable as possible war criminals, or useful for intelligence purposes;

•• Countering efforts to remove NBC assets from the adversary country;

•• Interacting with nonmilitary entities, especially to provide accurate and timely information to IOs and news media.

- S/RTFs must also begin inventorying adversary NBC capabilities, as well as classifying, evaluating, and mapping associated sites. Where possible, international monitoring organizations should be involved to demonstrate the legitimacy and credibility of S/RTF actions and assist in the transition to international control. S/RTF efforts should assist planners in determining the scope and requirements for disposing of enemy NBC capabilities in the post-conflict phase.

h. **Interaction With Nonmilitary Entities**

- Nonmilitary IOs and NGOs could play significant roles during conflict termination. The JFC may already have coordinated with US and HN agencies to help manage activities such as medical treatment of NBC casualties, evacuation of remains, decontamination and management of contamination hazards, and retrograde and destruction of NBC and other toxic material. As conflict termination approaches, additional coordination may be required.

- The HN, IOs, and NGOs may bring valuable knowledge and capabilities to specific NBC-related challenges in this phase, and some may assume an important role in post-conflict arrangements. **The JFC must be able to quickly determine the ability of these organizations to contribute to the military, political, and humanitarian objectives associated with the NBC aspects of conflict termination.** Where there has been extensive use of NBC weapons, the contribution of HN, IO, and NGO personnel may be vital to mitigating and coping with the consequences of contamination. There may also be requirements to help protect these personnel from exposure to NBC hazards. Successful integration of HN, IO, and NGO activities will require effective communications and relationships at all command levels, from the theater command to field units.

- **Finally, interaction with the media on issues related to NBC weapons will require continuous JFC oversight.** US objectives can be advanced through a positive relationship with the media that ensures expeditious dissemination of accurate information.

i. **Types and Quantities of Forces Required.** The JFC must determine the appropriate mix of forces to accomplish NBC-related conflict termination objectives. Security and compliance forces, such as combat, military police, and engineers will also be needed in addition to specialized intelligence, technical, and medical personnel. SOF may also be required to perform civil-military operations (CMO) and civil affairs activities, and PSYOP tasks specifically related to NBC aspects of conflict termination.

j. **Transition to Post-Conflict Operations.** Conflict termination operations should establish the basis for post-conflict operations that assure accomplishment of US long-term objectives in the region. To the degree that US forces and personnel are

integral to post-conflict operations, planning for the transition should emphasize continuity across all relevant tasks, consistent with redeployment requirements.

3. Post-Conflict Operations

a. **Overview.** Post-conflict operations provide the basis for a systematic elimination of the adversary NBC threat capabilities. Scattered, violent activity, to include terrorism, criminal acts, or continued resistance by armed groups refusing to recognize the peace accords, may continue for some time. **Positive control of adversary NBC capabilities, appropriate handling of NBC contamination challenges, and effective transition to a disarmament, inspection, and monitoring regime are central to mission success in this phase.** The planning considerations important to the transition to conflict termination remain relevant.

b. **General Considerations**

- The JFC will maintain sufficient combat forces to enforce implementation of the peace accords. Once there is high confidence that a return to hostilities is unlikely, withdrawal of excess combat and support forces may begin. **Certain combat and specialized units may be required as reaction forces and to deal with NBC-specific tasks.** These may include detection, explosive ordnance disposal, decontamination, medical, military police, and other units. The JFC will also need sufficient forces to prevent or monitor clandestine reintroduction or removal of NBC weapons and material.

- The rapid re-establishment of stability in the region will reduce the likelihood of NBC incidents, facilitate the transition to civil sector activities, and enhance the effectiveness of HN, IO, and NGO efforts. Where the HN, IOs, and NGOs are expected to play significant roles in post-conflict operations, the JFC must determine how to transition from US-led activities and to define and provide for subsequent HN, IO, and NGO support requirements.

c. **Intelligence Considerations.** With a return to peace, the reduction of combat forces, and establishment of disarmament or monitoring regimes, intelligence is likely to be critical to achieving post-conflict objectives related to NBC weapons.

d. **S/RTF Operations.** Recovery operations to secure and remove adversary NBC assets begun during the transition to conflict termination may require expansion as more detailed knowledge of adversary capabilities is developed and as the full range of NBC-related facilities is identified.

e. **Force Protection.** In this period, disaffected groups or terrorist organizations may seek to strike at US and other multinational forces as well as indigenous elements cooperating with the United States. With the reduction in US force levels, force protection measures must remain adequate to deter and mitigate the possible effects of NBC attacks and threats.

f. **Disarmament, Inspection, and Monitoring Regimes.** The JFC may have responsibility to help establish and enforce the initial stages of NBC disarmament, inspection, or monitoring regimes mandated by the cease-fire or peace accord. This responsibility may transition in full to an international entity (e.g., the United Nations) within a relatively short period of time. **Military support to international disarmament and inspection efforts may be required.** The NCA may also choose to undertake offensive military action to enforce compliance or in response to non-compliance. These requirements must be integrated into joint force intelligence and operation plans.

g. **Decontamination Actions.** It is possible that decontamination actions will be required in the post-conflict phase. Established TTP for decontamination of military equipment and personnel will be followed. If decontamination of civilian personnel, equipment, or facilities is required, procedures will be established in coordination with HN authorities and IO and NGO experts as appropriate. These procedures will include provisions for securing, safeguarding, or destroying NBC weapons, materiel, and agents as necessary.

h. **Retrograde of Contaminated Materiel from the Theater**

- In the early stages of post-conflict operations, **returning US equipment to CONUS or other locations will be a major activity as forces are withdrawn from the theater of operations**. As shown in Figure V-2, goals for contaminated materiel retrograde from the theater are mission support, protection of forces and resources from NBC hazards, and the control of contamination. The JFC will establish the relative priority among these goals in view of the circumstances at hand, in particular operational timing and the extent of contamination. For example, under emergency conditions, the attainment of US and multinational objectives may warrant increased risks and require a more robust protective posture to limit contamination hazards and mitigate their effects. In a non-emergency situation, those same risks may be unacceptable and more stringent contamination control measures may be required to support lower individual protection levels.

- Essential actions begin at the operator level and continue to the organization ultimately receiving the shipped equipment. **Two key roles are**

Figure V-2. Contaminated Materiel Retrograde Goals

Post-conflict operation removal of US equipment may be affected by NBC contamination threats.

performed by the JRAC and the NBC retrograde support element (RSE). Consistent with JFC and component commander guidance, the JRAC determines if mission requirements warrant the risk of emergency retrograde or if other COAs are acceptable. To assist with requirements for deliberate contaminated materiel retrograde, the JRAC may organize an NBC RSE to accomplish tasks from marking equipment to contamination monitoring. FM 3-4-1, *Fixed Site Protection*, provides useful assistance. Redeployment planning should address requirements for consolidation points for equipment with residual NBC contamination.

- The safety of personnel is of foremost concern during the retrograde of equipment with potential, residual, or low-level NBC contamination. Based on principles outlined in this paragraph, Services and other responsible military agencies must develop and implement specific, precautionary procedures for handling and transporting their equipment. Any equipment present in the attack or downwind hazard areas may possess residual contamination. Service manuals define NBC contamination hazard areas. Specialized detectors may be required at specified sites in the JRA to monitor contamination. Given decontamination technology limitations, some equipment may require extensive weathering or, in some cases, destruction to meet safety objectives. Following thorough decontamination, residual contamination risks include potential vapor and contact hazards. These risks increase as contaminated equipment is consolidated and personnel work around this equipment for prolonged periods. Risks may also increase as equipment is disassembled for maintenance functions or containerized for shipment.

- **Methods to mitigate nuclear and biological hazards are primarily functions of removal or decay of the nuclear matter and biological agents.** For residual radiation, if the radioactive particles cannot be removed, the time required for natural decay is a function of the isotope's half-life and cannot be accelerated. Under these conditions, distance and shielding between personnel and the equipment are the only means of reducing exposure risks. Biological agents generally decay within hours after dissemination or exposure to ultraviolet light (sunlight). For more robust biological agents, thorough decontamination and preparation of equipment to US Department of Agriculture import standards will eliminate most health threats; even so, continuing

precautions, such as individual protection, are warranted. Because of the small particle size of many biological agents, some agent may adhere to internal equipment surfaces, creating a risk, primarily respiratory, to unwarned maintenance personnel touching facial areas after contact with these internal surfaces.

- The non-emergency equipment retrograde concept shown in Figure V-3 assumes that post-conflict conditions allow time for thorough decontamination and weathering in the JOA before retrograde from the theater. Personnel assisting the JRAC with detection, monitoring, and preparation of the equipment will require stringent personal protection and specialized detectors. These preparations may require continuous operations for weeks or months. As suspect equipment is consolidated for monitoring, decontamination, and weathering, security and buffer zones around the consolidation site provide additional contamination control measures to protect US and multinational forces as well as HN personnel.

- Air quality control and related legal requirements are additional considerations requiring legal advice and review prior to equipment retrograde. Once in CONUS, precautionary measures continue throughout the remaining equipment life cycle, including DOD control requirements, pre-maintenance monitoring, and other periodic monitoring.

Figure V-3. Deliberate Contaminated Materiel Retrograde Concept

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CHAPTER VI
MILITARY OPERATIONS OTHER THAN WAR

"MOOTW encompass a broad range of military operations and support a variety of purposes, including: supporting national objectives, deterring war, returning to a state of peace, promoting peace, keeping day-to-day tensions between nations below the threshold of armed conflict, maintaining US influence in foreign lands, and supporting US civil authorities consistent with applicable law. Support of these objectives is achieved by providing military forces and resources to accomplish a wide range of missions other than warfighting."

JP 3-07, *Joint Doctrine for Military Operations Other Than War*

1. General

This chapter describes principles for joint force MOOTW in NBC environments. It encompasses MOOTW involving the use or threat of force as well as those not involving the use or threat of force. The unique aspects of conducting MOOTW within the United States receive special consideration; see paragraph 4, below.

2. Overview

a. Figure VI-1 illustrates the range of operational activities that are conducted as MOOTW. The Armed Forces of the United States participate in MOOTW in efforts to deter war, resolve conflict, promote peace, and support civil authorities in domestic and overseas emergency or attack situations as permitted by law. MOOTW may be conducted as singular operations, as the precursor to combat operations, in parallel with ongoing combat operations, or following the cessation of combat activity.

b. State-supported and non-state terrorist groups may employ NBC weapons, or natural and manmade disasters may contaminate areas with toxic materials whose mitigation will require the efforts of specialized military forces. **Further, the conduct of MOOTW in NBC environments may require**

TYPES OF MILITARY OPERATIONS OTHER THAN WAR

- Arms Control
- Combatting Terrorism
- DOD Support to Counterdrug Operations
- Enforcement of Sanctions/Maritime Intercept Operations
- Enforcing Exclusion Zones
- Ensuring Freedom of Navigation and Overflight
- Foreign Humanitarian Assistance
- Domestic Support Operations
- Nation Assistance/Support to Counterinsurgency
- Noncombatant Evacuation Operations
- Peace Operations
- Protection of Shipping
- Recovery Operations
- Show of Force Operations
- Strikes and Raids

Figure VI-1. Types of Military Operations Other Than War

coordination and cooperation with agencies, organizations, and individuals outside the military chain of command or direct control. In many MOOTW situations, the JFC may be in a supporting role to civil authorities, to US ambassadors and their country teams, or to HN authorities.

c. The basic principles of operations in NBC environments apply to MOOTW. The JFC and joint force elements must be prepared for NBC use and contamination with toxic materials at any point, including the transition from non-combat to combat environments. JP 3-07, *Joint Doctrine for Military Operations Other Than War*, and other JPs in the 3-07 series promulgate detailed guidance for the range of MOOTW. The JFC must apply this guidance while adapting to the current NBC threat in the operational area. Additionally,

DEATH IN THE SUBWAY

Until last week, Kasumasa Takahashi was just another faceless Japanese bureaucrat, the deputy stationmaster at Kasumigaseki subway station in central Tokyo. The blue-suited mandarins of the nation's key ministries who poured from the commuter trains every morning were his customers: Takahashi took their tickets, pointed them up the proper escalators and kept the sprawling station — where three major subway lines converge — so clean that the white gloves he wore on the job were seldom soiled.

