ARMY, MARINE CORPS, NAVY, AIR FORCE

MULTISERVICE TACTICS, TECHNIQUES, AND PROCEDURES FOR NUCLEAR, BIOLOGICAL, AND CHEMICAL DEFENSE OPERATIONS

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MULTISERVICE TACTICS, TECHNIQUES, AND PROCEDURES

FOREWORD

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

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PREFACE

1. Scope

This publication provides a multiservice doctrinal reference for planning and executing nuclear, biological, and chemical (NBC)/chemical, biological, and radiological (CBR) defense operations. This doctrinal manual bridges the gap between joint NBC defense doctrine (Joint Publication [JP] 3-11, *Joint Doctrine for Operations in Nuclear, Biological, and Chemical (NBC) Environments*) and service operational NBC defense doctrine. It provides guidelines to assist members of the services discharging responsibilities as joint task force commanders and staffs. The manual addresses integration of multiservice doctrine for NBC defense in three areas. It provides tactics, techniques, and procedures (TTP) for planning NBC defense; describes NBC defense capabilities from the services that could be integrated into an area of operations (AO); and outlines roles and responsibilities for NBC defense. Guidelines provided in this manual assist commanders and staffs in integrating NBC defense operations into the context of all other AOs. The term "NBC environment," as used in this publication, refers to an environment in which there is deliberate or accidental employment of NBC weapons or industrial chemicals or deliberate or accidental contamination with radiological materials. The defensive measures described herein are useful in nuclear environments to the degree that they provide protection against inhalation or ingestion of and skin contact with radioactive debris. This publication does not comprehensively address defense against other nuclear effects—including heat, blast, and direct irradiation. (Note: The terms NBC and CBR defense are synonymous; Army, Marine Corps, and Air Force [AF] use the term NBC defense, and Navy forces use the term CBR defense.) Additionally, *US Special Operations Command Publication 3-11, Multiservice Tactics, Techniques, and Procedures [MTTP] for Special Operations Forces in NBC Environments* provides information that supplements the TTP provided in this publication.

2. Purpose

This publication provides commanders and staffs a key reference for the planning and execution of service NBC defense operations. Further, within the overall concept of counterproliferation operations (see Chapter I), this publication focuses on the passive defense component (NBC defense) of counterproliferation. The target audience includes commanders and their staffs, particularly those individuals responsible for NBC defense planning at the operational and tactical level. This includes individuals with responsibilities as commanders and staffs of joint task forces. Commanders have direct responsibility for protecting their forces within an NBC environment. During operations, failure to properly plan and execute NBC defense operations may result in significant casualties, disruption of operations, and even mission failure.

3. Application

This publication is designed for use at the operational and tactical level for planning and conducting integrated NBC defense operations. It supplements established joint doctrine and changes an Army and Marine Corps dual-designated publication into a multiservice publication, defines service capabilities in conducting NBC defense, and defines the roles and responsibilities of commanders and subordinate commanders and their staffs in planning and executing NBC defense.

4. Implementation Plan

Participating service command offices of primary responsibility (OPR) will review this publication; validate the information; reference it; and incorporate it in service and command manuals, regulations, and curricula as follows:

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5. User Information

a. The US Army Chemical School developed this publication with the joint participation of the approving service commands.

b. This publication reflects current service and joint doctrine and command and control (C^2) organizations, facilities, personnel, responsibilities, and procedures.

c. Recommended changes for improving this publication are encouraged. Key any comments to the specific page and paragraph and provide a rationale for each recommendation. Send comments and recommendations directly to—

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Multiservice Tactics, Techniques, and Procedures For Nuclear, Biological, and Chemical Defense Operations

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EXECUTIVE SUMMARY

Multiservice Tactics, Techniques, and Procedures For Nuclear, Biological, and Chemical Defense Operations

Policy and Environment

Chapter I provides information on US national policy regarding NBC weapons, the counterproliferation operational concept, the threat environment, and maintaining preparedness. The chapter addresses the organization of the operational area, conditions of the battlespace, and the commander's planning considerations.

NBC Defense Challenges

Chapter II discusses NBC defense challenges and the principles of NBC defense (contamination avoidance, protection, and decontamination) that support operations of US forces in the US and overseas. It discusses NBC battle management.

NBC Defense C^2 Considerations, Roles, and Responsibilities

Chapter III examines C^2 considerations with regard to an NBC defense, command relationships for NBC units, and command responsibilities for operations in an NBC environment.

Planning

Chapter IV provides NBC strategic, operational, and tactical planning considerations and instructions for preparation of supporting plans for an NBC defense. It also addresses joint force planning considerations.

Peacetime Preparedness and Transition to Operations

Chapter V describes steps for peacetime preparedness and transition to operations. Peacetime preparedness and planning for the transition to operations are based on national security and military strategies and supporting plans.

Sustained Operations

Chapter VI addresses the requirements for US armed forces to be prepared to conduct prompt, sustained, and decisive combat operations in NBC environments. In considering sustained combat operations, commanders conduct actions to reduce vulnerability and protect their forces.

Supporting Conflict Termination

Chapter VII addresses conflict termination at the end of hostilities; however, the presence of NBC or toxic industrial materials (TIM) can still present a volatile situation. The transition to conflict termination is a deliberate process of concluding hostilities. The two NBC-specific basic objectives include ensuring the safety of all personnel in the theater and establishing the foundation for elimination of adversary NBC capabilities. Information is provided on coordinating with nonmilitary entities, health service support (HSS), record keeping, and contaminated material retrograde.

Rear Area Operations

Chapter VIII addresses how US forces maintain operational tempo, which generates combat power and sustains operations in order to perform operational and strategic missions. It addresses requirements for joint rear area coordination and planning for NBC defense of rear area facilities.

Health Service Support

Chapter IX addresses HSS considerations for planning and conducting joint NBC defense operations. HSS for NBC defense operations will be performed during all phases of military operations. It addresses provisions for full integration of HSS systems.

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Chapter I
POLICY AND ENVIRONMENT

US national policy seeks reliable, verifiable bans on production; stockpiling; and use of NBC weapons. Proliferation prevention can be expected to continue for the foreseeable future as the first line of US defense to lessen the availability to potential aggressors of not only chemical and biological weapons, but of nuclear or radiological weapons as well. International nonproliferation, arms control conventions, and threat reduction initiatives serve as the principal means to prevent such proliferation. To that end, the US favors greater international treaty, legal, and policy restrictions on proliferation, testing, possession, and employment of NBC weapons. While the US adheres to the existing international restrictions, a number of potential adversaries may not, particularly nonstate (sub-national or terrorist) groups. Thus, US strategy and preparations concerning NBC defense must deter adversaries' development or use of NBC weapons through a balance of information activities and political, economic, and military measures. To do so, the US maintains a robust counterproliferation capability, the key components of which are proliferation prevention, counterforce, active and passive defense, and consequence management. Specifically, this chapter addresses policy, the counterproliferation operational concept, the threat environment, maintaining preparedness, organization and conditions of the battlespace, and the commanders' planning considerations.

1. Policy

Current US policy is to deter enemy NBC use through a strong nuclear force and conventional capabilities that include counterforce, active and passive defense, and consequence management to enable US forces to survive, fight, and win in an NBC environment. In shaping a peaceful international environment favorable to US interests, US policies and strategies are continually adapted to prevent and limit the proliferation of NBC capabilities. Commanders organize, train and equip to ensure their forces and supporting activities are prepared to advance and defend US interests; however, the overriding mission of the US armed forces is to deter war. Should deterrence fail, the US will pursue war to a successful conclusion.

a. The US approach to military operations is shaped by national security and military strategy. This same guidance guides military operations in NBC environments. This guidance applies in war and military operations other than war (MOOTW). 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. 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. Consideration of NBC risks is integral to success, including NBC use in the adversary's geographic region and/or in the US against civilian or military targets. When developing theater strategies and plans,

combatant commanders with geographic responsibilities include specific guidance to ensure that their forces are able to sustain military operations in NBC environments.

b. The US may use nuclear weapons to terminate a conflict or war at the lowest acceptable level of hostilities. This is interpreted to mean that the US may use nuclear weapons first. The employment of nuclear weapons by the US is governed by guidance to the joint force commander (JFC) as contained in JP 3-12*, Doctrine For Joint Nuclear Operations*, and other strategic level directives. The US is party to treaties and international agreements that limit proliferation, testing, and possession of nuclear weapons.

c. The US will never use chemical weapons. The Chemical Weapons Convention (CWC), which the US ratified on 29 April 1997, bans the acquisition, development, production, retention, stockpiling, transfer, and use of chemical weapons.

d. The US will never use biological weapons. Under the terms of the Biological Weapons Convention (BWC), which the US ratified on 29 March 1975, parties agreed not to develop, produce, stockpile, or acquire biological agents or toxins of types and in quantities that have no justification for prophylactic, protective, or other peaceful purposes.

e. The US considers neither herbicides nor riot control agents (RCA) as chemical agents but has adopted policies concerning their use during an armed conflict. The use of herbicides and RCA is covered by different policies than those governing chemical warfare (CW). Executive Order No. 11850, *Renunciation of Certain Uses in War of Chemicals, Herbicides, and Riot Control Agents*, 8 April 1975, renounced first use of herbicides in war except for specified defensive use and first use of RCA in war except for defensive military modes to save lives. The President must approve the use of RCA in tactical situations. Upon Presidential approval, herbicides may be used in areas under US control to eliminate unwanted vegetation around defensive positions. In peacetime, the Secretary of Defense may authorize the use of RCAs. Approval authority for certain uses of RCAs and herbicides in peacetime have been delegated to the unified commands and chiefs of the services as described in Chairman Joint Chiefs of Staff Instruction (CJCSI) 3110.07a, *Nuclear, Biological, and Chemical Defense; Riot Control Agents; and Herbicides* (U). The CWC prohibits the use of RCA as a method of warfare.

f. US statutes and policy provide the individual services and commanders the necessary authority to organize, train, equip, and employ US military forces to achieve stated national objectives. Responsibility, authority, and resources are thus aligned to ensure US forces operate effectively in all threat environments, including an NBC environment. Commanders at all levels, therefore, are responsible for integrating effective NBC defense measures into their training and operations considerations. NBC defense measures are addressed in this field manual (FM). This responsibility extends to commanders of service organizations operating in joint and multiservice operations subject to appropriate joint and multiservice doctrine and applicable plans and orders.

2. Counterproliferation Operations

The US military response to the threat, and actual use of NBC weapons is counterproliferation. Counterproliferation is a multitiered, integrated approach intended to deter NBC use and enable US forces to survive, fight, and win in an NBC environment. Counterproliferation is built on four core capabilities: counterforce, active defense, passive defense, and consequence management; it is also enhanced by military support to nonproliferation efforts. It includes the activities of the Department of Defense (DOD) across the full range of US government (USG) efforts to combat proliferation (see Figure I-1). Commanders at all levels are responsible for the integration and synchronization of these four core capabilities into their overall operations in support of national nonproliferation and counterproliferation objectives.

a. Counterproliferation exists across a sequence of mutually supporting operations that form a continuum of interrelated activities that employ both offensive and defensive measures. The success of efforts in one area impacts other functions throughout the operational cycle. The focus of this publication is passive defense. An awareness of how passive defense fits within the counterproliferation operations concept is important because passive defense operations can be impacted by the other three core capabilities.

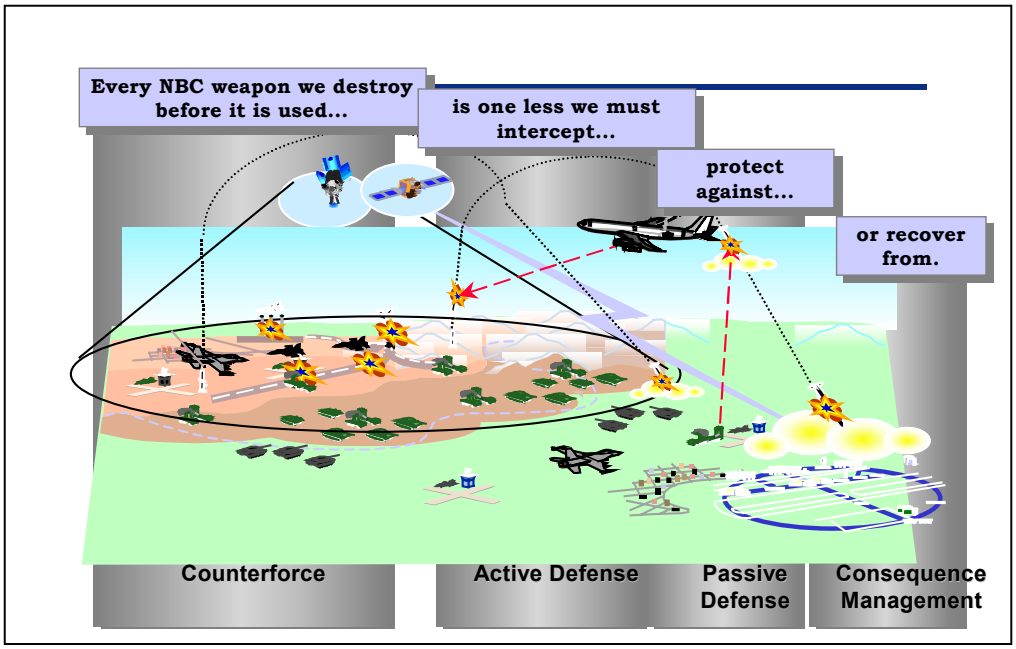

Figure I-1. Counterproliferation Operational Concept

b. The first core capability, counterforce, attacks adversary NBC weapons and their associated production, transportation, and storage facilities before their use in order to reduce the NBC threat to friendly operations and US interests. The second core capability, active defense, intercepts conventional and unconventional NBC delivery means—whether through air defense or active ground defense. Together, counterforce operations and active defense lessen the number and size of attacks friendly forces have to absorb and reduce the

burden on passive-defense measures; they can also have consequences and collateral effects. The third core capability, passive defense, protects personnel from the effects of an NBC attack and allows sustained operations. The fourth core capability, consequence management, includes measures to provide emergency assistance to civilian authorities when directed by the chain of command. Consequence management measures could be required at any phase of operations, depending on the threat and availability of assets.

c. Passive defense seeks to deter and deny the use of NBC weapons by ensuring that US forces succeed in an NBC environment. The highest priorities for passive defense are force survivability and successful mission accomplishment. Passive-defense operations focus on protecting assets, sustaining mission operations, and minimizing casualties. The elements of passive defense against an NBC attack consist of contamination avoidance, protection, and decontamination. Actions undertaken include measures to provide essential individual and collective protection (COLPRO) for friendly forces and critical assets. Passive-defense measures are planned whenever US forces could face a threat with an NBC capability. (Note: For detailed information for defense against an NBC attack, see MTTPs on NBC contamination avoidance, protection, and decontamination.)

d. The employment of the other counterproliferation capabilities could have consequences for passive-defense operations. For example, communication of early warning information provided by counterforce or active-defense surveillance systems is essential for passive-defense preparedness. The collateral effects of conducting counterforce and active-defense measures are also assessed to determine the possible impact on friendly operations; detailed situational awareness (SA) is critical for this process.

e. Counterproliferation efforts are also enhanced by military support to nonproliferation efforts. Military support could include export control and intelligence activities, as well as inspection, monitoring, verification, and enforcement support for treaties and international agreements. Commanders may be specifically tasked to include nonproliferation and counterproliferation support tasks as a part of joint and theater engagement plans for peacetime operations. Similarly, specific tasks may be taken from service and joint mission-essential task lists (JMETL) for this purpose. Training and operations should visibly reflect the capabilities of service organizations—alone and in conjunction with joint and multiservice organizations—to operate successfully in NBC environments.

3. Threat Environment

US forces face a potential NBC threat across a broad range of military operations. The term "NBC environment" includes the deliberate or accidental employment or threat of NBC weapons and attacks with other CBR materials, including toxic industrial materials (TIM). The employment and threat of NBC weapons and other toxic materials pose unique challenges to US military operations worldwide. The number of nations capable of developing or possessing NBC weapons is steadily increasing. Many potential adversaries use former Soviet-style equipment and doctrine. The potential use for CBR weapons can range from blackmail or acts of terrorism during peace, to limited use during MOOTW; however, during a conflict or war the probability of NBC weapons may increase.

a. Introduction. NBC weapon employment doctrine for an adversary would likely be based on its sources of training, systems, and technological advances. Commanders have the responsibility to consider the implications of a potential adversary's NBC capabilities not only in a region of active conflict, but also in other regions. This includes potential US adversaries who might possess NBC capabilities, including emerging global adversaries, regional adversaries, and nonstate groups.

b. Adversaries.

(1) Global. A global adversary could be a dominant regional power with an advanced economy and technology base; such an adversary would have a program underway to field a full range of military capabilities, including NBC weapons, with the capability to project power beyond its geographic region.

(2) Regional. 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, threaten neighbors, or deter other regional or global adversaries; such an adversary could project power beyond its state boundaries.

(3) Nonstate. Nonstate 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 and the means to employ them by overt or clandestine means.

c. Technology. 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.

d. Incentives. State and nonstate groups alike may have incentives to operate outside the norms of acceptable international behavior, especially when important interests are involved. These groups may have incentives to acquire NBC weapons in spite of their adherence to international agreements and treaties. They may seek to overcome US and alliance or coalition strengths by focusing their vulnerabilities on the use of NBC weapons and other toxic materials.

e. Adversary NBC Employment.

(1) Adversaries may employ NBC weapons to exploit US and multinational vulnerabilities. Civilian populations, physical infrastructures, and unwarned and unprotected military forces are especially vulnerable to an NBC attack. Joint and multinational operations in areas where indigenous friendly populations have less protection than US forces present similar vulnerabilities. The enemy could elect to conduct an NBC attack while US forces are engaged in a crisis or conflict, thus negating the strength of the US and coalition 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. NBC weapons may also be used as weapons of last resort if the adversary anticipates the loss of its strategic center of gravity.

(2) 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 uncertainty of US intervention, this adversary may act largely in the manner of a regional adversary and seek to avoid defeat and survive.

(3) 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. A number of adversaries also may operate routinely to violate the international treaties and agreements, often taking unpredictable, high-risk actions. Their employment concepts may include conventional and clandestine delivery of NBC weapons at the inception or later in the conflict for the purpose of disruption, destabilization, coercion, or revenge.

(4) Broad adversary objectives for acquisition and employment of NBC weapons may include the capabilities to—

- Defeat, influence, intimidate, and deter a regional rival and deter US intervention.
- Disrupt US and multinational forces and operations.
- Delay defeat by US and coalition forces in a region.
- Punish and inflict revenge on the US and multinational partners for their policies and actions to help ensure regime survival.

f. Threat Agents.

(1) One of the key facets of planning for NBC defense, given the large variety of potential agents and weapons, is to emphasize the agents and weapons under consideration to those most likely to be employed.

(2) With regard to chemical agents, the concern is the use of nerve, blister, blood, and choking agents.

(3) Biological agents are categorized as disease producing organisms (pathogens) and toxins. The time from exposure to maximum effects generally ranges from a few hours to several days.

(4) The effects of nuclear weapons are qualitatively different from biological or chemical weapons. A nuclear detonation produces its damaging effects through blast, thermal energy, electromagnetic pulse, and radiation.

(5) The large variety of potential agents for use against military and civilian targets can also include TIM.

(6) In addition to the physical effects, 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. For example, the use of NBC

weapons can cause a psychological impact among military and civilian personnel, and the weapons' effects can be increased beyond their actual capacity to cause physical casualties.

(7) Although a common defense concern for all three types of weapons is some degree of residual contamination that is hazardous to humans, there are significant differences between NBC weapons. The mechanisms for dissemination of contamination differ in that biological and chemical weapons either undergo low-order detonations or employ some less violent form of release to disperse the agent without destroying it; whereas, nuclear weapons can produce radioactive contamination from an explosion or a simple rupture, and the extent of contamination increases with the violence of the event. (Note: See FM 3-6, *Field Behavior of NBC Agents, Including Smoke and Incendiaries*, for detailed information on the effects of weather and terrain on NBC agents.)

g. Threat Attacks.

(1) Introduction. Delivery systems—such as aircraft, cruise missiles, unmanned aerial vehicles/remotely piloted vehicles, and tactical ballistic missiles—could be probable overt delivery methods for use against operational-level targets. Other delivery systems, such as artillery, could be used to support adversary tactical operations. Covert releases, including various aerosol-releasing devices, could also be possible. Location, mobility, and defensive capabilities of US forces play a major role in determining the threats from nuclear and radiological, chemical, or biological weapons.

(2) Nuclear and radiological attacks. Many nations have delivery means for nuclear munitions—such as aircraft, cruise ballistic missiles, artillery, or clandestine employment. Adversaries may also employ toxic radioactive materials using explosives or other devices.

(3) Biological Warfare. Biological warfare (BW) agents can be produced with little difficulty in a relatively short time. They can be produced covertly using dual-purpose technology by those of modest education using limited tools and space. An adversary could use a production facility to manufacture prescription drugs one day and be producing BW agents the next day. Using commercially available equipment and established microbiological techniques (perfected decades ago), several countries have rapidly assembled viable offensive BW programs that can easily be concealed. Other BW weapons characteristics make these agents particularly attractive for use. Certain BW pathogens—such as smallpox and pneumonic plague—are communicable diseases and can cause tremendous numbers of casualties. Furthermore, the incubation period for biological agents could also make them a weapon of choice against an unsuspecting force. Employment of biological agents can be conducted using means such as aerosol generators, aircraft, or missiles. Not since Japan's use of BW in China during World War II have biological weapons been used in combat. As the Japanese discovered, the effects of biological weapons are difficult to anticipate and control and may cause considerable casualties to unvaccinated friendly forces and populations. The Japanese limited the use of biological weapons following incidents of high casualties among their own unvaccinated forces. Furthermore, the difficulty in limiting effects may result in a devastating response upon the perpetrator, especially by forces capable of holding the perpetrator's centers of gravity at risk.

(4) Chemical Warfare. Chemical weapons are perceived by many nations as an alternative to developing and fielding nuclear weapons. Chemical munitions require little more expense or expertise to manufacture than conventional munitions. The technology and literature are readily available on the world market. Once the decision is made to arm with chemical weapons, stockpiles can be rapidly produced. CW employment options include artillery, mortars, rockets, aircraft, and missiles, as well as covert use by terrorists. Since the end of World War II, combatants have used chemical weapons in Yemen (1963 to 1967), Laos and Cambodia (late 1970s), Afghanistan (mid-1980s), and the Iran-Iraq War (late 1980s). In some cases, notably against large concentrations of untrained troops, chemical weapons have been credited for major successes. World censure of chemical weapons has been sporadic and ineffective. Initially, developing nations' use of chemical weapons may be unsophisticated. The learning curve for use, even with military advisers, will be slowed by rudimentary training in basic skills. The combatants must learn to handle the logistics burden, friendly protection, weapons effects prediction, and difficulty in storage and handling. The impact of the use of chemical weapons is clearly demonstrated in Figure I-2.

(5) Toxic Industrial Materials. TIM hazards, previously considered insignificant during wartime, increase greatly in significance when manufactured, stored, distributed, or transported in close proximity to fixed sites, ports, or airfields. Deliberate or inadvertent release significantly increases hazards to the indigenous population and US forces. While CW agents are highly toxic and lethal in small amounts, the countries that produce them are generally known and are few in number when compared with the quantities and universal nature of TIM. Given the prevalence of TIM throughout the world, US forces use area studies, intelligence estimates, and/or economic studies to possibly indicate TIM hazards in an AO. TIM should be recognized for the singular hazards they pose as well as the potential risks that may result from an explosion or a fire. Most TIM will present a vapor (inhalation) hazard. Vapor concentration at or near the point of release may be very high and may reduce the oxygen concentration below that required to support life. TIM are generally classified in one of the following categories:

- Agricultural—includes insecticides, herbicides, and fertilizers.
- Industrial—chemical and radiological materials used in manufacturing processes, in fuel, or in cleaning.
- Production and research—chemicals and biological materials produced or stored in a facility.
- Radiological—nuclear power plants, medical facilities, and laboratories.

4. Maintaining Preparedness

Maintaining military preparedness for potential operations in NBC environments presents significant challenges and places extraordinary demands on commanders at all echelons for a clear understanding of potential threats and the requirements for unity of effort among US forces (service, interagency, joint, multiservice, and multinational) in the US and abroad. Threat assessment includes overseas areas of potential conflict as well as US territory, with particular attention to the civilian infrastructure, military forces, types of hazards that may be encountered (i.e., low-level exposure hazards), and facilities needed to support the range of military operations. Preparedness includes visibly and successfully exercising service, joint, multinational, and interagency plans that demonstrate the capability to operate in NBC environments because the use of NBC weapons could impact strategic, operational, or tactical operations.

a. Background. Maintaining preparedness may include combat operations and MOOTW such as peace operations, foreign humanitarian assistance, and other military support to civil authorities (MSCA). This environment presents numerous opportunities for US military operations to encounter antagonists possessing NBC weapons or toxic materials.

b. Low-Level Exposure. In addition to the employment of NBC weapons by a threat, maintaining preparedness includes being alert to other dangerous hazards that can persist in the AO. Prevalent among those hazards are low-level radiation (LLR), depleted uranium (DU), TIM, and biological agents (covertly or accidentally dispersed). An LLR threat can exist in certain expended munitions, damaged or destroyed equipment, or contaminated shrapnel—as well as inadequate nuclear waste disposal, deterioration of nuclear power facilities, or damage to facilities that routinely use radioactive material. LLR produces long-term radiation exposure health consequences for personnel. DU found in munitions does not present significant hazards as long as the round is intact. However, care must be taken around vehicles that have been hit by DU rounds or fires where DU munitions are involved because inhalation and ingestion of DU dust and residue present a health hazard. TIM are often present in enormous quantities in the AO and can be released from industrial plants, transport containers, or storage facilities through battle damage or used as a desperation measure during military operations.

HISTORICAL VIGNETTE

- **In April 1988, Iraq began Operation "Blessed Ramadan" against Iranian forces. The attack began on the morning of 17 April. Armored forces of the Republican Guard conducted the main attack. The Iraqi 7th Corps conducted a supporting attack along the west bank of the Shatt al-Arab waterway. The employment of chemical agents was an integral part of the Iraqi plan. Nonpersistent nerve agent was used on the defending Iranians.**

- **Both artillery and aircraft delivered the chemical agent on the intended targets. Only 35 hours were required to complete the operation. The Iranians never recovered from the initial assault and were unable to reestablish an effective defense. The Iraqis did not win this battle solely by employing chemical weapons, but their impact was significant. The employment of chemical weapons in this battle caused casualties, disrupted operations, hindered battle command, and allowed the Iraqis to retain the initiative throughout the attack.**

- **The Iraqi use of chemical agents was a major contributor to Iraq's successes against an otherwise superior force, which—although numerically superior and highly motivated—was poorly protected and unable to deter CW use.**

Figure I-2. Battle for Al Faw, April 1988

c. The Strategic Level.

(1) Activities at the strategic level establish national and multinational military objectives, assess risks for the use of military and other instruments of national security policy, develop theater plans to achieve these objectives, and provide military forces and other capabilities according to strategic plans. Events that may appear to be focused at operational and tactical levels may have strategic consequences. Therefore, when contemplating operations in NBC environments, commanders must be attentive to the broader implications of adversary and friendly capabilities and operations.

(2) At the strategic level of war, the national military strategy is based on defense and deterrence. Elimination of the threat of NBC warfare is a clear strategy of the

US. A viable NBC defense program helps to deter aggression; pursue arms control agreements; prevent proliferation; support counterproliferation, national missile defense, homeland security, and weapons of mass destruction (WMD) civil support; and repel or defeat an enemy attack. These strategic efforts help demonstrate to an adversary that US forces would be minimally affected by the use of these weapons.

(3) The use of CW from a theater-strategic perspective can be decisive. For example, the threatened use of Iraqi chemical-weapon-equipped ballistic missiles against Iranian cities late in 1988 tipped the strategic scale decisively in Iraq's favor. Unable to effectively counter the threat, a war-weary Iranian government sued for peace and renounced its strategic objective toward Iraq. Throughout the war, Iran and Iraq exchanged conventional-armed ballistic missiles and high-performance aircraft attacks without apparent strategic impact. Because of the devastating effect that Iraq's use of CW had on Iranian troops and their morale, Iraq's threat to use CW-equipped missiles against undefended Iranian cities become too much of a psychological and political risk for the Iranian government to chance (see Figure I-2).

d. The Operational Level.

(1) The operational level links the actual employment of forces to strategic objectives. The focus at this level is on operational art. Operational art determines when, where, and for what purpose major forces will be employed.

(2) Among many considerations, operational art requires commanders to consider the following:

- Ends—What military (or related political and social) conditions must be produced in the operational area to achieve the strategic goal (i.e. deterrence of an enemy's NBC weapons employment)?
- Ways—What sequence of actions will support surviving, avoiding, or mitigating the effects of an NBC environment?
- Means—How should the resources of the joint force be applied to accomplish eliminating or reducing the adversary's NBC capabilities?
- Risk—What is the likely cost or risk to the joint force of operating in an NBC environment?
- Resources—What resources must be committed or actions performed to successfully execute the JFCs' exit strategy (i.e., support for arms control, peacekeeping, etc.)?

(3) Operational level planners consider that an adversary may target the functions and services provided by US fixed sites to include beachheads and lodgments. US fixed sites will provide critical C^2, force projection, and sustainment capabilities for joint forces. The military environment of fixed sites includes strategic choke points, sustainment operations, complex C^2, and centers of gravity. The strategic projection of combat power may require aerial ports of debarkation (APODs), seaports of debarkation (SPODs), and

subsequent sustainment through the limited number of fixed sites available. The limited number of usable ports of debarkation (POD) may cause an unavoidable concentration of forces at these sites, creating a major target. Likewise, multiple services, activities, and organizational structures coupled with the presence of host nation (HN)/US civilians with less training in passive-defensive measures than combat forces further complicate planning and C^2 at these sites. An enemy theater missile with an NBC warhead, NBC capable long-range artillery, or special operations forces (SOF) covert dissemination may quickly disrupt the flow of information and resources to and from the fixed site. For example, nations with adequate stocks of chemicals could follow former Soviet doctrine and use persistent chemical agents to restrict air base and port operations. Persistent nerve and blister agents may delay the servicing of aircraft and ships and hinder cargo handling. Persistent agents at logistics facilities may impair resupply and service operations. Likewise, such agents may seriously delay definitive medical care and the use of pre-positioned stocks.

(4) NBC tasks at the operational level may include—

- Counterproliferation.
- Theater NBC defense.
- Integration of component NBC defense capabilities at operational level.
- Consequence management in support of lead federal agency.
- Integration of NBC defense with HNs.
- Interagency and multinational tasks and operations.
- Mitigation of residual hazards and control and recovery of belligerents NBC capabilities.
- Reduction of vulnerabilities to an NBC attack.
- Assessment of collateral effects of targets that may produce a hazard.
- Visible, effective training and exercises designed for operations in NBC environments (required at the tactical level as well).

e. The Tactical Level.

(1) At the tactical level, the size and location of the battlespace are influenced by the physical location of the adversary's land, air, maritime, space, and other forces that could pose a direct threat to the security of the friendly force or the success of its mission.

(2) At the tactical level, units use NBC defense and medically related TTP to avoid, protect, and decontaminate to help reduce vulnerability to NBC attacks.

(3) The proliferation of NBC weapons combined with the proliferation of ballistic and cruise missle technology pose an increasing threat to tactical units in offshore

facilities, rear areas, fixed sites, and forward areas. Since each of the NBC weapons can be delivered by a wide variety of means—including ballistic missiles, precision-guided munitions, or covert devices—the threat environment extends throughout the depth of the battlespace and continues to the force projection base. Nations' combatants with adequate chemical stocks who use former Soviet doctrine would likely employ nonpersistent agents against front-line troops and on avenues of approach. They would be inclined to use persistent agents on bypassed troops, strongpoints, and flanks. They may use persistent or nonpersistent chemical agents in barrier and denial plans. With small stockpiles, however, they may use biological or chemical weapons selectively to support a critical attack or defense, particularly against massed troops or potential staging areas. Of prime importance; an adversary may select key civilian targets in order to avoid military preparedness and to achieve important political objectives. Commanders at all levels must be prepared for such adversary attacks against civilian targets, including maintaining military preparedness for other operations while participating in consequence management and other operations in support of civil authorities. TIM releases from bulk storage, transport and pipelines could be used as improvised weapons against friendly forces.

5. Organization of Operational Areas

To assist in the coordination and deconfliction of joint action, commanders may define operational areas. The size of these areas and types of forces employed within them depend on the scope and nature of the crisis and the projected duration of operations.

a. Operational Areas. Within the operational area's combat and communications zone (COMMZ), the commanders continually assess the enemy's capability. In-depth assessments are necessary for targeting to support destruction of an enemy's offensive NBC capability However, the uncertainties associated with accomplishing destruction of an enemy's NBC capability within an operational area make it essential that the commander's mission-essential task list (METL) includes NBC defense. Of particular importance are those NBC defense tasks that are included in the JMETL that may support individual service, joint, and multinational operations. Operational areas are critical in determining NBC defense capabilities and priorities for NBC defense. Operational areas (along with the associated threat assessment) and the organic defense capabilities of units influence NBC task organization, siting of NBC collection centers, and command and control of NBC assets.

b. Joint Areas. For operations somewhat limited by scope and duration, commanders can use the operational areas to minimize the impact of NBC weapons. Commanders may consider using operational areas to achieve positional advantages such as positioning assets beyond the threat range, identifying relocation sites, and deploying redundant critical assets. Remote basing in an operational area could be used to protect critical weapons systems (e.g., F117 aircraft) from contamination or destruction. Relocation, dispersal, and redundancy of sites within operational areas offer another alternative if an enemy NBC attack should prevent or restrict operations at primary sites.

6. Conditions of the Battlespace

The operational setting for US military operations is a diverse and complex environment. This diverse condition includes the physical, military, civil, and threat

environments. By function, NBC defense operations can impact each aspect of the physical battlespace: air, space, land, and maritime. Secondly, US military operations are inherently joint and will likely include joint task force (JTF) operations. Thirdly, in addition to the physical and military environments, military operations (especially aerial and sea port operations) may occur within the complex framework of the HN and the civil environment. Commanders will use the conditions of the operational environment as planning considerations for inclusion in joint/multiservice plans and exercises.

a. Physical Environment. Just as the physical battlespace directly impacts site operations, the physical environment directly influences NBC operations. NBC weapons can impact force projection and combat operations on land, at sea, in space, and in the air. Further, the nuclear component of NBC could also impact the space environment and communications; additionally, C^2 networks that rely on this dimension would be severely degraded.

b. Military Environment. The military environment includes settings such as strategic chokepoints, sustainment sites, complex C^2, and centers of gravity.

c. Civil Environment. The culture and economic aspects of the civil environment that significantly influence NBC defense considerations include religious, national, and ethnic values; public media; and economic, industrial, and technological capabilities.

7. Commanders' Planning Considerations

Commanders at all levels have the responsibility for taking into account the above policy and environmental considerations in planning and conducting training, exercises, and operations. This responsibility applies to war and MOOTW. It includes commanders' actions in support of standing plans and orders as well as implicit command responsibilities. Commanders are also responsible for ensuring that their forces' capabilities to operate successfully in NBC environments receive appropriate attention through active participation in appropriate information and public affairs activities. Visible capability built upon actual battlespace capability provides a basis for deterrence and successful operations should deterrence fail.

a. The primary responsibility for mission accomplishment, inherent in command, requires commanders to consider the nonmilitary as well as the strictly military aspects of their AOs. This includes the impact of operations on the civilian populace and nonmilitary governmental and private organizations. Based on national policy and higher headquarters (HQ) guidance, commanders bear the ultimate responsibility for preparing their forces for successful operations in NBC environments. Fixed TIM storage, production, and transport sites pose potential release hazards locally as well as distances greater than several kilometers downwind.

b. Broad considerations for commanders include—

- The NBC threat to their organizations as well as to the civilian environment in which their forces exist in war and MOOTW. This includes a requirement for liaison and planning as a routine matter with nonmilitary organizations affected by the threat and friendly operations to mitigate the threat.

- The challenges of transition from peacetime to war or MOOTW. While commanders normally do not command all the forces that will be at their disposal during war or MOOTW, they are responsible for prudent planning for potential additional forces that may be made available for unforeseen circumstances. This includes nonmilitary organizations that may be linked in some way, even if informally, with military organizations in the battlespace or elsewhere.

- The integration of all capabilities, military and nonmilitary, to ensure mission accomplishment. This will often require coordination and liaison rather than C^2. Nevertheless, the imperative for planning and preparedness falls on the military commander, subject to guidance from higher HQ. Integration of civilian capabilities for consequence management, HSS, civil engineering (CE), and other civilian functions may be crucial to military mission accomplishment and should be routinely considered in peacetime development of METL, individual and unit training, exercises at all levels, and leader development at all levels.

- Assessing TIM storage, production, transit sites, and pipelines in proximity to friendly force occupation sites.

Chapter II
NBC DEFENSE CHALLENGES

Passive defense operations use the principles of NBC defense (contamination avoidance, protection, and decontamination) to prepare for possible operations in an NBC environment. These form a hierarchy that protects the force, sustains operational effectiveness, and minimizes casualties. Units employ avoidance measures, detection, identification, sheltering, covering, and NBC reconnaissance to avoid contamination, thus minimizing or eliminating NBC casualties, mission performance degradation, and logistical intensive decontamination requirements. Units attacked or contaminated by NBC weapons, will use individual and COLPRO to sustain operations and reduce the impact of NBC weapons on the unit. Individual protection uses physical protection devices, immunizations, pretreatments and prophylaxis, and NBC casualty medical treatment. COLPRO provides relief from sustained operations in full NBC protective equipment and provides clean environments for operations that cannot be performed under NBC-contaminated conditions. COLPRO neutralizes or removes NBC hazards from personnel and equipment, minimizes the hazard and spread of contamination, and facilitates the prompt restoration of normal operations. Overall, battle management is essential in planning and executing NBC defense. Timely NBC risk assessment and information management (IM) are critical as part of this process. NBC battle management supports preparation of sound COAs that apply avoidance, protection, and decontamination measures, thus providing an effective and integrated NBC defense strategy.

Efficient command and staff interactions are crucial to effective operations in NBC environments in war and MOOTW. A principal focus of an organization's NBC staff element is to provide accurate and timely information for command decision. Rapid dissemination of decisions and their supporting knowledge are crucial to success in the command as a whole. Command, specialized C^2, and battle management systems have, as a key objective, efficient knowledge sharing vertically and horizontally across the entire command to facilitate mission accomplishment and meet NBC defense challenges.

In applying the following NBC defense principles of contamination avoidance, protection, and decontamination, commanders focus primarily on mission accomplishment with due regard for the health and effectiveness of their subordinates and the civilian populace (including civilian workers supporting the military effort) in their AOs. Unprotected civilians may become a significant obstacle to military success and present a lucrative target for adversary employment of NBC capabilities in pursuit of adversary political or operational objectives.

1. Contamination Avoidance

Contamination avoidance includes those individuals and/or unit measures taken to avoid or minimize NBC attacks and reduce the effects of NBC hazards. Contamination avoidance helps to prevent the disruption to operations and organizations by preventing casualties, eliminating unnecessary time in cumbersome protective posture, and minimizing decontamination requirements. Avoiding contamination requires the ability to recognize or accurately predict the presence or absence of NBC hazards in the air, on

water, or on land – as well as assessing existing TIM storage and production facilities as potential release sources.

a. Introduction.

(1) Avoidance alone is probably an insufficient response to a representative large-area NBC attack, regardless of the type of unit. On one hand, forces operating from fixed locations (e.g., USAF Air Expeditionary Force) are not capable of relocating quickly enough to avoid contamination, regardless of the type of attack. On the other hand, even highly mobile units (e.g., USMC maneuver units) may be unable to move far enough or quickly enough to avoid contamination when attacks cover such large areas as those possible with typical biological aerosol attacks. Accordingly, for fixed and mobile units alike, avoidance of an NBC attack most likely means detecting or learning of the attack in time to take protective and medical actions to prevent or minimize the effects.

(2) In general, contamination avoidance includes actions to prevent contamination of mission-essential resources and personnel, whether directly from agent deposition or by transfer from contaminated surfaces of terrain and equipment. Avoidance actions include the use of protective covers or coatings and removal of these covers or coatings upon entry into uncontaminated areas. It may also include the removal of absorbent materials found on the exterior of vessels or vehicles. Navy vessels employ a countermeasure "washdown" system that prewets the exterior to form a saltwater barrier.

(3) Contamination avoidance has a direct and significant impact on limiting the spread of contamination by isolating key resources from the need for decontamination. Early detection of missiles or aircraft attacks triggers the use of contamination avoidance procedures and protects personnel through the use of COLPRO and individual protective equipment (IPE).

(4) Avoidance measures are those taken specifically to avoid, control, or mitigate NBC hazards. Avoidance measures provide the commanders the means to maintain and anticipate the NBC SA status for specific areas. This SA helps the commander to understand the current situation, envision the end state, and envision the sequence that moves his forces from the current state to the end state. This does two things for the commander: it minimizes casualties in the NBC environment and preserves combat power.

b. Contamination Detection and Identification.

(1) Introduction. Commanders need information about contamination hazards and locations of clean areas; they gain this information through the NBC warning and reporting system (NBCWRS) and their own NBC reconnaissance efforts. As commanders collect data, they forward it to higher HQ. If higher HQ requires additional information, detailed surveys are directed. There is a range of detecting and identifying devices and kits to assist the commander in detecting and identifying chemical hazards. The devices and kits range from detection paper to the M93 NBC Reconnaissance System (NBCRS). A typical unit organization (i.e., wing, ship, and battalion) is equipped with automatic chemical alarms, chemical-agent monitors (CAMs), chemical-agent detector kits, and detector paper. Dedicated NBC reconnaissance units are equipped with more sophisticated

detection and identification equipment. Further, there are separate detection and identification roles or tasks: warn, treat, verification or confirmation, surface contamination, and unmasking. Specific methods, capabilities, and limitations vary according to the detection and identification role or task.

(2) Detection for Warning. Standoff detection provides warning of an approaching cloud (not a specific chemical biological [CB] agent) in sufficient time to implement protective measures before exposure to agent contamination occurs. For attacks upwind, detection must occur at sufficient upwind distances to provide reasonable time for detection, processing, and information transmission. Detection of the leading edge of the cloud is preferable, since it can give more warning time. However, such detection requires greater detector sensitivity because the agent concentration at the leading edge of the cloud is less than in the middle of the cloud. Warning of an upwind attack may come from a unit's/base's own upwind detectors or from other assets (i.e., standoff detectors) monitoring the area upwind, whether purposely or coincidentally. Commanders use the full array of sensors available to provide required information. Lacking the necessary point or standoff detectors, commanders must decide when, based on intelligence indications, the possibility of an attack warrants an increased protective posture. Also, reports of an attack from upwind units can provide warning of an attack, assuming the units have the necessary detectors, have observed enemy activities indicative of an attack, or have identified an agent through detection by sampling and analysis. For attacks directly on installations or units (e.g., theater ballistic missile [TBM] or artillery), rapid detection of CB agents for warning will be difficult, if not impossible. Use of COLPRO and IPE in response to a general TBM attack warning, based on the commander's assumption that a CB attack is possible, is a viable COA.

(3) Detection for Treatment. Detection for treatment focuses on identifying the type of agent dispersed in an attack so that the best possible treatment can be rendered as early as possible. Since some aspects of treatment are agent-specific, agent discrimination is extremely important. Agent sampling and analysis continue to be the primary means of accomplishing this detection role. Detection and presumptive identification for treatment could also come from biological agent identification systems such as Portal Shield, the USN's interim biological agent detection system (IBADS), or the USA's biological integrated detection system (BIDS). Sampling is a local action, while analysis can occur locally or at designated medical laboratories, depending on capabilities. Medical personnel collect and submit clinical specimens from patients. Medical and NBC personnel perform environmental sampling and detection functions; medical surveillance will involve both local and theater-wide observations and reports.

(4) Detection for Verification. Detection for verification provides critical information to the President to support decisions regarding national strategic direction and integration. The President uses such information to determine the need for response and to select options in a timely manner.