Then last Monday, suddenly and quietly, the 50-year-old career subway man became a hero. The 8:14 a.m. Chiyoda Line train bound for Yoyogi-Uehara pulled in on track 5 with an obvious problem. Passengers were spilling out of its first car with tears streaming, choking, some foaming at the mouth. Takashashi walked into the car, picked up a foul-smelling, 6-inch-high package wrapped in newspaper and carried it onto the platform. Drops began leaking from it onto the platform tiles, and Takahashi started to mop them up with his handkerchief. Then, he collapsed and lost consciousness. The man whose son and brother were also subway workers never came out of the coma, and he died later that day in a nearby hospital.

The poisonous nerve gas that killed Takahashi and nine other Japanese and injured more than 5,500 was Sarin, invented by the Nazis and applied with deadly efficiency, suggested Japanese authorities, by members of Aum Shinrikyo, an apocalyptic religious sect. In the following days, gas-masked police, accompanied by a few Japanese military personnel and several caged canaries used to detect deadly fumes, raided two dozen sites throughout Japan where sect members lived. They made several arrests and seized bags and barrels of chemicals - tons of toxic material in all – which authorities said could be used to make Sarin.

For the rest of the world, the deadly Tokyo attack was yet another shocking reminder of how vulnerable most societies are to terrorism. The weapon wasn't an exotic nuclear device but a relatively unsophisticated mixture of chemical agents, most of them readily available. And the alleged perpetrator was not a distant hostile government closely watched by intelligence agencies but a shadowy, global and unpredictable religious band.

SOURCE: Mike Tharp, *U.S. News & World Report*, April 3, 1995

CJCSI 3214.01, *Military Support to Foreign Consequence Management Operations*, defines responsibilities for planning and conducting military CM operations in response to incidents on foreign soil involving WMD.

3. Peacetime Preparations and Transition to Operations

a. **General.** Planning for MOOTW is similar to that of war. The mission analysis and command estimate processes require the development of a clear, well-defined understanding of potential threats, including NBC weapons and other toxic materials, and their associated vulnerabilities. **JFCs should plan for suitable forces to meet the NBC threats and to mitigate NBC effects in conjunction with civil authorities, HN and friendly forces, and their capabilities.** MOOTW planning and operations may include strikes or raids to eliminate a developing NBC threat, as well as activities to prepare friendly forces and civilian elements for NBC attacks.

b. **Force Composition**

- Deploying and undertaking the assigned MOOTW with the appropriate mix of forces and military capabilities is central to mission success. In addition to those forces and capabilities necessary to achieve primary MOOTW objectives, **the JFC must identify those specialized NBC defense units and resources required from both government and nongovernment sources to deal with NBC threats**.

- Plans should provide for maintaining unit integrity in selecting forces for MOOTW, since units are best able to accomplish a mission when deployed intact. However, deploying with ad hoc force elements often becomes necessary. In these instances, personnel and units may be drawn from various commands or agencies, may have varying levels of NBC training and equipment availability, and may require special logistic support. **Thus, the JFC must ascertain the NBC defense readiness of units and individuals and take action to correct shortfalls, preferably prior to deployment.**

- **Joint Technical Augmentation Cell (JTAC).** A specialized organization, the JTAC is composed of technical experts from throughout the DOD and is available to advise and assist the geographic combatant commander tasked with mitigating and managing the consequences of an NBC attack or other toxic material contamination on foreign soil. Upon activation, the JTAC operates under the operational control (OPCON) of US Joint Forces Command (USJFCOM) for deployment, employment, and force protection. USJFCOM will transfer OPCON, as needed, to the appropriate geographic combatant commander to support operations in that commander's AOR. JTAC has technical expertise in the areas of agent analysis and mitigation, contamination, reconnaissance, decontamination, and specialized medical care.

c. **Information Gathering and Intelligence Production.** NBC threat considerations require the use of data gathered from a wide variety of sources, including remote sensing devices, standoff NBC detectors, weather and terrain mapping satellites and aircraft, imagery reconnaissance and surveillance assets, human intelligence (HUMINT), and signals intelligence. To keep abreast of the NBC threat, all-source data gathering and intelligence production are required for the JFC. In addition to the information gathering requirements noted in JP 3-07, *Joint Doctrine for Military Operations Other Than War*, specific priority

intelligence requirements should be developed for the contemporary NBC threat posed, and should receive appropriate priority in the collection effort. The use of HUMINT and close coordination with civilian organizations, including NGOs, may be important in this effort. For instance, the first indication of biological attack may emerge from civilian medical authorities attempting to deal with a sudden outbreak of a disease or illness.

d. **Multinational Operations.** US forces often conduct MOOTW overseas as part of a United Nations or multinational (e.g., North Atlantic Treaty Organization) force. These operations require the multinational force commander and the supporting US JFC to consider not only military factors, such as training, interoperability, and logistic support, but also political, linguistic, and cultural factors. **Multinational force commanders should be expected to assign missions based on each multinational partner's capabilities, including NBC defense training, equipment, and readiness.** In some cases, US NBC defense capabilities may be required to augment those of other participating nations. In other cases, HN capabilities (including medical personnel and facilities) may be required to meet US joint force needs. US MOOTW liaison and advisory teams must assist in developing common procedures for operations in NBC environments and plan for coordinated actions in the event of NBC attack or contamination by other toxic materials.

e. **Command and Control**

- The JFC should ensure that ROE for the particular MOOTW being undertaken are appropriate for operations in NBC environments. **Special ROE with regard to NBC threats should be promulgated and thoroughly understood by all participants.** Such ROE may pertain to limitation of collateral damage in targeting suspected NBC weapons sites. Other considerations include refugee control and medical treatment for civilians.

- **Communications interoperability in an NBC environment is essential.** Communications may be severely hampered by wearing protective clothing and equipment. The JFC should devise alternate methods of communication in advance of primary systems becoming affected by NBC conditions. Interoperability with HN civilian and multinational force communications is also essential for mission accomplishment. In some cases, joint force communications capabilities may need to augment those of civil authorities or multinational force elements in the conduct of NBC defense missions.

f. **Public Affairs.** In their public affairs planning, JFCs should include provisions for timely NBC threat warning and actions to keep the civilian populace informed concerning NBC threats and actions being taken to mitigate NBC effects. Public affairs plans should be constructed to take the lead in providing accurate information, verifying reports and facts, countering erroneous information disseminated from a range of sources, and minimizing panic.

g. **Psychological Operations.** PSYOP activities constitute a planned, careful process of conveying messages to and influencing selected target groups, often using radio and television mass communications within the theater. PSYOP plans in support of MOOTW should account for possible use of NBC weapons, and should be coordinated with the public affairs plan. PSYOP messages must be compatible with and reinforce public affairs messages to ensure that no conflicting information is being disseminated to the public.

The JFC may need to interact with civil authorities, IOs, NGOs, and other organizations on NBC-related issues to mitigate the effects of NBC use.

h. **Coordination with IOs and NGOs.** In conducting MOOTW, JFCs should be prepared to coordinate both civilian and military actions. **For some operations, a civil-military operations center (CMOC) may be established and staffed as the situation warrants with JTF personnel and liaison personnel from HN civil authorities, IOs, NGOs, and other organizations.** The CMOC provides a specifically designed instrument for establishing coordination and cooperation with nonmilitary groups. If civil affairs units or personnel are available, they can perform many of the required liaison duties. The JFC may need to interact with civil authorities, IOs, NGOs and other organizations on NBC-related issues, to include civil defense warning and alarm procedures, response capabilities, refugee and crowd control, medical assistance, and other actions to mitigate the effects of NBC use or other toxic material contamination. Civil and military HN authorities, IOs, NGOs, and others may be important sources of NBC-related information.

i. **Interagency Operations Abroad.** The Department of State and the US ambassador to the particular country coordinate US activities abroad through the country team, with US agency representation (including the Department of Defense) as required in the specific situation. **The military chain of command from the NCA to the JFC remains in effect, even though a non-DOD agency may have overall lead responsibility for NBC-related and other MOOTW activities.**

j. **Logistics**

- **Unit Mix.** In MOOTW, combat support and combat service support elements may provide the bulk of forces that comprise the US MOOTW command. The JFC must ensure that support units are capable of meeting force protection requirements, including NBC defense, and have sufficient combat or security forces assigned or in support to meet these needs. Support units should be properly equipped and trained to meet individual and unit NBC defense standards.

- **Special Logistic Needs. The JFC should ensure that all equipment needed for NBC defense is on hand and can be distributed for rapid use in MOOTW.** Planning for these logistic requirements (including rapid

augmentation or surge) should be part of the initial NBC threat assessment, be written into MOOTW plans, and adjusted as necessary. For example, NEO are a category of MOOTW whose NBC defense requirements should be anticipated by the JFC.

- **Civilian and HN Logistic Capabilities.** JFCs must be familiar with civilian and HN capabilities for NBC defense in the theater. This should include civil defense and emergency preparedness capabilities, transportation systems, civilian and military medical systems, commercial and military decontamination capabilities, and communications. **In the aftermath of an NBC attack or toxic contamination event, the joint force may be compelled to rely on access to civilian or military capabilities in the theater to meet joint force needs.** Conversely, the restoration of critical logistic support structures in the theater may depend on available US, multinational, or other non-indigenous capabilities. Close liaison with civilian and military HN authorities, other multinational partners, IOs, and NGOs will be required.

- **Critical Infrastructure Concerns.** The JFC must ensure that critical logistic throughput and transportation facilities receive adequate protection from conventional or NBC attack, and that plans, training and equipment are in place for rapid restoration of operations after attack. This should be addressed early in the joint force planning and preparation effort and will involve coordination with HN and coalition partners. Areas that should be addressed include facility usage planning, warning and alarm systems, coordinated active and perimeter defense measures, shelter systems, decontamination capabilities and procedures, and the training and equipping of essential civilian work force members. In some cases, the sharing of US military equipment stocks may be authorized to meet HN or multinational partner NBC defense needs.

k. **Health Service Support**

- HSS planning activities generally include hospitalization, PVNTMED, veterinary services, medical logistics, blood supply and distribution, medical regulating, and patient movement and

The ability of domestic and HN medical facilities to deal with NBC effects should be assessed and factored into US joint and multinational HSS planning.

evacuation. The permanent party health care system (for mature theaters) and deployable HSS units are usually assigned to a joint force for the care and treatment of US military personnel, their dependents, and other specifically designated personnel. **However, requirements to treat the HN populace or multinational partner military members should be anticipated.** In the case of operations in the United States, there may be a requirement to augment civilian medical capabilities in the handling of casualties resulting from NBC attacks or other toxic material contamination.

- **HSS planning for overseas or CONUS operations should include provision for surge medical requirements using on-hand and rapidly deployable capabilities.** Special consideration is required for HSS for NEO evacuees who may have been exposed to NBC or other toxic agents. The ability of domestic and HN medical facilities to handle mass casualties from NBC effects should be assessed and factored into US joint and multinational HSS planning. Close coordination with HSS and other public health providers in the theater is a vital means of detecting chemical and biological attacks, since casualties from such an attack may appear initially in the civilian medical system.

l. **Active and Reserve Mix.** MOOTW often employ a larger proportion of reserve and National Guard units and personnel than other military operations. All units, active or reserve, must meet readiness standards for NBC defense if they are to sustain operations in NBC environments.

4. MOOTW Within the United States

a. **General.** While most MOOTW are conducted overseas, domestic operations may be conducted in support of civil authorities consistent with established law. In most situations, the Department of Defense will not be the lead federal agency (LFA), but will support other agencies. DOD assistance is requested through the Secretary of Defense (SecDef), who has appointed an executive agent for screening requests, providing interagency coordination, and executing support to civil authorities (See Department of Defense Directives 3025.1, *Military Support to Civil Authorities*, and 3025.15, *Military Assistance to Civil Authorities)*. JTF-CS is the standing task force that provides military support to mitigate the effects and manage the consequences of an WMD attack or other toxic material contamination within the United States, its territories, and possessions.

b. **JTF-CS Operational Concept.** When directed by the Secretary of Defense, JTF-CS — a standing, permanent headquarters element subordinate to USJFCOM — will deploy to provide tailored and flexible support to LFA efforts to prevent loss of life, mitigate human suffering, restore essential services, and prevent or contain further damage. **JTF-CS focuses first on incident assessment and rapid deployment of DOD capabilities to ensure sufficient and synchronized support to LFA activities.** Once forces have arrived at the incident site, the focus will shift to fulfilling approved requests for assistance from the LFA.

c. **JTF-CS Guiding Principles**

- JTF-CS is a command and control headquarters operating in support of the LFA and participating in mitigating and managing the consequences of a WMD incident. It is a follow-on force behind those elements that arrive first at the incident site, primarily state and local assets. **JTF-CS will respond when the President issues a Federal emergency declaration and the NCA approves the use of JTF-CS.**

JTF-CS focuses first on incident assessment and rapid deployment of DOD capabilities to ensure sufficient support to LFA activities.

- JTF-CS will be organized, equipped, and trained for flexible response, capable of rapidly tailoring the scale and character of its response to the requirements of the LFA. JTF-CS will not duplicate the technical response capabilities that currently exist throughout the Department of Defense and the federal government. It will complement those capabilities, employing DOD assets in their most appropriate and useful roles. As a subordinate organization of USJFCOM, JTF-CS has available all resources of USJFCOM and its Service components, as well as specialized DOD agencies. When deployed, JTF-CS will operate under the OPCON of the supported combatant commander.

d. **Support to the Lead Federal Agency.** JTF-CS support encompasses both **crisis management** before an NBC attack or other toxic material contamination occurs, and **CM** activities following such an event. Presidential Decision Directive/NSC 39, *US Government Policy on Counterterrorism*, defines a number of Federal roles in domestic crisis management and CM. The LFA for crisis management is the Department of Justice-Federal Bureau of Investigation. The LFA for CM is the Federal Emergency Management Agency (FEMA).

- **Crisis Management**

•• During crisis management operations, the **JTF-CS will support the LFA in the conduct of CM planning** through FEMA to prepare for any projected CM mission. JTF-CS planning includes two types of events: "national special security events" and "no notice events."

•• **No Notice Events.** Should a previously unforeseen significant threat be identified JTF-CS will, when directed by the Secretary of Defense, deploy in support of the LFA to plan for CM. **Tasks to be accomplished focus on detailed planning, predictive analysis, and adjusting alert postures for appropriate US forces should this be needed.** JTF-CS will exercise OPCON of DOD forces deployed in support of CM planning in these types of events, less the elements of joint special operations task force (JSOTF) and US Army Corps of Engineers (USACE).

•• For both types of crisis management events, the occurrence of an incident will result in a mission change for USJFCOM that initiates execution of JTF-CS support to FEMA as the LFA for CM.

- **Consequence Management**

  •• **In a CM operation, the relationship of JTF-CS will parallel the lines of coordination and cooperation that exist for any disaster response mission in which the Department of Defense supports FEMA.** JTF-CS will exercise OPCON over all DOD forces (less elements of JSOTF and USACE).

  •• JTF-CS develops procedures and plans for CM activities that provide MSCA in coordination with combatant commands with responsibilities for operations in US territories and possessions. Upon approval of implementation plans in these respective combatant command areas, the proper relationships will be established between JTF-CS and the affected combatant commander's forces, including any available CM JTFs.

  •• **National Special Security Events. Preplanned national events may be perceived by adversaries as opportunities for the employment of NBC weapons or other toxic materials.** When such threats appear significant, the Attorney General and the Secretary of the Treasury may designate the event a national special security event. The LFA may request support from the Department of Defense. Upon SecDef approval, the JTF-CS will deploy in support of the LFA to plan for CM. As the threat develops, plans and unit alert postures will be adjusted as necessary. Since this type of operation is typically planned for in advance, the command and control relationships within the Department of Defense will be established prior to the event. JTF-CS will be prepared to exercise OPCON of all or any portion of DOD forces deployed in support of the event, with the exception of elements of the JSOTF and the USACE.

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APPENDIX A
THREAT CONSIDERATIONS

1. General

a. This appendix outlines considerations for assessing the threat posed by adversary use of NBC weapons and other toxic materials to joint, multinational, and interagency operations in which the Armed Forces of the United States may participate. Because their effects on the electromagnetic spectrum are similar to those of nuclear detonations, non-nuclear weapons that generate EMP are included. This appendix also contains general, notional threat profiles based on generic characteristics of the types of adversaries that may challenge US interests. These profiles provide the basis for preliminary planning and must be supplemented or replaced, whenever possible, by current validated intelligence products.

b. In planning, the considerations contained in this appendix support development of a combatant and subordinate commander's priority intelligence requirements and campaign plans in general. In developing capabilities to meet combatant and subordinate commander's missions in areas in which adversaries may possess NBC weapons, the considerations in this appendix also support training, professional military education, and leader development activities of individual Services and, collectively, of the Armed Forces of the United States.

2. Assessment Framework

a. The framework for assessing the threat posed by an adversary possessing, or suspected of possessing, NBC weapons contains six elements: who, why, when, where, what, and how. These elements are summarized in Figure A-1.

b. This framework supports the NBC threat assessment process and forms the basis for a tabular description of the threat profiles that follow. The framework provides an analytic tool for assessing the vulnerability of targets

NBC THREAT ASSESSMENT FRAMEWORK	
Who	Type of adversary possessing NBC weapons
Why	Broad objectives for use of NBC weapons
When	Timing for use in crises and conflicts
Where	Types and locations of targets
What	Type of NBC use
How	Concept for NBC employment
NBC = nuclear, biological, and chemical	

Figure A-1. NBC Threat Assessment Framework

in general and in areas of interest to specific commands.

3. Broad Objectives for Adversary Employment of NBC Weapons

a. Figure A-2 summarizes the broad objectives that the three types of adversaries may entertain for employment of NBC weapons against US forces operating unilaterally or in multinational coalitions. It also identifies the types of NBC weapons that may be most appropriate for those broad objectives. While an adversary may use any weapons available in a conflict involving the United States, Figures A-2 through A-5 focus on the weapons that an adversary could consider most effective for achieving the stated objective.

b. Adversaries may also develop and employ radiological weapons whose effects are achieved by dispersing toxic radioactive materials against desired targets. Moreover, other toxic industrial materials may be used deliberately or spread accidentally in ways that threaten US forces and interests. Adversary employment of radiological and other toxic materials may be most appropriate in seeking to disrupt US and coalition forces, deterring US intervention, or achieving regional leverage or intimidation. The variety of these toxic materials makes their detailed treatment in this appendix impractical.

c. Global and regional adversaries may have the means and motivation to develop and employ nuclear and non-nuclear weapons for the purpose of generating an EMP. In some cases, EMP weapons could be detonated at high altitudes. Figures A-3 and A-4 take these potential adversary actions into account.

4. Emerging Global Adversaries

An emerging global adversary could have an NBC employment profile that seeks broad objectives as indicated in Figure A-3, and seeks to exploit US and coalition vulnerabilities.

BROAD OBJECTIVES OF POTENTIAL ADVERSARIES FOR ACQUISITION AND EMPLOYMENT OF NBC WEAPONS

WHY / WHO	US Defeat, Revenge, Survival	Prevent Defeat by the United States	Disrupt US Multinational Force	Deter US Intervention	Regional Leverage, Intimidation
Emerging Global Adversary	●Nuclear ●Biological	●Nuclear ●Biological ●Chemical	●Biological ●Chemical	●Biological ●Chemical	●Biological ●Chemical
Regional Adversary	●Nuclear ●Biological ●Chemical	●Nuclear ●Biological ●Chemical	●Biological ●Chemical	●Biological ●Chemical	●Biological ●Chemical
Non-state Adversary	●Nuclear ●Biological ●Chemical		●Biological ●Chemical	●Biological ●Chemical	●Biological ●Chemical

Figure A-2. Broad Objectives of Potential Adversaries for Acquisition and Employment of NBC Weapons

EMERGING GLOBAL ADVERSARY NBC EMPLOYMENT PROFILE				
Why: **Broad Objective**	**When:** **Timing**	**Where:** **Targets**	**What:** **Type NBC Use**	**How:** **Employment Means**
US Defeat, Revenge, Survival	• Mid-war; fearing defeat • Late; defeat imminent	• US and regional Civilian infrastructure and population	• Nuclear • Biological	• Ballistic missiles • SOF
Prevent Defeat by United States	• Mid-war	• US and regional combat units • C2 • Logistics	• Nuclear EMP • Nonnuclear EMP • Biological • Chemical	• Ballistic and cruise missiles • SOF
Disrupt US Multinational Force	• Early	• Regional combat units • C2 • Logistics	• Nuclear EMP • Biological • Chemical	• Aircraft • Ballistic and cruise missiles • SOF
Deter US Intervention	• Early	• Regional civilian infrastructure • Logistics	• Nonnuclear EMP • Nonlethal biological • Nonpersistent chemical	• Aircraft • Ballistic and cruise missiles • SOF
Regional Leverage, Intimidation	• Early	• Regional civilian infrastructure • Population	• Nonlethal biological • Nonpersistent chemical	• Aircraft • Ballistic and cruise missiles • SOF
C2 = command and control			**NBC = nuclear, biological, and chemical**	
EMP = electromagnetic pulse			**SOF = special operations forces**	

Figure A-3. Emerging Global Adversary NBC Employment Profile

5. Regional Adversaries

A regional adversary could have an NBC employment profile that seeks broad objectives as indicated in Figure A-4, and seeks to exploit US and coalition vulnerabilities.