(5) Detection for Surface Contamination. Detection for surface contamination means detecting deposited contamination on surfaces of personnel, terrain, and equipment to make determinations such as whether decontamination is necessary or whether bypass routes are needed to help facilitate maneuver unit operations.

(6) Detection for Unmasking. Detection for unmasking (dewarning) means detecting the reduction of contamination to acceptable levels. Comparison with methods and results from earlier detection of agent(s) will be an important aspect of determining when to unmask.

c. NBC Reconnaissance.

(1) Introduction. NBC reconnaissance is a multiple echelon process that begins at the national level and ranges down to the alert watchfulness of each individual. Operationally, NBC reconnaissance and surveillance (R&S) focuses on providing key information to support the commander's SA. Tactically, NBC reconnaissance is conducted as a routine part of conventional land operations. If this reconnaissance is being conducted after a terrorist incident, units follow procedures according to service directives for preserving the crime scene. For land forces, reconnaissance elements check for contamination in addition to looking for enemy activity. Units check relatively small areas and routes of immediate interest to unit commanders. When commanders need additional information unavailable through routine monitoring, they direct surveys of the area of interest (AOI). Further, dedicated NBC reconnaissance elements organic to major subordinate commands (MSCs), such as USA corps and divisions, are designed to conduct NBC reconnaissance missions. These elements provide early warning of contamination, determine the extent of contamination, and find clear routes of advance. NBC reconnaissance missions help determine whether an NBC attack has occurred and identify and quantify the agent, if any that was used. They can determine if contamination remains in an area. Tasks that may be executed to support an NBC reconnaissance mission could include—

- Searches—used to locate contaminated areas during reconnaissance operations.
- Surveys—used once the contaminated area is located. The purpose of surveys is to define the extent of the contaminated area.
- Surveillance—the systematic observation of a specific area for indications of an NBC attack.
- Sampling—the collection of material and/or environmental items to support intelligence collection and operational requirements.
- Route reconnaissance—used as a form of reconnaissance to focus along a specific line of communication (LOC)—such as a road, railway, or waterway—to provide new or updated information on route conditions.
- Area reconnaissance—used as form of reconnaissance as part of a directed effort to obtain detailed information concerning the terrain or enemy activity within a prescribed area, such as a town, ridgeline, woods, or other feature critical to operations. Named areas of interest (NAIs) are often designated area reconnaissance missions for chemical reconnaissance units in support of the overarching R&S plan.

- Zone reconnaissance—used as part of a directed effort to obtain detailed information concerning all routes, obstacles (to include chemical or radiological contamination), terrain, and enemy forces within a zone defined by boundaries. Normally, a zone reconnaissance is assigned when the enemy situation is vague or when information concerning cross-country trafficability is desired.

Note: Navy vessels do not conduct reconnaissance missions per se, but employ automated detection systems that alert the crew to the presence of CB agents and radioactivity.

(2) Follow-On NBC Reconnaissance Tasks. The following tasks may or may not be executed during a reconnaissance mission:

- Mark—Marking the boundaries of a contaminated area (or critical points along the boundary, such as roads) can be conducted after a survey to warn follow-on forces of a potential hazard.

- Bypass—Determining a clean route around contamination can assist lead elements of a task force or a logistical convoy in reaching their destination without becoming contaminated.

- Sample— Sampling can also occur as a follow-on action, although it is primarily a reconnaissance task.

(3) Contamination Marking. Contamination is marked to warn friendly personnel. Units or NBC reconnaissance teams mark all likely entry points into the area and report contamination to higher HQ. The only exception is where marking would help the enemy. In this event, the hazard is reported to higher HQ as an unmarked contaminated area. When a unit enters a previously marked contaminated area, personnel check the extent of contamination and adjust plans as necessary. As the hazard area changes, the unit relocates the signs. When the hazard is gone, the unit removes the signs. The unit reports all changes to higher HQ.

(4) Alarms and Signals. Alarms and signals convey warnings of NBC contamination. Units use easily recognizable and reliable alarm methods to respond quickly and correctly to NBC hazards. Standard alarms, the NBCWRS, and contamination markers help give orderly warning that may also require a change of mission-oriented protective posture (MOPP) level. Alarms and signals include—

- Audible alarms.

- Automatic alarms.

- Visual signals.

d. Mitigating Contamination. To maintain freedom of action, friendly forces may use information from the NBCWRS to bypass contamination or practice other mitigation techniques. Mitigation techniques include leaving nonessential forces behind, encapsulating personnel and critical items, and covering equipment. If friendly forces are

already contaminated, they can control exposure by relocating to an uncontaminated area and decontaminating as appropriate. Mitigating measures include—

- Bypassing contamination or isolating areas.
- Sheltering (moving personnel or equipment into buildings).
- Covering.
- Relocating.
- Employing shipboard washdown systems.

e. Intelligence Preparation of the Battlespace. The continuous intelligence preparation of the battlespace (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 research and development or acquisition of readily usable NBC capabilities from other countries or nonstate adversaries. The commanders must take into account these potential adversaries' 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; the indicators of intent to employ NBC weapons; and the possibility of direct or accidental release of TIM.

f. Vulnerability. Commanders, with staff input, assess their units' vulnerability to NBC attacks. Commanders determine the protection of the units versus the enemy's capability. They estimate the likely impact of NBC attacks and, based on the concept of the operation, determine methods of reducing any impact to allow mission accomplishment. A separate analysis is made to assess vulnerability for an NBC attack because of the specific nature of each type of use. Commanders reduce vulnerability to NBC weapons through applying the principles of NBC defense.

g. Hazard Prediction. Staff personnel prepare hazard predictions for NBC attacks, as the attack is not confined to the area directly attacked. The resulting aerosol or fallout travels with the wind and can cover a large area downwind of the attack area. To prevent casualties, units quickly estimate the possible hazard area and warn units within that area. The estimates of the hazard areas are only an approximation. Terrain and weather, as well as delivery system variations, modify the hazard area. In addition, the methods used to predict the downwind hazard are "safe sided" for personnel safety. This ensures that the hazard should be within the predicted area, giving units in the area time to take appropriate precautions.

2. NBC Protection

NBC protection is a command responsibility: the commander directs actions to ensure continued mission accomplishment. Avoidance and protection are closely related. Techniques that work for avoidance also provide protection; there are broad groups of activity that comprise protective measures: individual protection, reaction to attack, and use of COLPRO. The commander is primarily concerned with the protection of subordinates; however, when directed by the geographic combatant commander, the commander may be responsible for providing NBC protection to mission-essential civilians or noncombatants.

a. Individual Protection.

(1) Introduction. The commander will likely provide force protection (FP) guidance in orders/directives. The establishment of protection guidance provides components/services with the critical information that they need to ensure that military and civilian personnel are properly equipped and trained. This guidance on the appropriate IPE helps to ensure protection of the wearer from direct exposure to NBC agents. The IPE consists of a mask, overgarment, gloves, and overboots (see Table II-1). The mask keeps the agent from entering the body through the nose, mouth, or eyes; the remainder of the ensemble prevents skin contact, absorption through the skin, and entry through cuts or abrasions of the skin. A mask provides a critical and unique form of protection not available through normal combat clothing and, assuming a proper fit, it provides a physical barrier to NBC agent penetration, but not to all TIM.

(2) Passive Measures. Passive protection measures are those actions a unit takes regardless of the status of NBC warfare. Military tactics dictate many practices that will increase protection and reduce the impact of enemy NBC or conventional attacks. Good training, improved positions, and dispersed forces are particularly effective in reducing the impact of an NBC attack and reducing casualties if an attack does occur. Passive protection measures can include—

- Providing realistic, integrated training.
- Using dispersal and employing camouflage, concealment, and deception activities appropriate to the threat.
- Readying positions. Take actions to make them more resistant to the blast effects of conventional or nuclear munitions, to the heat and radiation of nuclear weapons, and to the contamination of radiological, chemical, and/or biological weapons.
- Readying personnel. Under the threat of enemy NBC attacks, leaders must ensure that protection and detection equipment is prepared and readily available.
- Remaining mobile. Units take actions, such as placing equipment in buildings.

- Covering supplies and equipment (e.g., use NBC protective covers).

(3) MOPP (see Table II-1). The commander determines the appropriate level of personnel protection for forces. Higher MOPP levels provide more protection; however, increasing MOPP levels degrade personnel performance. MOPP decisions must balance mission requirements, personnel protection, and performance degradation. Paragraph (b) below discusses MOPP analysis techniques and the associated personnel and risk analysis (RA).

Table II-1. MOPP Levels for US Forces

MOPP DIFFERENCES (AFLOAT vs ASHORE)			
Afloat[1]		Ashore[2]	
Afloat MOPP	**Afloat Description**	**Ashore MOPP**	**Ashore Description**
		MOPP ready (USA/USMC only)[4]	Carry mask; IPE nearby
		MOPP 0	Carry mask; IPE available
MOPP 1	IPE available	MOPP 1	Don overgarment
MOPP 2	Activate installed detectors, carry mask[3], post M8/M9 detector paper.	MOPP 2	Don protective boots
MOPP 3	Don protective suit and boots, intermittent countermeasures washdown (CMWD).	MOPP 3	Don protective mask
MOPP 4	Don protective mask and gloves, secure hood, Circle William, CMWD.	MOPP 4	Don protective gloves
USN, USCG, MSC Vessels		USN, USMC, USA, USAF personnel	

Notes:
[1] Aboard ship
[2] Ashore, on land
[3] The term "mask" includes any form of respiratory protection against NBC hazards as issued by services
[4] MOPP ready is not used by USAF

(a) Specialized Protective Equipment. Mission requirements during TIM threat conditions—such as operations near damaged industrial resources or MOOTW (for support of consequence management)—may also require the use of other standard protection levels, such as the US Environmental Protection Agency Levels A through D (for more information, see applicable service references, such as FM 3-11.21, *Multiservice Tactics, Techniques, and Procedures for Nuclear, Biological, and Chemical Aspects of Consequence Management).*

(b) MOPP Analysis. Leaders, generally at shipboard, an air-operating base, and brigade/battalion level establish MOPP levels based on a RA of their units' particular situations. The RA finds a balance between reducing the risk of casualties and accomplishing the mission. Commanders must recognize the significant increase in time

required for mission execution in MOPP 4 and anticipate the effects of that degradation on subsequent missions. Leaders must also understand the increased drinking water requirements. The use of MOPP involves risk; the better commanders are at analyzing their units' needs for protection, the lower their units' risks. MOPP analysis enables leaders to select the appropriate MOPP level. During MOPP analysis, the commander considers factors such as mission, work rate and its duration, probable warning time, terrain, weather, time of day, unit training, additional protection available, and alarm placement. For example, commanders must balance the probable number of heat casualties in MOPP against the possible number of casualties among unprotected personnel. Heat casualties are likely when personnel in MOPP gear are performing hard, physical work under stress of combat. Leaders establish an initial MOPP level before the mission and adjust it as the situation changes or new intelligence is received. Leaders must also consider the degradation, required flexibility, and the protection offered by overgarments.

(c) Initiating the Use of Protective Action. During activities such as force projection operations at aerial ports of embarkation (APOEs) or APODs and seaports of embarkation (SPOEs) or SPODs, commanders ensure their units are aware and capable of taking immediate protective action in the event of an NBC attack. For example, USA or USMC elements are aware of and comply with USN NBC defense measures during operations aboard ship, and JTF units from various services/components comply with applicable air base survivability procedures. Commanders establish and maintain SA of both friendly and enemy situations and continually assess policy and standing operating procedure (SOP) actions on guidelines such as automatic masking and MOPP levels. They use tools such as MOPP analysis to conduct this assessment. Personnel must automatically mask when there are high-probability indicators of a chemical attack. High-probability indicators may include activation of chemical alarms, color change of detector paper, aircraft spray, or chemical-agent exposure symptoms. The leader's decision on whether personnel should automatically mask is critical in NBC defense preparation. If intelligence sources have identified possible enemy use of biological agents, including toxins, the commander may institute automatic masking. Personnel will also automatically mask for conditions that may signal a biological attack, such as smoke, spray, mist, or the presence of dead animals. Since some toxins will attack the skin, protective clothing should be worn.

b. Reacting to an Attack. Personnel take immediate action to reduce the impact of an NBC attack. Following an attack, the use of MOPP involves balancing force survivability and mission continuation. Commanders determine the risk they are willing to take depending on the mission that must be accomplished. They take poststrike actions to restore fighting power and prepare to continue the mission. Specific actions vary according to the type of attack.

(1) Nuclear Attack. A strategic or tactical warning may precede an enemy nuclear attack. In the event deterrence fails, a tactical warning of an imminent enemy attack or an attack in progress may provide only a few minutes of notice—or no notice (depending upon a service member's location)—for personnel to take immediate shelter. The first indication of a nuclear detonation is a flash of intense light and heat. Direct radiation arrives with the light. The leading edge of the atmospheric shock wave and fireball propagates at nearly the speed of sound, and its arrival will be somewhat delayed

behind the light, heat, and radiation, depending on the distance from the detonation. For those who are not debilitated by the initial heat or radiation, this delay may be great enough to allow an attempt to find cover from the blast. Blast hazards include trauma from flying debris, being blown into obstacles, collapsing structures or falling objects, and the overpressure wave impact itself. There is also a radiation hazard as much of the debris and dust that moves with the blast can be radioactive. A small increase in safety may be achieved by simply lying flat on the ground, head toward the detonation. If time permits, additional protection may be achieved by moving below ground level (e.g., by finding a ditch in which to lie). If enough time is available to reach a trench, dugout, or basement—these usually provide the best protection. Whether to fall flat or to run for better shelter must be decided instantly upon recognizing the heat/light flash, based on a preconception of how far away the detonation is likely to have occurred. As soon as possible, don any protective gear at hand then move as quickly and as far away from ground zero as the mission and conditions permit. Poststrike concerns will be damage assessment, restoration of combat power, and treatment of casualties. Leaders must maintain control, take contingency actions quickly, and plan for the continued presence of radioactive contamination from fallout.

(2) Biological Attack. A biological attack may come with no warning (i.e., upwind aerosol release) due to the difficulty in detecting and correctly assessing the use of biological agents. Personnel should treat a suspected biological attack just as they would a chemical attack. Since it is difficult to readily detect and determine the character of a particular biological attack (e.g., anthrax, smallpox, or botulism toxin), donning a well-fitting protective mask remains the best method to enhance the survival of unvaccinated forces. Most biological agents have a delayed onset of signs or symptoms—thus hampering identification, complicating personnel decontamination, and delaying definitive treatment. It is important to note that due to the nature of biological agents, an attack could go unrecognized.

(3) Chemical Attack. If an advanced warning of a chemical attack is not received, warning may come from an automatic alarm (audible or visual signal), detection of a chemical cloud, color change of detector paper, or symptoms observed in oneself or another. The first reaction should always be to mask and then give the alarm. If the mission permits, immediately seek cover and perform skin decontamination. After the attack, leaders adjust MOPP levels, as appropriate, for the type of hazard and mission. Continued reassessments of available threat information and mission requirements are needed to ensure that MOPP levels are not set too high.

(4) TIM Releases. Fixed sites with large bulk storage of materials are potential hazards. Units that have positioned themselves in the downwind or local area to the TIM sites must be prepared to relocate on short notice following TIM releases.

c. Collective Protection. COLPRO complements the individual protection provided by MOPP gear. COLPRO provides a toxic-free working environment for selected personnel and functions. This environment may allow personnel to function more effectively while continuing to wear overgarments (as with the ventilated facepiece system). Alternatively, it may allow personnel to temporarily remove overgarments (as with an overpressure system).

- Collective Protective Shelter. A collective protective shelter (CPS) is a shelter that provides cover and protection to a group of individuals, enabling them to relax their individual protection. Shelters can be located wherever collective protection is needed—on ships, in buildings, at air bases, etc.

- Collective Protective System. A collective protective system is one or more collective protective shelters employed by the commander for protection of assigned personnel. Shelters are used wherever the need exists in the area of operations.

In either event, the collective protective shelter (CPS) is effective only as long as entry and exit procedures remain valid. When CPSs are used to provide relief from wearing MOPP, commanders establish a system for the rotation of personnel. They plan for supplies, maintenance, and transportation to support the system and establish operating procedures for the shelter that ensures security, reliability, and utility.

(1) Collective Protective Shelters/Naval Vessels. CPSs are freestanding structures or areas within a ship that protect personnel from the effects of NBC contamination. Walls, doors, and windows (or the water/airtight integrity of a ship) offer limited physical barriers to the penetration of contamination. CPSs with an air filtration system protect those inside against contamination through the combination of nonpenetrable structural materials, air filtration equipment, air locks, and overpressurization. CPSs reduce contamination levels when personnel enter or exit the structure. They enable personnel to work or gain rest and relief without the encumbrance of the IPE. If CPSs are not available and NBC contamination is present and persists beyond a few hours, it may become necessary to locate and designate contamination-free areas for rest and relief. These shelters are only effective if CB agents are delivered by nonpenetrating weapons or nonexplosive dispersal systems.

(2) Types. There are differing types of CPSs. In one type, the COLPRO is built into critical work areas, such as squadron operations centers, wing command posts, communications centers, medical treatment facilities (MTFs), and avionics maintenance facilities. Another type, the transportable COLPRO, is deployable and has multiple variations that can protect work areas, MTFs, or rest and relief areas. The variations fit inside rooms within buildings, protect deployable shelters, and can stand alone. Another type is mobile CPS that could be installed on an armored fighting vehicle. There are also varieties used on naval systems: full coverage and selected area coverage. On a full coverage ship, all spaces—except main propulsion spaces—are protected by over pressurization and air filtration. Selected area CPSs, installed on amphibious ships, protect critical operational and medical spaces. Vessels not equipped with CPSs still provide, by ship design practices, significant protection.

(3) Sealing Structures. Sealed and closed structures offer some protection. In the absence of dedicated CPSs, the inherent features of some buildings offer protection not otherwise available. Walls, doors, and windows offer physical barriers to the penetration of contamination, while filters in heating, ventilation, and cooling systems can remove certain levels of particulate contamination. Wearing a mask inside such structures increases the protection for the wearer.

(4) Ready and Deep Shelter on Naval Vessels. In preparation for an NBC attack, naval commanders designate ready and deep shelter.

- Ready shelters are immediately available shelters for exposed personnel that offer limited protection from weapons effects and contamination.

- Deep shelters are predesignated spaces low in the ship that provides additional protection from CB agents and gamma radiation.

3. Decontamination

The same resources are required to fight the battle, so commanders must apply them wisely and sparingly. Efforts focus on operational results rather than the process of decontamination. Often, the result desired is reducing the hazard so that MOPP levels can be safely reduced. Yet, technical limitations may not allow personnel to decontaminate their way out of MOPP. For example, agent will sorb into paint or other porous substances and produce a lingering off-gas hazard that must be monitored and may require personnel to wear protective gear. The following principles guide decontamination operations:

- Speed—decontaminate as soon as possible to restore full combat potential.

- Need—decontaminate only what is necessary. Consider mission, time, extent of contamination, MOPP status, and decontamination assets available.

- Limit—decontaminate as close to the site of contamination as possible to limit its spread. Do not move contaminated equipment or personnel away from the operational area if it is possible to bring decontamination assets (organic or supporting units) forward safely. This will keep the equipment on location, speed decontamination, and limit the spread of contamination to other areas.

- Priority—decontaminate the most important items first and the least important items last.

a. Levels of Decontamination. The three levels of decontamination during hostilities (immediate, operational, and thorough) complement each other and serve to minimize contamination, save lives, and limit the spread of contamination. Ultimately, the goal is to restore operations to near-normal capacity by reducing or eliminating the need for the IPE. Retrograde of equipment outside the operational area will require additional decontamination.

(1) Immediate Decontamination. Immediate decontamination is exactly what the term implies—the immediate actions taken by an individual to survive. Individuals conduct immediate decontamination using the supplies and equipment they carry. Immediate decontamination consists of—

- Skin decontamination.

- Personal equipment wipe down.

- Operator spray/wipe down.

(2) Operational decontamination. Teams or squads conduct operational decontamination using organic decontamination equipment. If this equipment is not available, units will request decontamination support through command channels. This mission can be tasked to the supporting NBC unit. These procedures limit the spread of contamination and minimize contact or transfer hazards by decontaminating specific parts of operationally essential equipment, material, work areas, and IPE that is exchanged. Operational decontamination makes thorough decontamination easier by effectively speeding up the weathering process for chemical and biological contamination. Operational decontamination is less resource intensive than thorough decontamination. Operational decontamination includes—

- MOPP gear exchange.
- Equipment wash down.

(3) Thorough Decontamination. This is the most resource-intensive level of decontamination. It may require external support (augmentation) to accomplish the mission of NBC decontamination. Thorough decontamination goals are to reduce contamination to neglible risks during combat operations; however, during postconflict operations, retrograde decontamination becomes a key concern. Thorough decontamination requires augmentation from supported units to accomplish this process. The decontamination unit is in charge of the decontamination site and operation. Forces coordinate decontamination sites with the HN through civil-military liaison teams. The commander of the decontamination operation takes positive action to prevent runoff and contamination of civilian water sources. Applicable documents, such as FM 3-5*, NBC Decontamination*, describe in detail the procedures for thorough decontamination. The three techniques used in thorough decontamination are—

- Detailed troop decontamination (DTD).
- Detailed equipment decontamination (DED).
- Detailed aircraft decontamination (DAD).

b. Levels of Decontamination for Naval Forces.

(1) Personnel. Emergency swabbing of contamination from skin or flushing contamination from eyes.

(2) Limited Operational. Teams conduct gross decontamination to remove or reduce concentrations of contaminants and clear vital areas and equipment for tactical use.

(3) Operationally Complete. Detailed decontamination carried out as operations permit. Designed to remove remaining contamination.

(4) Chemically/Radiologically Complete. A level of decontamination that requires the support of an industrial facility. Normally, it is not conducted by operational

forces. This can include the sealing of chemically soaked paint, flushing seawater systems, and removing radioactive components.

c. Effects of Decontamination. Decontamination has positive and negative effects on unit effectiveness. The overriding positive effect and ultimate goals of decontamination are the restoration of the combat power lost when assuming MOPP. A negative, offsetting effect is a consumption of resources (time and supplies). Commanders must decide where the optimum trade-off occurs between restored power and resource depletion.

(1) Immediate decontamination allows personnel to survive and continue to fight on the battlefield. Operational decontamination allows the force to fight longer by reducing contamination. When time permits, thorough decontamination restores almost all combat power of the contaminated force. However, decontamination operations reduce combat power during the decontamination period.

(2) All decontamination uses valuable resources, including time. Staff estimates must include time and resupply requirements. NBC personnel work closely with combat operators and logisticians to determine resources needed and availability. In some cases, resources will not be readily available for decontamination. In this event, the commander may choose weathering to reduce contamination. There may be substantial time before personnel can reduce MOPP levels if weathering is allowed. In addition, decontamination may not result in a reduced MOPP or a significant decrease in risk.

d. Casualty Decontamination. Emergency medical care may be required prior to decontamination. Personnel injured from NBC munitions should be triaged separately and decontaminated before definitive medical care is rendered in a treatment facility. Additionally, patient decontamination is done as far forward as possible to limit the spread of contamination. Casualty decontamination presents special problems for units and HSS/medical personnel. Under NBC conditions, contaminated wounded personnel create increased hazards to rescuers and HSS/medical personnel. On the NBC battlefield, two classifications of casualties will be encountered: contaminated and uncontaminated. Those who are contaminated may be suffering the effects of an NBC agent, a conventional wound, or both. It is important to follow proper decontamination procedures to limit the spread of contamination.

(1) Casualty decontamination begins at small-unit level. When the battle and casualties' conditions permit, they may go through a MOPP equipment exchange/decontamination station. However, immediate skin decontamination must be performed before evacuation. When battle conditions prevent decontamination procedures forward, casualties may require evacuation to an MTF before decontamination.

(2) Contaminated patients who arrive at the MTF must be decontaminated before admission into the clean treatment area. A patient decontamination team from the supported unit performs patient decontamination. The team operates under the supervision of medical personnel to prevent further patient injury during the decontamination process. See FM 8-10-7, *Health Service Support in a Nuclear, Biological, and Chemical Environment* for patient decontamination procedures.

(3) The next higher-echelon MTF may also receive contaminated patients and is also supported by a patient decontamination team from the supported unit. For AF units, medical personnel accomplish the patient decontamination mission. See Chapter IX for additional information on patient decontamination at MTFs.

e. Terrain Decontamination. Despite the tremendous logistical burden, terrain decontamination may be necessary at fixed sites such as railheads, depots, and so forth. Terrain decontamination may be very limited (i.e., paths, specific buildings, piers, and docks). Terrain decontamination will occur only where operationally required. If terrain decontamination is required, expedient methods, such as covering with earth or scraping, may be used.

f. Environmental Considerations. Accurate record keeping will be essential for support of decontamination. During postconflict, it may become important to know where actions such as DED were conducted. Environmental considerations are key planning considerations across the range of military operations. Planners may consider factors such as—

(1) Availability of potable/nonpotable water sources.

(2) Effect of decontaminants on water supply.

(3) Residual hazard assessment.

g. Fixed-Site and Retrograde Decontamination. Fixed-site procedures support decontamination of critical areas such as maintenance depots, APOEs/SPOEs, or C^2 facilities. Retrograde decontamination may require additional resources such as low-level monitoring equipment. Detailed planning also provides for consideration of multiple options such as decontamination, weathering, or destruction. The purpose of retrograde decontamination is to make assets safe enough to return to the continental US (CONUS) or overseas installations. See Joint Publication 3-11, *Joint Doctrine for Operations in Nuclear, Biological, and Chemical (NBC) Environments*, and service-specific publications for further guidance. The NBC staff uses the military decision-making process to provide assessments and recommendations to commanders. Risk assessments incorporate key elements of NBC defense principles and accurate and timely information to support SA. In turn, this process helps support the preparation of an NBC defense plan that is fully integrated into the organization's overall plan for war and MOOTW. The following section explains how NBC battle management enables commanders to effectively apply knowledge developed in the staff assessment process to support command decisions.

Note: For information on joint policy and detailed instructions for handling contaminated remains, see Joint Publication 4-06, *Joint Tactics, Techniques, and Procedures for Mortuary Affairs in Joint Operations*.

4. NBC Battle Management

NBC battle management requires consideration of the risks associated with adversary NBC employment and friendly NBC defense actions. It includes the proper employment of the NBCWRS and applies principles of IM to the NBC defense challenges facing the command.

a. Risk Assessment. Commanders conduct risk assessment during the decision-making process in determining how to execute operations in an NBC/TIM environment. Risk assessment is a process that can be used to help identify and control hazards to conserve combat power and resources and determine factors such as when and where to implement various NBC defense measures. The five steps of risk assessment include the following (see Figure II-1):

- Identify hazard.
- Assess hazard.
- Develop controls and make risk decision.
- Implement controls.
- Supervise/evaluate.

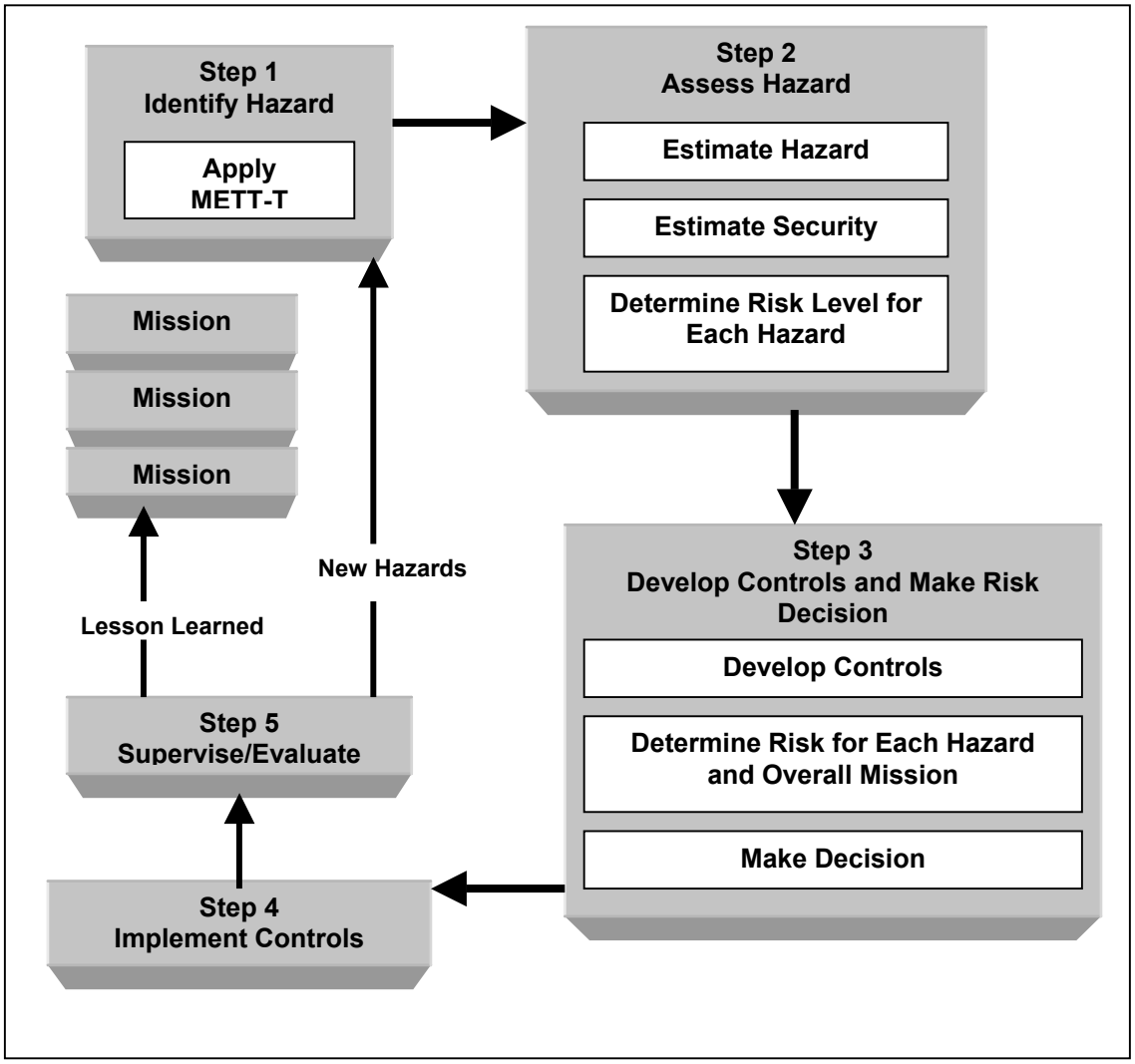

Figure II-1. Risk Assessment

(1) Identify Hazard. Risk decisions should be based upon SA of the threat and the potential impact on the missions. Commanders also consider mission-essential USG civilians and contracted support personnel (CSP) in risk assessment. Further, hazards can occur regardless of enemy or adversary actions, in areas with no direct enemy contact, and in areas outside the enemy's influence (i.e., naturally occurring disasters that cause release of TIM, etc.). The threat of an NBC/TIM environment can be found in all operational environments, and the ability of unit leaders and staffs to predict and identify hazards is key.

(2) Assess Hazard. The commander assesses the potential NBC/TIM hazards in terms of probability and severity to determine the risk that may result from exposure them. The end result is an estimate of risk and an estimate of the overall risk to the mission caused by hazards that cannot be eliminated.

(3) Develop Controls and Make Risk Decision.

(a) After assessing the threat and the potential hazard of an NBC/TIM environment, leaders develop controls that either eliminate the hazard or reduce the risk (i.e, probability and/or severity). To be effective, each control developed must meet the following criteria:

- Suitability. It must remove the hazard or mitigate (reduce) the residual risk to an acceptable level.
- Feasibility. The unit must have the capability to implement the control.

(b) Examples of controls include the following representative contamination avoidance, protection, and decontamination measures:

- Avoiding the identified hazard.
- Limiting the number of people exposed to the hazards.
- Providing detection and warning signs and signals.
- Using individual and COLPRO.
- Using countermeasures such as water "washdown" capability.

(c) Once the responsible leader develops and adopts selected control measures, the leader assesses the risk associated with each measure and the overall residual risk for the mission.

(4) Implement Controls. Leaders and staffs ensure that controls are integrated into SOPs, written and verbal orders, mission briefings, and staff estimates. The critical check for this step, with oversight, is to ensure that controls are converted into clear, simple execution orders that are understood at all levels.

(5) Supervise/Evaluate. During mission preparation and execution, leaders complete the risk assessment process through supervision and evaluation. The continuous evaluation and assessment of risk levels may yield lessons learned and/or identification of new hazards.

b. NBC Warning and Reporting System. The NBCWRS provides the data and information to support the NBC battle management process. Input and output from the NBCWRS provides a means to inform friendly units of possible contamination. For the NBCWRS to be effective, units send information on first use by the fastest communications means available. For example, first-use reports require FLASH precedence. Units send subsequent information by any reliable communications means. Follow-up information is also critical when units must also follow up with closeout reports of an initial observer or contamination report that turns out to be a *false positive*.

c. NBC Information Management (see Figure II-2). NBC IM refers to the processes a commander uses to obtain, manipulate, direct, and control information. IM includes all processes involved in the creation, collection and control, dissemination, and storage and retrieval of information. NBC SA of the operations environment allows the commander to anticipate future conditions and accurately assess risks. Graphic depictions of NBC hazard estimates/plots with text files (messages, reports, etc.) are very useful versus sole reliance on map boards and overlays. The vertical and horizontal exchange of NBC-related information keeps different commands and functional/staff personnel informed. The NBC staff determines the need for specific types of NBC information (i.e., the *when* and *where* of the NBC attack). Positioning the required information at its anticipated points of need speeds the flow and reduces demands on communications systems. The information received from a disparate sensor network also helps to provide an assessment of the current situation by detecting/identifying NBC hazards in air, on water, or on land. It detects/identifies NBC hazards affecting personnel, equipment, or facilities and the physical state of such hazards (gas, liquid, or solid). The detection of hazards is a key enabler and provides a visualization of the NBC environment. This visualization helps to develop a clear understanding of the current and predicted NBC situation, envision the end state (mission accomplishment without NBC casualties and operational tempo [OPTEMPO] degradation), and anticipate the sequence that moves the force from its current state to the desired end state. The commander's SA and risk assessment leads to decisions to implement measures to protect the force and maintain an advantage in OPTEMPO while preventing casualties under NBC conditions by reducing the threat, reducing operational vulnerability, and avoiding contamination.

(1) Background. The NBC staff translates all source information into an understanding of the NBC threat and the operational environment for NBC defense actions. This process requires (see Figure II-2)—

- Timely conduct to assess vulnerability.
- Specific COAs for reducing vulnerability and countering specific threats.

- NBC warning and reporting on potential and actual NBC attacks to facilitate risk assessments and actions to minimize the short- and long-term health effects of toxic exposures.

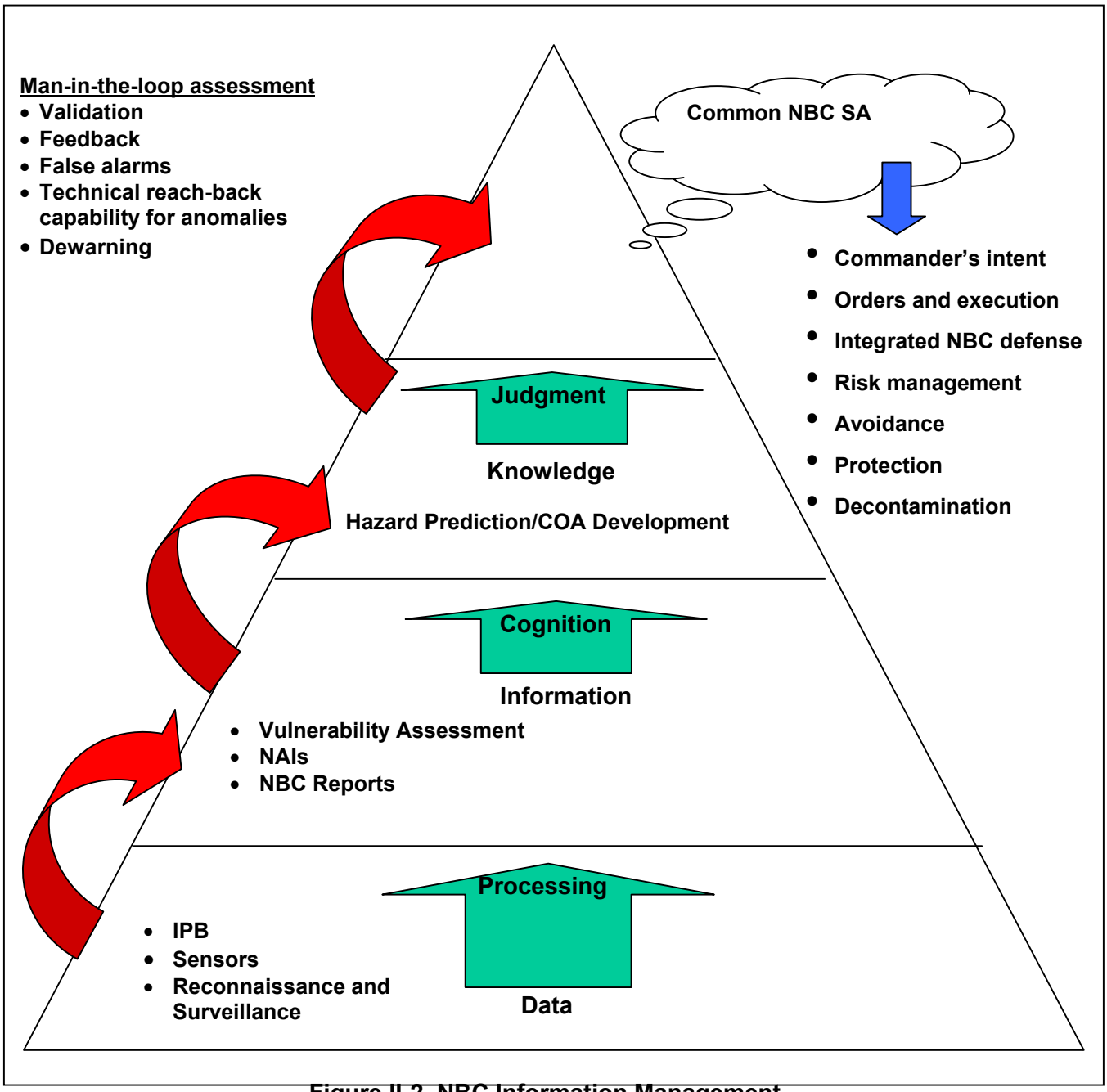

Figure II-2. NBC Information Management

(2) Enablers. To maintain SA, units conduct NBC IM through—

- Obtaining the relevant battlespace data.

- Processing data into relevant information.
- Gaining knowledge by determining the impact of the information on operations.
- Applying judgment to develop understanding. “I know what has occurred and its impact on operations, and this is what I am going to do about it.”
- Supporting NBC defense execution through orders and risk management.
- Maintaining SA with man-in-the-loop assessment.

(3) Data. The NBC staff focuses on knowing what data is relevant, determining what data can be collected prior to events, and developing a data collection plan to obtain other data.

(4) Information. The NBC staff processes data into operationally significant information and develops a collection plan to obtain additional data if information is incomplete.

(5) Knowledge. The NBC staff uses the military decision-making process to translate information into knowledge. It estimates and assesses hazards to develop possible COAs.

(6) Understanding. Understanding requires SA; the commander uses this awareness to communicate intent and issue orders that mitigate risk through application of various NBC defense measures.

5. Commander-Staff Interactions in Meeting NBC Defense Challenges

NBC defense challenges call for close commander and staff interactions. Operations in NBC environments demand close attention to technical details by NBC staff experts and integration of NBC defense knowledge into the overall organization's plans and actions. Technical experts must be fully familiar with the organization's mission, capabilities, and current situation so that their assessments and recommendations provide meaningful options for action by the commander.

In addition to applying the principles of NBC defense and exercising NBC battle management capabilities in the most effective manner, NBC staff experts must be aware of the military and civilian environments in which the organizations operations are unfolding. While the primary responsibility of the commander and the military organization as a whole is to accomplish the mission and care for the lives and welfare of individuals in uniform, the military exists in an interdependent mode with its surrounding community. Therefore, due consideration in risk assessments, other recommendations, and plans must be given to the broader environment, including the civilian populace, in order to make militarily effective plans that are not frustrated by adversary damage inflicted on the civilian community.

Chapter III
NBC DEFENSE C^2 CONSIDERATIONS, ROLES, AND RESPONSIBILITIES

C^2 considerations for NBC defense operations will vary depending upon the type of operation, the nature of the threat, the set of capabilities needed to accomplish the mission, and friendly task organization. The operations conducted may be single-service, joint, coalition, or multinational and may involve civil authorities from the US and other nations. Further, operations (whether in a conflict or MOOTW setting) can take place as part of an ongoing combat operation or as part of an operation supporting consequence management or other operations in support of civil authorities.

1. NBC Defense C^2 Considerations

Unity of effort is a key C^2 consideration for effective use of forces in an NBC environment. In particular, the unique aspects of communications, intelligence, operations, sustainment, and decision making in NBC environments present challenges to commanders and staffs.

a. Developing sound NBC defense COAs will require timely exploitation of all information from all sources—such as NBC detection, surveillance, and reconnaissance systems. NBC SA from sources—such as sensors, detection systems, and warning and reporting networks—must be fully integrated into the overall C^2 system to make the best use of available resources.

b. Using input from the IPB process, assess vulnerability. The assessments provide critical input to support the military decision-making process. Vulnerability to NBC weapons and TIM site identification and hazard assessments support the IPB process.

c. The specific COAs recommended consider prioritized use of limited NBC defense assets. Decision makers consider key elements of command guidance—such as the commander's intent, the commander's critical information requirements (CCIR), and the NBC priorities—in assessing where to allocate limited numbers of NBC reconnaissance, surveillance, and decontamination assets. Additionally, civil considerations (e.g., minimizing collateral damage) can influence modification of recommended COAs. For example, theater strategic considerations could include insuring technical reach-back capability to the US for applicable subject matter expertise. An operational-level COA could include recommending reallocation of NBC reconnaissance assets to support an intermediate staging base. A tactical-level COA could involve rapid dispersal of units after arrival at an APOD or SPOD.

d. Integrating the command's warning and reporting system enables tactical- and strategic-level warning of affected units to take action, such as assuming an increased protection level. Further, the same system that warns personnel should also provide notification to reduce MOPP levels (dewarning).

2. Command and Support Relationships—NBC Units

Command relationships indicate the degree of authority a commander can exercise over NBC units. Command relationships are critical to NBC defense because commands must understand what assets they have in order to develop NBC defense priorities and understand the command's responsibilities to sustain these capabilities.

a. Command Relationships.

(1) Combatant Command (COCOM) (command authority). This command authority is exercised only by commanders of unified and specified combatant commands and cannot be delegated or transferred.

(2) Operational Control. Subordinate JFCs exercise operational control (OPCON) over assigned or attached NBC units through the commanders of subordinate organizations; in peacetime, this authority is normally exercised through service component commanders. JFCs may establish functional components to provide centralized direction and control of certain functions and types of operations. The JFC will designate the military capability that will be made available for tasking by the functional component commander—such as the joint force air component commander, the joint force land component commander, the joint force maritime component commander, and the joint force special operations component commander.

(3) Tactical Control. For short-term arrangements, NBC units may also be attached or assigned to a subordinate command to which tactical control (TACON) authority has been delegated for local control and direction.

b. Support. Support relationships may be used when support to the force as a whole or to a particular subunit of the force is needed. The higher HQ retains central authority and also remains responsible for logistics support; however, a support relationship may still require that the supported unit remain responsible for logistics support.

c. C^2 Considerations—Disposition/Architecture.

(1) General. The commander should be fully aware of all available NBC assets and capabilities and integrate their capabilities into the operational plan (OPLAN). For example, the air component commander prepares a plan that integrates available NBC defense unit assets. The command's assessment indicates that additional decontamination and NBC reconnaissances are required. To support the need for additional assets, options could include requesting support from either the land or maritime component or requesting deployment of other AF resources. See Appendixes A through D for information on USA, USN, USMC, and USAF capabilities, respectively.