6. Non-state Adversaries

A non-state adversary could have an NBC employment profile that seeks broad objectives as indicated in Figure A-5, and seeks to exploit US and coalition vulnerabilities.

REGIONAL ADVERSARY NBC EMPLOYMENT PROFILE				
Why: **Broad Objective**	**When:** **Timing**	**Where:** **Targets**	**What:** **Type NBC Use**	**How:** **Employment Concept**
Defeat US, Revenge, Survival	• Late; fearing defeat • Post-conflict; for revenge	• US and regional Military and civilian infrastructure	• Nuclear • Biological • Chemical	• Artillery • Aircraft • Ballistic and cruise missiles • SOF
Prevent Defeat by US	• Mid-war	• US and regional combat units • C2 • Logistics	• Nuclear • Biological • Chemical	• Artillery • Aircraft • Ballistic and cruise missiles • SOF
Disrupt US Multinational Force	• Early	• US and regional combat units • C2 • Logistics	• Nonnuclear • EMP • Biological • Chemical	• Aircraft • Ballistic and cruise missiles • SOF
Deter US Intervention	• Early	• Civilian and military infrastructure • Combat units • C2 • Logistics	• Nonnuclear • EMP • Biological • Chemical	• Aircraft • Ballistic and cruise missiles • SOF
Regional Leverage, Intimidation	• Early	• Civilian infrastructure • Livestock	• Nonnuclear EMP • Nonlethal biological • Nonpersistent chemical	• Aircraft • Cruise missiles • SOF
C2 = command and control **EMP = electromagnetic pulse**			**NBC = nuclear, biological, and chemical** **SOF = special operations forces**	

Figure A-4. Regional Adversary NBC Employment Profile

NON-STATE ADVERSARY NBC EMPLOYMENT PROFILE				
Why: **Broad Objective**	**When:** **Timing**	**Where:** **Targets**	**What:** **Type NBC Use**	**How:** **Employment Concept**
Defeat US, Revenge, Survival	• Late • Post-conflict	• Civilian infrastructure • Population	• Nuclear • Biological • Chemical	• Aircraft • Cruise missiles • SOF
Disrupt US Multinational Force	• Early • Mid-war	• Civilian and military infrastructure • C2 • Logistics	• Biological • Chemical	• Aircraft • Cruise missiles • SOF
Deter US Intervention	• Early	• Civilian and military infrastructure • Population	• Biological • Chemical	• Aircraft • Cruise missiles • SOF
Regional Leverage, Intimidation	• Early	• Civilian infrastructure • Population	• Nonlethal biological • Nonpersistent chemical	• Aircraft • Cruise missiles • SOF
C2 = command and control **SOF = special operations forces** **NBC = nuclear, biological, and chemical**				

Figure A-5. Non-state Adversary NBC Employment Profile

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APPENDIX B
NUCLEAR HAZARD CONSIDERATIONS

1. General

The international security environment encompasses threats from potential adversaries armed with nuclear weapons and other radiation sources. Additional hazards may result from radiological materials released from industrial activities or expended munitions. This appendix summarizes common effects produced by nuclear weapons, high-energy radiation, and radiological materials to assist combatant and subordinate commanders to plan for and conduct operations in NBC environments.

2. Nuclear Weapons Effects

a. **Nuclear Detonations and Their Products**

- The nature and intensity of the effects of a nuclear detonation are functions of the type of weapon, its yield, the physical medium in which the detonation occurs, and the characteristics of the target. At the point of detonation, a typical nuclear weapon will release most of its energy as thermally generated x-rays. Figure B-1 depicts the relative proportions of the primary products of a nuclear explosion.

- A nuclear weapon may be detonated in space, in the atmosphere above the earth's surface, on the surface, and below the surface. Data in this appendix focus on air bursts. When the detonation occurs in the atmosphere, the primary radiation products (e.g., x-rays, gamma rays, and neutrons) interact with the surrounding

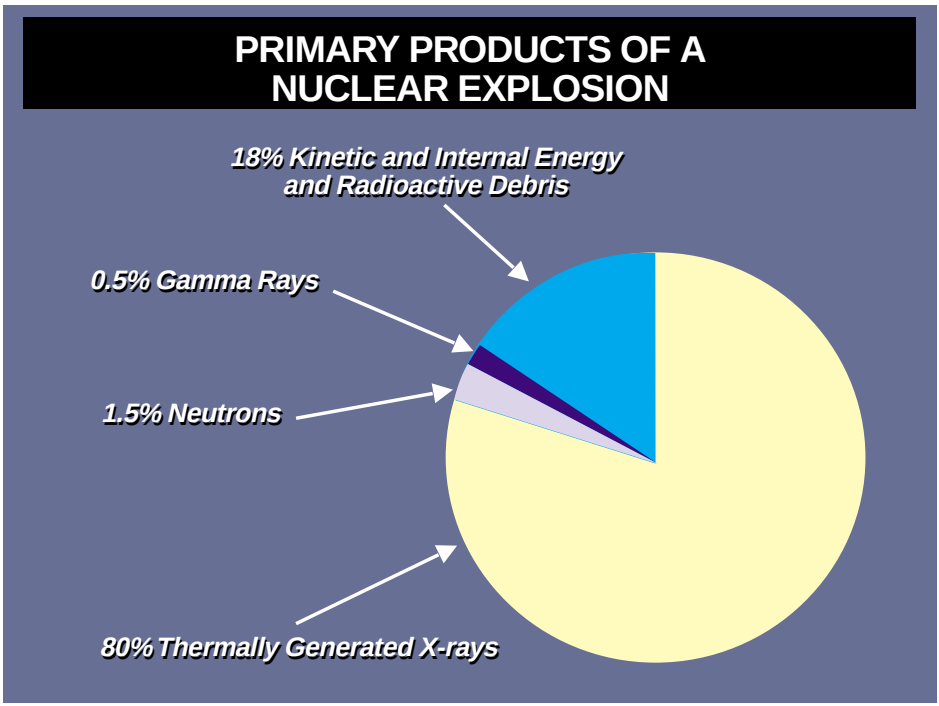

Figure B-1. Primary Products of a Nuclear Explosion

air molecules and are absorbed and scattered as they radiate from the point of detonation. The secondary radiation products — which produce the preponderance of the damage and casualties beyond the immediate point of detonation — are as depicted in Figure B-2.

For additional technical data see JP 3-12.2, Nuclear Weapons Employment Effects Data *(SECRET); JP 3-12.3,* Nuclear Weapons Employment Effects Data (Notional) *(UNCLASSIFIED); and FM 3-7,* NBC Handbook.

b. **Blast and Shock.** A nuclear explosion produces shock waves, high overpressures, and severe winds. These blast and shock effects produce casualties and damage through crushing, bending, and breaking as the direct effects of shock waves and winds are amplified by falling and flying debris. Personnel suffering critical injuries from blast and shock effects would likely suffer lethal radiation exposure as well.

c. **Thermal Radiation.** Heat and light released by a nuclear detonation can cause burns over substantial distances. Depending on proximity and shielding, clothing and other flammable items may ignite. Secondary fires from blast and heat are an additional hazard. Thermal effects can also disrupt operation plans as fire and melting snow and ice may impede movement.

d. **Ionizing Radiation.** Initial radiation in the form of x-rays, gamma rays, and neutrons produced by a nuclear detonation ionizes material and is therefore a significant threat to personnel and materiel, including optical, mechanical, and electronic components. Gamma rays and neutrons have a long range in the air, are highly penetrating, and are likely to be a main cause of casualties.

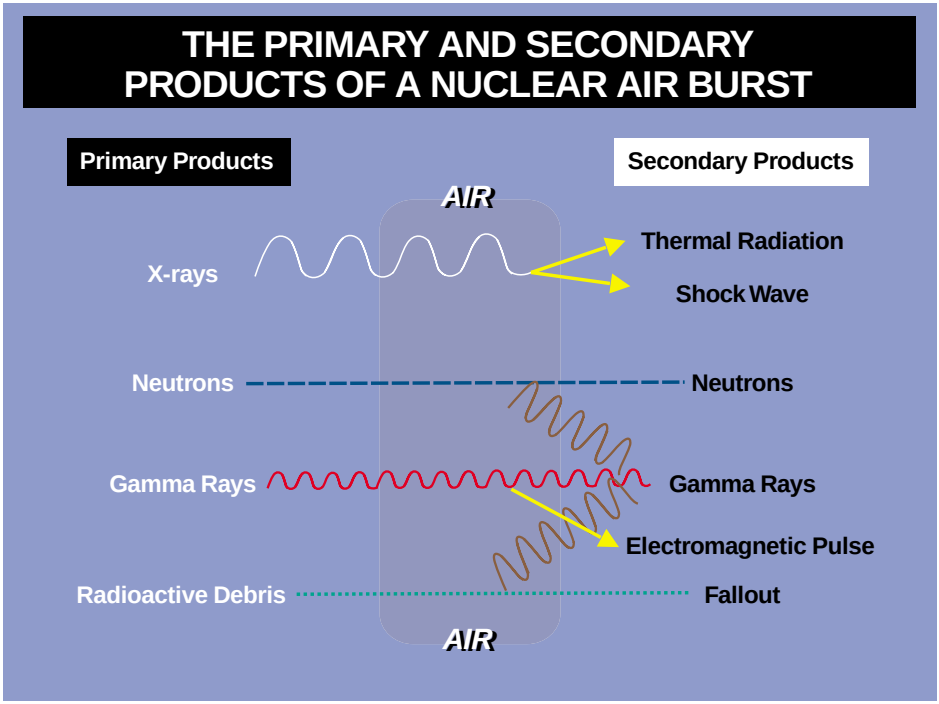

Figure B-2. The Primary and Secondary Products of a Nuclear Air Burst

e. **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 EMP can extend to hundreds of kilometers depending on the height and strength of the nuclear burst. High-altitude EMP (HEMP) can generate significant disruptive field strengths over a continental-size area. The portion of the frequency spectrum most affected by EMP and HEMP is the communications band.

f. **Fallout.** In addition to the initial thermal and ionizing radiation and EMP, a nuclear detonation produces residual radiation resulting from the dispersal of radioactive materials in the target area and downwind. Fallout may be a lingering and widespread hazard that severely limits military operations in the contaminated area. Figure B-3 provides a synopsis of militarily significant nuclear effects.

3. Protective Actions

a. Protective actions taken before an attack are most effective for individual survivability and unit effectiveness and may include clothing (one or two layers of loose, light-colored clothing can reduce burns), terrain selection (use of reverse slopes), dispersion, and sheltering (use of depressions, culverts, caves, bunkers, and obstructions). Education and training of leaders, staffs, and individuals on nuclear weapons effects and the principles of operations in NBC environments can significantly enhance operational effectiveness in the event of nuclear attack.

b. Commanders operating in NBC environments must minimize and control the exposure of their personnel to radiation. Figures B-4 and B-5 provide information on radiation exposure status categories and military radiation exposure states and risk criteria. Control of exposure to radiation must be considered together with other risks, in light of the JFC priorities, in the accomplishment of the unit's mission.

See FM 3-3-1/Fleet Marine Force Manual (FMFM) 11-18, Nuclear Contamination Avoidance.