(2) Force Composition. The commander should identify available NBC capabilities. This analysis begins by defining command relationships to determine what assets are assigned. The staff should then assess the available operational NBC defense capabilities and determine whether any shortfalls need to be remedied. In general, hazard assessments of major TIM sites located in an operational area may require specialized expertise; to include reach back technical expertise in CONUS-based organizations.

(3) Force Disposition. The commander should determine the best way to employ NBC assets without exposing the forces to unacceptable risks. For example, if the joint force is primarily conducting land operations, the commander may wish to position NBC reconnaissance assets at an optimum location to ensure maximum responsiveness in support of ground operations.

(4) Prioritization. The commander establishes priority intelligence requirements (PIR) before the onset of hostilities. These priorities should generally conform to the military objectives. NBC monitoring, survey, detection, surveillance, and identification capabilities are focused on supporting the established PIR. Experience has shown that combat operations seldom go as planned, with the fog and friction of war causing operations to evolve in unanticipated directions. Therefore, prioritization of NBC-related PIR is critical.

(5) JTF Mission Considerations. In NBC environments, the JTF commander may be tasked with minimizing risk to the supporting civilian workforce and to HN political and population centers. NBC assets from the HN and other potential coalition and multinational partners may be available. Civilian health service and other assets may have utility in NBC defense as well. The JTF commander is responsible for coordination of the overall effort to take account of assets that are not under his command or control, all in accomplishment of the JTF mission.

(6) Other Joint Force C^2 NBC Considerations. The commander may appoint a joint rear area coordinator (JRAC) to be responsible for coordinating the overall security of the joint rear area (JRA). The JRAC would coordinate FP requirements (to include passive defense) across the joint components. In addition, the JRAC could be given responsibilities for coordination and liaison with the HN and with other coalition military forces located in the JRA.

3. Command Responsibilities for Operations in NBC Environments

In the US and abroad, all elements and commands of the US armed forces have basic responsibilities at the outset of operations. A key task is the establishment of protection against NBC attacks in the operational area and in other areas providing forces and sustaining capabilities. Protection is also vital against NBC attacks on US and friendly countries' centers of gravity. The goals established to carry out military responsibilities include prevention of adversarial use of NBC weapons either in the US or abroad, rapid and uninterrupted force preparation and deployment, and comprehensive FP. 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.

a. Basic Goals.

(1) Commanders' mission analyses identify specific mission-essential tasks for individuals and organizations that facilitate operations in NBC environments.

(2) Commanders of forces and facilities in the US and abroad are responsible for assessments of vulnerabilities that may compromise peacetime preparedness, given the NBC threat and the potential utility to state and nonstate actors of NBC attacks against

US civilian and military targets. (Note: For more information, see Appendix E.) Commanders at all levels must take appropriate measures to protect DOD personnel and resources.

(3) 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 US.

(4) US ambassadors and their country teams have primary responsibility for coordination with their host country government; commanders in theater operational areas must coordinate their actions with the country team to maintain peacetime preparedness.

(5) Commanders' OPLANs must include options for generating adequate and timely force capabilities (including FP) in the event of early adversary NBC employment in the supported JFC's area of responsibility (AOR).

(6) Commanders establish PIR and take precrisis actions to prevent or minimize the impact of an NBC attack.

(7) Commanders (i.e., geographic combatant commanders), if required, communicate and reinforce US deterrence policies. The commander is prepared to recommend and implement flexible deterrent options (FDOs) in NBC environments consistent with the joint strategic capabilities plan (JSCP) and other applicable plans. FDOs may be diplomatic, economic, informational, or military 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. FDOs are for the adversary to see, thus deterring the use of NBC attacks. Force enhancements (FEs) are done to enhance force capability/protection and should be hidden from the adversary until NBC weapons are actually used.

(8) The commander considers the adequacy of equipment and training of nonmilitary and non-US logistics personnel to survive and operate in NBC environments.

(9) Other specific responsibilities with regard to NBC defense include integrating the capabilities of available detection systems, providing guidance for levels of protection, establishing an NBC warning and reporting network to ensure timely warning of NBC risks, and prioritizing decontamination requirements.

(10) NBC control centers (NBCCCs) may be established at each level of command.

b. Combatant Commanders' and Other Joint Commanders' Responsibilities.

(1) Joint Force Commander. All JFCs, at all levels, must plan for and integrate US and coalition force capabilities to sustain multinational operations in all mediums (aerospace, sea, and land), regardless of the nature and targets of an adversary's attack. The JFC also ensures that forces and facilities are prepared to operate in NBC environments, including taking due account of the civilian populace and other HN key AOIs. The commander establishes and implements a deliberate process for assessing the

vulnerability of manpower and materiel to an 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. The commander ensures that critical logistics "throughput" and transportation facilities receive adequate protection and that plans, training, and equipment are in place for rapid restoration of operations after an attack.

(2) Combatant Commanders. Combatant commanders must be able to execute the campaign under NBC conditions through unified action at the theater level. Unified action for subordinate commanders is equally important for combat, combat support (CS), and combat service support (CSS) units of all service 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 commander's intent.

(3) Geographic Combatant Commander/Subordinate Commander. The geographic combatant commander's responsibilities can include protecting 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 components sponsoring the civilians in the theater normally discharge 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 these actions in the event of an 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 commander may assume responsibility for US civilians who are neither mission-essential nor sponsored.

(a) The geographic combatant commander provides for measures to protect enemy prisoners of war (EPWs) and civilian internees (CIs) from 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, therefore, could require the issue of 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 logistics support.

(b) Planning also helps to ensure 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.

(c) The planning process establishes appropriate command, planning, and operational relationships and ensures 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 commander 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 commander 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.

(4) 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. The protection of forces and supporting civilians of other countries participating with the US in multinational operations is the responsibility of the multinational force chain of command within the TO. In order to provide maximum protection to all forces, the commander should, to the greatest extent possible, involve other participating forces in NBC defense and related activities.

(5) HN Responsibilities. Based on applicable agreements and proper coordination, the HN may have the responsibility to provide support and assistance to US and other forces operating on its territory. This support and assistance may entail HSS personnel, supplies, facilities, decontamination, and transportation. In the event of adversary NBC attack, the HN responsible for protecting its forces, citizens, and infrastructure may not have the capability to mitigate the consequences of this attack. For this reason, the commander may have to 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.

4. NBC Defense Supporting Plans

Integration of functional responsibilities (e.g. personnel, intelligence, operations, logistics, medical, etc.) at the strategic, operational, and tactical levels is necessary to coordinate NBC actions across these functional disciplines. Commanders integrate personnel and resources from diverse specialties and assemble plans and intelligence in key documents, such as base support plans. These types of plans provide for integration of resources to support effective NBC defense operations. Each major functional area (i.e., operations, intelligence, etc.) is interdependent on the others in order to maximize friendly force effectiveness.

a. Operational Risk. Central to each functional AOR is assessment of operational risk. The threat to operate in an NBC environment can come from multiple sources. They can be unexpected and employed through a broad range of tactics from clandestine operations to large-scale attacks. They may be intended to cause psychological distress or diversion, hinder operations, or cause mass casualties and force withdrawal. Identifying

and quantifying the risks involved requires a concerted intelligence effort against potential aggressors. Operational risk assessments, based upon this information, are essential. The risk assessment process is vital to determining the priority trade-offs in assessing what types of mission capabilities are needed in the early stages of an operation. For example, early deployment of active defense and passive defense equipment could displace assets needed for offensive operations. Operational risk assessments consolidate and clarify issues so leaders are able to make informed decisions. Risk assessments also recognize that not all NBC agents have the same impact on operations because different agents have different degrees of lethality and persistence. Risk assessments also recognize that not all NBC agents and potential TIM have the same impact on operations because different agents and materials have different degrees of lethality and persistence.

b. Strategic, Operational, and Tactical Responsibilities.

(1) US, alliance, or coalition strategic security objectives will be reflected in the responsibilities assigned to US, alliance, or coalition (or multinational) commands. The commands will apply the national resources under their control to achieve these objectives. A geographic combatant commander will usually participate in discussions concerning strategic objectives, strategy, and available resources with the Chairman of the Joint Chiefs of Staff (CJCS) and with allies and coalition members. The theater strategy is, thus, an element that relates to both US national strategy and operational activities within the theater. Strategic-level decisions form the basis for promoting stability and thwarting aggression through credible deterrence and robust war-fighting capabilities. At the strategic level, analysis of mission, enemy, terrain and weather, troops and support available-time available (METT-T) focus on the conditions, circumstances, and potential influences (i.e., NBC/TIM threat) on the theater strategic environment. At operational and tactical levels, civilian considerations may also be relevant.

(2) The operational level links the tactical employment of forces to strategic objectives. The operational-level staff's IPB anticipates what may occur within the AO and conducts joint and multinational coordination, as required. Operational employment of military forces also examines the arrangement of the forces, efforts in time, space, and purpose (i.e., prioritizing the deployment of resources and insuring the presence of a required infrastructure). Joint operational art, in particular, focuses on the fundamental issues associated with the synchronization of air, land, sea, space, and SOF to support NBC defense operations.

(3) Tactical-level responsibilities and execution enable the force to survive, fight, and win under NBC conditions. Commanders reduce the likelihood of an NBC attack through avoidance measures. They disperse their forces and ensure operations and communications security. When units cannot avoid contamination or are in danger of an enemy NBC attack, they implement NBC protective measures. To restore combat power, commanders decontaminate as early as possible to reduce contamination levels.

(4) In summary, functional responsibilities at the strategic, operational, and tactical levels of operations vary in the scope and level of detail. At the theater, strategic, and operational levels, SA ideally provides a *near real time* picture of enemy NBC capabilities. This information allows commanders to adjust their plans based on NBC/TIM hazards. The impact of an NBC environment on OPTEMPO and force generation

capabilities will impact strategic- and operational-level actions. At the tactical level of war, again ideally, a *near real time* portrayal of enemy NBC capabilities helps units avoid enemy NBC attacks and limit contamination. It allows rapid dissemination of information on required protective measures. It provides early warning of an NBC attack to units.

c. Specific Functional Area Responsibility. To support OPLAN execution, the commander's staff executes its proponent responsibilities to ensure that each required capability in an NBC environment could be successfully accomplished.

(1) Personnel. The personnel officer, medical officer, and NBC staff assess the probability and impact of NBC and TIM release related casualties. They also assess NBC personnel readiness issues; this is especially critical when a majority of US forces are reserve component, arriving in theater at various times and spread across combat, CS, and CSS units. The personnel officer and medical officer ensure that medical support is available in the event of an NBC attack. They advise the commander on the medical effects of NBC weapons, preventive procedures (chemoprophylaxis, pretreatments, barrier creams, and immunizations), treatment, and protection available. The medical officer provides recommendations on associated environmental concerns, such as heat stress in MOPP. The NBC staff checks with the personnel officer to determine the impact of NBC casualties on the unit throughout all phases of operations. The personnel officer also monitors the radiation exposure of units in coordination with the NBC officer. The HSS staff recommends proper MOPP, troop safety criteria, and operation exposure guidance (OEG).

(2) Intelligence. The NBC staff works with the intelligence officer on weather and terrain data. They assess whether environmental factors are conducive to enemy use of NBC weapons. The intelligence section's PIR address the enemy situation and the enemy's ability to use NBC weapons. The NBC staff also supports the intelligence section in the development of PIR. The staff assists in the IPB process for all phases of operations—determining and/or evaluating enemy capabilities, types of agents, types of obscurants and sensors, protective posture, line-of-sight influences on direct fire, and friendly vulnerabilities to enemy strengths. The intelligence section also provides information on enemy vulnerability to friendly operations (i.e., smoke and obscurants).

(3) Operations. The NBC staff recommends proper MOPP guidance, troop safety criteria, and OEG. The staff also recommends priorities for use of limited NBC defense resources to the operations section through all phases of operations. The NBC staff supports the operations staff by recommending task organizations for NBC units and coordinating smoke, decontamination, and NBC reconnaissance efforts. Further, the NBC staff advises the commander on the impact of NBC-related attacks on the current and future concepts of operations. They also provide input to the commander on hazard predictions, vulnerability, control of NBC units, mitigating techniques, and recommending priorities for actions such as decontamination, NBC reconnaissance support, or chemical defense equipment (CDE) resupply. The NBC staff also provides recommendations on NBC reconnaissance, decontamination, and smoke unit employment.

(4) Logistics. The NBC staff must coordinate with the logistics section concerning MOPP gear, decontaminants, and resupply requirements throughout all phases of operations. The logistics section and NBC staff must know the rate and extent of the unit's decontamination capability. They also must plan to decontaminate contaminated

supplies or equipment. In addition, the NBC staff keeps the logistics section abreast of any reported NBC contamination to main supply routes (MSRs) and critical supply and maintenance facilities that affect unit sustainability. The staff also advises the logistics section on ways to limit the need for decontamination of supplies, which includes the use of disposable protective wraps or covers.

d. Other Functional AORs.

(1) Civil Affairs Officer. The NBC staff works with the civil affairs (CA) officer (USA/USMC/USAF) on estimating the impact of NBC events on the civilian population in the unit's operational area. Psychological operations (PSYOP) are also considered when estimating the impact of NBC events. The NBC staff coordinates with the CA section for integration of HN assets into decontamination operations, such as field-expedient decontamination equipment and supplies (steam cleaners and bleach), fire trucks, and washracks. They also consider the integration of field-expedient NBC protective shelters, such as existing buildings in local population centers.

(2) Engineer Officer (USA). The NBC staff works with the engineer staff to identify NBC obstacles and plan for the use of smoke and obscurants at river crossings sites and obstacle breaching. The NBC staff also coordinates engineer support for NBC decontamination survivability operations and facility *hardening*.

(3) Air Defense. The NBC staff and air defense officer coordinate to exchange information on NBC defense and chemical downwind hazards from an enemy NBC attack and integration of the theater missile defense (TMD) warning system into the commander's passive defense strategy.

(4) Fire Support. As required, the NBC staff and fire support element (FSE) coordinate during the targeting process. Prior to target nomination and selection, coordination addresses the type of enemy NBC agents and their containment within facilities and vehicles, proximity to population centers, and adversary active and passive defenses. Another factor is *The Law of Armed Conflict* and its relation to noncombatants and friendly forces. All of these target considerations will affect the mission planning for the correct force mixture to deliver the right weapon to defeat an adversary's NBC capability with minimum collateral effects. Target planning also requires knowledge of the types of agents, disposition, location, storage, employment area, and demographics to effectively predict collateral effects. Automated planning tools provide target modeling that assists decisions regarding the risks associated with collateral effects.

(5) Security. The NBC staff, military law enforcement officer, and FP officer coordinate and exchange needed information on NBC defense, especially data on NBC identification, detection, and warning. Timely information exchange on NBC defense is especially important for land force battlefield circulation control. Traffic control points should be well informed on the location of any contamination.

(6) Medical/HSS. The medical/HSS officer advises the commander on the health effects of NBC and TIM agents as well as the medical effects of immunizations, pretreatments, chemoprophylaxis, and treatment. The medical officer also performs a health risk assessment to quantify and qualify NBC and TIM exposure data to determine

short-and long-term health risk to personnel executing missions in contaminated environments. The HSS staff provides recommendations on associated concerns, such as heat stress and psychological effects of NBC weapons use. The plans help to ensure that required HSS is available in the event of an NBC attack. The HSS staff also oversees the preventive medicine mission and ensures preventive medicine services are provided to the commander. Additionally, they ensure casualty treatment and preventive medicine personnel coordinate with NBC defense personnel in plans. The medical staff also provides medical guidance on the establishment of radiation exposure levels.

(7) NBC Staff. The NBC staff is responsible at every echelon of command for NBC defense. (Note: See key references contained at Appendix F.) Specific responsibilities may include the following:

- Recommend COAs to minimize friendly and civilian vulnerability and assess probability and impact of NBC-related casualties.
- Provide technical advice and recommendations on MOPP, personnel safety criteria, OEG, NBC reconnaissance, smoke operations (as applicable), NBC defense measures, and mitigating techniques.
- Help verify, in conjunction with the medical staff, and report enemy first use of NBC agents.
- Assess probability and impact of NBC-related casualties.
- Coordinate among the staff while assessing the impact of enemy NBC-related attacks and hazards on current and future operations.
- Coordinate with the medical staff on health support requirements for NBC operations.
- Support consequence management planning and operations.
- Support planning efforts on estimating collateral effects from various operations (e.g., counterforce and active defense).
- Assist in developing NBC IPB vulnerability and recommending PIR.
- Plan, supervise, and coordinate the conduct of NBC decontamination operations. Designate proposed decontamination sites using METT-T, current weather data, water availability, trafficability, accessibility, and logistics supportability.
- Assess weather and terrain data to determine if environmental factors are conducive to enemy employment of NBC weapons.
- Predict downwind vapor hazard and fallout patterns and their probable effects on operations.

- Plan, coordinate, and manage chemical and radiological survey and monitoring operations.
- Collate, evaluate, and distribute NBC attack and contamination data.
- Prepare and distribute NBC messages.
- Prepare NBC situation reports (SITREPs).
- Maintain and report radiation exposure and dose status and coordinate with surgeon.
- Participate in targeting meetings (when required).
- Estimate effect of a unit's radiation exposure state on mission assignments.
- Estimate consumption rates of NBC defense equipment (NBCDE) and supplies.
- Manage the NBCWRS.
- Coordinate with the logistics section as it relates to CDE and supplies, maintenance of chemical equipment, and transportation of chemical assets.
- Coordinate integration of NBC reconnaissance assets into the R&S plan.
- Coordinate NBC defense planning and operations, as necessary, with HN and/or multinational assets.

Chapter IV

PLANNING

The primary purpose of NBC defense planning is to support commanders' decision-making needs. NBC defense planning is accomplished by identifying, assessing, and estimating the adversary's NBC capabilities, intentions, and COAs that are most likely to be encountered based on the situation and by providing recommendations for commanders' guidance to help ensure that forces and facilities are prepared to operate in NBC environments. NBC defense assessments support several critical facets of joint force planning and decision-making—including mission analysis, COA development, and the analysis and comparison of adversary and friendly COAs. Although NBC defense planning support to decision making is both dynamic and continuous, it must also be preplanned in the sense that extensive NBC defense vulnerability analysis must be completed early enough to be factored into the commanders' decision-making effort. The unit NBC officer/NCO and staff work together to ensure that all analyses are fully integrated into deliberate and crisis action planning. They accomplish this through war gaming friendly versus adversary COAs and by mutually developing products designed to assist the service components, multinational partners, and JFC's decision-making processes.

1. Strategic, Operational, and Tactical Planning

The basic NBC defense planning process remains the same across the range of military operations, regardless of the level of war and MOOTW. Nevertheless, specific NBC defense planning considerations may vary considerably between strategic-, operational-, and tactical-level operations due to differences in the mission, available resources, and the size of the operational areas and AOIs. Planning at all levels should ensure integration of NBC defense considerations into the overall planning and decision-making processes. Plans and estimates at each level take into account plans and estimates at higher and lower levels. Planning for NBC defense operations is continuous and within and between all levels. One of the key facets of planning for NBC defense, given the large variety of potential agents and weapons, is to limit the agents and weapons under consideration to those most likely to be employed during the time frame of the period being addressed.

a. Strategic-Level NBC Defense Planning. Activities at the strategic level establish national and multinational military objectives, develop global plans or theater war plans to achieve these objectives, sequence initiatives, define limits and assess risks for the use of military and other instruments of national security policy, and provide military forces and other capabilities according to strategic plans. The strategic-level battlespace will address potential adversaries who might have NBC capabilities—such as global adversaries, regional adversaries, or nonstate groups. A number of these potential adversaries have, or could rapidly acquire, NBC weapons and other toxic materials. Other factors—such as treaties, international law, the capability of adversary propaganda to influence US public support, and world opinion—can also impact the command's NBC defense planning. The strategic-level battlespace environment is analyzed in terms of such matters as geographic regions, nations, strategic personality of leadership, and climate rather than local geography and weather. For deterrence, political, psychological, and economic

characteristics of the battlespace assume increased importance at the strategic level. For example, on the political scale, if a state has possessed NBC weapons during past crises, it becomes important to understand the effect of those weapons upon the region's politics and their effect on the decision to use or withhold such weapons. On the psychological scale, it is vital to understand the adversary's motivations and values in order to be able to estimate the pressure it might feel to use, or withhold, NBC weapons in a particular situation. On the economic scale, understanding the industrial and technological capabilities and interdependence of a nation or region can help estimate the type of NBC weapons that may exist. Political, psychological, and economic considerations that influence deterrence may be the dominant factors influencing the adversary's COAs. At this level, the analysis of the adversary's strategic capabilities will concentrate on considerations such as psychology of political leadership, national will and morale, ability of the economy to sustain warfare, possible willingness to use NBC weapons, and possible intervention by third-party countries and nonstate groups. COA models at the strategic level consider the entire spectrum of resources available to the adversary and identify both military and nonmilitary methods of power projection and influence.

b. Operational-Level NBC Defense Planning. NBC planning at the operational level takes into account the planning and estimates produced at the strategic level. The size and location of the operational-level battlespace depends on such varied factors as the location of adversary's political and economic support structures, military support units, force generation capabilities, potential third-nation or third-party involvement, logistics and economic infrastructure, political treaties, press coverage, and adversary propaganda. At the operational level, the analysis of the battlespace environment should concentrate on characteristics (i.e., the capability of road, rail, air, and sea transportation networks) to support the movement of (and logistics support to) NBC weapons; zones of entry into and through the operational area and AOI; the impact of large geographic features such as mountains, large forests, deserts, and archipelagos on military operations; and the impact of seasonal climate on NBC weapons effects. In addition, when examining the adversary's order of battle, the analysis of the adversary should include doctrine for C^2, logistics support, release procedures for the use of NBC weapons, agent delivery capability, special operations, and paramilitary forces. NBC defense planning examines the adversary's COAs in terms of operational objectives, large-scale movements, LOCs, and the phasing of operations. These estimates form the basis for operational planning by identifying, developing, and comparing friendly COAs and assessing the impact of an NBC environment on each friendly COA. Specifically, NBC defense planning by the staff helps to determine—

- The idiosyncrasies and decision-making patterns (i.e., weapons release procedures) of the adversary's strategic leadership and field commanders.

- The adversary's strategy, intention, or strategic concept of operation for use of NBC weapons, which should include the adversary's desired end state, perception of friendly vulnerabilities, and intentions regarding those vulnerabilities.

- The adversary's ability to integrate offensive NBC operations into the overall concept of operations.

- The adversary's capabilities for FP, civilian and infrastructure protection and, specifically, NBC defense operations.

- The composition, disposition, movement, strength, doctrine, tactics, training, and combat effectiveness of adversary forces with an offensive NBC capability.

- The adversary's principal strategic and operational objectives and lines of operation.

- The adversary's NBC weapons' strategic and operational sustainment capabilities.

- The adversary's ability to conduct information operations (IO) and use or access data from space systems to support its targeting process.

- The adversary's NBC weapons/storage locations vulnerabilities.

- The adversary's capability to conduct asymmetric attacks against global critical support nodes.

- The adversary's relationship with possible allies and the ability to enlist their support.

- The adversary's capability to operate advanced war-fighting systems (e.g., smart weapons and sensors) in adverse meteorological and oceanographic conditions.

- Area studies, intelligence estimates, and/or economic studies that may indicate potential TIM hazards in the AO. Use the IPB analysis to assess the existence and status of TIM hazard areas.

- The adversary's capabilities for FP, civilian and infrastructure protection and, specifically, NBC defense operations.

c. Tactical-Level NBC Defense Planning. At the tactical level, NBC defense planning takes into account planning and estimates at the strategic and operational levels. Tactical-level NBC defense planning focuses on ensuring that commanders can accomplish their mission-essential tasks in NBC environments. At the tactical level, the size and location of the battlespace are influenced by the physical location of the adversary's land, air, naval, space, and other forces that could pose a direct threat to the security of the friendly force or the success of its mission. The extent to which the effects of the battlespace environment are analyzed at the tactical level is largely dependent on the mission and planning time available. At a minimum, tactical-level forces should analyze the battlespace environment in terms of military objectives, avenues of approach, and the effects of an NBC environment on personnel, military operations, weapons systems, and force mobility. The tactical-level assessment of a military adversary should concentrate on factors such as the capability, disposition, tactics, and training status of tactical units or factional groups that could interfere with mission accomplishment. Also, units should include an assessment of

potential TIM hazards from local activities (industrial pipelines, storage and shipping facilities, etc.).

2. Joint Force Planning Considerations

Multiple factors (see Figure IV-1) must be considered in planning for operations across the range of military operations. These planning considerations include factors such as intelligence collection and analysis, SA, common standards for NBC defense, and HSS.

- Intelligence collection, analysis, and production
- SA
- Common planning, training, and equipment standards
- Health Service Support
- Protection of the JRA and theater sustainment capabilities
- Logistics burden of NBC attacks
- In-theater passive defense systems
- Preplanning for attack operations
- Effects of NBC attacks on C^2 systems
- Capabilities and limitations of multinational forces
- In-theater consequence management

Figure IV-1. Joint Force Planning Considerations for Operations in NBC Environments

a. Intelligence Collection, Analysis, and Production. Unit intelligence collection, analysis, and production must give appropriate attention to NBC threats in the geographic region of interest and operations as well as in other areas, including the US, that might have an adverse impact on friendly force capabilities and force projection plans. Peacetime assessments emphasizing the order of battle and operational concepts should support focused assessments of indications and warnings in crises and transition to war. At all levels, intelligence products should include appropriate input from national and interagency sources. Of particular importance is ensuring the dissemination of threat data and assessments to units down to the lowest level, including subcomponents of US and multinational commands and tactical-level HQ, such as brigades, wings, and/or regiments. Assessments should include identification of industrial sites containing TIM that would, if sabotaged or destroyed, present a hazard to deployed forces.

b. Situational Awareness. Ensuring adequate SA 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 having either excessive or inadequate protection of the force, maintaining a protective posture longer than necessary, or misusing NBC defense assets. Procedures also ensure linkage with the TMD warning systems. Warning system provisions also address the need to warn personnel, based on an alarm, thus causing units to increase their protective posture.

c. Common Planning, Training, and Equipment Standards. Common standards for NBC defense—especially in training, exercises, and equipment maintenance—are used to enhance joint force capabilities. Gaps in the NBC defense capabilities of multinational forces and important civilian population and infrastructure areas are identified to promote

effectiveness in both planning and operations. The unit mission analysis will produce joint mission-essential tasks (JMETs). For each JMET, 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 Universal Joint Task List (UJTL), which provides a standard description of key individual and unit tasks for action across the range of military operations (see Appendix G).

d. Health Service Support. HSS NBC defense integrates into the planning process to support unit readiness. Key elements include casualty estimation, prophylaxis (including immunizations), active medical surveillance, preventive medicine, diagnostics, mass casualty management, evacuation, and patient decontamination requirements for HSS operations. Unit plans should recognize that NBC attacks have the potential to create mass casualties, and the treatment and evacuation of NBC casualties will be difficult and hazardous, both to the patients and to medical personnel and facilities. HSS NBC defense planning must include appropriate liaison with affected and potentially supportive civilian HSS facilities and an assessment of the capabilities and limitations of those facilities.

e. Protection of the JRA and Theater Sustainment Capabilities. The JRA and theater sustainment capabilities must be protected. A successful adversary NBC attack on or a major TIM attack near an essential POD or other critical logistics facility may degrade OPTEMPO and force generation capabilities. Mitigation measures focus on maintaining support to combat operations and rapidly restoring the degraded capabilities. Moreover, alternate sites must be designated and exercised in advance to ensure uninterrupted JRA operations and theater sustainment capabilities.

f. Logistics Burden of NBC Attacks. Protecting forces from the effects of NBC attacks will tax the logistics system. The resupply of protective clothing and equipment (and repair parts), medical supplies (antidotes and antibiotics), and other resources must be factored into computation of JFC resource requirements.

g. In-theater Passive Defense Systems. In-theater passive defense systems will be allocated according to the commander's priorities. Planning should consider deployment configurations and concepts of operations that maximize the defensive capabilities of available passive defense systems. In this area, consideration of the vulnerabilities of civilian populations and infrastructures to an adversary's NBC attack is vital.

h. Effects of NBC Attacks on C^2 Systems. NBC attacks can degrade C^2 systems. Limitations will result from the requirement to operate in NBC protective equipment and from the effects of the electromagnetic pulse (EMP) on electrical and electronic equipment. In order to maintain effective IO, the commander plans for countermeasures to ensure continued operations. Alternate C^2 means must be designated and exercised.

i. Capabilities and Limitations of Multinational Forces. Where multinational operations are envisioned, unit planning assesses coalition 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.

j. In-theater Consequence Management. The commander plans for in-theater consequence management: mitigation and management of the effects of NBC attacks. For the purposes of multinational cohesion, maintaining access to basing and logistics facilities, and minimizing casualties and damage, every effort should be made with available resources to reduce the HN's vulnerability to NBC attacks and to improve the HN's ability to mitigate the effects of such attacks. This will require close coordination and cooperation with USG civilian agencies, HN military and civil authorities, nongovernmental organizations (NGOs), private voluntary organizations, and, possibly, international organizations (IOs). Here, too, it may be necessary to provide US military assets (equipment, personnel, and supplies) to support HNs.

3. NBC Defense Plans

NBC defense plans address tasks and support requirements during mobilization, deployment, employment, sustainment, redeployment, and postconflict phases. NBC plans also address support during the various phases of an operation.

a. Planning Guidance.

(1) The commander's responsibilities include considering the implications of a potential adversary's NBC capabilities, not only in the adversary's geographic region, but also in other regions, including the US.

(2) 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. Planning is conducted to ensure sustained operations in potential NBC environments that include joint, multinational, and interagency dimensions.

(3) National, strategic, operational, and tactical NBC defense plans should be linked vertically and horizontally. Vertical linkage connects the joint functions of one level of war to another. For example, NBC defense planning is accomplished at the strategic, operational, and tactical levels; horizontal linkage involves the synchronization of plans with different functions, such as synchronizing FP efforts with operational-level maneuvers or fires at a specific level.

(4) Tactical- and operational-level NBC defense plans call for detailed synchronization. For example, the TMD warning system is synchronized between service components to ensure an effective and efficient network. As part of the synchronization, each unit—regardless of level—is aware that all organizations of the US armed forces are responsible for ensuring that their forces and facilities are prepared to provide needed support in the execution of national military strategy.

b. NBC Defense Support Planning.

(1) The NBC threat is considered in the prioritization and appointment of forces and resources. Consideration of NBC vulnerabilities is integral to these assessments, including the previous use of NBC weapons in the adversary's geographic region. Specific

planning considerations emphasize and reinforce previously planned and exercised peacetime preparedness actions (see Figure IV-2).

- Establish PIR
- Take precrisis actions to prevent adversary NBC weapons employment
- Plan attack and active defense operations to prevent or minimize NBC attacks
- Plan actions to counter, mitigate, and manage the effects of an NBC attack
- Identify NBC defense unit requirements
- Emphasize early warning and detection
- Take actions to prepare US and indigenous military forces
- Protect threatened civilians, infrastructures, and facilities

Figure IV-2. NBC Defense Support Planning Considerations

(2) The theater/operational plans concepts of operations impose requirements on mobilization timing and generation of necessary force capabilities. Previous peacetime planning, supporting actions, and compliance with the commander's FP guidance (contained in documents such as OPLANs or FP directives) help to ensure successful operations. As the services develop supporting mobilization plans, their theater service component commands identify additional resources required to facilitate rapid transition to operations. In particular, supporting plans must include options for generating adequate and timely force capabilities in the event of early adversary use of NBC weapons.

(a) Deployment planning is directed toward the relocation of forces and the sustainment of the theater for further intratheater deployment and in-theater employment. The supported commander (using the service and functional-component movement capabilities) controls, coordinates, and protects the movement of the force. During the crucial period, commanders use established PIR to plan counterforce operations and active defense and/or passive defense measures. Another key task during this phase is the establishment of protection against NBC attacks in the operational area and in other areas providing forces and sustaining capabilities. Commanders also coordinate with allies, coalition forces, appropriate US civilian authorities, and HNs on FP deployment issues.

(b) The service component commands are responsible for providing administration and logistics support to their forces throughout the phases of a campaign, subordinate campaign, or major operation. Service component commanders develop supporting plans to provide and maintain needed sustainment throughout all phases of major operations or campaigns. Logistics planners must plan for both active and passive defense measures to minimize the risks of NBC weapons attacks while satisfying the needs of the commander for uninterrupted logistics support.

c. NBC Defense Planning for Force Employment Plans.

(1) Force employment is the strategic, operational, or tactical use of forces within an operational area. Planners synchronize and coordinate passive defense capabilities with all other aspects of operations.

(2) Passive defense planning integrates the use of NBC defense measures—avoidance, protection, and decontamination—to ensure continued FP. The planning

synchronizes and links active defense measures, counterforce operations, and passive defense measures.

(3) Planning, coordination, and exercises maximize available passive defense capabilities. Organizations with a responsibility for passive defense operations planning must have an understanding of theater passive defense capabilities, current threat assessments, and the results of relevant analytical work. Preconflict war games and training (including joint and multinational field exercises) integrate planning efforts.

d. NBC Defense Planning for Functional Components. Whenever the commander organizes his force employing functional components, the functional-component commander is responsible for preparing plans to direct the employment of forces or available military capabilities and supporting commands.

(1) Joint Force Air Component Command. Joint Force Air Component Command (JFACC) planners recognize that NBC attacks have the potential to significantly degrade the aerospace operating environment and the contribution of aerospace forces to operational objectives. For fixed or semifixed installations (i.e., ABs), near real-time warning from US and coalition information systems should reduce the possibility of operational degradation by direct attack effects and NBC contamination. The use of shelters, particularly *hardened* shelters, offers aircraft protection from the effects of NBC weapons. Similarly, planning outlines countermeasures (such as using alternate bases) to limit the potential damage of any particular NBC attack.

(2) Joint Force Land Component Command. Joint Force Land Component Command (JFLCC) planners recognize that 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. Planning identifies alternate routes, assembly and support areas, and areas for unit dispersion to reduce vulnerability to NBC attacks. Planners are aware of factors such as—

- Higher levels of MOPP that may affect joint fire support as well as C^2.

- Radio transmissions that may become longer in duration or may frequently need to be repeated.

- Incidents of fratricide that could increase.

(3) Joint Force Maritime Component Command. Joint Force Maritime Component Command (JFMCC) planners recognize that their forces are most vulnerable to NBC attacks when in proximity to land—such as when in port, during expeditionary 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 CB agents. At sea, all ships are inherently able to maneuver to avoid identified NBC threats. 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. Expeditionary forces may have more difficulty avoiding areas threatened with CB hazards, and naval forces in port and fixed host installations may have less flexibility in avoiding 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 away from NBC-threat areas.

(4) Joint Force Special Operations Component Commander. Joint Force Special Operations Component Commander (JFSOCC) planners realize that the threatened or actual use of NBC weapons pose significant challenges to SOF. Due to their unique nature (they are small; self-sufficient; and operate independently in hostile, denied, or politically sensitive areas), SOF operations can be affected by the limited NBC defense assets found within their formations, particularly 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.

e. Other Planning Considerations.

(1) Sustainment and Reinforcement Plans. The capability to sustain the campaign from beginning to end sets the overall OPTEMPO. For example, the purpose of sustainment or reinforcement planning can be to estimate the NBC supplies, equipment, and materiel required to sustain the forces involved.

(2) Noncombatant Evacuation Plans. Evacuation requirements must be planned in advance to ensure that resources consistent with theater needs are available. These include transportation, base operations support, and all supply classes. Plans must consider casualty evacuation when some portion of the AOR is contaminated with NBC/TIM agents. Issues such as overflight rules; landing rights; transport of infectious patients; and cleanliness standards for ground, air, and/or maritime transport of patients must be addressed. Noncombatant evacuation operations (NEOs) plans support the theater campaign plan. Although the State Department is primarily responsible for NEOs, the geographic combatant commander is responsible for furnishing support within the theater. In such instances, the operation may be in response to imminent hostile action or civil unrest in locations where the threat of an NBC attack exists.

(3) Multinational NBC Defense Planning. Campaigns may be conducted within the context of other multinational arrangements. Planning is accomplished through both US and multinational channels. Coordinated NBC defense planning on such matters as operations; logistics (including infrastructure); intelligence; deception; decontamination; warning, detection, and monitoring; consequence management; and NBC interoperability is essential to unity of effort. The preparation of supporting plans addressing coordination and liaison, HN support, and the provision of mutual support are examples of essential tasks that must be accomplished.

(4) Interagency Efforts. Information sharing across US military and USG agencies is an important concept of interagency planning. A number of USG agencies may be operating in conjunction with each other. These efforts require a strong focus on lateral coordination and the development of an effective program of interagency information sharing. For example, interagency NBC defense planning between the JFC and

Department of State or the Federal Emergency Management Agency (FEMA) could be conducted as a peacetime preparedness measure to provide military support to civilian authorities, including consequence management, according to federal law and policy and joint publications.

Chapter V
PEACETIME PREPAREDNESS AND TRANSITION TO OPERATIONS

This chapter focuses on peacetime preparedness and transition to operations. Peacetime preparedness and planning for the transition to operations are based on national security, military strategies, and supporting plans. The services and US Special Operations Command (USSOCOM) have the primary responsibility for organizing, training, and equipping forces for the full range of potential operations. Combatant commanders 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 US armed forces are responsible for ensuring that their training for individuals and organizations meet the requirements for operations in NBC environments.

1. Peacetime Preparedness

The basic elements needed for maintaining adequate preparedness are a clear understanding of the threats and operational requirements, both overseas and in the US, as well as unity of effort. To support these requirements, commanders' mission analyses identify specific mission-essential tasks for individuals and organizations that facilitate operations in NBC environments. The US armed forces are also responsible for appropriate military support within the US to counter adversary threats and employment of NBC weapons directly against the US. Such domestic military activity is subject to constitutional, statutory, and policy restrictions.

a. Preparedness in the US.

(1) Commanders of forces and facilities in the US are responsible for assessments of vulnerabilities that may compromise peacetime preparedness, given the NBC threat and the potential benefit to state and nonstate actors of NBC attacks against US civilian and military targets. A number of state and nonstate 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. Commanders' consider their assigned missions and supporting plans, as well as the UJTL, when trying to reduce their vulnerabilities.

(2) Commanders must maintain current assessments of the NBC threat in the US, integrating their efforts with other USG agencies, including appropriate law enforcement and intelligence organizations. Of particular importance are facilities essential to training, staging, deploying, and sustaining forces for operations.

(3) 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. Plans are 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 US. Detailed interagency processes guide the US armed forces in providing MSCA to cope with such events.

(4) The key tasks to be undertaken in the US 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 NBCDE, and planning visible joint and interagency training and related preparations.

(5) 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. 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 US to maintain its essential deployment, sustainment, and employment capabilities.

b. Preparedness in Theater Operational Areas. Peacetime preparedness for operations in NBC environments includes measures taken by commanders in theater operational areas abroad. All commands undertake vulnerability assessments and supporting actions similar to those described for US territories with appropriate emphasis on APOEs and SPOEs and APODs and SPODs, vulnerable foreign civilian populations and infrastructures, nonmilitary and foreign military support personnel, and deployed US forces and facilities. The commands also undertake cooperative actions in peacetime with governments and armed forces of allies and potential coalition partners to facilitate sustainment of operations in NBC environments. US ambassadors and their country teams have primary responsibility for coordination with their host country government. Commanders in theater operational areas must coordinate their actions with the country team to help maintain peacetime preparedness.

c. Peacetime Preparedness and Predeployment Actions.

(1) NBC Threat Assessment and Enemy Capability Evaluation. Commanders should establish an NBC threat assessment team that consists of intelligence, medical, operations, NBC staff, and other personnel—as necessary. The team should assess operational and medical intelligence reports, epidemiological findings, local observations, and other indications so they can advise the commander on the likelihood and projected consequences of NBC attacks against probable deployment locations. Of particular interest in the planning phase are the assessment of enemy capabilities in terms of NBC agent production, delivery systems, and historical employment doctrine and the assessment of friendly NBC defense capabilities. Output from the assessment will help to ensure that planning, training, and equipping for NBC defense provides the proper focus in recommendations for the commander.

(2) Force and Unit Status Evaluation. Commanders must ensure that personnel have the necessary defense training and equipment to sustain operations in an NBC environment. They should pay particular attention to the amount and currency of training, the quantity and condition of equipment and supplies, and the medical FP status (i.e., vaccinations and antibiotics). Common standards for NBC defense help to maximize effectiveness and prevent unanticipated vulnerabilities in joint force capabilities.

(3) Coordinated Planning. Commanders task their NBC staff to work with the intelligence, medical, operations, and other staff sections in establishing coordinated and

detailed plans for NBC defense. These plans should specify responsibilities, procedures, and relationships for all phases of NBC defense.

(4) Training Readiness. To ensure that the joint forces training readiness status is based on common standards for NBC defense, the joint force command produces JMETs. For each task, the conditions under which task performance must be conducted support providing realistic standards, which serve as the basis for assessing force and unit status. This process is supported by the UJTL, which provides a standard description of key tasks across the range of military operations.

(5) Conducting Training. NBC personnel coordinate or provide general NBC defense training for units and personnel. They provide training for specialized teams, such as monitoring, survey, contamination control, readiness support, decontamination support, and other augmentation as appropriate. Also, they help identify the NBC individual and collective training requirements for unit personnel.

(6) Medical Protective Measures. Commanders should ensure their personnel in (or subject to deployment to) NBC threat areas receive immunizations, pretreatments, and chemoprophylaxis based on recommendations from medical authorities. Considerations will be given to the medical threat, attack probability, logistics stockpiles, and other available protective measures. In addition, the commander and medical personnel should emphasize good sanitation and hygiene measures. These are some of the most important and least costly protective measures against both naturally occurring diseases and biological attacks. Personnel should protect food and water, maintain personal cleanliness, and properly dispose of waste.

(7) Planning/Preparing NBC Defense Equipment and Supplies. Units should prepare their NBCDE and supplies for individual and team use through actions such as shipping/delivering detection, sampling, and analysis equipment and medical supplies to deployment embarkation points. Vaccines, chemoprophylaxis, pretreatments, and antibiotics or medical treatments are unique to biological defense and may require cooling or refrigeration during transport. Specimens and samples being shipped to supporting medical laboratories for analysis may also need cooling or refrigeration.

(8) NBC Logistics Planning - Agent Detection. There are many logistics planning implications. Chemical and biological point and standoff detectors will also add to the unique deployment requirements. Some point detector supplies will also require cold storage (i.e., reagents); some detection equipment requires contracted logistics support (CLS). Deployment planning ensures that detection equipment and supporting CLS elements arrive concurrently. Also, planners prepare estimates for the amount of decontaminants that may be used. Logistics planners identify sources for decontaminants and resolve issues that may arise with regard to procurement, storage, or deployment. NBC logistics planning at all levels includes consideration of the civilian community capabilities, both in theater operational areas as well as other areas from which forces may have to be deployed.

2. Transition to Operations

Units may follow the routine or crisis action planning models during transition to operations. In maintaining peacetime preparedness, commanders are aware that an attack

can occur without warning. Unit actions taken before the initiation of hostilities can assist in determining the setting for future operations. There are multiple planning and operational considerations that support the actions involved in the transition to sustained operations.

a. Planning Considerations.

(1) Intelligence. At the advent of a crisis or other indication of potential military action, commanders continue to examine available intelligence estimates. As part of the joint IPB process, commanders involve their intelligence and NBC staff early in the planning process in order to focus intelligence effort to refine estimates of enemy capabilities, dispositions, intentions, and probable COAs. Commanders direct reconnaissance, surveillance, and target acquisition operations by elements of the force to further develop the situation and gain information critical to decision making. SOF can be employed for special reconnaissance or other human intelligence operations. Commanders can use a broad range of supporting capabilities to develop a current NBC intelligence picture. These supporting capabilities include national intelligence and combat support agencies (i.e., National Security Agency, Central Intelligence Agency, Defense Intelligence Agency, and National Imagery and Mapping Agency).

(2) Organizing and Training Forces. Preparing the operational area also includes organizing and, where possible, training forces to conduct operations throughout the operational area. The training focus for all forces and the basis for exercise objectives should be the combatant commander's JMETL.