4. Additional Radiation Hazards

a. In the operational environment, many highly technical items of equipment have high-energy or radiological sources that may accidentally or deliberately become radiation

NUCLEAR WEAPONS EFFECTS	
Source	**Target Effect**
Blast	Crushes, deforms, tumbles, shocks, creates missiles and obstacles
Thermal Radiation	Fires, burns, eye damage
Nuclear Radiation	Causes immediate or delayed radiation sickness, increased disease and non-battle injury, material and terrain contamination
Electromagnetic Pulse (EMP) and High Altitude EMP	Causes permanent or temporary impairment of electrical, electro-optical, and electronic equipment

Figure B-3. Nuclear Weapons Effects

RADIATION EXPOSURE STATUS CATEGORIES	
RES-0	The unit has not had radiation exposure
RES-1	The unit has been exposed to greater than 0 cGy but less than or equal to 75 cGy[1]
RES-2	The unit has been exposed to greater than 75 cGy but less than or equal to 125 cGy
RES-3	The unit has been exposed to greater than 125 cGy

Notes:
[1]Nuclear radiation exposure status (RES) guidelines specify units in centigray (cGy); however, the US Navy is required by the Code of Federal Regulations to conduct radiation monitoring in classic radiation units such as R, rad, or rem. 1 CGy = 1 rad.

Figure B-4. Radiation Exposure Status Categories

RADIATION EXPOSURE STATES AND RISK CRITERIA		
Radiation Exposure State	**Total Past Cumulative Dose In Centigray (cGy)**	**Exposure Criteria for a Single Operation Which Will Not Result in Exceeding the Dose Criteria for the Stated**
RES-0 Units	No Exposure	Negligible Risk < 75 cGy Moderate Risk < 100 cGy Emergency Risk < 125 cGy
RES-1 Units	Greater than 0, less than or Equal to 75 cGy	Negligible Risk < 35 cGy Moderate Risk < 60 cGy Emergency Risk < 85 cGy
RES-2 Units	Greater than 75, less than or Equal to 125 cGy	Any further exposure exceeds negligible or moderate risk.
RES-3 Units	Greater than 125 cGY	All further exposure will exceed the emergency risk

Figure B-5. Radiation Exposure States and Risk Criteria

hazards. For example, communications and surveillance sites may have known hazard areas around their equipment that result from high-energy transmissions. These transmissions can injure personnel, damage equipment, and cause avionics malfunctions. Additionally, medical radiation sources require precautions to avoid accidental or deliberate exposure. The potential for terrorist use of radiological materials threatens personnel safety as well as terrain or facility denial.

b. The Services are responsible for enforcing precautions and establishing TTP for handling their conventional munitions that employ radioactive materials such as depleted uranium, including enforcing standards that protect their personnel against alpha particle inhalation and ingestion. In addition,

dangerous levels of radiation can result from damaged industrial radiation hazard areas. Due to the downwind hazards such damage can produce, avoidance is the most effective individual and unit protective measure against industrial radiation hazards (see Figure B-6).

c. Further, adversaries could use low-level radiation sources in a number of ways to disperse radioactive material. Such dispersal could range from arming the warhead of a missile with active 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. Dispersal of radioactive materials represents an inexpensive capability that requires limited resources and technical knowledge.

LOW LEVEL RADIATION GUIDANCE FOR MILITARY OPERATIONS		
Total Cumulative Dose (see Notes 1, 2, and 3)	**Radiation Exposure Status (RES) Category**	**Recommended Actions**
0 to 0.05 cGy	0	None
0.06 to 0.5 cGy	1A	Record individual dose readings. Initiate periodic monitoring.
0.5 to 5 cGy	1B	Record individual dose readings. Continue monitoring. Initiate rad survey. Prioritize tasks. Establish dose control measures as part of operations.
5 to 10 cGy	1C	Record individual dose readings. Continue monitoring. Update survey. Continue dose control measures. Execute priority tasks only (see note 4).
10 to 25 cGy	1D	Record individual dose readings. Continue monitoring. Update survey. Continue dose control measures. Execute critical tasks only (see note 5).
25 to 75 cGy	1E	Record individual dose readings. Continue monitoring. Update survey. Continue dose control measures. Execute critical tasks only (see note 5).

Notes:

1. The use of the measurement millisieverts (mSv) is preferred in all cases. However, military organizations normally only have the capability to measure centigray (cGy). If the ability to obtain measurements in mSv is not possible, US forces will use cGy. For whole body gamma irradiation, 1 cGy = 10 mSv
2. The US Navy is required by the Code of Federal Regulations to conduct radiation monitoring in classic radiation units such as R, Rad, or REM. 1Cgy = 1 rad.
3. All doses should be kept as low as reasonably achievable. This will reduce individual risk as well as retain maximum operational flexibility for future employment of exposed persons.
4. US Service doctrine extablishes 75 cGy as the maximum for RES Category 1.
5. Examples of priority tasks are those that avert danger to persons, prevent damage from spreading, and support the organization s Joint Mission Essential Task List (JMETL).
6. Examples of critical tasks are those that save lives and support the organization s JMETL.

Figure B-6. Low Level Radiation Guidance for Military Operations

APPENDIX C
BIOLOGICAL HAZARD CONSIDERATIONS

1. General

Militarily significant characteristics for biological aspects of operations in NBC 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.

2. Technical Aspects

Biological agents can be classified as pathogens or toxins. Human pathogens are defined as organisms that cause disease in man. Pathogens include bacteria, rickettsia, fungi, and viruses. Naturally occurring toxins are non-living byproducts of cellular processes that can be lethal or highly incapacitating. Figure C-1 provides a synopsis of several potential biological agents and their ranges of effects.

See Appendix F, "References," for additional technical sources of information.

3. Operational Considerations

a. **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.

b. **Persistency.** 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 decay of most biological agents. However, encapsulation or genetic engineering may protect agents from natural decay and increase their persistency. Figure C-2 provides an overview of weather effects on biological agent clouds.

POTENTIAL BIOLOGICAL AGENTS AND EFFECTS

Disease Or Agent	Routes of Infection[1]	Untreated Mortality (%)	Incubation Period	Vaccine	Treatment
Anthrax (Bacillus anthracis)	S, D, R	S: 5-20% R: 80-90%	1-4 days	Yes	Antibiotics (limited effectiveness after severe symptoms develop)
Botulinum Neurotoxins	D, R	60%	1-4 days	IND; Available only under FDA-approved protocol	Antitoxin early
Plague (Yersinia Pestis)	V, R	Bubonic: 50% Pneumonic 100%	2-3 days	No	Antibiotics
Q Fever (Coxiella burnetii)	V, R	< 1%	2-10 days	IND	Antibiotics
Ricin Toxin	D, R	High 30%	1-3 days	No	Symptomatic
Staphylococcal Enterotoxin B	D, R	< 1%	4-6 days	No	Symptomatic
Smallpox	R	High 30%	10-12 days	Available only from controlled US stock	Supportive
Tularemia	D, R, V	30-60%	2-10 days	IND	Antibiotics
Venezuelan Equine Encephalitis	R, V	Low < 1%	2-6 days	IND	Supportive
Viral Hemorrhagic Fevers (Ebola, Marburg, Lassa, Rift Valley, Dengue, etc.)	DC, R, V	Up to 90% (depends on virus)	3-21 days	No	Symptomatic (Some may respond to Ribavirin)

D = digestive system
IND = investigational new drug
V = vector
DC = direct contact
R = respiratory
FDA = Food & Drug Administration
S = skin

Note:
[1]Respiratory would be the primary route of entry in a biological attack; and the most probable mode of dissemination would be release of a biological agent through aerosol delivery.

Figure C-1. Potential Biological Agents and Effects

WEATHER EFFECTS ON BIOLOGICAL AGENT DISSEMINATION			
Weather Conditions		**Cloud Performance**	**Operational Considerations**
Favorable	Stable or Inversion Conditions	Agent clouds travel downwind for long distances before they spread laterally. High humidity and light rains generally favor wet agent dissemination.	Agent clouds tend to dissipate uniformly and remain cohesive as they travel downwind. Clouds lie low to the ground and may not rise high enough to cover the tops of tall buildings and/or other tall objects.
Marginal	Neutral Conditions	Agent clouds tend to dissipate quickly.	More agent required for same results as under stable conditions. Desired results may not be achieved.
Unfavorable	Unstable or Lapse Conditions	Agent clouds rise rapidly and do not travel downwind any appreciable distance. Cold temperatures affect wet agent dissemination.	Agent clouds tend to break up and become diffused. Little operational benefit from off-target dissemination.

Figure C-2. Weather Effects on Biological Agent Dissemination

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APPENDIX D
CHEMICAL HAZARD CONSIDERATIONS

1. General

The employment of chemical agents can influence operational tempo and sustainment of forces. To better understand their effects, this appendix presents a brief overview of chemical weapons and TIM.

2. Chemical Agents

a. Chemical agents are classified according to physical state, physiological action, and use. According to their physiological effects, there are nerve, blood, blister, and choking agents. The terms "persistent" and "nonpersistent" describe the time an agent stays in an area. Persistent chemical agents affect the contaminated area for an extended period of time. Conversely, nonpersistent agents affect the contaminated area for relatively short periods of time.

b. The hazards from a chemical strike may last for less than an hour or for several weeks. The effects on personnel may be immediate. For units forced into high levels of protection, missions will take longer to perform. A summary of chemical weapons effects for persistent and nonpersistent agents is shown in Figure D-1.

c. Figure D-2 indicates individual symptoms and effects, rate of action, and how chemical agents are normally disseminated.

d. Adversaries will seek to employ chemical agents under favorable weather conditions, if possible, to increase their effectiveness. Weather factors considered are wind, air stability, temperature, humidity, and precipitation. Favorable, moderately favorable, and unfavorable weather conditions for tactical employment of a chemical aerosol or vapor cloud are summarized in Figure D-3. The best weather for direct placement on an occupied area is calm winds with a strong, stable temperature gradient. Low winds and stable or neutral conditions are most favorable for spreading an agent cloud evenly over a larger target area.

e. Adversaries may choose to deliver agents upwind of targets; in which case, stable or neutral conditions with low to medium winds of 5-13 kilometers per hour (kph) are the most favorable conditions. Marked

CHEMICAL WEAPONS EFFECTS

Chemical Agent	Target of Choice	Target Effect
Nonpersistent Nerve	Personnel	Immediate and lethal
Persistent Nerve	Terrain, material, logistics, and command and control facilities	Reduced operations tempo or mission degradation; lethal or casualty-producing
Persistent Blister	Same as persistent nerve	Same as persistent nerve but not always
Nonpersistent Blood and Nonpersistent Choking	Personnel	Immediate, lethal, or casualty-producing

Figure D-1. Chemical Weapons Effects

THREAT CHEMICAL AGENTS				
Types	**Symptoms**	**Effects**	**Rate of Action**	**Release Form**
Nerve	Difficulty breathing. Sweating, drooling, nausea, vomiting, convulsions, and dimming of vision. Symptoms usually develop quickly.	Incapacitates at low concentration; kills if inhaled or absorbed through the skin or eyes.	Very rapid by inhalation or through the eyes; slower through skin.	Aerosol, vapor, or liquid
Blood and Choking	Difficulty breathing; coma.	Kills if high concentrations are inhaled.	Rapid.	Aerosol or vapor
Blister	Symptoms range from immediate to delayed, depending on agent. Searing of eyes and stinging of skin. Powerful irritation of eyes, nose, and skin.	Blisters skin and respiratory tract; can cause temporary blindness. Some sting and form welts on the skin.	Blisters from mustard may appear several hours after exposure, whereas lewisite causes blisters within minutes of exposure.	Liquid or droplets

Figure D-2. Threat Chemical Agents

WEATHER EFFECTS ON AEROSOL CHEMICAL AGENTS			
Factors	**Favorable**	**Moderately Favorable**	**Unfavorable**
Wind (kilometers per hour)	Steady < 5 kph	Steady 5-13 kph	> 13 kph
Air Stability	Stable	Neutral	Unstable
Temperature	> 21° C	4-21° C	< 4° C
Humidity	> 60%	40-60%	< 40%
Precipitation	None	Light	Any

Figure D-3. Weather Effects on Aerosol Chemical Agents

turbulence, winds above 13 kph, moderate to heavy rain, and an air stability category of "unstable" result in unfavorable conditions for chemical clouds.

f. Most weather conditions do not affect the quantity of munitions needed for effective, initial liquid contamination.