(3) Maintaining Theater Access. Commanders establish and maintain access to operational areas in which they are likely to operate, ensuring forward presence, base operations support, freedom of navigation, and cooperation with allied/coalition nations. In part, this effort is national or multinational, involving maintenance of intertheater (between theaters) air and sea LOCs.

(4) Logistics Support and Sustainment. Thorough logistics planning for deployment and sustainment during operations is particularly critical, to include, as much as possible, active participation by all deploying and in-theater US and multinational forces and supporting civilian workforces.

(5) Isolating the Enemy. With strategic-level military support, commanders use active means to isolate enemies by denying them allies and sanctuary. The intent is to strip away as much of the enemy's capability or freedom of action as possible while limiting the adversary's potential for escalation.

(6) Protection. Commanders must protect their forces and their freedom of action. This protection dictates that commanders be aware of and participate, as appropriate, in regional, political, and diplomatic activities. Commanders, in coordination with US ambassadors, may spend as much time on regional political and diplomatic deterrent efforts as on direct preparation of their forces for combat.

(7) Physical Environment. Seasonal effects on terrain, weather, and sea conditions can significantly affect operations of the joint force and the NBC environment and should be carefully assessed before and during operations.

b. Actions—Transition to Operations.

(1) Many of the actions undertaken during peacetime preparedness will continue during the transition to operations. Medical protective measures should continue to be followed and emphasized.

(2) Commanders continue to ensure that personnel/units remain prepared through NBC defense training and monitor unit personnel and equipment status for shortfalls. Basic requirements for NBC individual equipment stockage levels and training that applies to personnel stationed in or deployable to threat areas will depend on service/component command guidance and/or war plans that set specific levels for their operating locations.

(3) Particular attention should be paid to increased intelligence gathering to assess a potential adversary's operational NBC capabilities during this phase. Status of enemy NBC offensive and defensive capabilities should be ascertained. Intelligence should provide information concerning the movement of NBC munitions to forward locations in preparation for use. Other intelligence information that could be key indicators of potential NBC attacks include increased enemy CB defense training and the establishment of immunization programs.

(4) From the onset of deploying US forces to hostile areas, active measures are undertaken to enhance FP. The air component maintains air superiority over the battlespace, and missions are flown against targets to destroy and neutralize the adversary's offensive NBC capability. Actions to prevent enemy weapons from reaching friendly targets are accomplished by defeating enemy weapon systems in the air and on the surface through active measures.

(5) Units deploy available IPE for each person subject to deployment to NBC threat areas. Units can ship the equipment separately for each person or ship the equipment in bulk to be distributed after deployment. Regardless of the method, personnel should carry one set of protective clothing (to include a mask) when they deploy to provide immediate protection at the deployment location and any intermediate stops. Further, deploying units (i.e., medical) should deploy and activate preidentified NBCDE and supplies for detection, decontamination, and medical treatment purposes. Examples of this equipment include automatic detectors, sampling and analysis equipment, decontamination systems and supplies, antibiotics, and vaccines. Requirements for issue of antibiotics, vaccines, and other medical supplies will depend on the threat at the deployment location(s).

(6) Commands at all levels must take into account potential needs for IPE to support civilian workforces under US, HN, or other multinational element control that may be essential to the transition to operations as well as to sustained operations.

Chapter VI
SUSTAINED OPERATIONS

The US armed forces must be prepared to conduct prompt, sustained, and decisive combat operations in NBC environments. In considering sustained combat operations, commanders conduct actions to reduce vulnerability and protect their forces.

1. Challenges

In confronting the challenges to sustained combat operations, the following areas merit special emphasis:

- IPB.
- Reducing vulnerability to adversary NBC use.
- Protecting the force.
- Multinational operations.
- Synchronization of operations.

a. Intelligence Preparation of the Battlespace. The continuous IPB process must account for confirmed—as well as plausible, but unconfirmed—adversary capabilities, plans, and actions. The IPB process must address the capabilities and limitations of adversary NBC weapons and delivery systems, their C^2 and release procedures, and the indicators of intent to employ NBC weapons or to initiate releases of TIM from indigenous facilities in or near the battlespace.

b. 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 an adversary's NBC attack. When US, HN, or other civilian populations and infrastructures are at risk to an NBC attack, the commander assists the appropriate military and civil authorities to protect against, mitigate, and manage the consequences of these risks. 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 theater.

c. Protecting the Force. 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 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. Realistic individual and joint unit training ensures readiness to fight and win should an adversary employ NBC weapons. 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 usefulness of NBC weapons and help deter their employment. Plans should include preventive medicine, joint medical surveillance, NBC casualty control, medical evacuation,

and provisions for readily available treatments and supplies to counter the physical effects of NBC exposure. Sufficient equipment must be available to protect not only the uniformed force but also the essential supporting US and foreign national civilian workforces. In affecting an adversary's intelligence and SA, IO (including OPSEC) provide forces with a significant measure of protection by preventing an adversary from acquiring information necessary to successfully target forces and facilities. Assessing indigenous TIM facilities and potential releases from those facilities may require specialized personal protection and identification equipment as well as non-military organic hazard assessment means and tools.

d. 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. Further, military unit coordination of HN support activities will involve a number of DOD components as well as the US country team.

e. Synchronization of Operations. Synchronization entails the interrelated and time-phased execution of all aspects of combat operations. In NBC environments, successful synchronization requires proper integration of (and sequencing among) intelligence, surveillance, and reconnaissance (ISR) capabilities; passive defense measures; active defense measures; counterforce operations; and sustainment.

2. Conducting Sustained Operations

Synchronizing sustained operations involves understanding NBC defense actions. It deals with NBC defense actions for the preattack, during attack, and postattack phases. This section will address those preattack, during attack, and postattack actions that could be taken to support NBC defense operations.

a. Preattack Actions.

(1) Reassess NBC Threat and Potential Risk. Soon after deployment, the commander and staff reassess the NBC threat and risk based on any changes in the operational situation during deployment, intelligence updates, and direct access to information at the deployment location. Commanders continuously monitor intelligence assessments, SITREPs, and other related information to prepare themselves to make an informed decision on whether or not to implement NBC defense measures. Other important factors to consider could include the time of day, weather conditions, mission demands, training status, and equipment status.

(2) Reassess Plans and Ensure Real-Time Liaison with Higher, Adjacent, and Lower Units. Staffs provide commanders with assessments of the current plans, including branches and sequels, and situations of other units in the AOs. Staffs propose adjustments to plans as appropriate in view of the NBC threat. Staffs examine continuously the synchronization of NBC defense plans and actions with all other aspects of plans and operation orders and recommend adjustments to ensure maximum effectiveness. Staff assessments must include joint, multinational, interagency, and civilian considerations.

(3) Implement Coordinated NBC Defense Plan. Commanders should direct the implementation of coordinated NBC defense plans developed for their units. The kinds of actions to be implemented include, but are not limited to, dispersing available units, dispersing detectors, designating sampling locations, implementing periodic sampling and analysis, and designating shelters. If the commander has decided during the preattack period that the threat of an NBC attack is sufficient, the unit/base must assume an appropriate defense posture. As the unit/base progresses through various stages of alert, NBC attack preparations occur concurrently with preparations for a conventional attack. Preattack measures include disseminating protective gear, declaring MOPP levels, distributing antidotes and initiating pretreatments, activating CP systems, deploying and activating detection and warning systems, covering supplies and equipment, and readying decontamination systems. Commanders should disperse critical personnel as much as the operational situation permits. Additionally, commanders should ensure appropriate medical protective measures are initiated or continued.

(4) Prepare to Provide Primary Care for Unit Casualties. Unit commanders should have their units prepare contingency plans for administering first aid to unit casualties, with limited medical treatment from the medical staff. This may be necessary if casualties exceed the capabilities of the medical staff alone or when response will be delayed. Medical personnel also continuously evaluate and assess the unit's health situation for indications of an NBC attack. They look for agent symptoms, unusual disease patterns, or indications of environmental contamination. Information sources include medical intelligence reports, disease and injury rates, lab analysis, and epidemiological studies. Commanders should receive advice on MOPP levels from their NBC staff experts, to include input from intelligence and medical personnel.

(5) Monitor Intelligence Indicators. Intelligence, NBC, and medical staffs should monitor incoming reports for any information concerning enemy NBC capability and intentions. Forces should be alert for any unique indications of covert attacks.

(6) Determine and Implement MOPP. Based on the situation, commanders should determine and implement the appropriate MOPP level and variation.

(7) Maintain Watch for Attack Indicators. Commanders should issue periodic reminders of the need to remain observant for signs of a covert attack. Those reminders apply to all unit/base personnel.

(8) Use Only Protected Food and Water. Commanders should ensure that personnel consume only protected food and water to avoid the possibility of ingesting covertly disseminated contamination, no matter how slight the threat may be perceived. Use of packaged foods, bottled water, and protected food preparation equipment and eating utensils are the primary means to meet this requirement.

(9) Minimize Skin Exposure. Commanders should direct personnel to minimize skin exposure to protect against hazards. Although inhalation and ingestion of agents are the primary concerns, many agents can enter the body by penetrating the skin or through cuts, cracks, or abrasions in the skin. This could be a serious problem with highly infective or toxic agents.

(10) Continue Good Hygiene and Sanitation Methods. Commanders should require that their personnel practice proper hygiene and sanitation methods at all times.

(11) Deploy and Activate Detectors. Each unit, as part of its overall NBC defense plan, should deploy available detectors. Teams may deploy specialized detectors to preestablished locations according to the NBC defense plan. These locations can include sites upwind of the unit/base, along the perimeters, and/or near selected critical facilities on the base itself. If biological detectors are not available, the commander prepares alternate plans and disperses and uses sampling supplies and laboratory capabilities to conduct sampling at key sites. Units exercise their NBCWRS to include warning and dewarning personnel.

(12) Designate and Prepare Shelters. Commanders at locations such as fixed sites, ports, or airfields survey and designate appropriate rest and relief shelters. Protection from NBC and conventional weapons effects—such as liquid and vapor contamination, blast, shrapnel, and heat—should determine the suitability of buildings as shelters. In addition, the commander should designate unit responsibility for preparing and operating each shelter and for performance of NBC reconnaissance around the shelter. Units responsible for the shelters will prepare them by sealing cracks and holes, closing all doors and windows, and adding filters to ventilation systems or preparing to turn off nonfiltered ventilation systems if environmental conditions permit. The innermost rooms in buildings without filters make the best shelter areas in terms of the least amount of aerosol and vapor infiltration. Based on threat assessments, the commander may initiate sheltering of all nonmission-essential personnel in designated shelters, available CP shelters, or inner rooms of buildings (improvised shelters), which offer the best available degree of protection from contamination when the possibility of attack is imminent. Personnel should remain in these areas when not performing mission-essential tasks. At sea, commanders and commanding officers will set the conditions of readiness, ensure countermeasures for any exceptions, and continue to monitor for any contamination. In addition, they will activate predesignated contamination control areas (CCAs) and decontamination stations. If time and operations permit, personnel will be shifted to CP zones or to deep shelter. At a minimum, exposed personnel will take ready shelter.

(13) Cover Unprotected Mission-Essential Equipment. Commanders may direct units to cover/shelter mission-essential equipment to prevent contamination from being deposited on the equipment. This reduces decontamination requirements and limits the spread of contamination on personnel handling or operating the equipment at a later time.

(14) Conduct Training and Rehearsals. During preparations for operations, commanders should direct continuation of training and rehearsals to include NBC defense plans and related actions. Training and rehearsals should focus on the entire unit and not solely on NBC defense units and personnel.

b. During Attack Actions.

(1) Initiating Attack Warning. During attack procedures begin when the attack begins. Detection and warning of the attack are critical to the implementation of protective measures. Attack warnings direct personnel to take cover and use protective measures.

(2) Taking Cover. Taking cover protects personnel against blast, shrapnel, heat, and liquid and particulate contamination. After taking cover, personnel don their masks and remaining protective gear, as appropriate. Personnel able to safely observe the attack in progress should watch for any unique or unusual signs that an attack is escalating or changing in some manner.

(3) Using MOPP 4. All personnel should assume MOPP 4 (full IPE) in the absence of any other information and remain in full IPE until directed to reduce the MOPP level. Commanders should consider using MOPP 4 until they can gain more information on the type and extent of contamination. MOPP levels may then be reduced accordingly. The ultimate goal is to balance mission continuation with force survivability in order to maximize mission effectiveness. Toward this end, the concept of risk assessment (what risks a commander is willing to take in relation to the importance of the mission) is an integral part of the equation.

(4) Keeping Shelters Closed. Shelter teams and repair parties ensure shelter doors remain closed as much as possible to limit infiltration of contamination. Contamination and control personnel entering and exiting the shelter must pay particular attention to this precaution.

(5) Adjusting Plans and Operation Orders. Commanders direct changes to plans and operation orders based on the nature of the attack and mission requirements.

c. Postattack Actions.

(1) Continue previous NBC defense actions, while the technical NBC defense actions continue into the postattack phase, commanders and staffs are especially vigilant to ensure the entire operation continues to be fully integrated and synchronized.

(2) Avoid Potentially Contaminated Surfaces/Areas. Units consider delayed agent deposits, agent time of arrival, the delivery system used, and how weather will affect the contamination variables. Units should avoid or minimize contact with potentially contaminated areas or surfaces until the presence or absence of contamination is determined.

(3) Obtain and Report Observations or Evidence of an NBC Attack. Units provide reconnaissance and assessment information. During initial reconnaissance, personnel should be observant for activated detectors and operating or spent delivery systems or devices (such as spray tanks, aerosol generators, and submunitions or bomblets). This information will be reported to higher HQ through the established NBCWRS.

(4) Survey, Control, and Mitigate NBC Health Hazards. Medical units should continue to take patient specimens and environmental samples and send them to the supporting medical lab for analysis. They should review medical intelligence reports, monitor patient diagnoses and symptoms, and conduct epidemiological studies to find (and inform the commander of) indications of an NBC attack. If there are indications of an NBC attack, the medical staff should provide antidotes, vaccines, and antibiotics as dictated by the agent and medical protective countermeasures. For detailed information on HSS, see JP 4-02, *Doctrine for Health Service Support in Joint Operations,* or applicable service TTP

reference such as FM 4-02.283, *Treatment of Nuclear and Radiological Casualties*; FM 8-9, *NATO Handbook on the Medical Aspects of NBC Defensive Operations*; FM 8-10-7, *Health Service Support in a Nuclear, Biological, and Chemical Environment*; FM 4-02.33*, Control of Communicable Disease Manual*; FM 8-284, *Treatment of Biological Warfare Casualties*; and FM 8-285, *Treatment of Chemical Agent Casualties and Conventional Military Chemical Injuries*. They should provide treatment for casualties according to established medical protocols. Such treatment includes supportive measures; isolation procedures; and antibiotic, antiviral, or antitoxic therapy.

(5) Use MOPP 4. Commanders should adjust MOPP to the lowest possible level, consistent with identified hazards.

(6) Maximize Shelter Use and Restrict Nonessential Movement. Commanders should ensure that personnel continue to use shelters as long as there is residual contamination. Shelter teams/repair parties should employ contamination control measures to limit the infiltration of contamination. They should monitor shelters until it is determined that a contamination hazard no longer exists.

(7) Identify and Manage of Contaminated Remains. Commanders should ensure that mortuary affairs and medical personnel (including augmentation) identify and place suspected NBC contaminated remains in double human remains pouches (one inside the other). Mark them with either CHEMICAL or CHEM or BIOLOGICAL or BIO before evacuation to theater mortuary affairs decontamination collection points (MADCPs).

(8) Document Exposure. The medical staff must document exposures to NBC agents and TIM in the medical record of those personnel who have been exposed. This includes exposures below established guidance limits. It must be done regardless of whether or not personnel receive treatment.

(9) Sample, Monitor, and Analyze for Residual Hazard and Waste. Units conduct and focus their detection efforts on determining the extent of residual NBC hazards. This information is necessary to determine appropriate contamination, containment, and decontamination actions. Any contaminated waste generated will be planned for disposal according to specified environmental directions.

(10) Plan and Implement Decontamination and Contamination Containment Actions. These actions must be planned and implemented to minimize operational impacts of NBC contamination if hostilities continue and to prepare for transition to posthostility hazard reduction and environmental restoration.

(11) Treat and Evacuate NBC Casualties. Medical staffs and unit commanders should be prepared to decontaminate and treat NBC casualties. HSS personnel are responsible for additional sampling, monitoring, and analysis when reporting results. Medical staffs should arrange for evacuation of NBC casualties according to established guidelines. Medical and NBC staffs should maintain continuous liaison with civilian facilities and authorities that may be affected by the NBC attack and postattack NBC defense actions.

(12) Issue Postattack—All Clear. Commanders should revert to an appropriate MOPP level based on the current threat in conjunction with the "All Clear" signal. All personnel should return their MOPP gear to a ready status in anticipation of the next attack warning. At the first opportunity, they should clean and inspect masks and other repairable items and replace nonrepairable items.

d. Special Considerations for Sustained Combat.

(1) Operational Requirements. Logistics operations, the HSS system, and reconstitution efforts may be adversely affected by the use of NBC weapons. NBC weapons present different implications, and planning must address the unique characteristics of each threat. In considering the operational support requirements, staffs develop options for the commander that ensure the required level of support can be sustained, notwithstanding an NBC attack.

(2) Degradation. Generally, operations will slow as units encumbered by protective equipment or exposed to NBC effects perform tasks—both simple and complex. 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 delays will be incurred. Additionally, adversary NBC use could severely hamper the component commander's 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 number of anticipated casualties may severely tax reorganization and reconstitution systems, as well as the deployed and in-theater available medical treatment capabilities.

(3) IPE Degradation. The use of IPE degrades individuals' ability to perform assigned tasks and missions. The use of IPE can adversely impact individual capabilities; therefore, 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 C^2. 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.

(4) Unit Degradation. All units, including staffs, must expect deficits in performance due to the impact of protective clothing and equipment. Commanders at every level can prepare their units and staffs by engaging in realistic training at a variety of MOPP levels to build competence in operating under MOPP conditions, confidence in individual and unit capabilities, and cohesion. When conducting mission-oriented training with protective clothing and equipment, special attention should be given to those tasks affected (e.g., those that require clear vision; precise hearing; fine motor skills; social and emotional support; or communication by facial expression, gestures, and vocal inflections). Individuals, staffs, and organizations that train often and realistically under restrictive MOPP levels will be prepared for the constraints imposed by protective clothing and equipment on communication, vision, and movement.

(5) Tailoring of Forces. Commanders routinely tailor force packages for employment by the conbatant commanders. This tailoring includes maintaining force elements outside the TO in order to contain logistic requirements and minimize vulnerabilities. JTF 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.

(6) Logistics. During sustained operations in an NBC environment, multiple factors will impact logistics operations. Commanders can expect deficits in the performance of logistics functions such as maintenance, supply, and transportation missions. For example, operational readiness rates may decrease. NBC contamination may require longer repair times for components/systems. Arrival of material will be delayed if alternate routes, APOEs, or SPOEs are used. Time and distance factors must be considered based on operations in an NBC environment.

(a) Commanders must anticipate the many contingencies that will impact logistics operations. These considerations may include, but are not limited to—

- Providing IPE for mission-essential civilian personnel.
- Anticipating additional requirements for commodities such as potable/nonpotable water, fuel (i.e., additional miles and time required to transport material), covering material, shelters, etc.
- Canvassing/assessing availability of supplies/materials in a HN environment (i.e., availability of decontamination agents such as bleach or batteries for detectors).
- Anticipating the impact of NBC weapons use on facilities (i.e., the impact of corrosion from water wash down on systems, porous surfaces that would permit absorption of liquid agent, etc.).

(b) Logistics planning forecasts requirements for IPE and other related items. Sustained operations in an NBC environment can directly impact the mission and cause increased requirements for items such as—

- Individual mask filters.
- Chemical protective (CP) equipment/filters.
- Batteries for detectors.
- Decontaminants.
- Detector kits/paper.
- Protective clothing and boots.
- Protective overgarments.

- Decontamination kits (individual and crew/equipment).
- Decontamination apparatuses.
- Pumps.
- Class VIII (medical) items (i.e., antidotes and pretreatments).
- Protective masks.

(7) Command and Control. During sustained operations in an NBC environment, commanders and staffs ensure continuity in the exercise of C^2. C^2 planning and training must take into account the effects of potential adversary NBC employment. Countermeasures can include designation of alternative command posts, supporting communications, and mission-oriented training to help facilitate continuous, sustained operations.

Chapter VII
SUPPORTING CONFLICT TERMINATION

Campaign objectives and the desired political end state of the conflict determine conflict termination objectives and conditions. The agreements the US reaches with HNs, other affected nations, and multinational and other coalition partners should include the conditions and objectives for conflict termination. Commanders at all echelons must be particularly vigilant to identify the conditions that may facilitate conflict termination and report these conditions to the appropriate joint and multinational authorities to support political decisions on conflict termination. Timely and accurate information to the media, within the limits of operational security, can promote proper conflict termination, encourage friendly and world public support, and create pressure on the adversary to accept conflict termination conditions favorable to the US and its partners.

Conflict termination involves activities under the control of the armed forces and activities under the control of civilian organizations. Campaign and supporting plans and operation orders should include civilian organization considerations for conflict termination. Coordination of military and civilian activities in this phase of operations is essential to achieving conflict termination objectives. Detailed planning, training, and rehearsal of civil-military conflict termination coordination should be included in the plans, training, and rehearsals for the overall operation at all levels.

Conflict termination generally results in the end of hostilities; however, the presence of NBC contamination or TIM can still present a volatile situation. The transition to conflict termination is a deliberate process of concluding hostilities; the two NBC-specific basic objectives include ensuring the safety of all personnel in the theater and establishing the foundation for long-term control of elimination of adversary NBC capabilities. The basic tasks that are implied in the accomplishment of those two objectives include, but are not limited to—

- IPB.
- FP.
- Decontamination.
- Mitigation of residual hazards.
- Control and recovery of adversary NBC capabilities.
- Coordination with nonmilitary entities.
- Force health protection.
- Accurate record keeping.
- Contaminated remains.

- Contaminated material retrograde.
- Transition and disengagement.

1. Intelligence Preparation of the Battlespace

a. Intelligence collection and analysis continue to be focused on adversary NBC capabilities. Commanders provide for surveillance of adversary NBC assets (e.g., known or suspected NBC capabilities that have yet to be captured or destroyed).

b. Intelligence on adversary NBC capabilities will be critical, and it may require increased collection, analysis, and production activities. Intelligence objectives in this phase should emphasize continuing to develop 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, operational units, and consideration of how the adversary (presumably still in possession of NBC weapons) may react. Assessing indigenous TIM facilities and potential releases from those facilities and potential releases from those facilities may require specialized intelligence support using non-military organic hazard assessment means and tools.

2. Force Protection

During this phase, FP measures are still used to deter, detect, contain and mitigate the possible effects of NBC attacks and threats. As unit drawdown occurs during conflict termination, commanders still apply the principles of NBC defense (avoidance, protection, and decontamination) to ensure that their personnel remain prepared. An adversary's armed forces or terrorists may still seek to strike (CONUS/outside the continental US [OCONUS]) during reduction in US force levels to punish and inflict revenge on the US and multinational partners for their policies and actions.

3. Decontamination

During this period, personnel and/or terrain decontamination may be required. Units use established decontamination TTP contained in applicable service publications. For example, units may conduct equipment decontamination that was deferred during previous combat operations. Units may also be tasked to support decontamination of civilian personnel, equipment, or facilities in coordination with HN authorities.

4. Mitigation of Residual Hazards

Commanders' maintenance of SA enables rapid identification of those areas that were contamination hazards. Containment and mitigation actions previously taken are assessed to determine what follow-on actions (i.e., low-level monitoring, weathering, isolation, and containerization) should be conducted. Unit planning also coordinates for the transfer of contaminated materials and associated tasks (i.e., security and monitoring) to the HN or follow-on forces or organizations.

a. Identifying, assessing, and mitigating residual hazards in the theater of operations are an important aspect of conflict termination. US and other multinational

forces must be able to detect and evaluate hazardous areas in order to contain and mitigate contamination hazards.

b. 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 NGOs and private volunteer organizations (PVOs) that offer specialized capabilities and skills.

c. The commander will determine when emergency or routine equipment retrograde procedures will be undertaken. This command decision entails accepting higher contamination risks 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.

d. The geographic zone in which mitigation activities will be conducted may be quite extensive as adversary and friendly occupied territory comes 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 and video) records of contamination caused by NBC weapons and other toxic materials. These records may be essential for determining accountability and reparations requirements.

5. Control and Recovery of Adversary NBC Capabilities

a. The commander may consider NBC-related objectives associated with disabling or destroying NBC capabilities. Among the primary aims of the commander during the negotiations or imposition of cease-fire conditions is to ensure that enemy NBC capabilities are identified and secured during the initial phases of postconflict operations. Ideally, the provisions should require adversary military and civilian authorities to specify the location of all NBC weapons, production facilities, storage facilities and delivery systems, as well as chemical minefields and contaminated areas. The commander should 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 rules for transition to long-term disarmament, monitoring, and inspection regimes; and plan for monitoring and survey of designated areas.

b. Completion of search, identification, control, and recovery tasks of areas under US/multinational control provides a critical foundation for postconflict planning to eliminate adversary capabilities and establish effective monitoring and other controls. A search, identification, control, and recovery plan should be established and executed with sufficient forces to gain timely control of enemy NBC capabilities. Specifically designated search and recovery task forces (S/RTFs) can be organized to include personnel with the technical proficiency necessary to identify and evaluate NBC weapons, equipment, and associated materiel. A S/RTF organization will be based on METT-T and will likely include NBC specialists, security, logistics, intelligence, medical, C^2, communications, and civilian

agencies (i.e., NGO or HN). 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 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 determing the scope and requirements for disposing of enemy NBC capabilities in the postconflict phase.

c. S/RTFs will require clear guidance for execution of their missions, which could encompass a diverse set of tasks, including—

- Securing NBC-related sites.
- Disabling (rendering safe) 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.
- Preparing hazard predictions based on potential consequences of actions.

6. Coordination with Nonmilitary Entities

a. Nonmilitary international organizations, NGOs, and PVOs could play significant roles during conflict termination. The commander 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.

b. Nonmilitary organizations could also have a role in providing assistance in the transition from military to civilian control of an area and interaction with nonmilitary entities (such as the media) on issues related to NBC weapons in an area that will require continuous oversight. Objectives can be advanced through a positive relationship with the media that ensures efficient dissemination of accurate information.

7. Force Health Protection

During conflict termination, HSS includes providing selected health and medical care, as required, and augmenting local support capabilities when appropriate. Plans for conflict termination should include the transition from in-theater military HSS capability and the return of HSS to local and HN support. Coordination by the staff with HN medical facilities

may be necessary to ensure medical plans include procedures to treat and care for contaminated or infected personnel. Preventive medicine personnel and specialized medical personnel continue to use databases of naturally occurring diseases and procedures to quickly assess and identify suspicious illnesses and diseases. Medical teams also identify, treat, and handle contaminated casualties. Medical facilities have areas designated to treat and segregate contaminated patients. Medical treatment facilities maintain the capability to detect contamination and decontaminate. Contaminated patient transport and contamination control also remain available for litter and ambulance operations. HSS has conducted health risk assessments for NBC and TIM exposure, and also monitors individual exposure as part of the required record keeping process.

8. Accurate Record Keeping

a. During conflict termination, the commander addresses two areas: documentation of lessons learned and identification of what can be termed after-operation follow-up. Key areas of documentation include identifying in unit records the facts relating to any activities surrounding operations in an NBC environment.

b. Lessons learned should be collected and then consolidated in the joint universal lessons learned system (JULLS) format, if possible, or through individual service systems such as the US Army's Center for Army Lessons Learned (CALL).

c. It is in the conflict termination phase that detailed follow-up occurs. Summaries may be prepared that outline when, where, and how NBC attacks or TIM incidents occurred.

d. Accurate record keeping also addresses the monitoring of incidents involving personnel for long-term health problems that could be operationally related.

9. Contaminated Remains

a. Mortuary affairs/unit graves registration (GRREG) personnel must be prepared to handle contaminated remains.

b. For procedures on management and handling contaminated remains, see Joint Publication 4-06, *Joint Tactics Techniques and Procedures for Mortuary Affairs in Joint Operations*.

10. Contaminated Material Retrograde

a. 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 commander 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 nonemergency situation, those same risks may be unacceptable and more stringent contamination control measures may be required to support lower individual protection levels.

b. Essential actions begin at the operator level and continue to the organization ultimately receiving the shipped equipment. A key role that the JRAC performs (see JP 3-10, *Joint Doctrine for Rear Area Operations*) is to determine 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 a support task force to accomplish tasks from marking equipment to contamination monitoring. FM 3-11.34; MCRP 3-37.5; Naval Warfare Publication (NWP) 3-11.23; and AFTTP (I) 3-2.33*, Multiservice Tactics, Techniques, and Procedures for NBC Defense of Theater Fixed Sites, Ports, and Airfields* provide useful assistance and TTP for this process. Redeployment planning should also address requirements for consolidation points for equipment with residual NBC contamination.

c. The safety of personnel is of foremost concern during the retrograde of equipment with potential, residual, or low-level NBC contamination. 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. 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 risk 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 (see Figure VII-1).

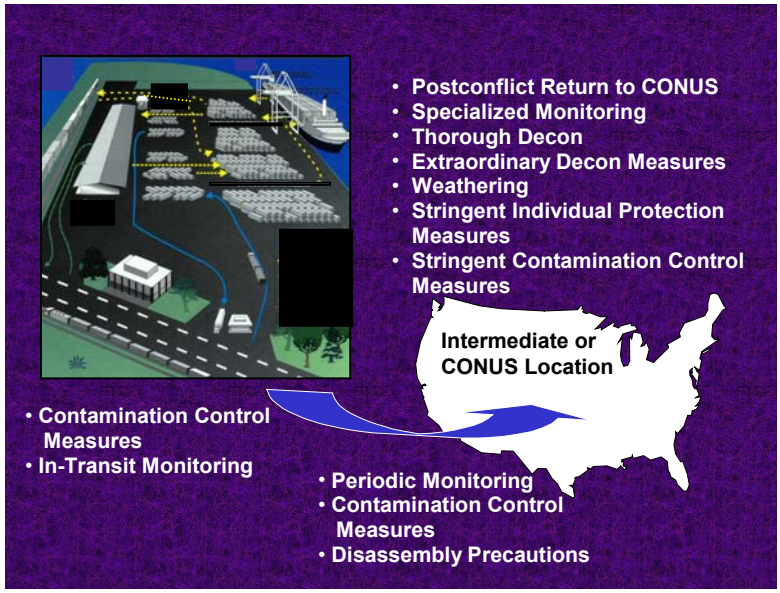

Figure VII-1. Deliberate Contaminated Material Retrograde Concept

d. The nonemergency equipment retrograde concept assumes that postconflict conditions allow time for thorough decontamination and weathering in the joint operational area 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. Ships requiring depot level chemical/radiological decontamination at a shipyard will proceed en route as operations permit.

e. 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, premaintenance monitoring, and other periodic monitoring.

11. Transition and Disengagement

a. During conflict termination, this transition period involves the transfer of responsibilities and functions to other organizations. Transition could occur between US military units, between US and multinational or coalition military units, and between US and international or HN authorities.

b. If US forces are transitioning functions between units, then the transition requirements follow standard military handover procedures. If transition involves the DOD forces transitioning functions or areas to other authorities, military or civilian, then the mechanics of transition will reflect operational procedures and existing agreements.

c. A transition plan helps the staff identify transition issues in relation to the desired or projected end state. The transition plan may involve exchange of information on multiple topics such as providing contamination overlays, transferring custody of material or areas, security support, surveillance and identification activities, or other technically related services (i.e., explosive ordnance disposal (EOD), technical escort, laboratory support, etc.).

Chapter VIII
REAR AREA OPERATIONS

US forces maintain OPTEMPO and generate combat power to sustain operations and achieve operational and strategic missions. Theater-level sustainment from JRA is crucial for the required deployment, reception, staging, onward movement, and integration for support of joint force command missions. Subordinate unit planning and operations help to ensure that units in the JRA can continue to support the accomplishment of assigned missions in an NBC environment.

1. JRA Coordination

Theater-level logistics support is generally furnished from service-operated and other functional fixed sites throughout the JRA. Logistics NBC defense operations in the JRA are based on service and site requirements but will be coordinated with the 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 in their AOs to support current mission requirements and facilitate future operations according to the chain of command and area commander directives and priorities. The JRAC, as defined in JP 3-10, *Joint Doctrine for Rear Area Operations*, is responsible for coordinating the overall security and area damage control efforts of the JRA. Specifically, the JRAC incorporates provisions and procedures for NBC defense to include warning and reporting procedures. General coordination responsibilities for the JRAC include the following:

- Coordinates JRA security.
- Dedicates FP assets to integrate security, conserve resources, and prevent support degradation.
- Establishes the JRA tactical operations center (TOC) (if required) with joint intelligence center interface.

a. Specific Coordination Responsibilities. The JRAC ensures that JRA commanders and staffs incorporate appropriate NBC planning, exercises, equipment, personnel decontamination measures, and preventive measures into overall security planning and operations throughout the JRA. Table VIII-1 shows other specific responsibilities.

Table VIII-1. JRAC-Specific Responsibilities

JRAC-SPECIFIC RESPONSIBILITIES	
• Security Plan/Posture	• Chain of Command (if granted)
• Threat Estimates/Threat Response Forces	• Base Criticality and Vulnerability Assessments
• NBC Defense Plans/NBCWRS	• Area Air Defense
• Unit and Facilities Positioning/Stationing	• Infrastructure Development and Positioning
• Multinational and HN Liaison	• US and HN Legal Guidelines
• Key LOC Security	• Additional Security Forces (as required)
• Security for Key Operations	• Adjacent Force Coordination
• Civil Affairs and Judge Advocate Support	• Tactical Combat Force (if established)
• Intelligence, Counterintelligence, and Law Enforcement Networks	• Liaison with Naval Coastal Warfare Commander (NCWC)

b. Base Clusters/Base Cluster Commanders.

(1) Base Clusters. Fixed sites will fall into a base or base cluster category depending on geographical dispersion, activities, and functions. For example, a port designated as a base cluster might consist of berthing, railhead, and marshaling area bases—all part of a synchronized port NBC defense plan. In turn, the base cluster commander controls and coordinates the base defense plans of separate base commanders. Each base commander develops plans that include an NBC defense annex and may also include a cover, camouflage, and deception or smoke annex. Further details on base defense are addressed in JP 3-10 and JP 3-10.1, *Joint Tactics, Techniques, and Procedures for Base Defense*.

(2) Base Cluster Commanders. When designated, base cluster commanders are generally responsible for coordinating the defense of the bases within their base cluster and integrating base defense plans into a base cluster defense plan. Unless specifically delegated to him, the base cluster commander does not have tasking authority except as provided during emergency situations addressed in JP 0-2, *Unified Action Armed Forces (UNAAF)*.

(3) Responsibilities for Base Clusters. The base cluster operations center (BCOC) becomes the primary focus for controlling and coordinating base cluster NBC defense and for tracking NBC resource status and task execution. (Note: A BCOC should only be established if delegated authority exists to plan, direct, coordinate, integrate, and control base cluster defense activities.) The BCOC establishes an alternate BCOC, maintains linkage with the rear area operations center (RAOC)/rear tactical operations center (RTOC) or JRA TOC (as required), and provides facilities and housing for base liaisons.

(4) Base Commanders. In an emergency, the base commander is considered an area commander with authority and command for execution of base defense actions to

include the employment of transient forces in the base area (see JP 0-2). Specific responsibilities include—

- Establishing a base defense operations center (BDOC) with linkage to BCOC/RAOC/RTOC as required (see BCOC note above).
- Establishing an alternate BDOC.
- Augmenting the defense with transient forces in the base area.

(5) Transient Commanders. Transient commanders in the vicinity of fixed sites may be required to support base defense with their organic assets, including NBC defense capabilities. In force projection operations, commanders quickly move combat power away from the POD to reduce force vulnerability (e.g., the dispersing of rotary-wing assets shortly after arrival at the POD during Operation Desert Shield). However, since combat sustainment flows through the POD, the transient commander has a vested interest in assisting with NBC defense emergencies, if required.

(6) Fixed-Site Tenant Commanders. Tenant commanders of forces assigned to a base/base cluster retain responsibility for unit protection and NBC defense. However, tenant commanders may also be tasked to—

- Help prepare/integrate base defense plans.
- Conduct and/or support individual, unit, or US/HN civilian NBC defense training.
- Provide BDOC/BCOC staff with NBC expertise.
- Provide NBC defense equipment support (i.e., decontamination or engineer equipment).
- Provide tenant-sector or base NBC emergency response teams and support (i.e., NBC survey and monitoring teams, NBC casualty collection points, contamination control teams [CCTs], MOPP gear exchange points).

(7) NBC Defense Staff Planner. General responsibilities of the staff planner in the JRA include—

- Ensuring that the NBC threat is identified/disseminated.
- Communicating the NBC threat in plans/orders.
- Recommending appropriate training based on the threat.
- Assessing NBC readiness/vulnerabilities.
- Identifying NBC defense requirements.

- Developing/recommending NBC defense guidance.
- Tracking requirements/execution.

2. JRA Planning for NBC Defense of Fixed Sites, Ports, or Airfields

Combat forces are vulnerable to an 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.

Understanding the nature of possible effects of NBC agents is central to adopting an effective concept of operations that reduces the risk of casualties and cross contamination, while ensuring rapid resumption of operations after an attack. Fixed sites used for military operations are often located near industrial areas that may include TIM facilities and therefore present potential TIM release hazards.

a. Countermeasure Considerations.

(1) Attack Warning and Dissemination. Timely warning of NBC attacks and the subsequent spread of contamination is essential. 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.

(2) Protective Postures. Logistics planners must consider the vulnerability of HN and other civilian workers to an attack and plan accordingly. Commanders are responsible for establishing and directing execution of protective postures and for ensuring that mission-essential civilian workers receive appropriate equipment and training and are integrated into area NBC defense plans.

(3) Postattack Reconnaissance. Planners ensure designation of resources that will be responsible for conducting damage and contamination assessments following an attack. Commanders will also position NBC defense personnel and assets in their AOs to support postattack mission requirements to help facilitate future operations according to chain-of-command and area commander directives and priorities.

(4) Decontamination. A chemical or biological attack may contaminate essential operating areas. Accordingly, local commanders in the JRA must have available the capability to decontaminate operating surfaces, materiel handling equipment, 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.

(5) Considerations for POEs and En Route Facilities. POEs and en route fixed sites may be targeted in order to disrupt or inhibit US military deployments. Commanders of intermediate logistics bases and POEs must also take action to protect their facilities (including supporting staging areas, as well as rail and road networks) against the effects of NBC attacks.

(6) Considerations for APODs. 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.

(7) Considerations for SPODs. In large-scale operations, equipment and materiel normally enter the theater on strategic sealift ships and off-load at SPODs. 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 logistics throughput capacity. This is especially true at large ports where many piers, storage areas, and much of the materiel handling equipment 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.

b. Handling of Contaminated Materiel, Equipment, and Human Remains.

(1) Materiel and Equipment. The geographic combatant commander is responsible for ensuring that all materiel and equipment 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 US, and maintain DOD life-cycle control of previously contaminated equipment.

(2) Human Remains. The geographic combatant commander has responsibility to search, recover, tentatively identify, and evacuate remains from the AOR. To complete this task, the combatant commander's affected area commander establishes a 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 in operational project stocks and is supplemented by theater assets as required by JP 4-06.

(a) The area commander's principal responsibility with respect to contaminated remains is to ensure that all remains are rendered safe for transport into the US 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 equally 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.

(b) 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.

Chapter IX
HEALTH SERVICE SUPPORT

This chapter provides HSS considerations for planning and conducting joint NBC defense operations. HSS for NBC defense operations will be performed during all phases of military operations. The combatant commander should plan for these HSS aspects in the NBC defense portions of the theater campaign plans and orders.

Theater campaign plans and subordinate plans and orders must provide for full integration of the military HSS systems with available civilian systems in the AOR as well in other supporting areas including CONUS. This responsibility for planning rests primarily with the geographic combatant commanders. Other commanders ensure their plans and orders are integrated and synchronized with the theater campaign plan in order to ensure the best use of scarce NBC defense and HSS resources in pursuit of mission accomplishment.

1. Health Service Support

HSS remains a service responsibility, as outlined in JP 4-02, *Doctrine for Health Service Support in Joint Operations*. As more nations develop and use NBC weapons, the probability of US forces encountering these weapons will increase. HSS planning is one aspect of meeting this challenge. The enemy's use of NBC weapons can cause large numbers of casualties and require special handling that can drain medical resources. The combatant commander must, therefore, plan to use directive authority to ensure the proper coordination of HSS to the force (to include adequate shelter, water, food, medical prophylaxis, medical pretreatments, preventive medicine services, immunizations, and antidotes).

a. Defensive Measures.

(1) There are a number of interrelated defensive measures that should be included in the planning aspects associated with HSS in an NBC environment. These measures can include military surveillance of key sectors to deter the dissemination of chemical or biological agents (from a ship-, aircraft-, missile-, or ground-based source), health risk and vulnerability assessments, medical defensive measures to protect personnel at risk against exposure, infection, or toxication.

(2) Other actions can include physical defensive measures (i.e., IPE such as the joint service lightweight integrated suit [JSLIST]) to reduce the risk of personnel inhaling any chemical agent or biological aerosol that may be present. Although the detection of a biological aerosol is not itself a countermeasure, effective detection plays a key role in enabling the efficient use of countermeasures.

b. Medical Surveillance.

(1) The medical surveillance of casualties resulting from the use of NBC weapons (particularly biological agents) presents the problem of managing large numbers of individuals with infectious disease or toxins, exposure to chemical agents, and injuries

resulting from nuclear weapons. MTFs will require augmentation to decontaminate incoming casualties. Each element of the medical treatment and evacuation process must be evaluated, especially as it pertains to multinational and HN interrelationships. The fact that the source of the exposure may have been artificially created by deliberate, hostile means will not change the basic principles of prevention and treatment for exposure to CW or BW agents. For instance, in the event of a biological attack, the most important factor in providing operationally relevant information and adequate medical management is the rapid and accurate identification of the agent. In contrast to naturally occurring epidemics (in which the disease incidents increase over a period of weeks or months), an artificially induced epidemic will peak in a few hours or days. Since a biological attack may be silent or nearly so, the first indication of a problem may well be the appearance of a wave of casualties in which medical personnel are unable to differentiate natural disease epidemics from overt or covert enemy attacks. The onset of illness following exposure to toxic agents may range from minutes to weeks. Some potential biological agents are transmissible among humans, so the method of spread after the initial attack will be an important planning consideration.

(2) There are unique aspects of medical surveillance after biological attacks that require special alertness and training. Timely identification and communication of the threat are essential for force health protection. Casualties may not occur at the same time as they would in the case of saturation bombing or a massive surprise attack with nerve agents. The degree of exposure to the agent and host resistance may cause the onset of the illness to be spread over a number of hours or days. An increasing casualty load is anticipated with relatively few initial casualties and a greater number over successive hours or days until a peak is reached. An exception to this aspect would be an attack with biological toxins that might create an immediate and dramatic mass-casualty situation.

(3) Decontamination and COLPRO for NBC attacks are particularly important if the situation necessitates a prolonged stay in a presumedly contaminated area. Medical management must provide adequate shelter, ensure uncontaminated food and water sources, and ensure that preventive measures and treatments are available. Demands for military medical support to neighboring civilian populations following such an attack will be intense, especially if the attack contaminates neighboring civilian populations with a concentration of the very young, the very old, and those already suffering from disease. Security for medical facilities must also be planned.

2. Medical Intelligence

The Armed Forces Medical Intelligence Center can assist in the theater threat assessment by evaluating the state of a potential adversary's CW or BW preparedness.

Medical personnel conduct medical surveillance activities for diseases resulting from suspected enemy employment of BW agents and can provide limited analyses of enemy drugs, serums, antibiotics, and prophylaxis. They are instrumental in gathering data from the various medical and nonmedical units.