See Appendix F, "References," for additional technical sources of information.

3. Toxic Industrial Materials

a. US forces frequently operate in environments in which there are toxic materials, particularly toxic industrial chemicals (TIC). A number of these chemicals could interfere in a significant manner across the range of military operations. Most TIC are released as vapors. These vapors exhibit the same dissemination characteristics as chemical agents noted

above. The vapors tend to remain concentrated downwind from the release point and in natural low-lying areas such as valleys, ravines, or manmade underground structures. High concentrations may remain in buildings, woods, or any area with low air circulation. Explosions may create and spread liquid hazards, and vapors may condense to liquids in cold air.

b. To assist in combatant and subordinate command planning, Figure D-4 identifies minimum downwind hazard distances (day or night) from chemical production or storage sites for selected TIC (See FM 3-14, *NBC Vulnerability Analysis*). These are the distances a lethal exposure level could reach if a massive release to the amounts noted in the table occurred. Release of TIC is most dangerous at night. The downwind hazard from a nighttime release is much longer than that for a daytime release.

c. The most important action in case of massive industrial chemical release is immediate evacuation outside the hazard's path. 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 TIC.

For detailed information on these TIC hazards, see: National Institute for Occupational Safety and Health, Pocket Guide to Chemical Hazards, *and US Department of Transportation,* North American Emergency Response Guidebook.

d. In planning for operations in areas in which there may be toxic materials including industrial chemicals, the combatant and subordinate commanders include consideration of these potential hazards as part

INDUSTRIAL CHEMICAL SITE MINIMUM DOWNWIND HAZARD DISTANCES

Chemical	Quantity (tons)	Day	Night
		Distance (kilometers)	
Chlorine Phosgene Ammonia Hydrogen Cyanide in hot climate Hydrogen Sulfide Methyl Isocyanate	Up to 100 Up to 50 Up to 500 Up to 50 Up to 50 Up to 50	2	5
Hydrogen Cyanide in cold climate Hydrogen Fluoride Sulfur trioxide Nitrogen Textroxide Hydrogen Chloride Ammonia Bromine Sulfur Dioxide Acrylonitrile	Up to 50 Up to 100 Up to 50 Up to 50 Up to 50 Up to 100 Up to 50 Up to 50 Up to 50	1	2.5

Figure D-4. Industrial Chemical Site Minimum Downwind Hazard Distances

of the IPB process. These hazards could occur from massive deliberate or accidental release from industrial sites as well as storage and transport containers. Particular emphasis should be placed on those TIC that produce acute effects when inhaled. Figure D-5 identifies TIC that are widely produced and traded, available worldwide, highly toxic, and easily vaporized.

HIGH HAZARD TOXIC INDUSTRIAL CHEMICALS		
Name of Material	**ID Number**	**Guide Number**
Ammonia, anhydrous	125	1005
Arsine	119	2118
Boron trichloride	125	1741
Boron trifluoride	125	1008
Carbon disulfide	131	1131
Chlorine	124	1017
Diborane	119	1911
Ethylene oxide	119	1040
Fluorine	124	1047
Formaldehyde solution (flammable)	132	1198
Formaldehyde solutions (formalin)	132	1198
Formaldehyde solutions (formalin, corrosive)	132	2209
Hydrogen bromide (anhydrous)	125	1048
Hydrogen chloride (anhydrous)	125	1048
Hydrogen cyanide (anhydrous, stabilized)	117	1051
Hydrogen fluoride (anhydrous)	125	1052
Hydrogen sulfide	117	1053
Hydrogen sulfide, liquefied	117	1053
Nitric acid, fuming	157	2031
Phosgene	125	1076
Phosphorus trichloride	137	1809
Sulfur dioxide	125	1079
Sulfuric acid (fuming)	137	1831
Tungsten hexafluoride	125	2196
Note: Reference material obtained from US Department of Transportation, *1996 North American Emergency Response Guidebook - A Guidebook for First Responders During the Initial Phase of a Hazardous Materials/Dangerous Goods Incident.*		

Figure D-5. High Hazard Toxic Industrial Chemicals

APPENDIX E
TREATY, LEGAL, AND POLICY OBLIGATIONS

1. General

This appendix contains brief descriptions of treaty, legal, and policy strictures on proliferation, testing, possession, and employment of NBC weapons. While the United States adheres to these strictures, a number of potential adversaries may not. Combatant and subordinate commanders will plan appropriate NBC priority intelligence requirements and include NBC considerations in their IPB process. Additionally, they will make periodic assessments of potential adversary NBC capabilities including potential violations of international agreements to which the adversary may be party.

2. Nuclear Weapons

a. The employment of nuclear weapons by the United States is governed by the current *Nuclear Weapons Employment Policy*. Guidance to combatant and subordinate commanders is contained in the JP 3-12 series and other NCA directives.

b. The United States is party to treaties and international agreements that limit proliferation, testing, and possession of nuclear weapons. The affected commander must consult current NCA directives to confirm the signature, ratification, and entry into force of these instruments.

c. The Treaty on the Non-Proliferation of Nuclear Weapons entered into force for states parties on 5 March 1970. It binds states parties to prevent the spread of nuclear weapons. The parties to the treaty agree not to transfer, assist, or encourage the manufacture of nuclear weapons or nuclear weapons technology. The United States ratified this treaty on 24 November 1969. On 4 June 1990, the United States and the Soviet Union issued the *Joint Statement on Non-Proliferation*, in which both reaffirmed their commitment to non-proliferation and, specifically, to the Treaty on the Non-Proliferation of Nuclear Weapons.

d. The Strategic Arms Reduction Treaty between the United States and Russia establishes limits on the number and type of strategic offensive forces.

e. The Limited Test Ban Treaty limits states parties' testing of nuclear devices.

3. Biological and Chemical Weapons

a. **General**

- The "Protocol for the Prohibition of the Use in War of Asphyxiating, Poisonous, or other Gases and Bacteriological Methods of Warfare," also known as the "Geneva Protocol of 1925," prohibits chemical and bacteriological methods of warfare. Most parties interpret the protocol as a prohibition only of the first use of these agents in war. It did not ban the development, production, and stockpiling of these weapons. In 1974, the US Senate gave advice and consent to ratification of this protocol subject to the reservation that the United States would not be bound by the provisions with respect to an enemy state or its allies who fail to respect the prohibitions of the protocol. On 22 January 1975, the United States ratified the protocol subject to this reservation. The protocol entered into force for the United States on 10 April 1975. The relevance of the Geneva Protocol is largely superceded by the more restrictive Convention on the Prohibition of the Development,

Production, Stockpiling, and Use of Chemical Weapons and their Destruction (also known as the Chemical Weapons Convention [CWC]) and by the Convention on the Prohibition of Bacteriological and Toxic Weapons (also known as the Biological Weapons Convention [BWC]) summarized below.

- The *Presidential Statement on Chemical and Biological Weapons*, 25 November 1969, renounced the use by the United States of lethal biological agents and weapons and confined biological research to defensive measures such as immunization and safety. It also reaffirmed the renunciation of first use of chemical weapons and extended the renunciation to first use of incapacitating chemicals.

b. **Biological Weapons.** Under the terms of the BWC, parties undertake not to develop, produce, stockpile, or acquire biological agents or toxins "of types and in quantities that have no justification for prophylactic, protective and other peaceful purposes," as well as weapons and means of delivery. The BWC does not establish a specific verification regime. The United States ratified the BWC on 29 March 1975.

c. **Chemical Weapons**

- The CWC, which entered into force for states parties on 26 April 1997, bans the acquisition, development, production, transfer, and use of chemical weapons. It prohibits the use of riot control agents (RCA) as a method of warfare. It provides for the destruction of all chemical weapons stocks and production facilities within 10 years after entry into force. It contains a vigorous challenge regime to ensure compliance. The United States ratified the CWC on 25 April 1997.

- Executive Order No. 11850, 8 April 1975, *Renunciation of Certain Uses in War of Chemical Herbicides and Riot Control Agents*, renounced first use of herbicides in war (except for specified defensive uses) and first use of RCA in war except for defensive military modes to save lives. The order provides four examples of potential RCA uses.

APPENDIX F
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d. AFH 32-4014, Volume 1, *USAF Operations in a Chemical and Biological Warfare (CB) Environment, Planning and Analysis*.

e. AFH 32-4014, Volume 2, *USAF Operations in a Chemical and Biological Warfare (CB) Environment, CB Hazards*.

f. AFH 32-4014, Volume 3, *USAF Operations in a Chemical and Biological Warfare (CB) Environment, Defense Equipment*.

g. AFH 32-4014, Volume 4, *USAF Ability to Survive and Operate Procedures in a Nuclear, Biological, and Chemical (NBC) Environment*.

h. AFI 32-4001, *Disaster Preparedness Planning and Operations*. May 1998.

i. AFI 32-4002, *Hazardous Material Emergency Planning and Response Program*. December 1997.

j. AFI 41-106, *Medical Readiness Planning and Training*.

k. AFJMAN 24-204, *Preparing Hazardous Materials for Military Air Shipments*.

l. AFJMAN 32-4003, *Technical Aspects of Biological Defense*.

m. AFMAN 32-4004, *Emergency Response Operations*.

n. AFMAN 32-4005, *Personnel Protection and Attack Actions*.

o. AFMAN 32-4006, *Nuclear, Biological, and Chemical (NBC) Mask Fit and Liquid Hazard Simulant Training*.

p. AFMAN 32-4017, *Civil Engineer Readiness Technicians Manual for Nuclear, Biological, and Chemical Defense*.

q. Air Force Police Directive 10-13, *Air Force Doctrine*. Washington, DC: Department of the Air Force. October 1998.

r. AFPD 32-40, *Disaster Preparedness*. Washington, DC: Department of the Air Force. May 1997.

s. AFPD 41-3, *Worldwide Aeromedical Evacuation*.

t. AFPAM 32-4019, *Chemical-Biological Warfare Commander's Guide*.

u. AFVA 32-4012, *Mission-Oriented protective Postures*.

v. *United States Air Force Counterproliferation Master Plan (U)*.