3. Preventive Medicine Principles

In an NBC environment, HSS (i.e., preventive medicine) will be in great demand. Many deaths may occur if there is an effective biological-agent attack. Demands for military medical support to both military and civilian populations will probably be intense. Preventive-medicine and veterinary personnel must assist the commander in determining the health hazards associated with nuclear fallout and chemical or biological agents—such as the contamination of food and water sources—and make recommendations regarding prophylaxis, pretreatments, immunizations, and other preventive measures associated with NBC warfare. Preventive-medicine personnel must be aware of the NBC threat in the theater of operations and continuously update medical-intelligence information regarding disease threats, disease vectors, and susceptibility. Following attacks, diseases known to exist in the area may be manifested, but not transmitted to the forces. In addition, the appearance of a disease or vector not known to exist in the theater may be an indication that BW agents have been employed. The *need* for continuous medical surveillance by preventive-medicine personnel *cannot* be overstated.

a. The challenge for all personnel involved in an emergency situation is to maintain food and water integrity, use proper personal hygiene measures, ensure shelter habitability, and participate in disease control measures to prevent the spread of disease.

b. All food, except canned or otherwise well-protected items, should be thoroughly inspected to ensure wholesomeness. Foods determined to be safe must be protected against secondary contamination by applying food safety measures during transport, storage, preparation, serving, and consumption.

c. Maintaining health and sanitation following an NBC attack will be difficult. Strict preventive measures must be in place for potable-water production and protection, solid-waste management, shelter habitability, vector control, and vector-borne disease threat reduction.

4. Patient Evacuation

Forward evacuation within the combat zone is normally the responsibility of the respective component command using organic service-assigned assets, such as Army, Marine, Navy, and SOF fixed- and rotary-wing aircraft. Air Force fixed-wing aircraft with specialized aeromedical evacuation crews can assist with forward evacuation if the terrain, distance, and other related factors are not conducive to using organic assets.

a. Movement of patients within the theater is the responsibility of the geographic combatant commander, in coordination with the US State Department and HN authorities. The Commander in Chief, US Transportation Command, is responsible for establishing, operating, training, and maintaining the common-user aeromedical evacuation system for movement between theaters and from theaters to CONUS. An NBC environment forces the commander to consider to what extent he will commit uncontaminated evacuation assets to the contaminated area.

b. There are three basic modes of evacuating casualties in the combat zone—personnel, ground vehicles, and aircraft. Individual protective gear, climate, increased

workloads, and fatigue will greatly reduce personnel effectiveness. When evacuation personnel are sent into a radiologically contaminated area, OEG must be established. Based on the OEG, commanders decide which evacuation assets will be sent into the contaminated area. Every effort will be made to limit the number of evacuation assets that are contaminated. To ensure contamination of evacuation assets is limited, patients should be decontaminated before transport.

5. Patient Decontamination and Triage

The management and treatment of contaminated casualties will vary with the tactical situation and the nature of the contaminant. Each medical unit must have a plan that can be put into effect immediately. Decentralization is necessary—casualties must not be forced to wait at a central point for decontamination. The following general principles should be adhered to if possible:

- Use critical medical personnel at their highest level of capability.
- Minimize the injuries resulting from contaminating agents and prevent the aggravation of conventional injuries.
- Protect the personnel handling contaminated casualties or working in a contaminated environment.
- Continue essential medical services unrelated to NBC defense.

a. All MTFs must have comparable sets of medical items and decontamination equipment for treatment of contaminated patients originating in their areas. Decontamination of the patients serves two purposes: it prevents the patients from absorbing additional contaminants and it protects other patients and medical personnel treating the patient from contamination.

b. MTFs will establish decontamination areas. When casualties arrive at the MTF, they must be seen at a triage point and directed to the proper area. The triage officer must determine if the patients have a medical condition that requires treatment priority over decontamination.

c. A significant amount of all contamination can be removed by removing the outer clothing and shoes. This can usually be accomplished before admission without interfering with medical treatment. Actions should be taken immediately to ensure that all personnel suspected of being contaminated by an agent are cleaned and contaminated patients are not permitted to enter the MTF.

6. Medical Facilities

Because of the medical unit location, threat capabilities, and the unique aspects of NBC operations, there is a potential for mass casualties.

a. NBC casualties require intensive HSS. Within the first few hours after an NBC attack, medical facilities can be overwhelmed with casualties who require lengthy hospitalization.

b. At the same time the patient load is increasing, other factors combine to complicate HSS operations. Operations in MOPP gear reduce individual and collective efficiency at a time when personnel requirements increase. Patient decontamination requires additional resources and, without augmentation, will reduce the number of personnel available to treat casualties. Heat stress in MOPP will require more frequent rest breaks, further reducing care capability. Establishing and maintaining a facility with a CP system and continuously monitoring the air inside the shelter for contaminants calls for additional personnel. These procedures decrease the ability to treat patients efficiently and effectively.

7. Impact on HSS

The contaminated battlefield will be a difficult environment in which to operate. Stress from MOPP, reduced visual and tactile senses from protective equipment, a reduced communication capability, and a sense of isolation are all detrimental to military operations. The HSS system has several unique aspects that must be considered.

a. Contamination may be transferred to the MTF if patients are evacuated without being decontaminated. All personnel should perform personal decontamination or be decontaminated by a buddy or their unit immediately after being exposed to NBC contaminants, mission permitting. However, patients may arrive at an MTF still contaminated. In either case, patients must be decontaminated before they are admitted into the MTF (with or without a CPS). This is required to prevent the medical staff from becoming casualties; ordinarily, the medical staff works without protective equipment to maintain full patient care capabilities.

b. Many HSS assets are fixed or possess limited mobility. They are often located near command, control, communications, computers, and intelligence (C^4I) activities and MSRs; hence, they must continue to operate within the contaminated environment. Treatment cannot cease while the unit relocates. Thus, the MTF requires a CPS to permit the medical staff to provide full patient care.

c. Production of liquid and gaseous oxygen normally will not occur in an NBC-contaminated environment. Although newer production plants have been designed for potential operation in such a state, production will generally be stopped until air quality improves. Product transfer operations (gaseous and liquid) will also be curtailed unless medical and flight line requirements demand such. Supply and MTFs must develop plans to resupply critical gases and cryogenic liquids in the contaminated area from primary and alternate sources. These sources include production and storage organic to the unit from other services, HN support, and commercial contracts.

d. Decontamination operations are extremely resource intensive. Current medical personnel authorizations may not be able to manage both medical treatment and decontamination of patients. For this reason, plans must address the requirement for

providing nonmedical personnel from supported units or units within the geographical area/base cluster to the MTF to perform patient decontamination procedures.

e. Additional heat casualties can likely be anticipated at MTFs due to the heat stress caused by wearing full MOPP gear.

Appendix A

USA NBC DEFENSE CAPABILITIES

The USA must be prepared to conduct prompt, sustained, and decisive land combat operations in an NBC environment. Mission-essential tasks that could be influenced by USA land forces operating in an NBC environment could include—

- Conducting sustained land operations. Army elements apply the principles of NBC defense to afford optimum protection. Units do not allow an NBC environment to reduce positional advantage.

- Conducting forcible entry. Army forces conduct operations with the right elements of combat power that ensures enhanced lethality, versatility, agility, responsiveness, deployability, survivability, and sustainability.

- Responding promptly to a crisis. Army forces respond to natural or man-made crisis situations that may involve an adversary with NBC weapons capability. Unit preparedness enables successful mission accomplishment, CONUS or OCONUS, in any crisis situation.

- Closing with and destroying the enemy. Army elements close with and destroy the enemy to terminate conflict on US terms and deny an adversary the effects of asymmetric warfare.

- Shaping the security environment. Peacetime military engagements provide opportunities to work with allies and help promote goals such as interoperability and enhanced NBC defense.

- Mobilizing the Army. Expanding the Army's capability enables commanders to obtain additional NBC defense assets to meet mission requirements.

- Providing support to civil agencies. Prompt Army assistance to civil authorities supports homeland defense and provides useful augmentation for support of civilian authorities.

To support these land force mission-essential tasks, the US Army Chemical Corps provides support to help ensure the objective of achieving an NBC trained and ready force. To support this objective (an NBC trained and ready force), this appendix briefly outlines the capabilities and responsibilities that Army NBC units and staff provide to the commander. The capabilities include—

- Providing NBC R&S capabilities with monitoring, detection, identification, and sampling capabilities.

- Supporting NBC battle management through conducting NBC IPB, performing risk assessments, using the NBCWRS, and advising leaders on NBC defense.

- Providing decontamination capabilities to help support restoration of combat power.

- Shielding friendly operations by providing smoke and obscurants to achieve the commander's goal of operational advantage.

1. USA (Organization)

The capabilities of USA NBC units include the ability to provide decontamination, NBC R&S, large-area smoke, and staff support to commanders. Most NBC units are 100 percent mobile. The basis of allocation is determined on the numbers and types of units being supported and METT-T. This section addresses the Army component NBC organization in theater, the types of NBC units that could be available within the theater, force tailoring, and the roles of NBC unit commanders and staff.

a. Introduction. NBC units operate throughout the TO. Numbers, types, and locations of NBC units and HQ would depend on the operational situation. Allocation of some NBC assets is theater-dependent. Exact numbers of NBC units in a specific AO may vary because of the theater-specific differences in NBC support requirements. NBC support requirements will be determined by establishing NBC defense priorities. NBC support requirements must be identified in OPLANs to ensure that NBC support will be incorporated into the time-phased force development list (TPFDL).

b. Communications Zone. JRAs are not a safe haven from combat operations. Enemy forces' capabilities may present significant NBC threats to JRAs. Because of this, COMMZ assets require smoke, NBC R&S, biological-detection, decontamination, and NBC staff support. See Figure A-1 for an example that reflects an assigned NBC brigade with three NBC battalions controlling NBC reconnaissance, reconnaissance/smoke, smoke/decontamination, and biodetection unit assets. The COMMZ also has assets such as a biological point detection capability (i.e., Portal Shield) to monitor for and presumedly identify biological agents. Additionally, the senior logistics HQ receives an NBC center team to perform NBC staff functions. The planning allocation for the COMMZ NBC brigade is as follows:

- The brigade HQ and HQ detachment.

- Two or more NBC battalion HQ to provide C^2 for assigned companies.

- One biodetection company.

- One NBC reconnaissance company.

- Four smoke/decontamination companies (plus one per USMC division, six per USMC Marine Expeditionary Force, one per SPOD or APOD, and one per USAF air operating base).

- One NBC reconnaissance/decontamination company (one per SPOD).

c. Combat Zone (Corps Area). The corps has an assigned NBC brigade. The number and types of NBC units assigned to the NBC brigade depend upon the corps's mission and its organization. The notional corps depicted in Figure A-1 includes biological-detection, NBC reconnaissance, decontamination, and smoke assets. (Note: A biological-detection company operates directly under the NBC brigade.) This force is a mix of NBC reconnaissance, mechanized smoke, smoke/decontamination, reconnaissance/ decontamination, and biological-detection units beyond those that are organic to the divisions. It allows the corps commander to send augmentation where it is needed. The planning allocation for a corps NBC brigade is as follows:

- The brigade HQ and HQ detachment.
- One NBC reconnaissance company and one NBC reconnaissance/ decontamination company per light armored cavalry regiment (LACR) and SPOD.
- Six or more smoke/decontamination companies (six per corps plus one per division).
- Two or more NBC battalion HQ to C^2 assigned companies.
- One mechanized smoke company per heavy division.
- One biological-detection company.

d. Combat Zone (Division Area). Figure A-1 depicts the mechanized and armored heavy divisions (forward deployed) with their organic NBC reconnaissance platoon. (Note: Mechanized and armor divisions are in a transition period. Their organic NBC defense company is being moved to echelons above division.) The mechanized and armored divisions do not have an organic NBC defense company; however, the division does retain an NBC reconnaissance platoon. The division relies on corps augmentation for smoke, decontamination and additional NBC reconnaissance support. The heavy division has an NBC officer, NBC staff, and NBC Center (NBCC). The light infantry division does not have an organic NBC company. It relies upon corps augmentation for smoke, decontamination, and/or NBC reconnaissance. The light division has an NBC officer, NBC staff, and NBCC. Maneuver brigades in divisions have a brigade NBC officer and NBC staff noncommissioned officer (NCO). Separate heavy maneuver brigades have an NBC officer, staff, and NBC platoon (smoke/decontamination/reconnaissance) in the brigade headquarters and headquarters company (HHC).

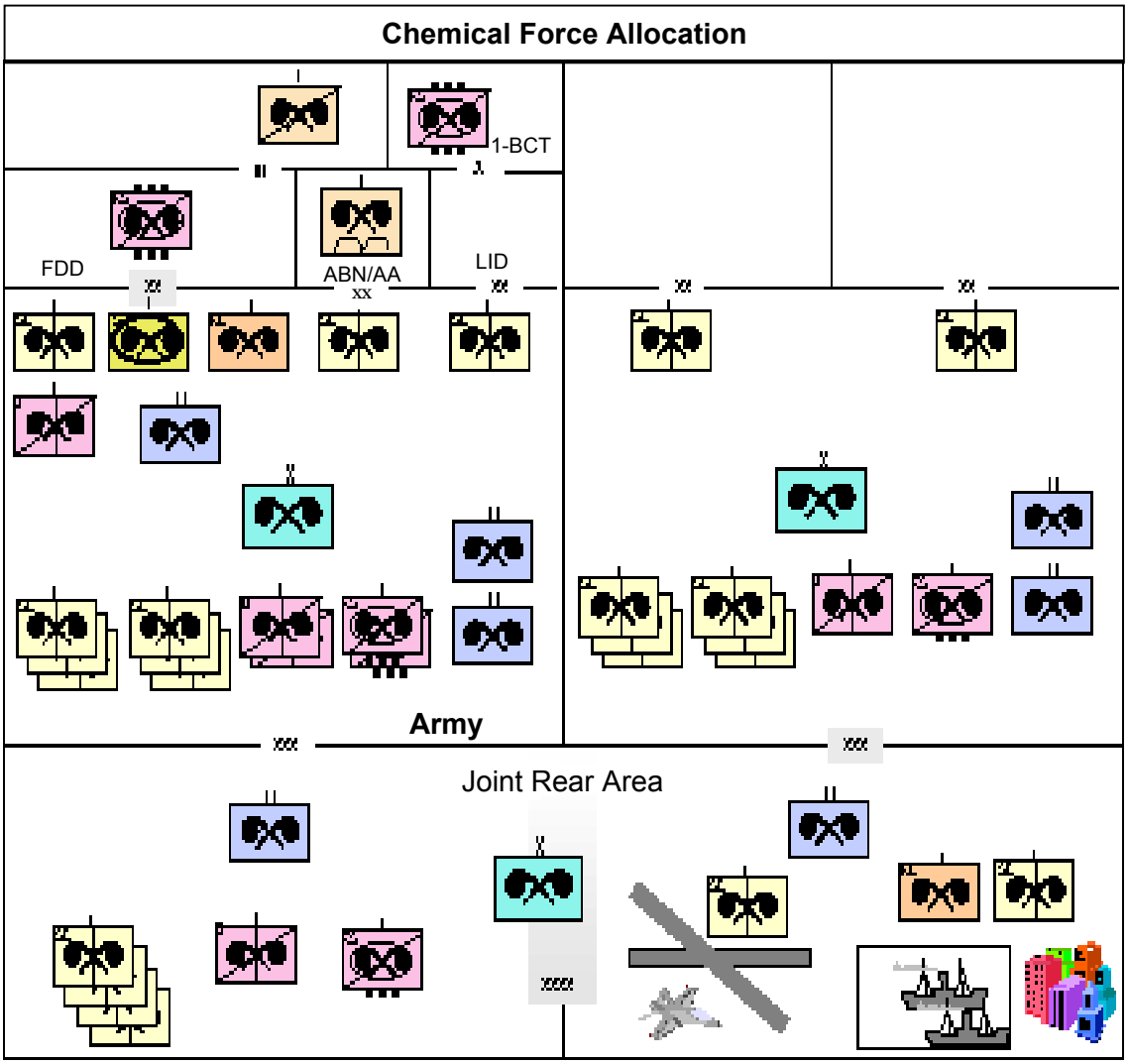

Figure A-1. NBC Structure in a Typical Theater of Operations

2. Organization for Combat

NBC units perform their vital combat role throughout the TO, from the forward line of own troops (FLOT) back through the COMMZ. NBC units provide reconnaissance, decontamination, biological detection, and smoke capabilities to accomplish different tasks throughout the theater. The NBC C^2 structure forms these units into an organization that is responsive to commanders at all echelons; however, it may be necessary to tailor NBC unit packages to support specific requirements for a contingency operation. The COMMZ (theater) and corps structure normally includes an NBC brigade. This brigade provides NBC units to perform NBC reconnaissance, biodetection, decontamination, and smoke support throughout the COMMZ/corps area.

a. NBC Brigade.

(1) Introduction. The brigade's mission is to provide C^2 of two to six battalions and other assigned or attached separate companies. The unit provides staff planning and coordination for combat, CS, and CSS operations for all assigned and attached units. Because there are insufficient assets for the entire corps, the allocation of units will be based on the commander's OPLAN. The battalions are assigned missions and assets and will be employed throughout the depth of the battlefield to synchronize effects and maintain initiative and agility to reallocate (as required) based on the commander's priorities.

(2) Table of Organization and Equipment (TOE). Headquarters and headquarters detachment (HDD), chemical brigade, TOE 03472L000.

b. NBC Battalion.

(1) Introduction. The battalion's mission is to provide C^2 of two to five chemical companies (reconnaissance, decontamination, and mechanized/motorized smoke). The battalion provides C^2 of these companies in the COMMZ, corps, and division areas. Battalions are task-organized to provide smoke, decontamination, and/or reconnaissance support with a mix of NBC companies. The brigade organizes NBC battalions for combat based on METT-T.

(2) TOE. HHD, chemical battalion, TOE 03476L100 (corps).

c. NBC Companies.

(1) Introduction. Several types of NBC companies are located in the corps and COMMZ and are organized into NBC battalions. They are not permanently assigned to chemical battalions, and the numbers and types of companies will be based on the numbers and types of MSCs (i. e., divisions) assigned to the combat zone. Units are task-organized by the chemical brigade based on METT-T factors. These units can include mechanized smoke companies, decontamination/reconnaissance companies, NBC reconnaissance companies, biological-detection companies, and dual-purpose smoke/decontamination companies.

(2) TOE.

- Chemical company (smoke/decontamination) (airborne), TOE 03057L100.
- Chemical company (smoke/decontamination) (air assault [AA]), TOE 03057L200.
- Chemical company (decontamination) (corps), TOE 03417L000.
- Chemical company (smoke generator) (mechanized), TOE 03437L000 (Army of excellence [AOE] variant); TOE: 03437F000 (force XXI variant).
- Chemical company (reconnaissance/decontamination) force XXI digitized division (FDD), TOE 03457F000.
- Chemical company (smoke/decontamination) (corps/TAACOM/division), TOE 03467L000.

- Chemical company (biological detection), TOE 03477A000.

d. NBC Heavy Decontamination Companies.

(1) Introduction. The COMMZ may contain heavy decontamination companies. The heavy decontamination company is authorized 15 power-driven decontamination apparatus for support of mission requirements.

(2) TOE.

- Chemical company (heavy division), TOE 03157L100 (National Guard [NG]); TOE 03157L200 (active component [AC]).

- Chemical company (heavy division) (AC/variant), TOE 03157L200.

e. NBC Armored Cavalry Regiment (ACR) Company.

(1) Introduction. The ACR NBC company provides smoke, NBC reconnaissance, decontamination, and NBC staff support to the ACR. Its smoke/decontamination platoon normally supports a cavalry squadron with either large-area smoke or equipment decontamination. However, smoke and decontamination operations cannot be done simultaneously. The LACR operates in much the same way as the ACR and also has an assigned NBC company. The LACR NBC company provides NBC reconnaissance, decontamination, and NBC staff support to the regiment.

(2) TOE.

- Chemical company (reconnaissance/decontamination) (ACR) (light [LT]), TOE 03333L000.

- Chemical company (smoke/decontamination/reconnaissance) (ACR), TOE 03377L100, Wheeled Vehicle Equipped) TOE 03377L200 (tracked vehicle equipped).

- Survival recovery center chemical company (smoke/decontamination/reconnaissance) (ACR) (track equipped) 03377L200.

f. NBC Mechanized Smoke Companies.

(1) Introduction. Mechanized smoke companies have light armor (i.e., ballistic) protection. They have the mobility to operate in support of maneuver forces but are vulnerable to enemy weapons when operating with forward elements. Typical missions include screening battle positions, flanks, and river crossings; obstacle breaching; and deception operations. A company can produce smoke screens up to approximately 3 kilometers (km) in width and several km in depth.

(2) TOE. Chemical company (smoke generator) (mechanized), TOE 03437L000 (AOE variant); TOE 03437F000 (force XXI variant).

g. NBC Wheeled Smoke/Decontamination Companies.

(1) Introduction. The unit provides NBC equipment decontamination, large-area smoke, NBC warning and reporting, and NBC staff support to an Airborne Avenue of Approach (ABN/AA) Division. At Level 1, the unit provides 24-hour NBC staff support. The individual platoons are not capable of performing simultaneous smoke and decontamination operations; however, the company can be tailored to respond to needs for both smoke and decontamination support.

(2) TOE.

- Chemical company (smoke/decontamination), TOE 03057L100.
- Chemical company (smoke/decontamination) (AA), TOE 03057L200.

h. NBC Reconnaissance/Decontamination Companies.

(1) Introduction. The mission of this unit is to provide NBC reconnaissance and equipment decontamination for the FDD. The company is assigned to a chemical battalion (normally at corps level). The unit performs NBC reconnaissance and decontamination missions simultaneously. Reconnaissance and decontamination elements are dedicated to their respective missions. The unit operates 2 thorough equipment and aircraft decontamination sites capable of decontaminating up to 32 vehicles per hour combined (16 vehicles per hour per platoon or 8 vehicles per hour per 2 squads). It also conducts route, zone, area, point, and by-pass NBC reconnaissance.

(2) TOE. Chemical company (reconnaissance/decontamination) (FDD), TOE 03457F000.

i. Biological-Detection Companies.

(1) Introduction. Biological-detection companies support the corps or could be task-organized to provide reports directly to the JFC. Each company is equipped with 35 BIDSs, which are capable of providing a near-real time presumptive identification of specific biological agents. The unit is organized to be employed as a company asset; however, platoon deployments may occur. The company is arrayed to provide coverage through the supported unit's AO or to protect specific high-risk biological targets. One biological-detection company also has three long-range biological standoff detection systems (LR-BSDS) for standoff detection of biological agents (Note: Detection does not equal identification.) The biological-detection company requires CLS for sustainment of the system's biodetection suite, and CLS deploys as an integral part of the unit.

(2) TOE. Chemical company (biological detection), TOE 03477A000.

j. Smoke/Decontamination Companies.

(1) Introduction. Smoke/decontamination companies support both light and heavy divisions. Each of these dual-purpose companies has the ability to set up equipment decontamination sites in support of brigade and division operations or can provide large-area smoke up to 4 km wide. The unit can operate up to 4 thorough (8 tactical vehicles per

hour) or 8 operational decontamination sites. Individual platoons are not capable of performing simultaneous smoke and decontamination operations; however, the company can be tailored to respond to needs for both smoke and decontamination support.

(2) TOE. Chemical company (smoke/decontamination) (corps/TAACOM/division), TOE 03467L000.

k. NBC Reconnaissance Companies.

(1) Introduction. NBC reconnaissance companies provide support for elements of a corps/theater Army (TA). The unit's platoons provide contamination avoidance through route, zone, and area reconnaissance.

(2) TOE. NBC reconnaissance company, TOE 03427L000.

l. Chemical Detachments.

(1) Introduction. The mission of the NBC reconnaissance detachment is to provide NBC reconnaissance support for elements of a FDD. The unit is assigned to an FDD cavalry squadron, TOE 17285F000. The unit has the capability to conduct route, zone, and area NBC reconnaissance to determine the presence and extent of NBC contamination.

(2) TOE. Chemical detachment (reconnaissance), TOE 03219F000.

m. Division-Level NBC Units. The division is converting to a new NBC force structure concept that eliminates the divisional chemical company. Some heavy divisions that have not undergone the structure change may still have the chemical company. Under the new force design, each heavy division will have an NBC reconnaissance platoon which will be organic to the division cavalry squadron. Heavy divisions have an NBC staff organic to the division and receive additional NBC support from the corps when required. Airborne and AA divisions have organic NBC companies. These companies provide smoke, decontamination, and NBC staff support under the OPCON of the division NBC officer. Light infantry divisions do not have organic NBC companies. Light divisions have an NBC staff organic to the division HHC. The parent corps receives a smoke/decontamination company for each light infantry division assigned. The division NBC officer requests appropriate support from the corps when required.

n. ACR/Interim Brigade Combat Team (IBCT).

(1) Introduction. The ACR and the IBCT have an NBC staff organic to the HQ element. The ACR is assigned an NBC defense company with reconnaissance, decontamination, and smoke capability. Additionally, the IBCT is assigned one NBC reconnaissance platoon that is organic to the reconnaissance, surveillance, and target acquisition squadron.

(2) TOE.

- Chemical company (smoke/decontamination/reconnaissance) (ACR), TOE 03377L200.

- NBC Reconnaissance IBCT, TOE 17098F000.

o. NBC Service Organization.

(1) Introduction. The mission of NBC service organizations is to provide or augment NBC reconnaissance, decontamination, and staff support. The numbers and types of units in the TO form the basis for allocation of this support. NBC service organizations are allocated to separate brigades, corps, and other operational-level units. NBC service organizations include JA and JB Teams that provide NBC staff operations support to units over 1 or 2 12-hour shifts. These teams also augment a TOC NBCC to provide NBC staff operations support to units over two 12-hour shifts. The NBC reconnaissance LB Team (Special Forces [SF]) or service equivalent provides an SF group with NBC reconnaissance support in all environments, to include enemy-held, denied, or sensitive territory. It collects NBC intelligence and provides technical knowledge pertaining to the enemy's weapons capabilities, techniques, and dispositions. Additionally, the chemical detachment organic to the HHC of each SF group supports the group with thorough decontamination and limited NBC R&S of the SF operating force.

(2) TOE. Chemical service organization chemical detachment (reconnaissance) (SF), TOE 03529LB00.

p. Modular Force Packing. To meet the requirements for a contingency operation, it may be necessary to form NBC force packages to perform specific tasks. Each force package requires a C^2 cell or HQ. The force package can be built around a company, battalion, or brigade. It will be task-organized to meet the specific needs of the deploying commander.

3. Command and Support Relationships

In the tactical planning process, the NBC brigade staff recommends the appropriate command or support relationship between the NBC unit and the supported unit. This relationship defines the specific responsibilities between supporting and supported units.

a. A command relationship reflects the chain of command and degree of authority. NBC units can operate in various common relationships: assigned, attached, OPCON, or TACON. Assignment is the normal relationship when a parent unit directly commands its subordinate units. In this case, the parent unit is responsible for all command responsibilities, personnel actions, and logistics support. The parent unit may attach a subordinate unit to a supported commander when the parent unit cannot provide adequate logistical support or timely command decisions. Attachment to another HQ means that all command and logistics responsibilities are transferred to the receiving HQ. OPCON is appropriate when a supported unit commander needs task organization authority over NBC units, but the parent NBC HQ can provide continued logistics support. The parent NBC unit coordinates with logistics organizations to make this viable. Further, TACON may be used when command authority is needed to task-assigned or -attached forces.

b. A support relationship represents the manner in which the maneuver unit is to be supported. When a support relationship is established, the parent unit retains command responsibility. The parent unit also remains responsible for logistics needs of that subordinate unit. A general-support (GS) relationship is appropriate when the higher HQ requires central control and flexibility in using limited NBC assets. In this relationship,

support is to the force as a whole rather than to a particular subunit of the force. COMMZ and corps NBC units are normally retained for GS missions unless specific units require a higher degree of responsiveness. A direct-support (DS) relationship provides support that is directly responsive to the needs of a specific combat, CS, or combat service support element (CSSE). It is usually for a single operation or a short period. A higher HQ may use DS when it expects a change to the task organization that will require shifting of NBC units to other locations. This relationship precludes further task organization of the NBC unit by the supported commander.

c. Generally, NBC units at corps and division levels establish support rather than command relationships.

d. Each situation is unique and requires its own solution. Whatever the relationship, NBC unit commanders remain responsible for the missions undertaken by their subordinate elements.

4. Task Organization

NBC units work most efficiently under the control of a parent NBC unit. This organization permits close control and the most productive use of all NBC assets. The commander continuously monitors the progress of assigned tasks and shifts elements where the need is greatest throughout the AO.

a. The decision whether to provide NBC units in a command or a support relationship is a balance between the needs of the higher commander for flexibility and the needs of the subordinate commander for responsiveness.

b. The corps may provide each committed heavy division with an NBC battalion task-organized to support the commander's intent and in a command or support role appropriate for the mission. Light infantry divisions are normally provided a dual-purpose smoke/decontamination company. Units are provided in either a command or support relationship. The NBC unit commander deploys his subordinate elements based on his estimate. The NBC brigade may be required to task organize to provide additional capabilities to functional facilities such as APODs/SPODs.

c. At each echelon, commanders use organizational principles to guide the use of NBC units. Commander's task organize to meet requirements. Mission requirements drive the size and composition of task forces. A mix of NBC units is often necessary to achieve the proper balance of capabilities. The commanders give priority to the main effort. There are not enough NBC assets on the battlefield to handle all tasks. NBC units are not spread evenly across the battlefield but are task-organized to best support the overall scheme of maneuver.

d. A commander controls subordinate elements both by presence and leadership at critical events and through the use of the HQ. The commander at each echelon uses his HQ to control operations. The commander relies upon NBC unit C^2 elements to ensure assigned tasks are successfully executed. These NBC C^2 elements consist of the NBC officer on the supported commander's staff, NBC unit commanders, and the staffs of those units.

5. Roles of the NBC Staff Elements

NBC staff elements are composed of a variety of personnel whose duties support the NBC defense mission. The following paragraphs discuss these elements.

a. TA NBC Officer. The Army service component command normally includes the Army service component command NBC officer (formerly the TA NBC officer). This officer is a member of the Army service component commander's special staff that integrates NBC defense into the Army service component command's plan to sustain Army forces and support joint and coalition operations.

b. Corps NBC Officer. The corps staff includes the corps NBC officer who is a member of the commander's special staff. This officer has staff responsibility within the corps for NBC-related matters in the corps AO, including the use of the NBC battalion/brigade, and is assisted in this task by the corps NBC section. This section prepares NBC annexes, estimates, and SOPs. It operates an NBCC that processes and distributes NBC reports and maintains radiation dose status of corps units. It also prepares fallout predictions and NBC downwind hazard predictions.

c. Division NBC Officer. The division staff includes the division NBC officer who is a member of the commander's special staff. This officer has staff responsibility to the division commander for NBC-related matters in the division AO, including the use of the NBC brigade, and is assisted in this task by the division NBC section. This section prepares NBC annexes, estimates, and SOPs. It operates an NBCC that processes and distributes NBC reports and maintains radiation dose status of division units. It also prepares fallout predictions and NBC downwind hazard predictions.

d. Separate Brigade and ACR NBC Officer. Separate maneuver brigades, ACRs, and LACRs have an NBC officer and NBC section organic to the brigade. Currently, separate brigades are authorized an NBC platoon with smoke, decontamination, and NBC reconnaissance capabilities. ACRs and LACRs have an organic NBC company that provides smoke, decontamination, and NBC reconnaissance support.

e. Brigade NBC Officer. The NBC officer at brigade level (or brigade equivalent) is the primary adviser to the commander on NBC matters. This officer integrates NBC and smoke considerations into the brigade planning process and coordinates current operations in the brigade area. The brigade NBC officer receives required reports from divisional and corps units operating in the brigade area and keeps the brigade staff and the division informed on NBC activities. The NBC officer passes brigade taskings to supporting NBC units on behalf of the commander.

f. Special Forces Group NBC Officer. Special forces groups, airborne (SFGA) have an NBC officer and NCO assigned to the group HQ. They function as a staff section located within the SF operational bases (SFOB). SFGA have NBC detachments organic to the groups under the OPCON of the group NBC officer. These detachments provide NBCC and decontamination support to the SFOB and forward operating bases. When available, LB Teams (special forces reconnaissance) provide NBC reconnaissance support to special forces groups in all environments, to include enemy-held, denied, or sensitive territory.

g. Battalion NBC Officer and NCO. Combat (and some CS) battalions are authorized an NBC officer, and nonmaneuver battalions are authorized an NBC NCO. The battalion NBC officer or NCO serves in the HQ operations (operations and training officer [US Army] [S3]) section and integrates NBC and smoke into the battalion or battalion task force's planning process. This officer monitors execution of the NBC portions of the operation, makes operational reports throughout the operation, and provides other required input to the brigade NBC officer.

h. Company NBC NCO. All TOE companies except HHCs are authorized a company-level NBC NCO. The company NBC NCO is the commander's advisor on NBC defense and smoke and provides the commander with an organic source of NBC expertise for planning and conducting NBC defense operations. This officer ensures that all platoons, squads, and sections can operate their assigned NBC equipment. The NBC NCO trains company personnel to support operational or thorough decontamination operations.

6. Roles of the NBC Unit HQ and Staff Elements

The following paragraphs discuss the roles of the NBC HQ and staff elements.

a. Corps NBC Brigade HQ. The NBC brigade HQ coordinates the CS operations of assigned and attached NBC battalions. The NBC brigade staff integrates NBC defense, to include large-area biological detection, NBC reconnaissance, decontamination, and smoke considerations into corps plans. From its command post, the NBC brigade staff then conducts the detailed planning necessary to implement the tasks assigned by the corps order. The staff's time is primarily spent acquiring and positioning resources needed for future operations.

b. NBC Battalion HQ. An NBC battalion HQ coordinates the CS operations of assigned or attached NBC units. Depending on the types of companies assigned or attached, the battalion can provide smoke, decontamination, and NBC reconnaissance support in its assigned area of the corps. The command or support relationship established in the corps order determines how a division can use a corps battalion in its area. When a battalion is provided to a division, the battalion staff completes the detailed planning from its command post for the division NBC officer who is required to implement tasks in the division order. The NBC battalion HQ can control division companies or other corps companies in addition to its own. When in DS of the division, the battalion is well suited as a C^2 HQ for all NBC operations.

c. NBC Company HQ. As with higher HQ, the company helps the MSC NBC officer fulfill his role as a special staff officer. The MSC NBC officer integrates NBC reconnaissance, smoke, and decontamination into the unit plan. The remainder of his staff and the company do the detailed planning to support the plan. The staff solves or recommends alternatives to logistics problems that prevent completion of any critical NBC task. In some circumstances, the division NBC company may be required to provide a C^2 HQ for attached forces. The company is the lowest NBC echelon that can plan and execute continuous operations in support of tactical forces. The platoons of the company are ideally suited for integration into task force operations and provide the priority task force with the NBC assets to accomplish its mission.

d. NBC Platoon. The NBC platoon is the lowest level conventional NBC unit that can effectively accomplish independent tasks. For that reason, NBC units rarely operate in smaller increments than this and, then, only for specific actions of limited duration. Due to the limited NBC units available, some brigades and task forces may operate without dedicated NBC unit support.

e. Chemical Teams. The LB (reconnaissance) Team (SF) provides NBC reconnaissance support to the SF group in all environments, to include enemy-held, denied, or sensitive territory. It may deploy augmented by Special Forces Operational Detachment A (SFODA) Team members or operate independently. The LB Team is the lowest level that can effectively accomplish independent tasks. Additionally, the SF chemical detachment is a 10-man detachment organized into 2 4-man squads with a captain and NCO in the HQ section. The detachment's missions are decontamination site reconnaissance, hasty exfiltration decontamination, operational decontamination, thorough decontamination, and NBC reconnaissance in rear areas. Additionally, the chemical Teams' (JA and JB) NBC element provides support to NBC TOCs.

7. Army Assets

All Army units are capable of conducting limited NBC defense operations. These operations consist of, but are not limited to, detecting nuclear and chemical contamination; performing immediate and operational decontamination procedures on individuals and equipment; deploying NBC detection devices; and conducting nuclear and chemical monitoring, survey, and reconnaissance operations. The USA NBC force structure includes specialized units providing additional capabilities for NBC detection, identification, survey, reconnaissance, and thorough decontamination. USA units also provide large-area smoke and obscurant support to operations.

a. NBC Reconnaissance Platoon (Heavy Division). The NBC reconnaissance platoon (heavy division) (see Table A-1) is capable of providing route, area, and zone NBC reconnaissance for support of divisional units.

Table A-1. NBC Reconnaissance Platoon (Heavy Division) Equipment

Detection Equipment	Description
M21 Remote Sensing Chemical Agent Alarm (RSCAAL)	Standoff nerve and blister chemical agent vapor detector. Capable of ranges up to 5 km.
Reconnaissance System NBC M93A1 Fox	Vehicle-mounted system designed to detect, identify, and mark NBC contamination.

b. Chemical Company (Smoke/Decontamination) ABN/AA. Each platoon can support either equipment decontamination or large-area smoke; but a platoon cannot perform smoke and decontamination simultaneously or immediately switch between missions without a transition time. Although a platoon can be separated into separate squads for operational decontamination, the entire platoon must be available to support smoke and thorough decontamination missions. Table A-2 depicts the specialized NBC equipment organic to this unit. The unit can provide—

- Three DED sites.

- Three large-area smoke screens, each .6 by 1.4 km wide by several km long.
- Six operational decontamination sites.

Table A-2. Chemical Company (Smoke/Decontamination) ABN/AA Equipment

Decontamination Equipment	Description
Decontaminating Apparatus: High-Pressure Washer Module M22	Washing component of the modular decontamination system.
Decontaminating Apparatus: Decontaminating Solution Number 2 (DS2) Pumper/Scrubber Module M21	Decontaminant application component of the modular decontamination system.
M17 Lightweight Decontaminating System	Portable, lightweight, power-driven decontaminating device.
Tank and Pump Unit, Liquid-Dispensing	Truck-mounted tank and pump unit.
Pump, Centrifugal, 65 Gallons Per Minute (GPM)	Power-driven water pump.
Pump, Centrifugal, 125 GPM	Power-driven water pump.
Tank Assembly, 500-gallon (Gal)	Portable fabric water tank.
Tank Assembly, 3,000-Gal Collapsible	Portable fabric water tank.
Smoke/Obscurant Systems	**Description**
Generator, Smoke, Mechanical Motorized M56	Large-area smoke generation system mounted on a heavy variant high-mobility multipurpose wheeled vehicle (HMMWV).
Generator, Smoke M157	Large-area smoke generation system mounted on a HMMWV.

c. Chemical Company (Reconnaissance/Decontamination) ACR. Table A-3 depicts the specialized NBC equipment organic to this unit. The Chemical Company ACR is capable of providing the following support:

- NBC reconnaissance (route, zone, area, point, and by-pass).
- One DED site.
- NBC staff support.

Table A-3. Chemical Company (Reconnaissance/Decontamination) (ACR) Equipment

Detection Equipment	Description
M21 RSCAAL	Standoff nerve and blister chemical agent vapor detector. Capable of ranges up to 5 km.
Reconnaissance System NBC M93A1 Fox	Vehicle-mounted system designed to detect, identify, and mark NBC contamination.
Decontamination Equipment	**Description**
Decontaminating Apparatus: High-Pressure Washer Module M22	Washing component of the modular decontamination system.

Table A-3. Chemical Company (Reconnaissance/Decontamination) (ACR) Equipment (Continued)

Decontamination Equipment	Description
Decontaminating Apparatus: DS2 Pumper/Scrubber Module M21	Decontaminant application component of the modular decontamination system.
M17 Lightweight Decontaminating System	Portable, lightweight, power-driven decontaminating device.
Tank and Pump Unit, Liquid-dispensing	M923 series 5-ton truck with 2 600-gal water tanks and an integral pump unit.
Pump, Centrifugal, 65 GPM	Power-driven water pump.
Pump, Centrifugal, 125 GPM	Power-driven water pump.
Tank Assembly, 3,000-Gal Collapsible	Portable, fabric water tank.
Tank Assembly, 500 Gal	Portable, fabric water tank.

d. Chemical Company (smoke/reconnaissance/decontamination) ACR. The dual-purpose unit can support only smoke or decontamination at any one time. Table A-4 depicts the specialized NBC equipment organic to this unit. The chemical company is capable of providing the following support:

- NBC reconnaissance (route, zone, area, point, and bypass).
- One DED site.
- Large-area smoke, .6 by 1.4 km by several km long (one platoon).
- NBC staff support.

Table A-4. Chemical Company (Smoke/Reconnaissance/Decontamination) (ACR) Equipment

Detection Equipment	Description
Reconnaissance System NBC M93A1 Fox	Vehicle-mounted system designed to detect, identify, and mark NBC contamination.
Decontamination Equipment	**Description**
Decontaminating Apparatus: High-Pressure Washer Module M22	Washing component of modular decontamination system.
Decontaminating Apparatus: DS2 Pumper/Scrubber Module M21	Decontaminant application component of modular decontamination system.
M17 Lightweight Decontaminating System	Portable, lightweight, power-driven decontaminating device.
Tank Assembly, Fabric, 500-Gal	Portable fabric water tank.
Tank Assembly, Fabric, 3,000-Gal Collapsible	Portable fabric water tank.
Tank and Pump Unit, Liquid-dispensing	M923 series 5-ton truck with two 600-Gal water tanks an integral pump unit.
Pump, Centrifugal, 65 GPM	Power-driven water pump.
Pump, Centrifugal, 125 GPM	Power-driven water pump.
Smoke/Obscurant Systems	**Description**
Generator, Smoke, Mechanical Motorized M56	Large-area smoke generation system mounted on a heavy variant HMMWV.
Generator, Smoke M157A2	Large-area smoke generation system mounted on a HMMWV.

e. Chemical Company (Reconnaissance/Decontamination), Corps, TA Table A-5 depicts the specialized NBC equipment organic to this unit. The chemical company (reconnaissance/decontamination) is capable of providing the following support: (Note: The planning allocation for this unit is generally one SPOD.)

- Operation of 1 thorough or operational decontamination site (8 to 10 vehicles per hour).
- Route, zone, area, or bypass NBC reconnaissance and NBC surveys, surveillance, and sampling.

Table A-5. Chemical Company (Reconnaissance/Decontamination) Corps, TA Equipment

Decontamination Equipment	Description
Decontaminating Apparatus: High-Pressure Washer Module M22	Washing component of the modular decontamination system.
Decontamination Apparatus: DS2 Pumper/Scrubber Module M21	Decontaminant application component of the modular decontamination system.
Detection Equipment	**Description**
Reconnaissance System NBC M93A1 Fox	Vehicle-mounted system designed to detect, identify, and mark NBC contamination.

f. Chemical Company (Biological Detection) Corps. The chemical company, biological detection, is capable of providing five biological-detection platoons and one long-range biological standoff detection detachment. Table A-6 depicts the specialized NBC equipment organic to this unit. (Note: The planning allocation for this unit is generally one per corps and one per NBC brigade for the COMMZ.)

Table A-6. Chemical Company (Biological Detection), Corps Equipment

Detection Equipment	Description
M31/M31A1 BIDS	Detects biological agents. Identifies biological agents. Collects samples.
LR-BSDS (only organic to one biodetection company and requires aviation augmentation)	Detects aerosol clouds. Distinguishes natural from man-made events.

g. Chemical Company (NBC Reconnaissance), Corps, TO. Table A-7 depicts the specialized NBC equipment organic to this unit. The chemical company, reconnaissance, is capable of providing the following support:

- NBC reconnaissance (route, zone, and area).
- Conventional reconnaissance (route, zone, and area).

Table A-7. Chemical Company (NBC Reconnaissance), Corps, TO Equipment

Detection Equipment	Description
M21 RSCAAL	Standoff nerve and blister chemical agent vapor detector. Capable of ranges up to 5 km.
Reconnaissance System NBC M93A1 Fox	Vehicle-mounted system designed to detect, identify, and mark NBC contamination.

h. Chemical team (LA Reconnaissance). Table A-8 depicts the specialized NBC equipment organic to this unit. The chemical team (LA reconnaissance) is capable of providing the following support:

- NBC reconnaissance (route, area, zone, and point).
- Collection of environmental samples.
- Identification/examination of NBC contamination.