APPENDIX G
ADMINISTRATIVE INSTRUCTIONS

1. User Comments

Users in the field are highly encouraged to submit comments on this publication to: Commander, United States Joint Forces Command, Joint Warfighting Center Code JW100, 116 Lake View Parkway, Suffolk, VA 23435-2697. These comments should address content (accuracy, usefulness, consistency, and organization), writing, and appearance.

2. Authorship

The lead agent for this publication is the US Army. The Joint Staff doctrine sponsor for this publication is the Director for Strategic Plans and Policy (J-5).

3. Supersession

This publication supersedes JP 3-11, 10 July 1995, *Joint Doctrine for Nuclear, Biological, and Chemical (NBC) Defense*.

4. Change Recommendations

a. Recommendations for urgent changes to this publication should be submitted:

TO: JOINT STAFF WASHINGTON DC//DAMO-FDQ//
INFO: JOINT STAFF WASHINGTON DC//J7-JDD//

Routine changes should be submitted to the Director for Operational Plans and Interoperability (J-7), JDD, 7000 Joint Staff Pentagon, Washington, DC 20318-7000.

b. When a Joint Staff directorate submits a proposal to the Chairman of the Joint Chiefs of Staff that would change source document information reflected in this publication, that directorate will include a proposed change to this publication as an enclosure to its proposal. The Military Services and other organizations are requested to notify the Director, J-7, Joint Staff, when changes to source documents reflected in this publication are initiated.

c. Record of Changes:

CHANGE NUMBER	COPY NUMBER	DATE OF CHANGE	DATE ENTERED	POSTED BY	REMARKS

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b. Only approved pubs and test pubs are releasable outside the combatant commands, Services, and Joint Staff. Release of any classified joint publication to foreign governments or foreign nationals must be requested through the local embassy (Defense Attaché Office) to DIA Foreign Liaison Office, PSS, Room 1A674, Pentagon, Washington, DC 20301-7400.

c. Additional copies should be obtained from the Military Service assigned administrative support responsibility by DOD Directive 5100.3, 1 November 1988, *Support of the Headquarters of Unified, Specified, and Subordinate Joint Commands*.

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GLOSSARY

PART I — ABBREVIATIONS AND ACRONYMS

AE	aeromedical evacuation
AFMIC	Armed Forces Medical Intelligence Center
AOR	area of responsibility
APOD	aerial port of debarkation
BWC	Biological Weapons Convention
C2	command and control
C4	command, control, communications, and computers
C4I	command, control, communications, computers, and intelligence
CI	civilian internee
CM	consequence management
CMO	civil-military operations
CMOC	civil-military operations center
COA	course of action
CONUS	continental United States
CPS	collective protective shelter
CWC	Chemical Weapons Convention
DOD	Department of Defense
EMP	electromagnetic pulse
EPW	enemy prisoners of war
FDO	flexible deterrent option
FEMA	Federal Emergency Management Agency
FHA	foreign humanitarian assistance
FM	field manual
FMFM	Fleet Marine Force Manual
HEMP	high-altitude electromagnetic pulse
HN	host nation
HNS	host-nation support
HSS	health service support
HUMINT	human intelligence
IO	international organization
IPB	intelligence preparation of the battlespace
IPE	individual protective clothing
ISR	intelligence, surveillance, and reconnaissance
JFC	joint force commander
JMAO	Joint Mortuary Affairs Office

JMET	joint mission-essential task
JMETL	Joint Mission Essential Task List
JOA	joint operations area
JP	joint publication
JRA	joint rear area
JRAC	joint rear area coordinator
JSCP	Joint Strategic Capabilities Plan
JSOTF	joint special operations task force
JTAC	joint technical augmentation cell
JTF	joint task force
JTF-CS	Joint Task Force-Civil Support
kph	kilometers per hour
LFA	lead federal agency
MADCP	Mortuary Affairs Decontamination Collection Point
MHE	materials handling equipment
MOOTW	military operations other than war
MOPP	mission-oriented protective posture
MSCA	military support to civilian authorities
MSR	main supply route
MTF	medical treatment facility
NBC	nuclear, biological, and chemical
NCA	National Command Authorities
NEO	noncombatant evacuation operation
NGO	nongovernmental organization
OEG	operational exposure guide
OPCON	operational control
OPSEC	operations security
PHS	public health service
POE	port of embarkation
PSYOP	psychological operations
PVNTMED	preventive medicine
RCA	riot control agents
ROE	rules of engagement
RSE	retrograde support element
RSOI	reception, staging, onward movement, and integration
SecDef	Secretary of Defense
SOF	special operations forces
SPOD	seaport of debarkation
S/RTF	search and recovery task force

TFA	toxic free area
TIC	toxic industrial chemicals
TIM	toxic industrial material
TTP	tactics, techniques, and procedures
UJTL	Universal Joint Task List
USACE	United States Army Corps of Engineers
USG	United States Government
USJFCOM	United States Joint Forces Command
USSOCOM	United States Special Operations Command

aerosol. A liquid or solid composed of finely divided particles suspended in a gaseous medium. Examples of common aerosols are mist, fog, and smoke. (This term and its definition are approved for inclusion in the next edition of JP 1-02.)

agent. See biological or chemical agent. (This term and its definition are applicable only in the context of this publication and cannot be referenced outside this publication.)

avoidance. Individual and/or unit measures taken to avoid or minimize nuclear, biological, and chemical (NBC) attacks and reduce the effects of NBC hazards. (JP 1-02)

binary chemical munition. A munition in which chemical substances, held in separate containers, react when mixed or combined as a result of being fired, launched or otherwise initiated to produce a chemical agent. See also munition; chemical munition; multi-agent munition. (JP 1-02)

biological agent. A microorganism that causes disease in personnel, plants, or animals or causes the deterioration of materiel. (JP 1-02)

biological ammunition. A type of ammunition, the filler of which is primarily a biological agent. (JP 1-02)

biological defense. The methods, plans, and procedures involved in establishing and executing defensive measures against attacks using biological agents. (JP 1-02)

biological environment. Conditions found in an area resulting from direct or persisting effects of biological weapons. (JP 1-02)

biological operation. Employment of biological agents to produce casualties in personnel or animals or damage to plants. (This term and its definition modify the existing term and its definition and are approved for inclusion in the next edition of JP 1-02.)

biological threat. A threat that consists of biological material planned to be deployed in order to produce casualties in personnel or animals or damage plants. (This term and its definition modify the existing term and its definition and are approved for inclusion in the next edition of JP 1-02.)

biological weapon. An item of materiel which projects, disperses, or disseminates a biological agent including arthropod vectors. (JP 1-02)

blister agent. A chemical agent which injures the eyes and lungs, and burns or blisters the skin. Also called vesicant agent. (JP 1-02)

blood agent. A chemical compound, including the cyanide group, that affects bodily functions by preventing the normal utilization of oxygen by body tissues. (JP 1-02)

campaign. A series of related military operations aimed at accomplishing a strategic or operational objective within a given time and space. (JP 1-02)

chemical agent. Any toxic chemical intended for use in military operations. (This term and its definition modify the existing term and its definition and are approved for inclusion in the next edition of JP 1-02.)

chemical ammunition. A type of ammunition, the filler of which is primarily a chemical agent. (JP 1-02)

chemical ammunition cargo. Cargo such as white phosphorous munitions (shell and grenades). (JP 1-02)

chemical, biological, and radiological operation. A collective term used only when referring to a combined chemical, biological, and radiological operation. (JP 1-02)

chemical contamination. See contamination. (This term and its definition are approved for inclusion in the next edition of JP 1-02.)

chemical defense. The methods, plans and procedures involved in establishing and executing defensive measures against attack utilizing chemical agents. See also NBC defense. (JP 1-02)

chemical environment. Conditions found in an area resulting from direct or persisting effects of chemical weapons. (JP 1-02)

chemical operations. Employment of chemical agents to kill, injure, or incapacitate for a significant period of time, personnel or animals, and deny or hinder the use of areas, facilities, or material; or defense against such employment. (JP 1-02)

chemical warfare. 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, those two items will be referred to separately or under the broader term "chemical," which will be used to include all types of chemical munitions/agents collectively. Also called CW. (This term and its definition modify the existing term and its definition and are approved for inclusion in the next edition of JP 1-02.)

chemical weapon. Together or separately, (a) a toxic chemical and its precursors, except when intended for a purpose not prohibited under the Chemical Weapons Convention; (b) a munition or device, specifically designed to cause death or other harm through toxic properties of those chemicals specified in (a), above, which would be released as a result of the employment of such munition or device; (c) any equipment specifically designed for use directly in connection with the employment of munitions or devices specified in (b), above. (This term and its definition are approved for inclusion in the next edition of JP 1-02.)

civil-military operations center. An ad hoc organization, normally established by the geographic combatant commander or subordinate joint force commander, to assist in the coordination of activities of engaged military forces, and other United States Government agencies, nongovernmental organizations, private voluntary organizations, and regional and international organizations. There is no established structure, and its size and composition are situation dependent. Also called CMOC. (JP 1-02)

collective nuclear, biological and chemical protection. Protection provided to a group of individuals in a nuclear, biological and chemical environment which permits relaxation of individual nuclear, biological and chemical protection. (JP 1-02)

collective protection. See collective nuclear, biological, and chemical protection. (This term and its definition are applicable only

in the context of this publication and cannot be referenced outside this publication.)

combatant command. A unified or specified command with a broad continuing mission under a single commander established and so designated by the President, through the Secretary of Defense and with the advice and assistance of the Chairman of the Joint Chiefs of Staff. Combatant commands typically have geographic or functional responsibilities. (JP 1-02)

combatant command (command authority). Nontransferable command authority established by title 10 ("Armed Forces"), United States code, section 164, exercised only by commanders of unified or specified combatant commands unless otherwise directed by the President or the Secretary of Defense. Combatant command (command authority) cannot be delegated and is the authority of a combatant commander to perform those functions of command over assigned forces involving organizing and employing commands and forces, assigning tasks, designating objectives, and giving authoritative direction over all aspects of military operations, joint training, and logistics necessary to accomplish the missions assigned to the command. Combatant command (command authority) should be exercised through the commanders of subordinate organizations. Normally this authority is exercised through subordinate joint force commanders and Service and/or functional component commanders. Combatant command (command authority) provides full authority to organize and employ commands and forces as the combat commander considers necessary to accomplish assigned missions. Operational control is inherent in combatant command (command authority). Also called COCOM. (JP 1-02)

combatant commander. A commander in chief of one of the unified or specified combatant commands established by the President. (JP 1-02)

contaminate. See contamination. (This term and its definition are approved for inclusion in the next edition of JP 1-02.)

contaminated remains. Remains of personnel which have absorbed or upon which have been deposited radioactive material, or biological or chemical agents. (JP 1-02)

contamination. 1. The deposit, absorption, or adsorption of radioactive material, or of biological or chemical agents on or by structures, areas, personnel, or objects. See also fallout; induced radiation; residual radiation. (DOD) 2. Food and/or water made unfit for consumption by humans or animals because of the presence of environmental chemicals, radioactive elements, bacteria or organisms, the byproduct of the growth of bacteria or organisms, the decomposing material (to include the food substance itself), or waste in the food or water. (JP 1-02)

contamination control. Procedures to avoid, reduce, remove, or render harmless, temporarily or permanently, nuclear, biological, and chemical contamination for the purpose of maintaining or enhancing the efficient conduct of military operations. (JP 1-02)

decontamination. The process of making any person, object, or area safe by absorbing, destroying, neutralizing, making harmless, or removing chemical or biological agents, or by removing radioactive material clinging to or around it. (JP 1-02)

detection. In nuclear, biological, and chemical (NBC) environments, the act of

locating NBC hazards by use of NBC detectors or monitoring and/or survey teams. (This term and its definition modify the existing term and its definition and are approved for inclusion in the next edition of JP 1-02.)

dispersion. 1. A scattered pattern of hits around the mean point of impact of bombs and projectiles dropped or fired under identical conditions. 2. In antiaircraft gunnery, the scattering of shots in range and deflection about the mean point of explosion. 3. The spreading or separating of troops, materiel, establishments, or activities which are usually concentrated in limited areas to reduce vulnerability. 4. In chemical and biological operations, the dissemination of agents in liquid or aerosol form. 5. In airdrop operations, the scatter of personnel and/or cargo on the drop zone. 6. In naval control of shipping, the reberthing of a ship in the periphery of the port area or in the vicinity of the port for its own protection in order to minimize the risk of damage from attack. (JP 1-02)

doctrine. Fundamental principles by which the military forces or elements thereof guide their actions in support of national objectives. It is authoritative, but requires judgement in applications. (JP 1-02)

herbicide. A chemical compound that will kill or damage plants. (JP 1-02)

host-nation support. Civil and/or military assistance rendered by a nation to foreign forces within its territory during peacetime, crisis or emergencies, or war based on agreements mutually concluded between nations. Also called HNS. (JP 1-02)

immediate decontamination. Decontamination carried out by individuals immediately upon becoming contaminated. It is performed in an effort to minimize casualties, save lives, and limit the spread of contamination. Also called emergency decontamination. (This term and its definition modify the existing term and its definition and are approved for inclusion in the next edition of JP 1-02.)

individual protection. Actions taken by individuals to survive and continue the mission under nuclear, biological, and chemical conditions. (This term and its definition are approved for inclusion in the next edition of JP 1-02.)

individual protective equipment. In nuclear, biological and chemical warfare, the personal clothing and equipment required to protect an individual from biological and chemical hazards and some nuclear effects. (JP 1-02)

industrial chemicals. Chemicals developed or manufactured for use in industrial operations or research by industry, government, or academia. These chemicals are not primarily manufactured for the specific purpose of producing human casualties or rendering equipment, facilities, or areas dangerous for human use. Hydrogen cyanide, cyanogen chloride, phosgene, and chloropicrin are industrial chemicals that also can be military chemical agents. (This term and its definition are approved for inclusion in the next edition of JP 1-02.)

joint. Connotes activities, operations, organizations, etc., in which elements of two or more Military Departments participate. (JP 1-02)

joint force commander. A general term applied to a combatant commander, subunified commander, or joint task force commander authorized to exercise combatant command (command authority) or operational control over a joint force. Also called JFC. (JP 1-02)

mission-oriented protective posture. A flexible system of protection against nuclear, biological, and chemical contamination. This posture requires personnel to wear only that protective clothing and equipment (mission-oriented protective posture gear) appropriate to the threat level, work rate imposed by the mission, temperature, and humidity. Also called MOPP. (This term and its definition are approved for inclusion in the next edition of JP 1-02.)

mission-oriented protective posture gear. Military term for individual protective equipment including suit, boots, gloves, mask with hood, first aid treatments, and decontamination kits issued to soldiers. Also called MOPP gear. (This term and its definition are approved for inclusion in the next edition of JP 1-02.)

munitions. Materiels used in war, especially weapons and ammunition. (JP 1-02)

nerve agent. A potentially lethal chemical agent which interferes with the transmission of nerve impulses. (JP 1-02)

nonpersistent agent. A chemical agent that when released dissipates and/or loses its ability to cause casualties after 10 to 15 minutes. (JP 1-02)

nuclear, biological, and chemical capable nation. A nation that has the capability to produce and employ one or more types of nuclear, biological, and chemical weapons across the full range of military operations and at any level of war in order to achieve political and military objectives. (JP 1-02)

nuclear, biological, and chemical conditions. See nuclear, biological, and chemical environment.

nuclear, biological, and chemical defense. Defensive measures that enable friendly forces to survive, fight, and win against enemy use of nuclear, biological, or chemical (NBC) weapons and agents. US forces apply NBC defensive measures before and during integrated warfare. In integrated warfare, opposing forces employ nonconventional weapons along with conventional weapons (NBC weapons are nonconventional). (This term and its definition modify the existing term and its definition and are approved for inclusion in the next edition of JP 1-02.)

nuclear, biological, and chemical environment. Environments in which there is deliberate or accidental employment, or threat of employment, of nuclear, biological, or chemical weapons; deliberate or accidental attacks or contamination with toxic industrial materials, including toxic industrial chemicals; or deliberate or accidental attacks or contamination with radiological (radioactive) materials. (This term and its definition are approved for inclusion in the next edition of JP 1-02.)

nuclear defense. The methods, plans, and procedures involved in establishing and exercising defensive measures against the effects of an attack by nuclear weapons or radiological warfare agents. It encompasses both the training for, and the implementation of, these methods, plans, and procedures. See also NBC defense. (JP 1-02)

pathogen. A disease-producing microorganism. (This term and its definition are approved for inclusion in the next edition of JP 1-02.)

persistency. In biological or chemical warfare, the characteristic of an agent which pertains to the duration of its

effectiveness under determined conditions after its dispersal. (JP 1-02)

persistent agent. A chemical agent that when released remains able to cause casualties for more than 24 hours to several days or weeks. (JP 1-02)

precursor. Any chemical reactant which takes place 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. (This term and its definition are approved for inclusion in the next edition of JP 1-02.)

protection. Measures that are taken to keep nuclear, biological, and chemical hazards from having an adverse effect on personnel, equipment, or critical assets and facilities. Protection consists of five groups of activities: hardening of positions; protecting personnel; assuming mission-oriented protective posture; using physical defense measures; and reacting to attack. (This term and its definition are approved for inclusion in the next edition of JP 1-02.)

protective mask. A protective ensemble designed to protect the wearer's face and eyes and prevent the breathing of air contaminated with chemical and/or biological agents. (This term and its definition are approved for inclusion in the next edition of JP 1-02.)

riot control agent. Any chemical, that is not listed in the Chemical Weapons Convention, which can produce rapidly in humans sensory irritate or disabling physical effects which disappear within a short time following termination of exposure. (This term and its definition modify the existing term and its definition and are approved for inclusion in the next edition of JP 1-02.)

subordinate command. A command consisting of the commander and all those individuals, units, detachments, organizations, or installations that have been placed under the command by the authority establishing the subordinate command. (JP 1-02)

survey. The directed effort to determine the location and the nature of a chemical, biological, and radiological hazard in an area. (This term and its definition are approved for inclusion in the next edition of JP 1-02.)

tactics. 1. The employment of units in combat. 2. The ordered arrangement and maneuver of units in relation to each other and/or the enemy in order to use their potentialities. (JP 1-02)

toxic chemical. 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. (This term and its definition are approved for inclusion in the next edition of JP 1-02.)

toxin. See toxin agent. (This term and its definition are approved for inclusion in the next edition of JP 1-02.)

toxin agent. A poison formed as a specific secretion product in the metabolism of a vegetable or animal organism as distinguished from inorganic poisons. Such poisons can also be manufactured by synthetic processes. (JP 1-02)

weapons of mass destruction. In arms control usage, weapons that are capable of a high order of destruction and/or of being used in such a manner as to destroy large numbers of people. Can be nuclear, chemical, biological, and radiological weapons, but excludes the means of transporting or propelling the weapon where such means is a separable and divisible part of the weapon. Also called WMD. (JP 1-02)

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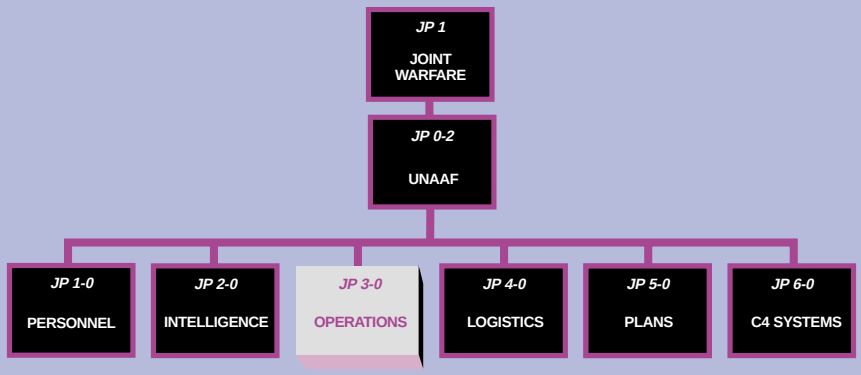
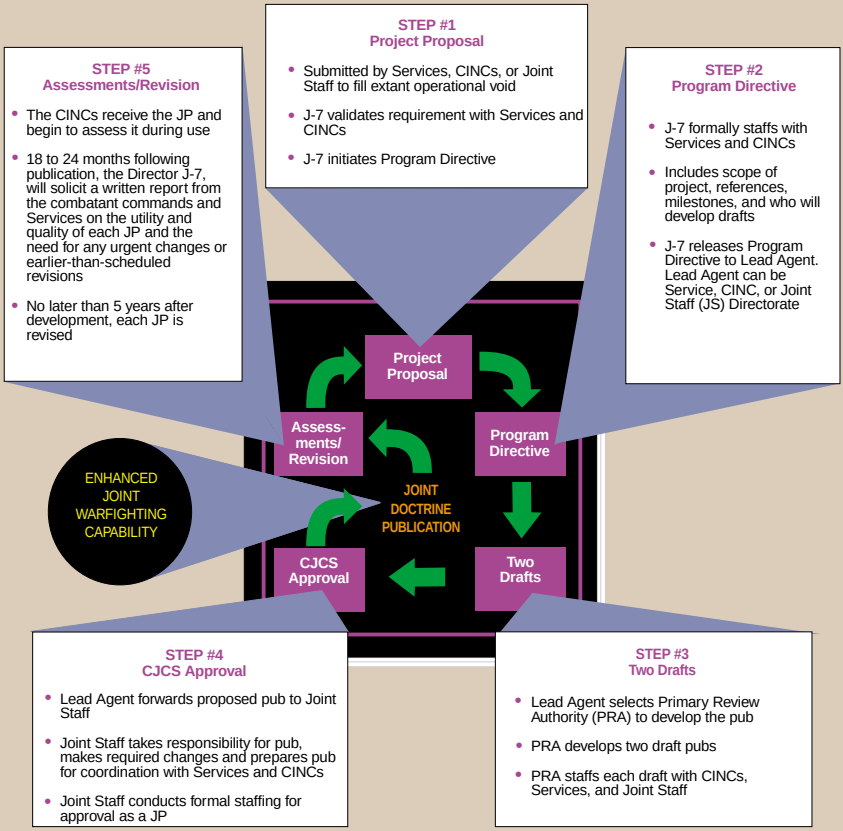


All joint doctrine and tactics, techniques, and procedures are organized into a comprehensive hierarchy as shown in the chart above. **Joint Publication (JP) 3-11** is in the **Operations** series of joint doctrine publications. The diagram below illustrates an overview of the development process:



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