Table A-8. Chemical Team (LA Reconnaissance) Equipment

Detection Equipment	Description
M21 RSCAAL	Standoff nerve and blister chemical agent vapor detector. Capable of ranges up to 5 km.
Reconnaissance System NBC M93A1 Fox	Vehicle-mounted system designed to detect, identify, and mark NBC contamination.

i. Chemical team (LB Reconnaissance [SF]). The chemical team (LB reconnaissance [SF]) is capable of providing the following support:

- NBC reconnaissance support.
- Collection, identification, and examination of NBC contamination.
- Expertise in enemy NBC systems and TTP.
- Specialized NBC protective equipment.

j. Chemical team, JA (NBC element [NBCE]). The chemical team JA (NBCE) is capable of providing the following support:

- NBC TOC, 12-hour shift.
- NBCWRS monitoring.
- NBC monitoring.

k. Chemical team JB (NBCE). The chemical team JB (NBCE) is capable of providing the following support:

- NBC TOC, 24-hour staffing.

- NBCWRS monitoring.
- NBC monitoring.

l. Additional Army Units. In addition to units that specialize in NBC defense, there are other types of units that are capable of making significant contributions to NBC defense operations. Table A-9 provides information and data on the types of units and their general capabilities.

Table A-9. Additional NBC Capabilities

UNIT TYPE	EQUIPMENT	CAPABILITIES
Technical Escort Unit	Toxicological agent protective (TAP) suits Chemical detection kits	Planning and performing emergency neutralization and subsequent disposal of chemical agents. Escorting hazardous cargo/material.
Explosive Ordnance Disposal	TAP suits M18A2 chemical detection kits	Detecting, identifying, rendering safe, evacuating, and disposing of conventional as well as improvised NBC weapons.
Theater Medical Lab	Testing equipment	Providing information on identification of biological agents to support commanders' information requirements.

8. NBC Special Staff Responsibilities

Corps, division, brigade, and battalion NBC staff responsibilities encompass actions that range from operations and intelligence to logistics and training. The NBC staff accomplishes its key functional responsibilities and supports its unit's planning and preparation to accomplish missions in an NBC environment.

a. Corps/Division. The corps/division NBC section is part of the corps/division special staff section. It is usually under the direct supervision of the chief of staff. The section helps the commander and staff by providing information, estimates, and recommendations on NBC matters. The members of the NBC section help the principal staff officers prepare plans, orders, and reports. The corps/division NBC officer also recommends, plans, supervises, and coordinates various mission requirements for any organic NBC defense units and nondivisional NBC units assigned, attached, or OPCON to the division.

(1) Intelligence.

- Help the intelligence section analyze and disseminate NBC threat information.
- Ensure that effective downwind messages (EDMs) and chemical downwind messages (CDMs) are passed to subordinate commands, in coordination with the Air Force staff weather officer.

- Receive, prepare, and correlate information on enemy NBC attacks.
- Recommend collection tasks for supporting NBC reconnaissance assets.
- Help the intelligence section evaluate captured NBC-related foreign material. Recommend urgency of evaluation for further exploitation.
- Ensure that the countermeasures developed in the threat analysis are incorporated into division plans and procedures.
- Provide technical assistance for interrogating EPWs about NBC matters.

(2) Personnel.

- Provide recommendations for the assignment of NBC personnel, in coordination with the personnel section.
- Coordinate professional development of subordinate NBC personnel.
- Monitor the use of subordinate unit NBC personnel. Promote the integration of non-NBC personnel into NBC activities.
- Actively participate in NBC personnel and unit force structure planning and programming.

(3) Training.

- Conduct NBC defense training for personnel throughout the command. Monitor the general status of NBC training throughout the command.
- Assist in establishing and reviewing the unit-level mission-essential task list. Provide recommendations to ensure higher-HQ-approved battle tasks can be performed under NBC conditions.
- Promote the total involvement of the chain of command in NBC matters.
- Monitor and inspect subordinate command individual and unit NBC proficiency testing.
- Ensure that NBC training is routinely integrated into training events.
- Ensure that divisional and subordinate command NBC school programs of instruction (POIs) are approved and meet minimum standards and requirements.
- Request training support, as required, from HN resources.
- Plan and integrate NBC training to maximize the use of critical NBC collective tasks.

- Determine training needs through staff visits and evaluations and recommend training to correct deficiencies.

(4) Evaluation.

- Use the results of individual training (i.e., common task training), internal and external evaluations, and informal field training exercises (FTXs) to improve NBC readiness.

- Evaluate NBC readiness through maintenance of NBCDE, use of personnel, and quality of training provided.

- Provide the divisional training branch with assistance as required for support of unit evaluations.

(5) Readiness.

- Receive, collate, and disseminate the NBC readiness status as required by the senior HQ.

- Monitor NBC personnel, equipment, and training shortfalls and recommend policies and programs to improve readiness.

- Periodically inspect the rotation of shelf-life items, inspect load plans for NBC war reserve stocks, and develop plans and SOPs related to NBC defense.

- Ensure NBC readiness is clearly shown in unit status reports.

(6) Logistics.

- Request funding to replace shortages, expendables, and items consumed in training. Monitor equipment status and make requests based on the needs of the command.

- Recommend plans and programs for forward-deployed, pre-positioned stocks of NBCDE and decontaminants.

- Help develop and implement policies and plans related to NBC matters.

- Provide (through divisional NBC unit assets) decontamination planning support for assigned or attached units.

(7) Administration.

- Ensure NBC-related publications are maintained and updated.

- Update NBC portions of divisional SOPs.

- Provide guidance on changes in doctrine, equipment authorization, and new items of equipment to be fielded.

(8) Field Operations.

- Receive, prepare, correlate, and pass information on enemy NBC attacks as the focal point of the division's NBCWRS.
- Monitor the radiation status of subordinate units as required.
- Integrate the NBC threat analysis into the IPB process.
- Establish and operate the division NBCC. Coordinate activities and reports.
- Recommend, plan, supervise, and coordinate mission requirements for any organic NBC defense units and other NBC units assigned, attached, or under OPCON of the division.
- Perform a vulnerability assessment.
- Coordinate with operations personnel, logistics sections, and subordinate commands and allocate NBC equipment and personnel to those subordinate commands.
- Provide NBC estimates and input them into combat plans and orders.
- Recommend employment of organic and supporting NBC unit assets, based upon tactical situations.
- Provide priorities of support and priorities of effort for NBC units in DS to the corp/division.

b. Brigade/Regiment. The unit's (i.e., regiment and brigade) NBC sections consist of the NBC officer and an NBC staff NCO. The NBC officer works as a special staff officer under the staff supervision of the brigade senior staff officer, usually the S3 or executive officer (XO). Through staff visits, coordination, and inspections of subordinate units—the brigade NBC section serves as a focal point for NBC operations. It assists subordinate units in all NBC defense areas to improve NBC readiness.

(1) Intelligence.

- Provide technical assistance to the intelligence section for analysis of the NBC threat and indigenous TIM facilities and ensure that PIRs and threat information are reflected in unit OPLANs and SOPs.
- Help subordinate units in their threat analysis and evaluate/disseminate key information.
- Integrate NBC reconnaissance assets into the unit's R&S plans.

(2) Personnel.

- Provide recommendations concerning the assignment of NBC personnel.
- Help professional development of subordinate unit NBC personnel.
- Ensure the proper use of subordinate unit NBC personnel and promote the integration of non-NBC personnel into NBC activities.

(3) Training.

- Monitor NBC defense training and integration of NBC defense tasks in all aspects of training.
- Determine training needs through staff visits and evaluations. Recommend the training that is required to correct deficiencies.
- Assist in establishing and reviewing the unit-level mission-essential task list. Provide recommendations to ensure that battle tasks can be performed under NBC conditions.
- Project training ammunition requirements to support NBC defense needs in coordination with training and logistical representatives.
- Provide NBC technical staff help to subordinate units. Explain individual and collective training policies, procedures, and guidance.
- Plan and coordinate NBC training.
- Ensure the achievement of at least minimum standards of proficiency by all individuals and units.
- Make maximum use of installation or area NBC defense courses. Ensure quotas are provided to units needing them most.
- Ensure the medical training in a contaminated environment is included in exercises.

(4) Evaluation.

- Use the results of training and evaluation plan evaluations, unit evaluations, internal and external mission training plan (MTP) evaluations, and FTXs to improve NBC readiness.
- Evaluate NBC readiness through the maintenance of NBCDE, use of funds, use of personnel, and quality of training provided.
- Monitor and evaluate subordinate unit's NBC proficiency.

(5) Readiness.

- Help subordinate units determine authorizations and forecast NBC equipment needs to support training and war reserve stockage.

- Help logistics personnel cross-level NBCDE to obtain the best possible overall readiness posture.

- Inspect the rotation of shelf-life items and load plans for NBC war reserve stocks.

- Monitor and recommend input of NBC-related data into unit status reports. Correct deficiencies if possible.

(6) Logistics.

- Help logistics and maintenance personnel follow up on outstanding requisitions and NBC equipment maintenance procedures and priorities.

- Conduct spot checks of subordinate unit NBC equipment on hand and on requisition.

- Ensure subordinate units forecast sufficient funds to replace shortages, expendables, and items consumed in training or deployments.

- Help develop plans that provide guidance on the rotation of forward pre-positioned stocks of NBCDE and decontaminates.

- Develop plans for equipping and training mission-essential civilians.

(7) Administration.

- Maintain the NBC annex to the brigade SOP.

- Maintain and update NBC-related publications.

- Maintain close contact with subordinate units and higher HQ. Keep them abreast of NBC activities.

(8) Field Operations.

- Receive, prepare, correlate, and disseminate information on enemy NBC attacks.

- Consolidate the battalion's radiation status. Report this information to the division as required.

- Provide MOPP level recommendations that are appropriate for the enemy threat and the tactical situation.

- Integrate the NBC threat analysis into the IPB process.

- Establish and operate the brigade NBC subcollection center. Coordinate activities and reports with the appropriate HN territorial organization.

- Perform a vulnerability assessment.

- Recommend the employment of supporting NBC reconnaissance, smoke, and decontamination assets.

- Report NBCDE and personnel shortfalls to the division NBC section.

- Provide NBC input to plans, orders, and SOPs.

- Plan for the brigade NBC staff personnel to assume the mission of the division NBCC should the division NBCC become nonoperational.

c. Battalion/Squadron. Battalion/squadron NBC personnel may consist of the NBC officer, an NBC NCO, and an NBC specialist. (Note: A battalion staff officer can be appointed as an additional duty NBC officer if an NBC specialist is not available.) The battalion NBC section trains personnel and helps plan NBC operations. It also helps subordinate unit NBC NCOs. It recommends to the logistics section the use of funds for NBC equipment and supplies. It must periodically report authorizations and on-hand and on-requisition statuses.

(1) Intelligence.

- Provide technical assistance to the intelligence section for analysis of NBC threat and indigenous TIM facilities and ensure that PIRs and threat information are reflected in unit OPLANs and SOPs.

- Receive, relay, and disseminate information on enemy NBC attacks.

- Ensure that key personnel receive an appropriate, specific NBC threat briefing pertaining to their mission. Also, ensure that other newly assigned personnel receive an unclassified NBC threat briefing.

(2) Personnel.

- Serve as the professional developer for subordinate NBC NCOs. Provide appropriate military occupational specialty (MOS) related training for subordinate NBC NCOs and monitor their assignments within the organization.

- Ensure full use of subordinate NBC personnel. Promote the integration of subordinate non-NBC personnel into NBC activities.

- Maintain the personnel status of NBC NCOs (arrivals, departures, and projected assignments). Report the personnel status of NBC personnel to the commander and higher HQ NBC section.

- Provide technical information to help the personnel section prepare casualty forecasts.

(3) Training.

- Coordinate and monitor battalion NBC defense training. Ensure the integration of NBC defense training in all aspects of training.

- Assist in establishing and receiving the unit-level mission-essential task list. Provide recommendations to ensure that battle tasks can be performed under NBC conditions.

- Evaluate individual and collective NBC training. Determine training needs and recommend the training that is required to correct deficiencies.

- Project NBC training ammunition requirements in coordination with training and logistics personnel.

- Train and supervise a crew from the battalion to conduct operational decontamination.

(4) Evaluation.

- Evaluate the unit's ability to operate under NBC conditions.

- Use the results of unit drills, training and evaluations, and other evaluations to improve NBC readiness.

(5) Readiness.

- Monitor NBC equipment status.

- Determine authorizations and forecast NBC equipment needs to support training and basic loads.

- Advise the logistics section on the shelf life and rotation of NBC stocks.

- Ensure that all contingency NBC equipment is included in unit load plans.

(6) Logistics.

- Coordinate with the logistics section and monitor the expenditure of funds provided for NBCDE.

- Monitor outstanding requisitions and NBCDE maintenance.

- Forecast and monitor inventories of NBCDE as required by higher HQ in coordination with unit NBC NCOs.

- Recommend the use of funds needed to replace shortages, expendables, and items consumed in training based on authorizations contained in appropriate publications.

- Conduct periodic NBC equipment inspections.

- Supervise the NBCDE calibration program. Integrate the unit's calibration program with the battalion's calibration program.

(7) Administration.

- Maintain the NBC annex to the battalion's SOP.

- Maintain and update NBC-related publications.

- Maintain close contact with subordinate units and higher HQ. Keep them abreast of NBC activities.

(8) Field Operations.

- Receive, correlate, and disseminate information on NBC attacks.

- Consolidate subordinate units' OEG and radiation status information. Report this information to higher HQ as required.

- Perform MOPP analysis.

- Integrate the NBC threat analysis into the IPB process.

- Organize and establish, as required, a battalion NBC section. Coordinate and supervise the activities of radiological survey and monitoring and NBC detection teams.

- Recommend the use of supporting decontamination, NBC reconnaissance, and smoke assets.

- Coordinate decontamination missions conducted with or without support from a decontamination-specific unit.

- Report NBC equipment and personnel shortfalls to higher HQ.

9. Battlefield Functions for Commanders

The following functions are designed to provide the user of the publication an indication of NBC functions performed by various commanders and staff officers (Table A-10). The list is not all-inclusive. Other functions may be identified for different staff officers and commanders based on the current factors of METT-T and local SOPs. The level of involvement in each function by the different elements will depend on the stated function.

This table implements STANAG 2353, Evaluation of NBC Defense Capability

Table A-10. NBC Functions

FUNCTION	Commander	Personnel Officer	Intelligence Officer	Operations Officer	Logistics Officer	Civil Operations Officer	Other Special Staff Sections
1. Identify, apply, or recommend collateral damage and individual safety constraints.	X		X	X		X	FSE and NBC
2. Identify items to be included in the commander's NBC guidance.	X	X	X	X	X	X	FSE, NBC, and Staff Judge Advocate
3. Predict fallout and downwind vapor hazards and their probable effects on operations.							NBC
4. Maintain and report cumulative radiation dose status.		X		X			Surgeon & NBC
5. Recommend OEG and MOPP.		X					Surgeon & NBC
6. Maintain discipline, law, and order. The fragmentation of units and C^2 elements creates large numbers of stragglers.		X					Security
7. Establish straggler-control points.		X					Security
8. Supervise the preparation of area damage control plans.				X	X		Engineer (ENGR) & Rear Area Damage Control Officer (RADCO)
9. Maintain installation force protection plan.				X			NBC
10. Advise on the collateral impact of the use of nuclear weapons.			X	X			FSE & NBC
11. Advise on the impact of the enemy's use of NBC weapons on the civilian population.			X			X	NBC
12. Develop population center overlays used to minimize/preclude damage to population centers.						X	FSE

Table A-10. NBC Functions (Continued)

FUNCTION	Commander	Personnel Officer	Intelligence Officer	Operations Officer	Logistics Officer	Civil Operations Officer	Other Special Staff Sections
13. Develop a radiological and chemical monitoring and survey plan.			X				NBC
14. Determine the effects of a unit's radiation exposure status (RES) on mission assignments.		X		X			Surgeon & NBC
15. Be responsible for resupply of CP clothing.					X		
16. Develop plans for handling mass casualties (such as medical evacuation, andGRREG/hasty burials) and replacements.	X	X		X	X	X	Surgeon & Chaplain
17. Prepare area damage control plans.				X	X		Base Cluster, RADCO, & ENGR
18. Develop a target engagement priority list based on the commander's guidance.			X	X			FSE & NBC
19. Establish procedures for rapid fire support planning/execution within target nominal dwell times.			X	X			FSE
20. Conduct an NBC vulnerability analysis.			X	X			FSE & NBC
21. Disseminate the Strike Warning (STRIKEWARN) message and NBC 3 nuclear message.				X			NBC
22. Integrate NBC reconnaissance support into the maneuver plan.	X			X			NBC
23. Apply the appropriate fire techniques/procedures that facilitate the integration of obscurants into conventional fire support plans.							FSE & NBC
24. Determine OPSEC requirements.		X	X				Signal (SIG)
25. Task-organize and employ intelligence-gathering assets for timley engagement of targets.			X				FSE
26. Task appropriate agencies for poststrike analysis.			X	X			FSE
27. Prepare OPLANs that support battlespace operations.	X	X	X	X	X	X	FSE, NBC, & ENGR
28. Modify the administration and logistical plan based on the operational situation.		X			X	X	

Table A-10. NBC Functions (Continued)

FUNCTION	Commander	Personnel Officer	Intelligence Officer	Operations Officer	Logistics Officer	Civil Operations Officer	Other Special Staff Sections
29. Determine the effects of the enemy's use of NBC weapons on OPLANs.	X	X	X	X	X	X	FSE & NBC
30. Modify the tactical plan based on the operational situation.	X	X	X	X	X	X	All
31. Plan and recommend requirements for NBC units and their employment.							NBC
32. Prepare the smoke/NBC annex to plans, orders, NBC estimates, and SOPs.							NBC
33. Plan EDM preparation and distribution.			X				NBC
34. Collate, evaluate, and distribute NBC contamination and TIM release data and maintain the NBC situation map.							NBC
35. Advise on NBC and TIM facility intelligence matters and countermeasures.				X	X	X	NBC & Surgeon
36. Advise on NBC intelligence matters and countermeasures (for example, smoke).			X				NBC
37. Advise on the use of RCAs and herbicides in support of tactical operations.							NBC & Security
38. Support verifying enemy first use of CB warfare.			X			X	Surgeon & NBC
39. Advise on clearing obstacles and hazards created by enemy NBC employment.							ENGR & NBC
40. Construct NBC shelters and use earthmoving equipment in NBC decontamination operations.							ENGR & NBC
41. Locate uncontaminated water supplies							Quarter-master (QM), PVNT MED, & NBC
42. Maintain control on MSRs.					X		Security

Table A-10. NBC Functions (Continued)

FUNCTION	Commander	Personnel Officer	Intelligence Officer	Operations Officer	Logistics Officer	Civil Operations Officer	Other Special Staff Sections
43. Advise the commander on protective measures against EMP effects on communications–electronics (CE) equipment.							SIG & NBC
44. Plan for the use of helicopters for aerial radiation surveys, damage assessments, and biosurveillance.				X	X		NBC & FSE
45. Plan for the use and maintenance of collective protective equipment (CPE).	X			X	X		NBC
46. Plan and supervise NBC detection, identification, and marking operations; supervise crossing of contaminated areas; and estimate and calculate NBC hazards.							NBC & Surgeon
47. Advise the commander and staff on current NBC situations and threat; assess unit status; assess personnel hazards; prepare, calculate, and disseminate NBC reports/STRIKEWARN.			X	X			FSE & NBC
48. Plan and superviseNBC detection, identification, and marking operations, supervise crossing of contaminated areas; and estimate and calculate NBC and TIM release hazards..	X		X	X			NBC
49. Analyze the effects of weather and terrain on NBC and smoke operations.			X				NBC
50. Plan, coordinate, supervise, conduct and control NBC reconnaissance, NBCC, decontamination, smoke unit operations, and TIM accidents and incidents.						X	NBC & Surgeon
51. Plan the intergration and employment of flame operations.				X			NBC & ENGR
52. Conduct missions and supervise operations under NBC conditions.	X	X	X	X	X	X	NBC
53. Describe and estimate the effects of smoke and NBC operations on the unit's mission.	X	X	X	X	X	X	NBC

10. NBC Defense Assets

Different items of NBC defense equipment are routinely used. These items consist of individual as well as CP systems and various detection and decontamination devices. Table A-11 indicates potential NBC defense resources.

Table A-11. NBC Defense Equipment

INDIVIDUAL PROTECTION EQUIPMENT	DESCRIPTION
Nerve Agent Antidote Kit (NAAK)	The kit consists of an autoinjector with two chambers that contain atropine and pralidoxime chloride. The autoinjector provides both antidote agents through a single injection. Atropine is injected first followed by the pralidoxime.
Convulsant Antidote for Nerve Agent (CANA) Automatic Injector	Diazepam autoinjector.
Pyridostigmine Bromide (PB) Tablets	Nerve Agent Pyridostigmine Pretreatment (NAPP). It is an investigative new drug.
CP Cover, Helmet	CP helmet cover.
Suit, Chemical Protective: Battle Dress Overgarment (BDO)	Military standard CB protective overgarment.
JSLIST	The suit replaces the current BDO. Washable up to six times. Reduces heat stress.
Suit, Contamination Avoidance Liquid Protective (SCALP)	Inexpensive, lightweight, and disposable. Worn over the BDO or combat vehicle crewman (CVC) uniform if the chemical protective undergarment (CPU) is worn.
TAP Apron	Impermeable butyl rubber apron.
CPU	Two-piece undergarment. The CPU and uniform constitute MOPP1. Washable one time.
Gloves, CP Rubber	CP gloves.
Overboot, Black Vinyl (BVO)	CP overboot.
Overboot, Green Vinyl (GVO)	CP overboot.
Cover, Footwear, CP, Rubber	CP footwear covers.
All M40-, M42-, M45-, M48-Series Mask, Chemical-Biological Protective: Field	The mask protects the wearer against all known CB agents.
M17A2 Mask, Chemical-Biological Protective Field	The mask protects the wearer against all known CB agents.
DT-236 Dosimeter, Wristwatch	Tactical, gamma total dose instrument. Read by AN/PDR-75 radiation detection, identification, and computation (RADIAC) set.

Table A-11. NBC Defense Equipment (continued)

COLLECTIVE PROTECTIVE EQUIPMENT	DESCRIPTION
M20 Simplified Collective Protective Equipment (SCPE)	Room liner for preexisting structures with integral filtration and blower system.
M28 Simplified Collective Protective Equipment	Field deployable, inflatable collective protective liner system for use inside temper tents.
Chemical-Biological Deployable Medical System (CB DEPMEDS)	Provides CB protection for selected sections of the DEPMEDS-equipped hospitals. Room liner for preexisting structures with integral filtration and blower system.
Chemical-Biological Protective Shelter (CBPS).	A soft shelter system that attaches to the rear of an enhanced capabilities vehicle. Provides CB protection for battalion aid stations and medical company treatment facilities.
Fixed Installation Filters (FIF)	Provide protection against NBC materials in the contained air inside buildings. Can be used continuously or intermittently to complement the ventilation system.
DETECTION EQUIPMENT	**DESCRIPTION**
M8A1 Automatic Portable Alarm, Chemical Agent,	Point detector for nerve agent vapors.
M22 Automatic Chemical Agent Alarm (ACAA)	Advanced point detector. Detects nerve and blister agents. Will replace or complement the current M8A1.
CAM	Point detector for nerve and blister agent vapors.
M8 Chemical Agent Detection Paper	Paper detects nerve agents G and V and blister agent H.
M9 Chemical Agent Detection Paper	Paper provides nonspecific detection for nerve and blister agents.
M18A2 Chemical Agent Detector Kit	Portable chemical agent detector kit. Detects nerve, blister, blood, and choking agents in vapor or liquid form. Primarily used by EOD units.
M256A1 Chemical Agent Detector Kit	Portable, disposable chemical agent detector kit used to detect nerve, blood, or blister agent vapors.
M272 Water Testing Kit	Portable kit used to test for nerve, blood, and blister agent concentrations in raw or treated water.
IM-93 Dosimeter	Tactical, self-indicating gamma total dose instrument. Range 0 - 600 radiation absorbed dose (Rad).
AN/VDR-2 RADIAC Set	Lightweight, auto-ranging, portable RADIAC instrument. Used for area surveys and personnel monitoring. Dose rate range .01 millirads (mrad)/hour to10,000 rad/hour. Dose range 1-1,000 rad.
AN/PDR-56 RADIAC Set	Portable scintillation instrument used to detect alpha radiation.
AN/PDR-75 RADIAC Set AN/PDR-77 RADIAC Set	Reader for DT236 low-level RADIAC instrument.
M21 RSCAAL	Standoff, automatic scanning, passive infrared sensor that detects nerve and blister vapor clouds up to 5 km range.

Table A-11. NBC Defense Equipment (Continued)

DECONTAMINATION MATERIAL	DESCRIPTION
M291 Skin Decontamination Kit, Individual	Individual decontamination kit for skin and personal equipment.
M295 Decontamination Kit, Equipment	Kit replaces the M258A1/M280 decontamination kit for larger items of personal equipment that the M291 cannot accommodate.
Patient Decontamination, Medical Equipment Set and Chemical Patient, Medical Treatment Set	Nontoxic. Provides supplies and equipment for decontamination and medical treatment of NBC patients at MTFs.
M11 Decontaminating Apparatus 1 1/3 Quart	Refillable DS2 decontaminant dispenser.
M12A1 Power-Driven Decontaminating Apparatus (PDDA)	Vehicle-mounted, gasoline engine-driven decontaminating device.
M13 Decontaminating Apparatus, Portable (DAP)	Nonrefillable, DS2 decontaminant application system.
M17 Power-Driven Decontaminating Apparatus, Lightweight	Portable, lightweight, power-driven decontaminating device.
M21/M22 Modular Decontaminating System (MDS),	Portable, lightweight, decontaminating device. Comprised of the M21 DS2 pumper/scrubber unit and the M22 high-pressure washer unit. Replaces the M12A1 and M17 lightweight decontamination system (LDS) in chemical units.
Detergent, General Purpose Liquid	Liquid soap used for decon
Detergent, Wetting Agent (Powder)	A dry substance is mixed with the calcium hypochlorite when liquid detergent is unavailable to ensure complete wetting of surfaces.
Decontaminating Agent, Supertropical Bleach (STB)	Standard military bleach-based CB decontaminant.
Decontaminating Agent, Calcium Hypochlorite, High Test Hypochlorite (HTH)	Nonstandard bleach decontaminant with a higher chlorine content used in lieu of STB.
DS2	Standard military liquid CB decontaminant. Highly corrosive to metal and may soften paint. DS2 will not soften chemical agent resistant coating (CARC) paint.
Fuller's Earth	Absorbent powder decontaminant.
MISCELLANEOUS	**DESCRIPTION**
AN/PP-1578/PD Charger, Dosimeter	Charger is used to zero (charge) the IM-93 dosimeter.
M41 Protection Assessment Test System (PATS)	Portable on-the-face seal verification device for the M17A2, M40/M40A1, and MCU-2A/P-series protective masks or any mask with a US standard external/internal drinking tube installed.
Multipurpose Integrated Chemical Agent Alarm (MICAD)	Networking system for NBC detectors, sensors, and alarms. Automates the NBCWRS. Formats and transmits NBC 1 and NBC 4 reports.
NBC Marking Set	Portable kit consisting of flags, stakes, crayons, and tape to mark contaminated areas.
Joint Warning and Reporting Network (JWARN).	Software system which integrates data from NBC detectors, meteorological (MET) sensors, global-positioning system (GPS) receivers, etc. The system will analyze information and compile and disseminate appropriate reports

Appendix B

USN CBR CAPABILITIES

Naval forces must be prepared to conduct prompt, sustained, and decisive combat operations in a CBR defense environment, both afloat and ashore. The CBR threat to Naval forces extends across the spectrum of conflict from terrorist incidents during general peace to regional low-level conflicts to general war. Naval responses to CBR events may vary according to the unit's assigned mission and employment. These Naval units will be divided into broad warfare areas: shipboard CBR defense vessels, expeditionary warfare, Naval installation, Naval aviation, and medical capabilities. See Tables B-1 through B-11 for information on CBR assets available to Naval units, ashore and afloat.

1. Shipboard CBR Defense

Actions are outlined in NWP 3-20.3, *Surface Ship Survivability;* NWP 3-02.1*, Ship to Shore Movement;* Naval Ships Technical Manual (NSTM) 470, *Shipboard BW/CW Defense;* and NTSM 070, *Radiological Recovery of Ships*. Shipboard CBR defense (CBRD) capabilities are focused on the survivability of the unit and are conducted primarily by the shipboard damage control organization. Threat analysis, hazard prediction, and message reports are the responsibility of the ship's operations department. The primary advisor to the commanding officer for CBRD actions is the damage control assistant (DCA). The damage control organization includes personnel assigned to damage control repair stations, standoff detector operators, countermeasure wash down system operators, ventilation control personnel, on-station monitors, survey teams, decontamination teams, and personnel decontamination station operators coordinated through the damage control center (DCC). Medical personnel are integrated into the shipboard CBRD organization. Shipboard personnel may be required to conduct CBRD actions with a variety of routinely embarked units, including Navy staffs, Naval aviation squadrons and detachments, USMC units, Naval special warfare units, EOD personnel, elements of Naval beach groups (NBGs) assault craft units, USCG law enforcement detachments, and US Army aviation units.

2. Expeditionary Warfare CBRD

Expeditionary units include Naval construction forces (NCFs), amphibious construction forces, elements of the NBG, expeditionary logistics support forces (ELSF)/cargo handling battalions, Naval special warfare units, Naval fleet hospitals, EOD, and Naval coastal warfare units. These units deploy with organic CBRD capabilities for individual protection, self-decontamination, and limited equipment decontamination. Naval coastal warfare (NCW) operations provide for protection of strategic shipping and Naval vessels operating at a fixed location within the in-shore/coastal area, anchorages, and harbors (from bare beaches to sophisticated port facilities) to ensure the uninterrupted flow of strategic cargo and units to the combatant commander. Harbor defense is a resource-intensive operation that requires a sustained presence and includes key functions such as port security and FP. USCG port security units (PSUs) are integrated into NCW operations. The NBG furnishes the Navy elements of the combined Navy and USMC landing force support party (LFSP). Primarily a beach master unit (BMU), the NBG provides the commander, amphibious task force (CATF) and the commander, landing force (CLF) with beach traffic control; causeway construction; ship-to-shore bulk fuel systems installation

and management; limited construction capabilities; surfzone and beach salvage capability; and a mobile C^2 capability. The BMU facilitates the flow of troops, equipment, and supplies across the beaches during an amphibious assault and aids in the evacuation of casualties, refugees, and EPWs as required. In a larger scale operation, the NBG provides similar services during a joint logistics over-the-shore (JLOTS) operation. The NBG elements and construction battalion units integrate their CBRD plans with those of supported units.

3. Naval Installations CBRD Actions

Planning for installation CBRD is the responsibility of the installation disaster preparedness officer (DPO). The DPO prepares an installation plan to include preparation, endurance, and recovery from a natural or man-made disaster, including a CBR event. The DPO directs personnel capable of conducting radiation surveys and plotting chemical contamination areas. The DPO ensures that personnel will be capable of functioning in a contaminated environment using various detection equipment and protective gear. The DPO directs emergency response teams, coordinates decontamination operations, assists in the C^2 operations center, and helps to establish CPSs.

4. Naval Aviation CBRD

Actions are linked to the unit's operating platform, either ship-based aviation or land-based aviation.

5. Navy Medical Capabilities

The primary responsibilities of the medical department representatives (MDRs) are to triage and treat casualties; organize medical supplies; and conduct training in CBR hazards, self-aid, and first aid. The MDR provides information to the cognizant commander concerning potential CBR exposures and advises the DCA in recommending decontamination procedures for CBR agents. The MDR is responsible for food/water inspections and reports any unusual occurrences of disease/infection. The MDR also distributes antidotes/medications in coordination with the DCA.

Table B-1. Navy Afloat CBR IPE

Equipment	Description
CP Garment	Smock and trousers
Protective Masks	MCU-2 A/P, MCU-2P
Medical Items	Atropine, 2-PAM Chloride, PB, CANA
Aircrew Protection	Mask AN/PV 23P (versions 1 through 4)

Table B-2. Navy Ashore CBR IPE

Equipment	Description
CP Garment	Smock and Trousers
Protective Masks	M-40, M-45, MCU-2P, MCU-2A/P
Medical Items	Atropine, 2-PAM Chloride, PB, CANA
Aircrew Protection	Mask AN/PV 23P (versions 1 through 4)

Table B-3. Navy Afloat Chemical Detection Equipment

Equipment	Description
AN/KAS-1A Chemical Warfare Directional Detector	Shipboard-mounted or portable unit that performs passive infrared imaging detection to remotely identify nerve agent clouds. Consists of a sensor unit, a pivot mount, a power conversion unit, a stowage case, a maintenance kit, an overboard lanyard, and a foul-weather cover.
Chemical Agent Point Detection System (CAPDS)/Improved Point Detection System (IPDS)	The CAPDS is a hard-installed, continuously operating device that samples the ambient outside air and sounds an alarm when chemical nerve agents (vapors) are detected. Consists of two sensor units, one on either side of the ship. Detects only nerve agents. Being replaced by the IPDS. The IPDS is a fixed-point detection system for chemical nerve and blister agent vapor hazards.
M256A1 Chemical Agent Detector Kit	Portable, disposable kit that can detect and identify nerve, blister, or blood agents. Consists of 12 individually packaged sampler/detectors, instruction cards, and a packet of M8 detector paper.
M8 Chemical Agent Detector Paper	Chemically treated, dye-impregnated, perforated paper issued in a book of 25 sheets with a color comparision chart on the inside front cover. Capable of detecting and identiying nonpersistant (G) nerve agent, vesicants (H), and persistant (V) nerve agents.
M9 Chemical Agent Detector Paper	Chemically treated, dye-impregnated, adhesive backed paper, issued in 30-foot roll inside a cardboard box with a metal cutter.
Civil Defense Draeger Tubes	Test equipment consists of a handheld bellows pump and hermetically sealed detector tubes containing silica gel mixed with reagent designed for specific gases. Used to test for gases, including phosgene.
Shipboard Automatic Chemical Agent Detection and Alarm (ACADA)	Shipboard alarm used to detect select CW agents.

Table B-4. Navy Ashore Chemical Detection Equipment

Equipment	Description
M256A1 Chemical Agent Detector Kit	Portable, disposable kit that can detect and identify nerve, blister, or blood agents. Consists of 12 individually packaged sampler/detectors, instruction cards, and a packet of M8 detector paper.
M8 Chemical Agent Detector Paper	Chemically treated, dye-impregnated, perforated paper, issued in a book of 25 sheets with a color comparision chart on the inside front cover. Capable of detecting and identiying nonpersistant (G) nerve agents, vesicants (H), and persistant (V) nerve agents.

Table B-4. Navy Ashore Chemical Detection Equipment (continued)

Equipment	Description
M9 Chemical Agent Detector Paper	Chemically treated, dye-impregnated, adhesive backed paper, issued in a 30-foot roll inside a cardboard box with a metal cutter.
Shipboard ACADA	Portable automated chemical detection system to detect selected chemical agents.
Civil Defense Draeger Tubes	Test equipment consists of a handheld bellows pump and hermetically sealed detector tubes containing silica gel mixed with reagent designed for specific gases. Used to test for gases, including phosgene.
CAM and Improved CAM	Battery-operated, man-portable monitoring system designed to detect nerve and blister agent vapors down to the lowest concentrations that affect personnel over a short period of time.

Table B-5. Navy Afloat Biological Detection Equipment

Equipment	Description
IBADS	The IBADS is a point detector used to monitor, detect, collect, and presumedly identify BW agents.

Table B-6. Navy Ashore Biological Detection Equipment

Equipment	Description
Detector System, Biological Agent: Joint Portal Shield, M99	The M99 detects and presumedly identifies target biological agents. Provides communication equipment to alert the CP computer operator or HQ. Provides a method to collect agent samples for laboratory confirmation analysis.

Table B-7. Navy Radiological Defense Detection Equipment

Equipment	Description
AN/PDR-27 RADIAC Set	Portable, battery-operated, Geiger-Müeller-type-RADIAC instrument that serves as the Navy's standard low-range beta/gamma survey instrument. Comes with two probes and measures gamma radiation on four scales, 0 to 0.5, 0 to 5, 0 to 50, and 0 to 500 milliroentgens/hour.
AN/PDR-43 RADIAC Set	A pulsed (time-controlled) end window Geiger-Müeller type RADIAC instrument that serves as the Navy's standard high-range beta/gamma survey instrument. Measures gamma radiation on four scales, 0 to 0.5, 0 to 5, 0 to 50, and 0 to 500 roentgens/hour and detects beta radiation.
AN/PDR-56 RADIAC Set	A portable scintillation-type instrument used for the detection of alpha radiation. The RADIAC indicates on a meter the rates per minute of alpha radiation in proportion to the number of alpha particles adhering to the equipment probe.
AN/PDR-65 and AN/PDR-65A RADIAC Sets	These RADIAC sets are the Navy's standard fixed instruments for measuring gamma radiation intensity and providing dose information. Meaures gamma intensities to 10,000 centigray per hour; records cumulative dose from 9 to 999 rads.

Table B-7. Navy Radiological Defense Detection Equipment (continued)

Equipment	Description
AN/VDR2 RADIAC Set	Digital, auto-ranging dose rate meter and dosimeter that detects and measures gamma and beta radiation. Major components are the RADIAC meter, probe, pouch with strap, and converter receptacle.
DT-60C/PD Personnel Dosimeter	High-range, non-self-reading dosimeter that consists of a special phosphate glass housed in a moisture-proof plastic case measuring 1.5 inches in diameter. Designed to be worn around the neck.
CP-95A/PD Dosimeter Reader	Designed to read the DT-60 personnel dosimeter. Will operate satisfactory over a range of 0 to 200 roentgens in 10-roetgen steps, with 0 to 1000 roentgens in 20-roentgens steps, with each 100 roentgens a major subdivision.
IM-143B/PD Pocket Dosimeter	A pen-like, self-reading pocket dosimeter designed to read gamma radiation exposure in the 0 to 600 roentgen range. Must be charged and zeroed prior to use with the PP-4276 detector charger.
AN/PDR-75 RADIAC Set (Wristwatch and Computer Indicator)	Two-part set composed of the DT-236/PDR-75 individual wristwatch dosimeter for detection and the CP-696/PDR-75 computer indicator. Reading device for measuring individual exposure of accumulated neutron-induced and gamma radiation.

Table B-8. Navy Afloat Decontamination Equipment

Equipment	Description
M291 Individual Skin Decontamination Kit	Used to remove contamination from exposed skin and equipment.
Fire hoses	Used to support removal of contamination.
M295 Decontamination Kit, Individual Equipment	Decontamination kit for larger items of personal equipment than the M291 can accommodate. Nontoxic.
Countermeasure Washdown System	Installed water washdown system used to remove contamination from external shipboard surfaces.
HTH	Decontaminant for chemical agents.
Personnel Decontamination Station Equipment	Used for shipboard decontamination of personnel.

Table B-9. Navy Ashore Decontamination Equipment

Equipment	Description
M12 Decontaminating Apparatus	Power-driven, skid-mounted, 500-gal capacity decontaminating apparatus used to mix and spray decontaminant solutions.
M17 Decontamination Apparatus	Power-driven, portable, lightweight decontaminating system designed to draw water from any source and deliver it at high pressure and temperatures.

Table B-10. Navy Afloat Collective Protective Systems

Equipment	Description
CPS	Installed on ships during initial construction.
Selected Area Collective Protective System (SACPS)	CP system backfit on ships for selected area protection.

Table B-11. Navy Ashore Collective Protective Systems

Equipment	Description
M20 SCPE	Lightweight, mobile, overpressure system that provides a clean-air shelter from CB warfare agents and radioactive particles.
M28 SCPE	CP system integrated into building designs for selected area protection.

Appendix C

USMC NBC CAPABILITIES

The USMC must be prepared to conduct prompt, sustained, and decisive combat operations in an NBC environment. 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 operational and tactical planning.

1. USMC (Organization)

Introduction. Paragraph 1 addresses USMC NBC defense capabilities. Specifically, the discussion addresses the Marine air-ground task force (MAGTF) and its ground and air combat element's (ACE) NBC defense capabilities. The NBC infrastructure and NBC unit functions and responsibilities are also addressed.

a. Marine Air-Ground Task Force.

(1) Both the size and composition of a MAGTF and an NBC unit depend on factors such as METT-T. To conduct effective NBC defense, the force requires a clear understanding of the mission, command relationships, and available resources. Since the USMC has a limited number of MOS-qualified NBC defense officers (MOS 5702) and enlisted Marines (MOS 5711), they are assigned where they will have the greatest impact on overall mission accomplishment. This means that positions on most NBC teams will not be filled with NBC specialists. Therefore, the success of an NBC team relies on the competency of the individual Marine. Individual Marines must hone their individual NBC skills and their understanding of NBC defense operations. Their responses to NBC defense operations must become conditioned responses. Based on this information, the MAGTF commander considers the following while forming the MAGTF's NBC defense:

- All NBC personnel and equipment organic to the units assigned to, or under OPCON of, the MAGTF.
- Additional NBC equipment and personnel available from senior agencies (e.g., JTF).
- The MAGTF's command and support relationships.
- Echelons of command.

(2) All echelons of command must supervise and reinforce the NBC defense efforts of subordinate elements. Each commander in a MAGTF must prepare and implement NBC defense measures while also ensuring that their subordinates can operate in an NBC environment. To provide an adequate defense, the MAGTF commander organizes NBC defense assets. Units at all levels must be capable of performing the following essential operations:

- Detecting and identifying NBC agents and materials.

- Warning and reporting of NBC attacks and hazards.
- Performing individual and CP measures.
- Decontaminating personnel, equipment, and terrain as required.
- Administering first aid and following unit medical operations and exposure guidance. Regardless of the unit's size or mission, principles essential to NBC defense remain constant; only the scope will vary.

b. Principles. The following principles help to determine the structure of effective NBC teams and units:

(1) The lowest level of organization required to function as an independent unit must possess the capability to survive and accomplish specialized tasks in an NBC environment.

(2) Higher units or formations must also be capable of accomplishing their own mission as well as supporting subordinate units, if required.

(3) Specific personnel must be designated and trained for specific NBC defense responsibilities.

c. NBC/Augmentation Teams.

(1) NBC/augmentation teams and units are structured to support subordinate commanders as much as possible while drawing as little as possible from the supported commanders' assets. For example, a battalion HQ maintains some level of NBC decontamination capability. This may be in the form of personnel support or equipment support.

(2) A battalion commander can reinforce the decontamination efforts of one subordinate commander by dispatching part of the headquarters and service (H&S) company decontamination team or equipment assets rather than using the decontamination team(s) of another line company unit. If a line company commander loses the assigned decontamination team, the commander loses the only personnel used to perform primary NBC duties and capabilities (immediate decontamination).

(3) The framework for effective NBC defense operations is in place once the MAGTF is fully deployed. Additional NBC defense organizations can be created using appropriate command and support relationships. The creation of additional NBC defense organizations should not change the defense mission of NBC organizations already in existence.

d. Control Centers. The NBCC forms the hub for all NBC defense operations. The control center monitors and coordinates all NBC defense operations (see Figure C-1). It is also responsible for collecting, collating, analyzing, and disseminating all NBC-related information. NBC information may come from many different agencies or units. As a general rule, NBC information gathering focuses on early warning of NBC attacks, locations of contaminated areas, decontamination sites, and routes from contaminated

areas to decontamination sites. NBCCs supporting MAGTF operations may be located on ships or ashore depending on operational planning and requirements. During expeditionary operations, NBCCs must be prepared to coordinate closely with the appropriate staff elements of a ship, amphibious ready group, or Naval task force in a high NBC threat AO.

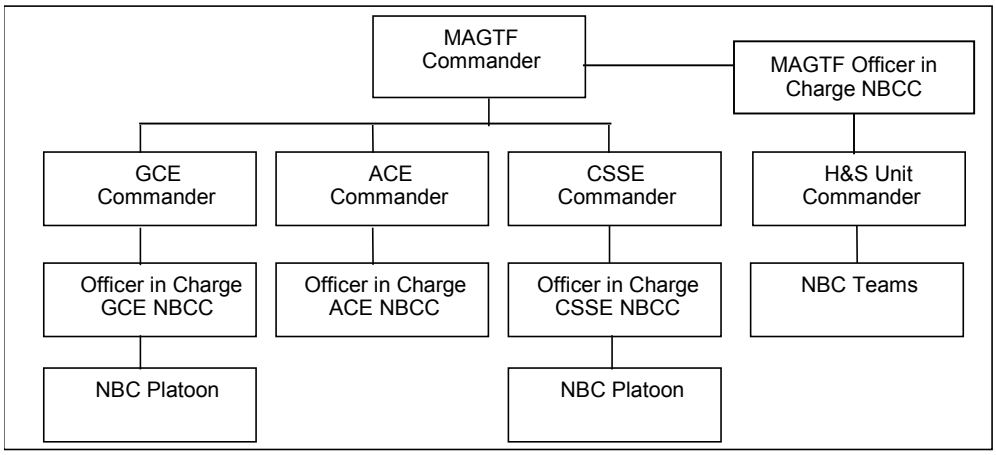

Figure C-1. NBC Centers

e. Command Element. The command element coordinates reconnaissance/survey operations, coordinates surveillance/monitoring operations, and coordinates and monitors decontamination operations. It maintains close coordination with all intelligence assets in order to exchange NBC reconnaissance/survey intelligence. The command element is also responsible for collecting, collating, analyzing, and disseminating surveillance/monitoring information. Many different units on the battlefield will be in a position to report NBC activity; therefore, the command element must be prepared to establish an NBCC that is capable of continuous operations.

f. Ground Combat Element (GCE). The GCE company and battalion teams organize as elements of their respective units. Since the threat of an NBC attack is equal to all ground combat units, the GCE commander normally leaves all NBC assets with the parent organization. The division NBC platoon is placed either in a GS or DS role, based on the NBC threat and the unit's ability to facilitate future operations. If augmentation is required, the officer in charge of the GCE NBCC coordinates with the officer in charge of the higher HQ NBCC. Augmentation provided is based on assets available and operational priorities.

g. Marine Division. The division operations section contains the NBC section. Personnel required to staff an NBCC are drawn from this section. In addition to performing control center functions at the division level, NBC personnel supervise overall NBC operations. Although limited in its capability, this section also can perform NBC reconnaissance. The division NBC section also provides the nucleus for a reinforced NBC platoon. This unit—with personnel from division elements, combat engineers, and motor

transport augmentation—forms an NBC defense organization that can support a division's decontamination operations and support NBC readiness of the MAGTF's GCE. A further combination of personnel and equipment from the combat engineer battalion, the hygiene equipment section, and the division NBC platoon creates a provisional unit that possesses increased decontamination capabilities. If required, this provisional unit is task-organized to provide support to the GCE.

h. Marine Regiment. The regiment's NBC defense needs are met with as little rearrangement of existing personnel and equipment as possible. The regimental commander assigns the NBC officer as the officer in charge and task-organizes organic assets. If additional assistance is required, the regimental commander requests reinforcement from higher HQ.

(1) NBC Officer and NBC NCO. Infantry and artillery regiments are staffed with an NBC officer to assist the commander and the staff in NBC defense operations. An NBC specialist is assigned to assist the NBC officer. Other NCOs may be assigned the responsibilities of NBC NCOs as additional duties.

(2) NBC Specialists. Infantry regiments have assigned NBC specialists by table of organization (T/O). The composition and duties of the NBCC team parallel those of the battalion NBC organization discussed below. However, the information processed at this level is more voluminous and broader in scope.

(3) Decontamination Capability. The regiment does not maintain a standing decontamination team. NBC personnel of the regiment coordinate and supervise the decontamination efforts within the regiment. The operational decontamination of the regimental HQ is performed by the regimental HQ company decontamination team or other designated personnel.

i. Marine Battalion.

(1) A unit's NBC defense needs are met with as little rearrangement of existing personnel and equipment as possible. Consolidation of NBC defense assets under the cognizance of the battalion NBC officer is neither the recommended nor the preferred method of supporting the battalion's NBC defense requirements. The battalion NBC officer advises the commander and coordinates the efforts, but the battalion NBC officer does not exercise command authority.

(2) Battalions are authorized an NBC specialist by T/O and, in some cases, they are authorized an NBC officer. These personnel are assigned to the S3 section. If MOS-qualified officers or enlisted Marines are not available to occupy NBC defense T/O billets, other officers or enlisted Marines will be assigned NBC defense collateral duties.

(3) The GCE NBCC collects, evaluates, collates, and disseminates information concerning friendly and enemy NBC operations to the commander, his staff, higher HQ, subordinate units, and supporting units. Specifically, the GCE NBCC plans the employment of NBC detectors and sensors, disseminates tasks of the monitor/survey teams, disseminates overall unit NBC defense guidance, and coordinates troop safety considerations when friendly NBC operations are planned. It performs the computations

needed to convert basic NBC information into the required form, plots and displays NBC information, and evaluates and disseminates NBC information.

(4) Each battalion commander organizes and trains a GCE NBCC team. The GCE NBCC is normally located within the combat operations center. This facilitates close coordination with the operations section, intelligence section, and the fire support coordination center.

(5) Commanders and their staffs use the information collected and processed by the GCE NBCC team to assist them in their decision-making process. This information influences the tactical employment of monitor/survey teams and the conduct of operations based on the existing level of contamination.

(6) Generally, a battalion does not maintain a standing decontamination team. Immediate decontamination is normally performed by company decontamination teams, although decontamination efforts can be a coordinated effort that uses battalion HQ and company equipment assets and teams. As the need for decontamination operations increases, the battalion NBC officer's mission is to coordinate the support requirements of subordinate commanders and enhance their ability to perform their missions. The battalion's NBC SOPs structure the NBC defense organization to reinforce subordinate unit capabilities and to avoid stripping them of their ability to perform decontamination operations. The battalion NBC officer coordinates the employment of CSS NBC personnel when reinforcing subordinate unit decontamination operations.

(7) To meet the battalion's surveillance requirements, the battalion commander normally tasks subordinate unit monitor/survey teams with surveillance and monitoring responsibilities. If this is impractical, part or all of the company monitor/survey teams may be consolidated, and the battalion NBC officer is placed in charge of the teams. Consolidation of NBC assets is the exception rather than the rule for meeting the needs of the battalion's NBC defense. Only under extreme circumstances should consolidation of assets be considered. Senior commanders can also assign NBC teams to or place NBC teams in GS or DS of the battalion commander.

j. Marine Companies.

(1) Company commanders coordinate the organization and training of NBC defense teams and other NBC personnel with the battalion NBC personnel according to the unit SOPs and directives issued from higher HQ. During actual NBC operations, NBC-trained personnel can be assigned to full-time NBC defense duties, depending on their regular duties. A generic organization consists of several monitor/survey teams and a decontamination team.

(2) Companies have chemical agent detector kits, radiological detection equipment, and other protective and decontamination material listed in their tables of equipment (T/Es).

(3) During NBC operations, sentries and guards have the additional duties of initiating the chemical attack alarm and participating in other chemical defense activities. Each sentry must know how to sound the alarm to alert unit personnel to a CBR hazard.

(4) The company-level NBC defense team consists of organic personnel assigned the additional duty of NBC defense. Higher HQ SOPs dictate the team's exact composition. Generally, a company NBC defense team consist of the NBC officer, who supervises NBC defense activities; the NBC NCO, who assists the NBC officer; personnel trained to decontaminate unit equipment and supplies; monitors or operators trained to use RADIAC meters and chemical detection kits as rated by unit T/Es; and ground survey parties for survey meters authorized by T/Es. Survey parties consists of qualified ground surveyors, drivers, radio operators, and security personnel as required.

(5) The company NBC defense team(s) must be able to conduct NBC reconnaissance; recognize NBC attacks and understand unit procedures to implement warnings; detect CBR hazards; operate and perform operator's maintenance on NBC detection and sampling equipment; conduct NBC sampling surveys; collect samples of suspected contamination and forward it to higher HQ; mark contaminated areas, equipment, and supplies with standard marking signs; provide data for compilation of NBC reports; perform monitor/survey functions; operate and perform operator's maintenance on NBC monitoring equipment; conduct NBC monitoring operations; monitor the effectiveness of decontamination measures; provide data for completion of NBC reports; and perform decontamination.

k. Air Combat Element. The current structure of the Marine Aircraft Wing (MAW) includes all the NBC officers and specialists required to sustain NBC defense operations. Additional support, if required, is requested through the command element NBCC.

(1) MAW HQ. The MAW Assistant Chief of Staff, G3 (operations and plans) section contains the NBC personnel required to staff an ACE NBCC. This center is normally located in the tactical air command center. These personnel perform overall NBC defense planning, organization, and readiness for their units. The MAW does not have a specialized NBC unit at the HQ level. However, the organization of NBC specialists and the NBC tasks assigned to various units ensure there is a coordinated effort to accomplish all NBC defense missions.

(2) The Marine Aircraft Group (MAG) HQ. The MAG HQ consists of one NBC officer and several NBC specialists.

(3) Marine Squadron.

(a) NBC defense specialists are normally consolidated at the MAG level except for the Marine Wing Support Squadron (MWSS). This allows for centralized control of the maintenance of equipment, NBC warning and reporting, and NBC training. MWSSs provide logistics support to their respective MAGs, to include limited NBC defense support.

(b) Each squadron will be capable of performing immediate and operational decontamination of its personnel and equipment. If thorough decontamination operations are necessary, each squadron should be prepared to augment the MWSS with extra personnel to facilitate their support of squadron decontamination efforts.

(c) If directed, each squadron will provide personnel to the MWSS in support of airfield monitor/survey team operations.

(4) Marine Wing Support Squadron. The MWSS NBC defense section has a decontamination station supervisor for each type of detailed decontamination. It also has a contamination control supervisor and an NBCC that may be attached to the ACE. It may be necessary to obtain augmentation from the other squadrons within the group in order to fully staff the control center.

(5) Force Service Support Group

(a) The Force Service Support Group (FSSG) G3 section contains an NBC defense platoon. Elements of this platoon are used to form CSSE NBCCs; coordinate and evaluate and, if necessary, augment any NBC defense operations conducted within the FSSG AOR; and provide the nucleus of a reinforced platoon or provisional unit to support MAGTF operations with deliberate decontamination support as directed by the MAGTF command element.

(b) The FSSGs motor transport battalion has transport assets that can support the NBC unit. The FSSG commander can augment the NBC platoon with engineers and with other assets from the FSSG to form a reinforced platoon or provisional unit. Engineer officers and enlisted hygiene equipment operators from the shower unit of the engineer support battalion can be trained in NBC decontamination operations. In addition to thorough decontamination operations, the reinforced platoon or unit can provide shower operations; water purification; water point and NBC reconnaissance; water storage; desalinization operations; generator, air-conditioning, and refrigeration maintenance; CPS construction; and thorough decontamination operations.

2. USMC Assets

With the primary exception of the chemical/biological initial response force (CBIRF) and selected NBC reconnaissance platoons, the Marine Corps does not operate with structured NBC defense units. USMC capabilities discussed in this appendix are based on unit equipment and individual/collective training. Marines receive training in NBC detection, protection, and decontamination operations. USMC NBC defense personnel include warrant officers and NBC specialists who are responsible for manning NBCCs, training units, and maintaining NBC equipment. Personnel-intensive tasks—such as unit decontamination and NBC reconnaissance operations—are performed primarily by additional duty Marines from within the unit. Nearly all NBCDE used by the Marine Corps mirrors that of the other services in types, capabilities, and quantities authorized. Table C-1 depicts specialized items of NBCDE unique to the Marine Corps.

Table C-1. USMC-Unique NBCDE

Individual Protection Equipment	Description
Aircrew Protective Clothing/Equipment	The aircrew protective clothing/equipment consists of a respiratory assembly composed of the MCK-3A/P mask with hood, facepiece, ventilator, and intercom set; a helmet assembly for use with the mask; underclothes; plastic disposable footwear covers and cape; CP gloves and cotton inserts; CP socks; and an aviator CB protective suit liner.
Chemical Protective Overgarment (CPO) (Saratoga Suit)	The CPO is a two-piece suit consisting of a jacket with an integral hood and trousers. Can be laundered four times. Provides 24-hour CB protection post exposure.
CP Equipment	**Description**
Portable CP System	The CP system is mobile and consists of a shelter, support kit, and filter. Accommodates 12 to 14 personnel.
Decontamination Equipment	**Description**
M17-Series Decontamination Apparatus (Multifuel)	The apparatus is a power-driven, portable, lightweight decontamination system designed to draw water from any source and deliver it at high pressure and temperatures; also can be converted for diesel fuel operations.

a. Chemical/Biological Incident Response Force. The CBIRF was established by direction of the Commandant of the Marine Corps as a result of Presidential Decision Directive 39 (PDD-39), which states that the US shall give the highest priority to developing the capability to manage the consequences of NBC materials or weapons use by terrorists.

(1) Mission. When directed, the CBIRF forward deploys domestically or overseas in order to provide FP and/or mitigation in the event of a WMD incident. The CBIRF is prepared to respond to no-notice WMD incidents with a rapidly deployable Initial Response Force (IRF) and a FOF if required. CBIRF also conducts FP training for fleet units.

(2) Organizational Structure. The CBIRF is composed of 350 to 375 USMC and USN personnel and consists of 3 elements depicted in Figure C-2. In garrison, the CBIRF is under the OPCON and administrative control (ADCON) of the 4th Marine Expeditionary Brigade Antiterrorism (4th MEB/AT) who fall under the II Marine Expeditionary Force (II MEF) and Marine Corps Forces, Atlantic (MARFORLANT). The CBIRF is an incident response force that executes consequence management operations in support of a combatant commander or lead federal agency. The CBIRF has limited organic equipment decontamination capability but does not conduct DED or area decontamination operations. Further, the majority of CBIRF personnel are trained in Level A and B operations. Toxic industrial chemicals (TIC) and TIM are potential threats to US forces, even OCONUS, since littoral areas include port and industrial complexes where storage and manufacture of these materials are common. The CBIRF also has state-of-the-art

monitoring and detection equipment used to identify, sample, and analyze NBC hazards, including TIC and TIM, as well as oxygen (O^2) and lower explosive levels (LEL).

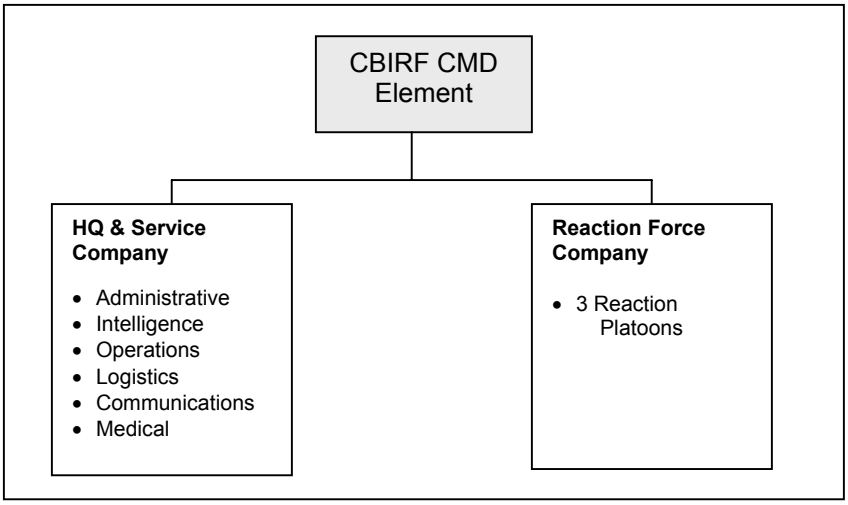

Figure C-2. USMC CBIRF Internal Organization

(3) Organizational Structure (Command Element Capabilities). This element provides C^2 provides liaison teams to other agencies or commands, interfaces with local and military commanders, coordinates all on-site CBIRF operations, establishes data/voice reachback to scientific and medical advisors, and prepares CBR plume models.

(4) Organizational Structure (Reaction Force Company Capabilities).

- Agent detection and identification.
- Sampling and collection.
- Monitoring of concentration and exposure levels.
- Decontamination for unit personnel.
- Decontamination for first responders.
- Casualty decontamination on scene.
- Victim search-area and confined spaces.
- Technical rescue and casualty extraction.

(5) Organizational Structure (Medical Capabilities).

- Emergency medical care in contaminated area.
- Casualty triage and stabilization.
- Transfer into local emergency medical system.

(6) Initial Response Force Capabilities.

- Eighty personnel on 1-hour alert status.
- Decontamination of 35 to 50 ambulatory casualties per hour.
- Decontamination of 20 to 35 nonambulatory casualties per hour.

(7) Follow-on Force Capabilities.

- Decontamination of 125 to 150 ambulatory casualties per hour.
- Decontamination of 50 to 75 nonambulatory casualties per hour.
- Mobile laboratory.

b. Incident Site. Organization of an incident site by the CBIRF is depicted in Figure C-3.

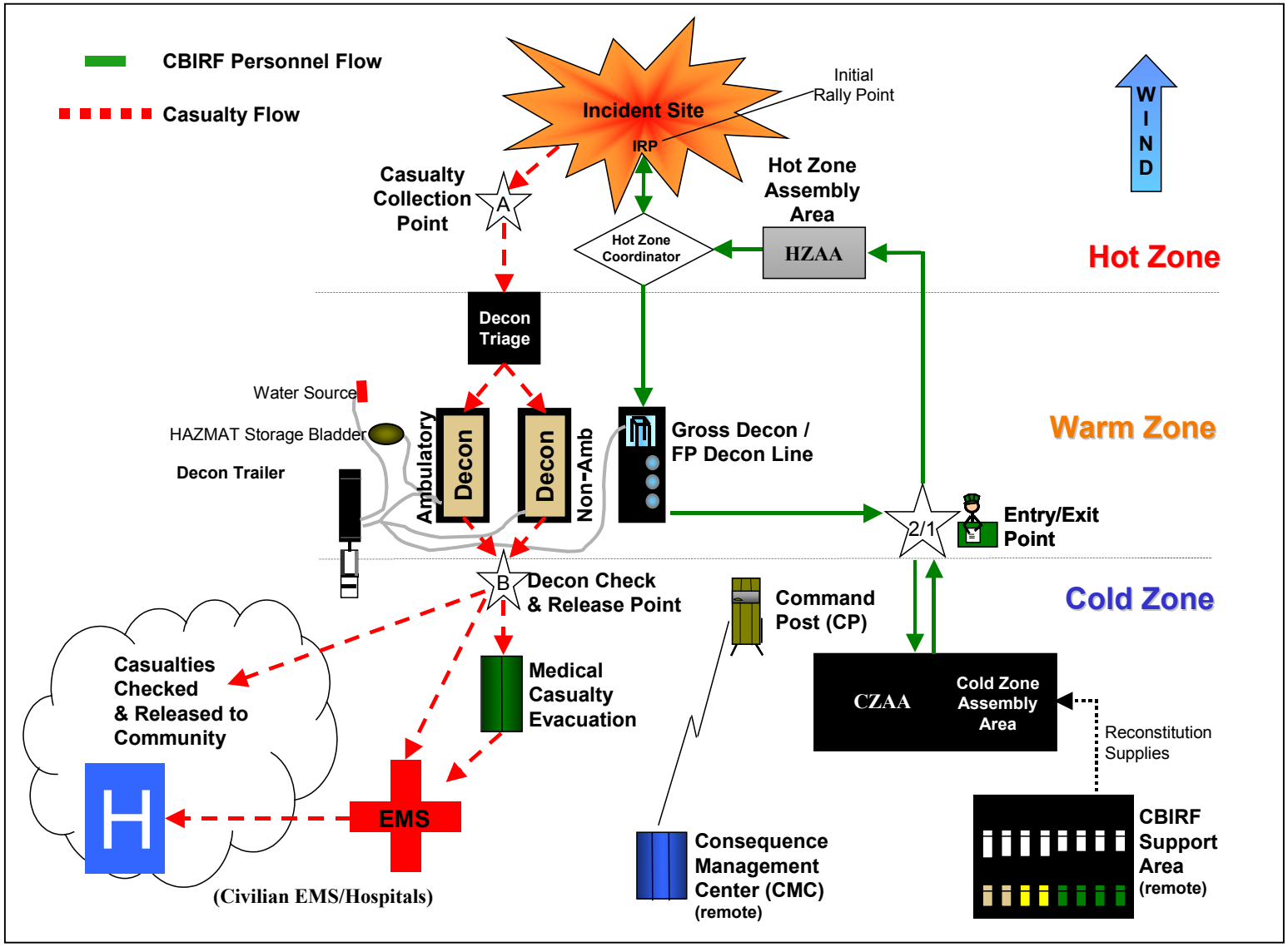

Figure C-3. Organization of an Incident Site

3. USMC Staff Responsibilities in NBC Operations

To effectively defend against an NBC attack, commanders and staff officers require a general knowledge of the characteristics, effects, and concept for employment and defense against NBC munitions.

a. As a staff officer, the MAGTF NBC defense officer has no authority over subordinate commanders. NBC defense is part of all operations and NBC defense operations are often conducted with the same assets that perform other tasks assigned to subordinate commanders. Therefore, care must be taken when delegating authority to NBC defense officers to ensure that their instructions and those of the commander and operations officer do not conflict. Timeliness, accuracy, and efficiency of MAGTF command and staff actions in an NBC environment depend on the staff's state of preparedness. Staff officers need to understand the characteristics and effects of NBC weapons as they relate to the conduct of specific war-fighting functions. Staff considerations for NBC warfare must become a routine concern in the planning and training phases of a MAGTF's continuous preparation for combat operations. Effective staff support in an NBC environment is facilitated by—

(1) Knowledge of general and special staff functions.

(2) Knowledge of staff planning and command and staff NBC considerations.

(3) Knowledge of NBC weapons, effects, and personnel and material responses.

b. The technical knowledge and skills required for NBC defense are provided by personnel especially trained for NBC duties. These specialists form the nucleus (NBC section) for NBC staff functions within the MAGTF. At each echelon of command, the NBC officer and NCO assist and make recommendations to the appropriate staff officers.

Appendix D

USAF NBC DEFENSE CAPABILITIES

The USAF 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 operational and tactical planning.

1. USAF (Organization)

This section addresses the AF structure and selected units for support of NBC defense measures.

a. AF NBC Defense Organization. The AF NBC defense specialists are primarily located at all levels of the AF CE community. Additionally, there is some capability within the AF medical community. AF NBC defense planners are located at the Air Force CE Support Agency (AFCESA), at each major command (MAJCOM) in CE and medical staffs, and in some numbered Air Force (NAF) staffs. These planners determine AF NBC defense asset guidance and usage for both peace and wartime operations.

b. Wing Operations Center. The wing operations center (WOC) is the top echelon of AB NBCC defense operations and is lead by the senior AF commander. The primary focus of the WOC is flight operations, AB security, and support to other forces of the AB. The battle staff within the WOC consists of the installation commander and representatives from the operations, logistics, support, medical groups, and additional staff sections. Other personnel may be added or substituted as the base mission and situation dictate. The battle staff supports the installation in assessing the situation, determining and prioritizing mission-essential actions, and implementing the actions in priority sequence. In most cases, this requires a team effort since all NBC decisions have a far-reaching impact and are best made after consideration of all available information. The wing commander usually directs the integration of all wartime functions from the WOC with direct links to other control centers such as air defense, maintenance, and the SRC.

c. Survival Recovery Center. The SRC is established specifically to direct all base operability, survivability, and recovery operations. It is usually located with or near the WOC battle staff area to allow close coordination of the recovery effort and permit the battle staff easy viewing of SRC displays. In the SRC, the support group commanders and their staffs form the nerve center for base recovery as they collect, analyze, prioritize, display, and report information on the status of the base. Several control centers support the SRC. Among these are the CE DCC, security forces, BDOC, services control center, and centers for communications and medical support. These centers are responsible for collecting information up and down the C^2 chain and providing data to the WOC and SRC to assist in planning and decision making. Supporting the support group commander are representatives from each of these control centers. Also present in the SRC is a CE readiness officer, who oversees the administration of the SRC and coordinates the activities

of the staff; an EOD representative, who coordinates the render safe procedures and bomb removal/disposal of unexploded munitions on the AB; CE readiness personnel, who control the NBC survey teams and advise the commander and battle staff on NBC defense matters (to include designation of contaminated versus uncontaminated zones, MOPP recommendations, and projected hazard duration); and a personnel representative, who monitors personnel strength. Medical representatives in the SRC provide information on medical treatment, NBC human health impacts (to include the impact of MOPP declarations), work/rest cycles, and related HSS activities. The base CE (BCE) or a senior designated representative serves as the senior advisor to the SRC commander on engineering matters. Also in the SRC is the minimum operating strip (MOS) selection team, which monitors damage assessment reports, plots airfield damage, and determines possible MOS candidates.

d. NBC Control Center. When operating in a postattack situation, some of the CE readiness personnel in the SRC function in the NBCCC. The NBCCC—

- Obtains meteorological data from the most precise source.
- Receives reports of actual or suspected NBC attacks.
- Plots locations of NBC attacks and predicts areas of probable NBC contamination through the use of automated hazard prediction tools and simplified manual methods.
- Advises other bases and units of potential downwind NBC hazards.
- Develops and sends vertical and lateral NBC reports.
- Plots areas of NBC hazard after detailed monitoring is conducted.
- Advises the CE readiness personnel in the SRC.

e. Readiness Flights. The NBC specialists within the AF are located within the CE readiness flight of the CE squadron. The personnel in the CE readiness career field are responsible for a wide range of functions, all directly involving the readiness status of the CE squadron and the installation to which they are assigned. CE readiness is the proponent for the installation disaster preparedness; nuclear, biological, chemical, and conventional (NBCC) defense; and AB operability (passive defense) programs. CE readiness is also the proponent for the CE squadron's prime base engineer emergency force (BEEF) program. As such, CE readiness personnel are responsible for various planning, training, and equipage functions associated with assisting installation organizations prepare for and recover from an enemy attack, natural disasters, and major accidents (to include hazardous materials releases). CE readiness personnel maintain and operate specialized NBC defense equipment, conduct training courses for selected members of the installation (shelter management, disaster control group, etc.), and provide NBC defense training for all installation personnel stationed in or deployable to medium- and high-threat areas. The backbone of the CE readiness career field is the enlisted force because the officer is an engineer who does not remain with the readiness flight. Rather, officers transition to several assignments throughout the CE squadron.

2. USAF Assets

NBC defense in the AF is focused on the three key areas of avoidance, protection, and decontamination. All enlisted members receive training in basic NBC defense procedures during basic military training. Additional training is provided by CE readiness flight personnel on attack actions, warning and reporting, IPE, COLPRO, personal decontamination, and contamination control procedures. Additionally, installations designate personnel within their units to serve on special teams that support installation NBC defense. These teams, known as shelter management teams (SMTs), CCTs, and readiness support teams, provide the base with support in the areas of personnel protection, NBC decontamination and detection, and survey operations. Table D-1 depicts items of the NBCDE that are used by the AF.

Table D-1. NBCDE Assets (USAF)

CLOTHING ITEMS	DESCRIPTION
Aircrewman cape, CB-protective	Disposable, plastic polyethylene, 74” long.
Apron, TAP, cotton cloth, rubber coated	Rubber, synthetic overall. Toxicological agent-resistant.
Bag, CP equipment	Carryall bag.
Boots, TAP, butyl rubber: M2A1	TAP rubber boots.
Cover, helmet	CP helmet cover.
Coveralls, TAP, coated nylon, OD green	Butyl rubber coveralls.
Footwear cover, CP, rubber	CP, acid-, fire-, and jet-fuel-resistant.
Gloves, TAP, butyl rubber, type II	14” gauntlet, butyl rubber gloves.
Gloves, CP rubber, type I, butyl rubber	14” gauntlet, butyl rubber gloves.
JSLIST, improved CP overgarment	The JSLIST is made of permeable materials and designed to be worn as the primary CB-protective overgarment over the duty uniform or as a duty uniform over personal underwear. The suit is made of a carbon bead material with an outer layer. The outer layer is made of materials similar to the battle dress uniform (BDU) and is designed to repel water and CB agents. The suit is a two-piece garment (coat and trousers) with an integral hood that is compatible with existing protective masks. The coat and trousers are packaged, sized, and issued separately but are worn together as an overgarment.
Overshoes, black vinyl	Oil-, chemical-, and fuel-resistant. For use with combat boots.
Overshoes, green vinyl	Oil-resistant overall. For use with combat boots.
Suit, aircrew, CP CWU-66/77P	The fabric of the suit is made of two layers of cloth with activated carbon spheres laminated between them. Comes in 24 sizes.

Table D-1. NBCDE Assets (USAF) (Continued)

CLOTHING ITEMS	DESCRIPTION
Commercial protective suits	CP clothing. Level A suit is a chemical-resistant total encapsulating suit. The operator wears a self-contained breathing apparatus (SCBA). Level B suit includes a hooded chemical-resistant coverall designed to be worn with either a respirator or SCBA.
Battle dress overgarment	Two-piece permeable garment.
Cotton drawers	White cotton undergarment (aircrew).
Cotton undershirt	White cotton undergarment (aircrew).
Glove inserts	White cotton glove inserts (aircrew).
Protective gloves, 7 mil butyl rubber	Butyl rubber aircrew gloves (sized).
Disposable footwear cover, overboot	Aircrew overboot (one size).
MASKS	**DESCRIPTION**
Mask/filter manifold, MBU-19/P	Aircrew NBC protective mask with oxygen, communication, drinking tube, and integral hood
Mask, MBU-13/P	Aircrew NBC protective mask with oxygen and communication capability
Mask, CB, M45A2	NBC-protective mask with dual clear eye lenses and one voicemitter (front).
Mask, MCU-2 A/P	Facepiece consists of silicone rubber; a large, single, clear urethane lens; nose cup; drinking tube; and two voicemitters (front and side).
MASK-ASSOCIATED PARTS AND ITEMS	**DESCRIPTION**
CQU –7/P blower and hose assembly	Battery- and aircraft-powered blower assembly used in conjunction with the MBU-19/P aircrew protective mask
Suspension straps	An adjustable suspension assembly for use with the MBU-19/P mask and CQU-7/P blower and hose assembly. OD green.
CRU-80/P filter assembly	A filter pack incorporating a CRU-60/P oxygen regulator and a filter pack containing the M13A2 filter set.
HGU-41/P protective hood	Grey, butyl rubber hood used in conjunction with the MBU-13/P aircrew NBC mask.
Filter canister, C2A1/C2	Fits the M45, MCU-2A/P, and MBU-19/P masks.
Filter set, M13A2	Fits MBU-13/P mask.
Hood, M6A2	Chemical-resistant rubber. Consists of a drawcord and shoulder straps, two eye and two air inlets, and one speech diaphram outlet valve.
Hood, MCU-2A/P (AF/USN)	Chemical-resistant rubber. Consists of a drawcord and underarm straps.

Table D-1. NBCDE Assets (USAF) (Continued)

DETECTORS	DESCRIPTION
Handheld immunochromatographic assays (DOD sampling kit)	A simple, disposable, antibody-mediated assay for identifying BW agents in suspect samples.
Alarm, chemical agent, automatic, M22	The M22 detects blister and nerve agents in the air as vapors, inhalable aerosols, and vapors from the surface of liquids. It has an audible alarm and visual display when alarming the presence of chemical agents. The M22 displays the agent as G or H series and indicates concentration levels using an eight-digit bar graph. The M22 may be connected to M42 remote alarms for rapid notification of detection.
Chemical agent monitor	A portable, handheld instrument designed to determine the hazard from nerve or blister agent vapor present in the air.
Chemical detection kit, M18A2	Chemical agent detecting tubes capable of detecting and identifying nerve, blister, blood, and choking agents
Detector kit, chemical agent, M256A1	Handheld, manual detector designed to determine the hazard from nerve, blister, and blood agent vapors present in the air.
Detector paper, chemical agent, M8	Chemically treated paper capable of detecting and identifying nerve and blister agents in liquid form.
Detector Paper, Chemical M9	Chemically treated, dye-impregnated, adhesive-backed paper issued in a 30-foot roll inside a cardboard box with a metal cutter. Capable of detecting the presence of nerve and blister contamination in liquid form.
Pocket dosimeter, IM 143B/PD	Self-reading pocket dosimeter designed to read gamma radiation exposure in the 0 to 600 roentgen range.
RADIAC set, ADM 300	Digital RADIAC instrument that, depending on the probe used, measures and detects alpha, beta, x-ray, neutron, and gamma radiation.
Chemical agent detector, M90	Portable chemical agent detector that provides an indication of low, medium, and high concentrations of nerve, blister, and blood agents. It has an audible alarm and visual display when alarming the presence of chemical agents. The M90 may be connected to its own remote alarm in order to facilitate rapid notification of detection.

3. USAF Staff Responsibilities

This section addresses NBC defense responsibilities for key AB personnel/teams. The commanders are key links to base readiness to ensure the preparedness of subordinate units.

a. Wing Commanders. Commanders are responsible for ensuring that the installation possesses an effective NBC defense program for both peacetime and wartime operations, to include in-place and deployed operations, as appropriate. This overall responsibility includes aggressively monitoring training and equipage levels, exercise results, and the status of all NBC defense-planning activities. Some specific responsibilities include—

- Assessing intelligence indicators and the operational situation to determine when and to what extent NBC defense measures are required.

- Establishing an NBC defense capability to include dedicated staff, specialized equipment, IPE, comprehensive plans, and the required support infrastructure (program reviews, assignment of additional duty personnel to specialized teams, etc.).

- Determining the impact NBC activities are likely to have on HN personnel required to support mission operations. Develop feasible alternate planning options should vulnerabilities exist.

- Installing and maintaining an installation warning system, and working through CE and communications organizations.

- Ensuring that units, deployed and in place, possess the contamination control and shelter management capabilities they need to meet mission requirements.

- Directing MOPP levels/variations and installation response actions based on a balance of force survivability and mission continuation requirements. Use split MOPP when appropriate.

- Establishing an installation C^2 network capable of effectively responding to NBC attack situations. Oversee and direct appropriate activities from the WOC.

b. Group, Squadron, and Other Unit Commanders. Commanders should integrate all facets of NBC defense into their existing combat organizations. They ensure that all unit personnel have the necessary training and equipment to protect themselves and carry out their missions. They should also designate appropriate personnel to perform special duties, such as managing shelters and leading CCTs. Other responsibilities may include—

- Appointing a representative to manage and coordinate unit aspects of the readiness program.

- Developing and implementing response procedures and checklists to support local response plans, as well as war and contingency planning documents.

- Implementing MOPP directed by the installation commander.

- Identifying requirements and budgeting, obtaining, storing, and maintaining unit DP operational and training equipment—including personal protection items, detection equipment, contamination control materials, and shelter supplies.

- Planning, managing, and operating the CPS program.

- Ensuring that deploying personnel are trained to conduct contamination control operations and manage shelters if the deployed location's joint support plan requires it.

- Establishing unit control centers and identifying specialized team members, as required.

- Establishing an NBC contamination control capability as applicable. As a minimum, aircraft maintenance, transportation, CE, and medical activities should have this capability.

- Supplementing shelter management, contamination control, and disaster response force training on unit-specific procedures and equipment.

c. Medical Staff. Medical staff provides patient care services, coordinates patient evacuation plans, manages PVNTMED services, and ensures commanders have access to appropriate medical information. Medical personnel also ensure that medical measures are responsive to NBC defense needs and are integrated with nonmedical NBC defense measures, to include preselection and health maintenance, health hazard monitoring, sampling and analysis, health threat and risk assessment, and health hazard control and mitigation. Other responsibilities include—

- Advising the commander on medical aspects of NBC defense.

- Providing comprehensive patient care services to the supported unit—including diagnosis, treatment, exposure tracking and documentation, and evacuation to higher echelons of medical care as required.

- Providing guidance on health and hygiene matters and providing self-aid and buddy-care training to unit personnel.

- Collecting, analyzing, or shipping clinical samples for analysis of indicators of NBC exposure.

- Administering vaccines, antibiotics, and other drugs or procedures necessary to prevent or treat NBC casualties.

- Ensuring that public health officers monitor medical intelligence information, conduct epidemiological studies, perform disease surveillance, determine safety of food supplies, and advise on field sanitation.

- Ensuring that bioenvironmental engineers analyze environmental samples, assist in operating automatic detection systems, determine potability of water, advise on personal protective equipment (PPE), assess health risk from threat agents and thermal stresses, and advise on waste management and recovery activities.

d. Shelter Management Teams. SMTs prepare shelters to provide the best possible NBC protection, establish contamination control procedures to minimize the amount of contamination entering the shelter, and operate automatic point detection systems.

4. USAF Deployable NBC Defense Capabilities

There are a number of teams providing these capabilities. These teams are discussed in the following paragraphs.

Note: Those units tasked with deploying must properly forecast for their mobility munitions requirements as stated in AFI21-201.

a. Nuclear, Biological, Chemical, and Conventional Threat Response Core Team, Unit Type Code (UTC): 4F9DA. It provides limited NBCC defense supporting activities ranging from smaller-scale contingency operations to a major theater of war (MTW) and responses to major accidents and natural disasters for an AB with up to 1,200 personnel. Its capabilities include preliminary risk/vulnerability assessments and threat analysis; planning, detection, identification, warning, and reporting; decontamination; CCA; disaster response equipment; technical data; roll-on/roll-off capability; and 463L pallets. Personnel will deploy with their IPE, clothing, weapons, and ammunition.

b. NBCC Threat Response Light Team, UTC: 4F9DB. It provides minimal NBCC defense supporting activities ranging from smaller-scale contingency operations to an MTW and responses to major accidents and natural disasters for an AB with up to 600 personnel. Its capabilities include preliminary risk/vulnerability assessments and threat analysis; planning, detection, identification, warning, and reporting; decontamination; CCA; disaster response equipment; technical data; and 463L pallets. Personnel will deploy with their IPE, clothing, weapons, and ammunition.

c. NBCC Threat Response Sustainment Team, UTC: 4F9DC. It provides additive technical expertise, support, and manpower to other 4F9D UTC's in response to NBCC defense and major accident and disaster response operations. Personnel skills include detection, identification, warning, and reporting; decontamination; and contamination control operations. It provides additive manpower supporting activities ranging from smaller-scale contingency operations to an MTW. Personnel will deploy with their IPE, clothing, weapons, and ammunition.

d. Theater/Joint Task Force NBCC C^2 Support Staff, UTC: 4F9DD. It provides a full-spectrum threat response C^2 element to support numbered Air Force, air component, and JTF commanders with activities ranging from smaller-scale contingency operations to an MTW. It provides situational analysis and advice on NBCC issues to the supported commander and subordinate units and support for major accident and natural disaster operations. Personnel will deploy with their IPE, clothing, weapons, and ammunition.

e. CES NBCC Open-Air CCA Set, UTC: 4F9DH. It provides standardized open-air CCA equipment to transition up to 1,200 personnel into a toxic-free rest and relief environment. The UTC requires personnel augmentation (10 personnel) from the supported unit for setup, maintenance, and operation.

f. NBCC Threat Response Personnel Sustainment Team, UTC: 4F9DJ. It provides a full-spectrum threat response manpower sustainment element (10 personnel [any AFS]) to support sustained operations in an NBCC environment and supports major accident and natural disaster operations and recovery. The team members are trained in contamination control, CCA operations, CPS operations, shelter team management, unit control center operations, and NBC detection equipment operations. This team provides the deployed commander with cadre of trained personnel to assist with the continuity of operations in all contingency environments. The team operates under the management and direction of 3E9XX personnel to perform their assigned duties. The team is deployed in support of

UTCs 4F9DE, 4F9DG, 4F9DH, and 4F9DL. Personnel will deploy with their IPE, clothing, weapons, and ammunition.

g. USAF Joint Service Lightweight NBC Reconnaissance System (JSLNBCRS) Sustainment Team, UTC: 4F9DK. It provides a 3-person team task qualified and certified to extend operations of the 4F9DF JSLNBCRS for 24 hours. Personnel will deploy with their IPE, clothing, weapons, and ammunition.

h. Wartime Medical Decontamination Team, UTC: FFGLA and FFGLB. It provides medical decontamination personnel to support deployed Level II and higher medical units. The personnel package consists of 19 personnel and is sufficient to staff a 12-hour shift. For 24-hour coverage, two personnel packages (38 personnel) are required for continuous operations. The equipment package consists of three 463L pallets and is sufficient to support 2 personnel packages for 30 days and decontaminate 500 patients (ambulatory and nonambulatory) without resupply.

i. Medical NBC Defense Team. It provides wing survivability through human health protection by supporting medical facility operations. The team conducts NBC surveillance and sampling and analysis for force health protection. The team leader also advises on NBC and TIM health effects, MOPP levels, recovery activities, and human health risk assessments.

j. Biological Augmentation Team, UTC: FFBAT. It provides advanced diagnostic identification capability for biological agents (whether they are naturally occurring or induced) at the deployed location. Team members analyze samples and interpret results using a nucleic acid-based testing platform. The two-member team deploys based on threat assessments and may deploy along with other medical forces or individually, depending on mission needs. It is equipped for 30 days without resupply. It is designed for laboratory analysis and identification, not for collection, transportation, or long-term storage of samples.

k. Infectious Disease Team, UTC: FFHA2. It provides infectious disease support and equipment to 25-bed or larger AF theater hospital (AFTH) facilities (generally centrally located at one to three locations per theater). The 15-member team (consisting of one infectious disease physician, a clinical nurse trained in infection control, six clinical nurses, six medical technicians, and one public health technician) identifies, controls, and provides treatment for infectious diseases in the deployed theater. The team provides public health surveillance and specialized care for patients infected with BW agents or other infections transmissible to other patients and personnel. The team identifies, confirms, and reports use of BW agents. It provides consultation to PVNTMED teams and uses telemedicine capabilities for consultation with the theater epidemiology team (UTC FFHA1), the BEEF NBC team (UTC FFGL1), and CONUS-based medical and all biological and infectious disease centers. It oversees operation of the six-bed patient isolation area.

l. Infectious Disease Augmentation Team, UTC: FFHA5. It provides two personnel to augment infectious disease and infection control support in the theater. Normally, it deploys after UTC FFHA2 to AFTHs with more than 100 beds where a significant threat of BW or infectious disease casualties exists. It augments the ability to identify, control, and

provide treatment for infectious diseases and BW agents in the theater. It provides intratheater infectious disease consultation.

m. Theater Epidemiology Team, UTC: FFHA1. It provides theater-level PVNTMED support to the AF component command or the JTF surgeon. It provides medical, environmental, and occupational health threat assessments, and it provides support for disease outbreak investigations. It recommends PVNTMED countermeasures and disease surveillance systems. It requires base operating support. The team consists of six personnel and equipment.

n. AF Radiation Assessment Team (AFRAT), UTCs: FFRA1, FFRA2, FFRA3. The AFRAT nuclear incident response force (NIRF) teams are globally responsive specialty assets that provide specialized field radiological monitoring and consequence management support to the assigned theater medical authority. The team measures, analyzes, and interprets radiological measurements in and around the affected area. The team's capabilities include radiological dose rate measurements, air concentrations, ground deposition, and plume modeling. They provide expert guidance on the type and degree of radiological hazard that deployed forces face. Based on these assessments, recommendations are made to optimize FP in light of achieving mission objectives. Typical deployment scenarios could include consequence management operations from nuclear weapons accidents (broken arrows), nuclear reactor accidents (faded giants), and terrorist use of radiological dispersion weapons or improvised nuclear devices or humanitarian assistance operations to countries that have experienced a nuclear exchange.

o. Aircrew Life Support (ALS) Aircrew CCA Processing Team, UTC: 9 ALCW. Provides additive technical expertise, support, and manpower to aviation UTCs in support of flight operations in an NBCC environment. Personnel skills include detection, identification, warning and reporting, decontamination and contamination control operations specifically targeted to aircrew. UTC provides 10 ALS personnel. Its personnel will deploy with their IPE and clothing.

Appendix E

NBC THREAT CONDITIONS

The US armed forces, the civilian population, and US allies must contend with an NBC and TIM threat that is global across the range of military operations. The proliferation of NBC-capable nations in all contingency regions and the availability of TIM, present additional hazard conditions thereby increasing the likelihood of US forces being direct or inadvertent targets of an attack. These attacks may range from limited use in MOOTW to planned targeting in support of military operations. As part of the threat assessment, the NBC staff (in coordination with intelligence and operations officers) can provide recommendations to the commander. The assessment could come in the form of a recommendation to increase a unit's NBC defense posture and the NBC threat status assessment process described below, which provides a tool that outlines suggested actions to be undertaken to implement increased unit readiness.

1. NBC Threat Status

a. Introduction. US forces may not have to carry NBCDE (such as MOPP) based on the initial threat estimate. If the threat conditions were to change and indicators were present to suggest the possible use of NBC agents by the threat forces, NBCDE would be deployed forward, such as a forward air operating base, a division support area (DSA), or a brigade support area (BSA). These stocks may be prepalletized for immediate deployment by aircraft to the affected unit, if required. However, this decision must be made based on available aircraft or other transportation systems. This could be done so the forces would not have to carry the MOPP ensemble. The minimum NBC threat status can be set at an MSC (i.e., division/separate brigade, group, wing, etc.) and is a flexible system determined by the most current enemy situation, as depicted by the continuously updated IPB process. This allows commanders to increase the threat status as conditions change in their AO. However, the procedure used within the AO remains consistent with key reference documents such as OPLANs, standing orders, combatant commander's guidance, SOPs, etc. Threat status governs the initial deployment of NBC assets (such as equipment or units) and the positioning of those assets in the operational area. The NBC threat status serial numbers are for planning purposes; the actual NBC threat status serial numbers used in a theater of operation may vary from the information furnished in this appendix. For example, these numbers may be substituted for a color code (example colors could include serial 1 = white, serial 2 = yellow, serial 3 = red, serial 4 = black). It does, however, require NBC personnel to stay abreast of the intelligence situation.

b. Serial 1. The adversary does not possess any NBCDE, is not trained in NBC defense or employment, and does not possess the capability to employ NBC warfare agents or systems. Further, the adversary is not expected to gain access to such weapons, and if they were able to gain these weapons, it is considered highly unlikely that the weapons would be employed against US forces. Suggested guidance could include the following:

(1) Under this status, a deploying force would not have to carry NBCDE nor decontamination assets. However, protective masks should be carried.

(2) NBC personnel should concentrate efforts on monitoring intelligence information for NBC threat indicators.

c. Serial 2. The adversary has an offensive NBC capability and has received training in defense and employment techniques, but the assessment is no indication of the use of NBC weapons in the immediate future. This indication may be based on whether NBC munitions are dispersed or deployed or the stated objectives and intent of opposing forces. Unit actions may include the following:

(1) All personnel carry their individual defense equipment or CDE stockpiles are identified and would be readily available for deployment to the operational area if the threat status should increase.

(2) Systems with NBC reconnaissance capability deploy to the area of operations to provide a monitoring capability.

(3) NBC personnel continue to concentrate their efforts on planning and analysis for threat indicators.

d. Serial 3. The adversary is equipped and trained in NBC defense and employment techniques. NBC weapons and employment systems are readily available. NBC weapons have been employed in other areas of the theater. Continued employment of NBC weapons is considered probable in the immediate future. Indicators could be NBC munitions deployed to either field storage sites or firing units, enemy troops wearing or carrying protective equipment, NBC reconnaissance elements observed with conventional reconnaissance units, and/or NBC decontamination elements moved forward. Unit actions may include the following:

(1) Unit NBCDE should be both prepalletized and located forward for easy access or issued to the personnel responsible for use within the unit.

(2) Individuals should be at MOPP O, MOPP 1, or MOPP 2.

(3) Units should also erect CP shelters if the tactical situation permits. Personnel and equipment should be kept under cover as much as possible to protect them from contamination.

(4) CDMs should be sent to subordinate units.

(5) NBC defense units (decontamination and NBC reconnaissance assets) should be deployed as part of the force structure.

(6) Detection and monitoring (such as CAM) equipment should be issued to the operators.

(7) Units should fill M11 and M13 DAPs and mount on vehicles.

e. Serial 4. The adversary possesses NBC warfare agents and delivery systems. The NBCDE is available and the training status is considered at par or equal to that of the US. NBC weapons have already been employed in the theater and an attack is considered imminent. Indicators are an NBC attack in progress but not in the AO, NBC warnings/signals to enemy troops, NBC munitions delivered to firing units within range of friendly forces, and/or the movement of surface-to-surface missiles to a launch site. Unit actions may include the following:

(1) US forces should deploy with NBCDE in the unit load.

(2) Personnel should either wear the overgarments or carry them in their rucksacks or NBC bags.

(3) Personnel should also change protective mask filters before deployment.

(4) Decontamination and NBC reconnaissance assets should be task-organized and responsive to commanders' requirements. Contingency stocks of NBCDE may be made readily available (i.e., located at battalion trains).

(5) CDMs are initiated and CP systems are placed into a state of readiness.

2. Completing NBC Threat Status Matrix

a. This threat status can be assessed separately for nuclear (N), biological (B), or chemical (C) threats. For example, it would be possible to have a C status of three and a B status of zero. This threat status provides a decision tool that can be used to support CCIR.

b. The threat status can change rapidly. Although a C status of zero may exist during deployment, the adversary may seize TIM or obtain warfare agents from a sponsoring nation. Therefore, the commander must be capable of upgrading the NBC defense posture quickly.

c. To assist in the formulation of the threat status, the NBC staff (in conjunction with the intelligence section) must analyze all information received. A tool in this analysis is the threat status matrix depicted in Table E-1.

Table E-1. NBC Threat Status Matrix

Conditions	Serial Number			
	1	2	3	4
Enemy force information • Training status.				
• NBC equipment availability.				
• Wearing overgarments.				
• In CPS, in position with overhead cover, or exposed.				
Enemy NBC policy and capabilities • What is enemy's stated policy on NBC weapons employment?				
• Can enemy produce NBC weapons?				
• Has industrial output increased or changed for production of NBC munitions or protective equipment?				
NBC weapons systems • Are weather and terrain favorable for an NBC attack?				
• Have NBC weapons been used in theater?				
• Are enemy decontamination/reconnaissance units forward?				
• Have NBC weapons been moved to firing units (launch site)?				
TOTALS (circle current status).				

d. More than one matrix may be necessary to determine the NBC threat status.

e. To use the matrix, place an *X* in the appropriate blocks and add each column. The column with the most *X*s provides a means to identify what threat status serial number could be used to identify an indication of the enemy force's intent. If an overall threat status cannot be determined due to an information shortfall, collection assets should be reallocated or repositioned to gain the needed information.

f. Once the threat status estimate has been assessed, the NBC staff must analyze the protection level required for friendly forces. This is accomplished by examining key factors such as—

(1) Understanding the mission and commander's intent for friendly forces.

(2) Capabilities and level of training of friendly forces.

(3) MOPP analysis and work degradation factors contained in documents such as FM 3-11.4, *Multiservice Procedures for Nuclear, Biological, and Chemical (NBC) Protection*, or other appropriate service publications.

(4) Availability of CDE and decontamination assets.

(5) Location and availability of desalinization plants (for arid areas).

(6) Location of civilian TIM manufacturing and storage facilities. TIM at these facilities may be used for commercial purposes. Further, TIM stored in these facilities may produce areas of contamination if storage containers leak (either intentional or unintentional).

(7) Availability of civilian-contracted labor and water transport for decontamination operations.

(8) Determining the location of sites in urban areas that could be used for equipment decontamination (i.e., car washes). These sites may be used in lieu of immediate decontamination stations. Obtain data on local fire hydrants (such as location and hookups). Hydrants may be used to provide water for decontamination operations.

g. The NBC staff must carefully prepare the threat status and identify the protection level required for friendly forces to withstand an NBC attack or TIM incident. This information is vital to the commander and for the successful accomplishment of the mission.

Appendix F

NBC DEFENSE DOCTRINE HIERARCHY

A key series of multiservice doctrine and TTP manuals provide commanders and staff with information concerning NBC defense for the strategic, operational, and tactical levels of war. Joint doctrine guidance is furnished in JP 3-11 (below); this document is supported by a series of supporting multiservice TTP publications. These manuals support a framework that furnishes commanders with the doctrine and TTP to support key areas such as avoidance, protection, HSS, and fixed site protection. (Some manuals are yet to be published.)

1. Published Manuals

The following manuals are available to commanders and their staffs. The manuals are current as of the dates listed.

- JP 3-11, *Joint Doctrine for Operations in Nuclear, Biological, and Chemical (NBC) Environments*, 11 July, 2000.

- FM 3-11.21, *Multiservice Tactics, Techniques, and Procedures for Nuclear, Biological, and Chemical Aspects of Consequence Management*, 12 December 2001.

- FM 3-11.34/MCRP 3-37.5/NWP 3-11.23/AFTTP(I) 3-2.33, *Multiservice Tactics, Techniques, and Procedures for NBC Defense of Theater Fixed Sites, Ports, and Airfields*, 29 September 2000.

- FM 4-02.283/NTRP 4-02.21/AFJMAN(I) 44-151/MCRP 4-11.1B, *Treatment of Nuclear and Radiological Casualties,* 20 December 2001.

- FM 8-10-7, *Health Service Support in a Nuclear, Biological, and Chemical Environment*, 22 April 1993.

- FM 8-284/NAVMED P-5042/ AFMAN (I) 44-156/MCRP 4-11.1C, *Treatment of Biological Warfare Casualties*, 17 July 2000.

- FM 8-285/NAVMED P-5041/AFJMAN 44-149/FMFM 11-11, *Treatment of Chemical Agent Casualties and Conventional Military Chemical Injuries*, 22 December 1995.

- FM 8-9/NAVMED P-5059/AFJMAN 44-151, *NATO Handbook on the Medical Aspects of NBC Defensive Operations, AmedP-6(B),* 1 February 1996.

2. Manuals Under Development

Several multiservice manuals pertaining to various aspects of the chemical mission are currently in various stages of production and will be available in the future. These manuals include—

- *MTTP for Contamination Avoidance.*

- *MTTP for NBC Protection.*
- *MTTP for NBC Decontamination.*
- *Field Behavior of NBC Agents.*
- *Technical Aspects of Chemical and Biological Agents.*
- *MTTP for NBC Vulnerability Analysis.*
- *MTTP for NBC Reconnaissance.*

Appendix G

BASIC STANDARDS OF PROFICIENCY

This appendix addresses the levels of proficiency for NBC defense personnel and provides a recommended organization for NBC defense. Individuals must be trained in the concepts of NBC defense in order to survive under the conditions of an NBC attack and to make their contribution toward the survivability and operating proficiency of the unit in an NBC environment. Individual standards of proficiency are shown as survival and basic operating actions. Survival standards are those that the individual must master in order to survive NBC attacks. Basic operating standards are those that the individual must master in order to contribute to the continued operations of the unit as a whole under NBC conditions.

This appendix implements STANAG 2150,
NATO Standards of Proficiency for NBC Defense

1. Individual Protection

Individuals should normally receive initial NBC defense training upon entering military service and receive refresher training at regular intervals thereafter.

a. Survival Standards. To meet survival standards of proficiency in NBC defense, the individual must be able to—

- Recognize attacks with NBC munitions and take protective action.
- Recognize NBC alarms and signals.
- Recognize the existence of CBR hazards and take protective action.
- Properly don, seat, clear, and check the respirator/protective mask. Complete the adjustment/attachment of the hood, if available, following an alarm or recognition of a chemical or biological attack.
- Properly don protective clothing. In addition, the individual must be able to relate the use of protective clothing to the graduated levels of the NBC threat described in Appendix E and properly perform assigned missions.
- Take protective measures against thermal radiation (light, flash, and heat), a blast wave, and radiation effects of nuclear explosions.
- Carry out immediate individual decontamination.
- Follow the procedures for the removal of NBC IPE.
- Recognize if casualties are contaminated and perform first aid (self-aid and buddy-aid).

- Practice good personal health and hygiene as a protective measure against the spread of disease.

b. Basic Operating Standards. To meet basic operating standards of proficiency under NBC conditions, the individual must be able to perform the survival standards listed above and master the following in order to contribute to the continued operations of the unit:

- Maintain NBC IPE in a high state of serviceability at all times.
- Be proficient in taking specific actions required for maintaining operating efficiency before, during, and after NBC attacks in order to reduce the effects of NBC weapons.
- Recognize or detect NBC agent contamination and perform immediate decontamination of self, clothing, personal equipment, individual weapon, vehicle, and crew-served weapon.
- Recognize all standard marking signs that indicate chemically, biologically, or radiologically contaminated areas.
- Cross or bypass marked NBC contaminated areas with minimum danger to self.
- Demonstrate proficiency in performing primary military duty—to include the use of crew/personal weapon(s)—while in the IPE for extended periods. These periods are to be determined by the commander, based on such factors as weather conditions and equipment specifications.
- Be familiar with the procedures to be followed at the decontamination facilities of military service.
- Be familiar with the principles of CP, including entry and exit from CCAs and shelter organization and operation where applicable.
- Demonstrate familiarity with the use of dosimetry devices and CB detection and monitoring equipment where applicable.
- Demonstrate the ability to perform the duties of an NBC observer.

c. Basic Standards of Proficiency for Selected Personnel Requiring Additional Training.

(1) Personnel trained in NBC monitoring, survey, and reconnaissance should be able to—

- Operate and maintain NBC equipment applicable to the task.
- Recognize attacks with NBC munitions and fully understand unit procedures for implementing warnings and providing protection.

- Detect and identify contamination and organize and conduct NBC monitoring and survey operations.
- Monitor personnel, food, drinking water, and equipment for NBC contamination and effectiveness of decontamination measures.
- Collect samples of suspected biological contamination and forward them as directed.
- Collect samples of liquid or solid chemical agents.
- Mark NBC contaminated areas, equipment, supplies, and stores with standard marking signs.
- Provide data for compilation of NBC reports.
- Organize and conduct NBC monitoring and surveying operations.
- Operate detection and survey equipment for recognizing and detecting hazards from CBR releases.

(2) Personnel trained in contamination control should be able to—

- Perform necessary decontamination of supplies, equipment, and areas for which they are responsible in the performance of their primary duties.
- Operate and maintain assigned decontamination equipment.
- Establish and operate a personnel decontamination station where applicable
- Take measures before an attack to prevent contamination and after an attack to avoid the spread of contamination.

(3) In addition to the basic standards of proficiency for individual service personnel, all officers and NCOs should have knowledge (appropriate to their rank and operational role) of—

- Deployment of NBC observers and detection devices.
- NBC monitoring, survey, and reconnaissance.
- Survival procedures before, during, and after an NBC attack and *friendly* nuclear strike.
- CBR downwind hazards.
- Radiation dose control, exposure rules, and record keeping.

- General protective values of material against radiation, including the selection of buildings and the construction of shelters.

- Contamination control procedures for the permanent or temporary prevention, reduction, or neutralization of contamination for maintaining or strengthening an efficient conduct of operations.

2. Basic Standards of Proficiency for NBC Defense

Officers and enlisted personnel whose primary duties are concerned with unit NBC defense activities are required to receive formal training beyond the scope outlined in paragraph 1. NBC defense specialists are command NBC defense officers, and enlisted personnel and unit NBC defense officers and enlisted personnel. Command NBC defense officers and enlisted personnel are those who are assigned full time duties for NBC defense. Unit NBC defense officers and enlisted personnel are those who are assigned an additional duty to form the NBC control party. These personnel can be at the same company level (or equivalent), but may be at a higher level, depending on a service's organizational structure.

a. Command NBC defense officers and enlisted personnel in cooperation with the functional groups of the staff, as necessary, must be able to—

- Assist the commander in providing policy and guidance to lower echelons in all matters pertaining to the development of an NBC defense capability.

- Plan, conduct, and monitor NBC defense training within the command.

- Evaluate the capability of lower echelons to survive an NBC attack and to continue operations in an NBC environment.

- Keep abreast of new TTP in NBC defense.

- Act in the capacity of an adviser to the commander on all matters pertaining to the NBC defense of subordinate units/formations. When augmented, be responsible for the NBCWRS .

- Recommend employment of special NBC defense elements/units, if available.

- Operate and use automated systems for calculations and data processing where appropriate. If an automated system is not available, personnel in NBC centers must be able to perform the same tasks manually.

- Act as an adviser to the commander on all matters pertaining to cooperation in NBC defense with units/agencies of other nations.

b. Unit NBC defense officers and enlisted personnel (assisted by enlisted alternates) must be able to—

- Provide technical assistance to the commanders and staff on NBC defense training and operations.

- Coordinate the unit's NBC defense activities.
- Provide NBC defense training to achieve basic operating standards of proficiency for the unit and the individuals of the unit.
- Plan and supervise NBC defense training aspects of operational training exercises and maneuvers.
- Supervise preparation of unit NBC defense SOPs and adapt them to existing plans of other units (national/international) as required.
- Supervise operations and maintenance of NBC material.
- Determine by dosimetry or by calculation (as appropriate) the total dose and time of stay in and/or transit through radiologically contaminated areas to avoid exceeding command exposure guidance.
- Prepare fallout prediction patterns and perform the tasks of the NBCWRS (may be assigned to meteorological, operational, and navigational officers in naval forces/air forces).
- Plan NBC reconnaissance and advise commanders on the best routes to cross or bypass an NBC contaminated area.
- Plan and coordinate decontamination within the unit and advise the commander.
- Maintain records of the 65unit's radiation exposure.
- Estimate downwind hazard for chemical attacks.
- Report NBC data to next higher HQ and perform the NBC reporting and warning tasks.
- Evaluate individual and unit competence in NBC defense and advise the commander on the unit's ability to survive and to continue operations in an NBC environment.
- Operate and use data processing devices and possess basic knowledge of the structure of programs used in NBC warning and reporting where appropriate.

c. Additionally, all NBC defense officers/NCOs must be able to—

- Identify the hazards related to risks of LLR, release other than attack (ROTA), and TIM.
- Make contingency plans for units facing LLR, ROTA, and TIM hazards.

- Act as an adviser to the commander on all matters pertaining to LLR, ROTA, and TIM hazards.

3. Basic Standards of Proficiency for Commanders

Commanders are required to have knowledge and competence in NBC defense beyond the scope of that demonstrated by each individual but not to the degree required by NBC defense specialists.

a. Commanders should—

- Understand the principles of NBC defense.
- Know the defense organization and the NBCDE available.
- Assess the capabilities of the NBC defense forces under their command.
- Assess the effects of NBC munitions on unit/formation, especially on operations to be conducted.
- Issue orders and take measures depending on situation and mission.
- Plan operations taking into account the NBC threat and the readiness of units for operations in an NBC environment.
- Estimate the effects of wearing NBC IPE for an extended period of time and understand what measures can be taken to mitigate those effects on the combat effectiveness and well being of their forces.
- Be familiar with the available medical prophylactic countermeasures.
- Be familiar with integration of NBC training in exercises.

b. All commanders should also consider the risks of LLR, ROTA, and TIM hazards.

4. Basic Standards of Proficiency for Civilians

Nations must identify those civilian personnel considered mission essential for the continuance of military operations in an NBC environment and ensure that they are trained and equipped to survive and function in such environments. Personnel in this category can include government employees from US agencies and government contractor personnel.

a. Civilian NBC Defense Standards of Proficiency. Appropriate standards of proficiency for civilians to function in an NBC environment include—

- Recognizing attacks with NBC munitions and taking protective action.
- Recognizing NBC alarms and signals.
- Recognizing the existence of CBR hazards and taking protective action.

- Properly donning, seating, clearing, and checking the respirator/protective mask. Completing the adjustment/attachment of the hood, if available, following an alarm or recognition of a chemical or biological attack.

- Properly donning protective clothing. In addition, the individual must be able to relate the use of protective clothing to the graduated levels of an NBC threat and properly perform assigned missions.

- Taking protective measures against thermal radiation (light, flash, and heat), a blast wave, and nuclear radiation effects of nuclear explosions.

- Carrying out immediate individual decontamination skills.

- Following the procedures for the removal of NBC IPE.

- Recognizing if casualties are contaminated and performing first aid (self-aid and buddy-aid).

- Practicing good personal health and hygiene as a protective measure against the spread of disease.

b. Basic Operating Standards. To meet basic operating standards of proficiency in NBC defense, civilians must be able to perform the survival standards listed above and—

- Maintain NBC IPE in a high state of serviceability at all times.

- Be proficient in taking specific actions required for maintaining operating efficiency before, during, and after NBC attacks in order to reduce the effects of NBC weapons.

- Recognize or detect chemical agent contamination and perform immediate decontamination of self, clothing, personal equipment, individual weapon and position, vehicle, and crew-served weapon.

- Recognize all standard marking signs that indicate chemically, biologically, or radiologically contaminated areas.

- Cross or bypass marked NBC contaminated areas with minimum danger to themselves.

- Demonstrate proficiency in performing their primary duties while wearing IPE for extended periods. These periods are to be determined by a supervisor, based on such factors as weather conditions and equipment specifications.

- Be familiar with the procedures to be followed at the decontamination facilities at their operating base.

- Be familiar with the principles of CP, including entry and exit from CCAs and shelter organization and operation where applicable.

- Demonstrate familiarity with the use of dosimetric devices and CB detection and monitoring equipment where applicable.

- Demonstrate the ability to perform the duties of an NBC sentry/observer.

5. Basic Standards of Proficiency for Medical Personnel

Medical personnel should be able to protect themselves, patients, and the respective medical facilities against exposure to NBC agents (NBC defense) and carry out all measures necessary to maintain and restore the health of personnel exposed to NBC environments (NBC medical defense).

a. In addition to being proficient in training standards of survival and basic operating standards which apply to medical personnel according to their rank and function, the following basic skills are required of medical personnel:

- Being able to effectively protect casualties in an NBC situation during emergency medical treatment, triage, advanced trauma management, resuscitative care, medical holding, evacuation, and hospital care.

- Being able to perform duties in a way that protects medical materiel, vehicles, and medical facilities against NBC hazards.

- Being familiar with fielded CP systems for facilities and vehicles if appropriate.

- Knowing acute symptoms of NBC injuries and specific countermeasures as well as their potential side effects.

- Knowing decontamination procedures for NBC contaminated patients.

b. Selected medical personnel should also have specialized knowledge in contamination control procedures for NBC contaminated patients and associated equipment (i.e., RADIAC monitor and CAM).

c. Medical personnel assigned to perform special NBC medical defense tasks during missions (e.g., surgeons, preventive medicine personnel, microbiologists, and veterinary personnel) should have task-oriented, specialized knowledge of diagnosis and treatment of NBC injuries and of the detection and identification of CB agents and radiation.

d. Staff and command surgeons provide assessments to the commander on—

- Scientific background involving the acute and long-term health effects of NBC/TIM hazards.

- How to prepare for an operation to include the establishment of an inventory of NBC/TIM hazards and infectious endemic diseases.

- Ways to coordinate the investigations of unusual sickness and fatalities in situations involving NBC/TIM hazards and endemic diseases.

- After-operation advice on postconflict surveillance.

- Use of chemoprophylasix, immunizations, pretreatments, barrier creams, and treatment.

6. Survival and Unit Basic Operating Standards

Each unit must develop and maintain a capability for the successful accomplishment of its mission in an NBC environment. Planning and training for this capability will include preparation of a unit NBC SOP and frequent exercises to ensure familiarity in applying the SOP. Unit standards of proficiency are shown as *survival* and *basic operating standards*.

a. In order to survive an NBC attack, a unit must be able to—

- Take immediate and correct action upon warning of an imminent NBC attack or arrival of a CB agent or radiological fallout.

- Determine the presence and nature of NBC hazards in the unit's area and take effective measures to mitigate, to the extent possible, the effects of an NBC attack.

- Properly use unit NBC protective equipment and supplies and maintain them in a high state of serviceability and readiness.

- Enforce a high order of health, hygiene, and sanitation to minimize the spread of disease following a biological attack.

b. In order to meet basic operating standards of proficiency, the unit must be able to perform the survival standards listed above and—

- Maintain a degree of protection appropriate to the risk while continuing to conduct the primary mission of the unit.

- Perform necessary decontamination of supplies, equipment, and areas for which it is responsible in the performance of its primary duties.

- Delineate the areas of an NBC hazard.

- Delineate contaminated areas and mark them by using standard signs.

- Cross, bypass, or function in contaminated areas with minimum loss of efficiency, decontaminating where necessary.

- Operate efficiently over an extended period of time (to be determined by the commander based on such factors as weather conditions and equipment specifications) with personnel in full protective equipment to include wearing the protective mask.

- Report nuclear detonations, CB attacks, and associated hazards, hazard areas, and ROTAs.

- Assign NBC personnel based on standards of proficiency outlined in paragraph 2.

7. Guide to Organization for NBC Defense

The organization that best meets the need of one unit/organization will often not be applicable to another unit/formation. For example, it is not possible to equate the organization of personnel and material for decontamination tasks on a ship with the organization required on an airbase or within an infantry company. Similarly, a highly mobile infantry force will have different priorities for NBC defense than an air-operating base or naval vessel. Further, the following basic guidance applies when organizing for NBC defense operations.

a. The lowest level of unit which may be required to function as an independent entity should have an independent capability for survival.

b. Higher units/formations should have the capability of independently adopting their own NBC defense measures and performing their missions. In addition, they may have the capability of rendering support to smaller units to enable operations to continue.

c. The designation of specific personnel to specific responsibilities in the area of unit NBC defense must be accomplished. However, the normal command and staff structure should be followed to ensure that NBC defense is thoroughly integrated into the unit's SOP.

d. Regardless of the size or mission of the unit, tasks essential to NBC defense remain the same and differ only to a certain extent. The principles of NBC defense are avoidance, protection, and decontamination.

e. Priorities for the execution of NBC defense measures in an actual NBC environment should be decided upon by the commander, bearing in mind the primary mission of the unit and the time, personnel, and material available to mitigate the effects of the NBC attack.

f. The functioning of the NBC defense organization of a unit/formation must be evaluated by the responsible commander according to the guidelines listed in applicable references.

g. All HQ must meet the requirements of NBCWRS regarding NBCCs and NBC collection/subcollection centers.

h. Reaction forces are required to be self-sustaining in NBC defense. Reaction forces should have sufficient NBC defense assets to conduct NBC reconnaissance, survey and monitoring, decontamination, and contamination control.

8. Suggested NBC Defense Organization—Land Forces and Air Forces

Commanders of companies or equivalent-sized units, which do not have assigned NBC specialists, should appoint on an additional-duty basis one NBC defense officer/NBC

defense NCO and one enlisted NCO (assisted by one enlisted person). These personnel form the NBC control party and will perform the functions outlined in paragraph 2.

a. Commanders also assign personnel to maintain a capability to conduct monitoring and survey and decontamination, specifically—

- Monitoring and survey team. Each team should consist of a primary instrument operator and an assistant.

- Decontamination team. Each team should consist of one NCO in charge and several other enlisted men, including a monitoring and survey party. They perform the functions outlined in paragraph 2.

b. A battalion or equivalent HQ that is not assigned an organic NBC defense officer should appoint an NBC defense officer on an additional-duty basis. Those HQ that are not assigned an organic NBC defense NCO should also appoint an additional-duty NBC defense NCO and one enlisted alternate. These personnel will form the NBC control party and should be augmented, as necessary, to enable NBC warning and reporting.

c. Additionally, commanders of fixed installations can be guided by this NBC organization.

9. Suggested NBC Organization—Naval

The defense of a ship's company against NBC effects can be provided by the citadel (gas-tight envelope) concept; however, vessels without citadels can improvise by sealing off parts of the ship to provide a limited contamination-free area.

a. The ship's personnel receive training in individual and collective NBC defense procedures. Specifically trained personnel perform the functions outlined in paragraph 2.

b. Commanders also assign sufficient personnel to use available detection devices and interpret the information provided by the devices.

c. Further, contamination control systems such as water "washdown" systems may be available, and commanders assign an appropriate number of decontamination parties. The number of parties required will normally be dictated by the size of the ship.

d. Additionally, commanders of naval aviation forces and naval shore installations can be guided by the NBC organizations shown in paragraph 8.

10. Training Standards

The establishment of training standards for NBC defense support increases effectiveness. This process is supported by the UJTL, which provides a standard description of key joint tasks across the range of military operations. For each task, the conditions under which implementation must be conducted support setting realistic standards. The use of these standards helps to support assessments of unit readiness.

a. The UJTL provides a source of functional, joint (interoperability) tasks that provide a common language and reference system for strategic-, operational-, and tactical-level planners. The UJTL's joint/interoperability tasks can be performed by more than one service component to meet the mission-derived conditions and approved standards of a joint command. For example, planners and analysts can use the system to translate missions into common language tasks that can serve to derive JMET training requirements. This mission-to-task-to-training connectivity can assist forces in training the way they intend to fight.

b. The UJTL includes many tasks that can be considered as missions or operations and helps to provide a framework for mission analysis and structuring training events. Further, joint tasks describe in broad terms the current and projected capabilities of the US armed forces; however, the UJTL is not all-inclusive. Service components are capable of tasks beyond those listed. For detailed information on the UJTL and its implementation, see *Chairman Joint Chiefs of Staff Manual* 3500.04B and applicable service directives such as *Operational Navy (OPNAV) Instruction* 3500.38/*Marine Corps Order* 3500.26.

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GLOSSARY

PART I—ABBREVIATIONS AND ACRONYMS

A

AA	air assault, avenue of approach
AB	air base
ABN	airborne
AC	active component
ACAA	automatic chemical agent alarm
ACADA	automatic chemical agent detection and alarm
ACE	air combat element
ACR	armored cavalry regiment
ADCON	administrative control
AF	Air Force
AFB	Air Force base
AFCESA	Air Force Civil Engineer Support Agency
AFDD	Air Force doctrine document
AFH	Air Force handbook
AFI	Air Force instruction
AFM	Air Force manual
AFMAN	Air Force manual
AFPAM	Air Force pamphlet
AFRAT	Air Force Radiation Assessment Team
AFS	Air Force specialty
AFTH	Air Force theater hospital
AFTTP	Air Force tactics, techniques, and procedures
agent	See biological agent or chemical agent
ALS	aircrew life support
amb	ambulatory
AO	area of operation
AOE	Army of excellence
AOI	area of interest
AOR	area of responsibility
APOD	aerial port of debarkation
APOE	aerial port of embarkation
ATTN	attention

B

B	biological
BCE	base civil engineer
BCOC	base cluster operations center
BDO	battle dress overgarment
BDOC	base defense operations center
BDU	battle dress uniform

BEE	bioenvironmental engineering
BEEF	base engineer emergency force
BIDS	biological integrated detection system
BIO	biological
BMU	beach master unit
BSA	brigade support area
BVO	black vinyl overboot
BW	biological warfare
BWC	Biological Weapons Convention

C

C	chemical
C^2	command and control
C^4I	command, control, communications, computers, and intelligence
CA	civil affairs
CALL	Center for Army Lessons Learned
CAM	chemical agent monitor
CANA	convulsant antidote for nerve agent
CAPDS	chemical agent point detection system
CARC	chemical agent resistant coating
CATF	commander, amphibious task force
CB	chemical biological
CBIRF	chemical biological incident response force
CBPS	chemical–biological protective shelter
CBR	chemical, biological, and radiological
CBR-D	CBR defense
CCA	contamination control area
CCIR	commander's critical information requirements
CCT	contamination control team
CDE	chemical defense equipment
CDM	chemical downwind message
CE	communications-electronics, civil engineering
CES	civil engineering squadron
CHEM	chemical
CI	civilian internee
CINC	commander in chief
CJCS	Chairman of the Joint Chiefs of Staff
CJCSI	Chairman Joint Chiefs of Staff instruction
CLF	commander, landing force
CLS	contracted logistics support
CMD	command
CMWD	countermeasures wash down
COA	course of action
COCOM	combatant command
COG	center of gravity
COLPRO	collective protection
COMMZ	communications zone

CONUS	continental United States
CP	chemical protective, command post, collective protective
CPE	collective protective equipment
CPO	chemical protective overgarment
CPS	collective protective shelter
CPU	chemical protective undergarment
CS	combat support
CSP	contracted support personnel
CSS	combat service support
CSSE	combat service support element
CVC	combat vehicle crewman
CW	chemical warfare
CWC	Chemical Weapons Convention
CZAA	cold zone assembly area

D

DA	Department of the Army
DAD	detailed aircraft decontamination
DAP	decontaminating apparatus, portable
DC	District of Columbia
DCA	damage control assistant
DCC	damage control center
decon	decontamination
DED	detailed equipment decontamination
DEPMEDS	deployable medical system
DOD	Department of Defense
DODD	Department of Defense directive
DODI	Department of Defense instruction
DP	disaster preparedness
DPO	disaster preparedness officer
DS	direct support
DS2	decontaminating solution number 2
DSA	division support area
DSN	defense switching network
DTD	detailed troop decontamination
DU	depleted uranium

E

EDM	effective downwind message
ELSF	expeditionary logistics support forces
EMP	electromagnetic pulse
ENGR	engineer
EOD	explosive ordnance disposal
EPW	enemy prisoner of war

F

FDD	force digitized division
FDO	flexible deterrent option
FE	force enhancements
FEMA	Federal Emergency Management Agency
FIF	fixed installation filters
FL	Florida
FLOT	forward line of own troops
FM	field manual
FMFM	fleet Marine force manual
FMFRP	fleet Marine force reference publication
FOF	follow-on force
FOX	NBC reconnaissance vehicle
FP	force protection
FSE	fire support element
FSSG	force service support group
FTX	field training exercise

G

G3	Assistant Chief of Staff
gal	gallon
GCE	ground combat element
GI&S	geospatial information and services
GPM	gallons per minute
GPS	global positioning system
GRREG	graves registration
GS	general support
GVO	green vinyl overboot

H

H&S	headquarters and service
HAZMAT	hazardous materials
HHD	headquarters and headquarters detachment
HHC	headquarters and headquarters company
HMMWV	high-mobility multipurpose wheeled vehicle
HN	host nation
HSS	health service support
HQ	headquarters
HTH	high test hypochlorite
HZAA	hot zone assembly area

I

IBADS	interim biological agent detection system

IBCT	interim brigade combat team
IM	information management
IO	information operations, international organization
IPB	intelligence preparation of the battlespace
IPDS	improved point detection system
IPE	individual protective equipment
IRF	initial response force
ISR	intelligence, surveillance, and reconnaissance

J

JFACC	Joint Force Air Component Command
JFC	joint force commander
JFLCC	Joint Force Land Component Command
JFMCC	Joint Force Maritime Component Command
JFSOCC	Joint Force Special Operations Component Command
JLOTS	joint logistics over the shore
JMAO	Joint Mortuary Affairs Office
JMET	joint mission-essential task
JMETL	joint mission-essential task lists
JOA	joint operations area
JP	joint publication
JRA	joint rear area
JRAC	joint rear area coordinator
JSCP	joint strategic capabilities plan
JSLIST	joint service lightweight integrated suit technology
JSLNBCRS	joint service lightweight nuclear, biological, and chemical reconnaissance system
JTF	joint task force
JULLS	joint universal lessons learned system
JWARN	joint warning and reporting network

K

KM	kilometer

L

LACR	light armored cavalry regiment
LCC	land component command
LDS	lightweight decontamination system
LEL	lower explosive level
LFSP	landing force support party
LLR	low-level radiation
LOC	line of communications
LR-BSDS	long-range biological standoff detection systems
LT	light

M

MADCP	mortuary affairs decontamination collection point
MAG	Marine aircraft group
MAGTF	Marine air-ground task force
MAJCOM	major command
MANSCEN	maneuver support center
MARFORLANT	Marine Corps forces, Atlantic
MAW	Marine aircraft wing
MCC	maritime component command
MCCDC	Marine Corps Combat Development Command
MCPDS	Marine Corps publication distribution system
MCRP	Marine Corps reference publication
MCWP	Marine Corps warfighting publication
MD	Maryland
MDR	medical department representative
MDS	modular decontaminating system
MEF	Marine Expeditionary Force
MET	meteorological
METL	mission-essential task list
METT-T	mission, enemy, terrain and weather, troops and support available, time available
MICAD	multipurpose integrated chemical agent alarm
MILSTRIP	military standard requisitioning and issue procedures
MO	Missouri
MOOTW	military operations other than war
MOPP	mission-oriented protective posture
MOS	military occupational specialty, minimum operating strip
MSC	major subordinate command
MSCA	military support to civil authorities
MSR	main supply route
MTF	medical treatment facility
MTP	mission training plan
MTTP	multiservice tactics, techniques and procedures
MTW	major theater of war
MWSS	Marine Wing Support Squadron

N

N	nuclear
NAAK	nerve agent antidote kit
NAF	numbered Air Force
NAI	named area of interest
NAPP	nerve agent pyridostigmine pretreatment
NATO	North Atlantic Treaty Organization
NAVMED	Navy medical
NAVSOP	Naval standard operating procedure
NBC	nuclear, biological, and chemical
NBCC	NBC center, nuclear, biological, chemical, and conventional; NBC

	center;
NBCCC	NBC control center
NBCDE	NBC defense equipment
NBCE	NBC element
NBCRS	NBC reconnaissance system(s)
NBCWRS	NBC warning and reporting system
NBG	Naval beach group
NCA	National Command Authorities
NCF	Naval construction forces
NCO	noncommissioned officer
NCW	naval coastal warfare
NCWC	Naval coastal warfare commander
NDC TACNOTE	Naval doctrine command tactical note
NEO	noncombatant evacuation operation
NG	National Guard
NGO	nongovernmental organization
NIRF	nuclear incident response force
NSTM	Naval ships technical manual
NTRP	Navy technical reference publication
NWDC	Navy Warfare Development Command
NWP	Naval warfare publication

O

O^2	oxygen
OCONUS	outside the continental US
OD	olive drab
OEG	operational exposure guidance
OPCON	operational control
OPLAN	operational plan
OPNAV	Operational Navy
OPR	offices of primary responsibility
OPSEC	operations security
OPTEMPO	operating tempo

P

PATS	protection assessment test system
PB	pyridostigmine bromide
PDD	Presidential decision directive
PDDA	power driven decontaminating apparatus
PHYSOP	psychological operations
PIR	priority intelligence requirements
POD	port of debarkation
POE	port of embarkation
POI	program of instruction
POW	prisoner of war
PS	protective shelter
PPE	personal protective equipment

PSU	port security unit
PSYOP	psychological operations
PVNTMED	preventive medicine
PVO	private volunteer organization

Q

QM	quartermaster

R

R&S	reconnaissance and surveillance
RA	risk analysis
rad	radiation absorbed dose
RADCO	rear area damage control officer
RADIAC	radiation detection, identification, and computation
RAOC	rear area operations center
RCA	riot control agent
REA	radiation exposure guidance
RES	radiation exposure status
RI	Rhode Island
ROTA	release other than attack
RSCAAL	remote sensing chemical agent alarm
RTOC	rear tactical operations center

S

S3	operations and training officer
SA	situational awareness
SACPS	selected area collective protection system
SCALP	suit contamination avoidance liquid protective
SCBA	self-contained breathing apparatus
SCPE	simplified collective protection equipment
SF	special forces
SFGA	special forces groups, airborne
SFOB	special forces operations bases
SFODA	Special Forces Operational Detachment A
SIG	signal
SITREP	situation report
SMT	shelter management team
SOC	special operations component
SOF	special operations forces
SOP	standing operating procedure
SPOD	seaport of debarkation
SPOE	seaport of embarkation
SRC	survival recovery center

S/RTF	search and recovery task force
STANAG	standardization agreement (NATO)
STB	super tropical bleach
STRIKEWARN	strike warning

T

TA	theater Army
TAACOM	Theater Army Area Command
TACNOTE	tactical note
TACON	tactical control
TAP	toxicological agent protective
TBM	theater ballistic missile, tactical ballistic missile
T/E	table of equipment
TIC	toxic industrial chemicals
TIM	toxic industrial materials
TMD	theater missile defense
TO	theater of operations
T/O	table of organization
TOC	tactical operations center
TOE	table of organization and equipment
TRADOC	Training and Doctrine Command
TTP	tactics, techniques, and procedures
TX	Texas

U

(u)	unclassified
UJTL	Universal Joint Task List
UNAAF	Unified Action Armed Forces
US	United States
USA	United States Army
USAF	United States Air Force
USCG	United States Coast Guard
USG	United States government
USMC	United States Marine Corps
USN	United States Navy
USSOCOM	United States Special Operations Command
UTC	unit type code

V

VA	Virginia, vulnerability assessment

W

WMD	weapons of mass destruction

WOC wing operations center

X

XO executive officer

PART II – TERMS AND DEFINITIONS

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)

Biological agent. A microorganism that causes disease in personnel, plants, or animals or causes the deterioration of materiel. (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 operation. Employment of biological agents to produce casualties in personnel or animals or damage to plants. (JP 1-02)

Biological threat. A threat that consists of biological material planned to be deployed to produce casualties in personnel or animals or damage plants. (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)

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. (JP 1-02)

Chemical agent cumulative action. The building up within the human body of small ineffective doses of certain chemical agents to a point where eventual effect is similar to one large dose. (JP 1-02)

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

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

Chemical dose. The amount of chemical agent, expressed in milligrams, that is taken or absorbed by the body. (JP 1-02)

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

Chemical monitoring. The continued or periodic process of determining whether or not a chemical agent is present. (JP 1-02)

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

Chemical survey. The directed effort to determine the nature and degree of chemical hazard in an area and to delineate the perimeter of the hazard area. (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. (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. (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)

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 combatant 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 (also called CINC). (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. (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 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)

Decontamination station. A building or location suitably equipped and organized where personnel and materiel are cleansed of chemical, biological, or radiological contaminants. (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 judgment in application. (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, crises, or emergencies, or war based on agreements mutually concluded between nations. Also called HNS. (JP 1-02)

Identification. 1. The process of determining the friendly or hostile character of an unknown detected contact. 2. In arms control, the process of determining which nation is responsible for the detected violations of any arms control measure. 3. In ground combat operations, discrimination between recognizable objects as being friendly or enemy, or the name that belongs to the object as a member of a class. Also called ID. (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. (JP 1-02)

Improvised nuclear device. A device incorporating radioactive materials designed to result in the dispersal of radioactive material or in the formation of nuclear-yield reaction. Such devices may be fabricated in a completely improvised manner or may be an improvised modification to a US or foreign nuclear weapon. Also called IND. (JP 1-02)

Individual protection. Actions taken by individuals to survive and continue the mission under nuclear, biological, and chemical conditions. (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. (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)

Mean lethal dose. (1) The amount of nuclear irradiation of the whole body which would be fatal to 50 percent of the exposed personnel in a given period of time. (2) The dose of chemical agent that would kill 50 percent of exposed, unprotected, and untreated personnel. (JP 1-02).

Median incapacitating dose. The amount or quantity of chemical agent which when introduced into the body will incapacitate 50 percent of exposed, unprotected personnel. (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. (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. (JP 1-02)

Munition. A complete device charged with explosives, propellants, pyrotechnics, initiating composition, or nuclear, biological, or chemical material for use in military operations, including demolitions. Certain suitably modified munitions can be used for training, ceremonial, or nonoperational purposes. Also called ammunition. (Note: In common usage, "munitions" [plural] can be military weapons, ammunition, and equipment. (JP 3-11)

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 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). (JP 3-11)

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. (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. (JP 1-02)

Persistency. In biological or chemical warfare, the characteristic of an agent which pertain 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. (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. (JP 1-02)

Protective mask. A protective ensemble designed protect the wearer's face and eyes and prevent the breathing of air contaminated with chemical and/or biological agents. (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. (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)

Surprise dosage attack. A chemical operation which establishes on target a dosage sufficient to produce the desired casualties before the troops can mask or otherwise protect themselves. (JP 1-02)

Survey. The directed effort to determine the location and the nature of a chemical, biological and radiological hazard in an area. (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)

Total dosage attack. A chemical operation which does not involve a time limit within which to produce the required toxic level. (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. (JP 1-02)

Toxic chemical, biological, or radiological attack. An attack directed at personnel, animals, or crops using injurious agents of chemical, biological, or radiological origin. (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. 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. Weapons of mass destruction can be high explosives or nuclear, chemical, biological, and radiological weapons, but exclude 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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