TRAINING CIRCULAR
NO. 3-10

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Commander's Tactical NBC Handbook

CONTENTS

Preface

Training Circular 3-10 provides Commanders of battalion- and brigade-sized units with the tactics, techniques and procedures (TTP) to train and operate under nuclear, biological, and chemical (NBC) conditions.

What should you get out of the book? The three key issues are:

- What requirements NBC warfare places on you and your unit (Chapters 1, 2, 5 and 6)
- How your leadership improves unit performance under NBC conditions (Chapters 1, 3 and 4)
- How you use all of your chemical assets (Chapters 7 and 8)

Common to all three of these issues is training. Train as you fight, but train under NBC conditions. Chapter 2 details the value of training under NBC conditions.

By making timely, correct decisions you can avoid NBC hazards or use the minimum protection necessary to execute the operation. The more you personally know about the NBC environment, the easier it will be to make sound decisions-and your unit will be more effective, even if your soldiers have little NBC training. Conversely, the Combined Arms in a Nuclear/Chemical Environment (CANE) series of tests have shown that units were *less* effective under NBC conditions when their *leaders* had little NBC training.

Organic to your corps and division will be a variety of chemical units-these may be pushed down to brigades (and even battalions)

for most operations. A smoke unit can dramatically increase your force exchange ratio if you know how to use it. NBC reconnaissance assets, when employed properly, greatly assist in the overall reconnaissance fight. Other chemical units are valuable for battle command and reconstitution. Chemical units work best when they are involved early in the planning phase of an operation.

Ultimately, the focus of this manual is to take the mystery and fear out of NBC defense. Leaders and soldiers must develop confidence in their equipment and in their own ability to both survive and operate effectively while wearing MOPP gear.

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

The proponent for this publication is the US Army Chemical School. Send comments and recommendations on DA Form 2028 (Recommended Changes to Publications and Blank Forms) directly to:

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INTRODUCTION

As you know, units at the Combat Training Centers (CTC) face realistic combat training against a well-trained, aggressive opposing force (OPFOR). The OPFOR is skilled in the use of threat tactics, to include the use of chemical weapons.

During a recent battle at a CTC the failure to recognize the impact of NBC conditions led directly to a brigade failing to achieve its assigned mission.

Blue Task Force Mission and Concept

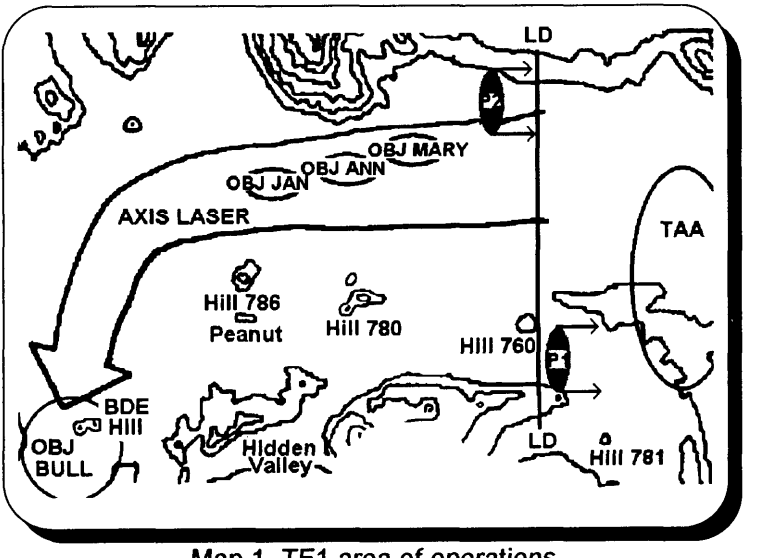
The lead task force was an armor-heavy battalion task force (TFl) with three Ml tank companies and one M2 mechanized infantry company.

The mission of TFl was to attack to penetrate the enemy's first echelon defensive belt and seize a terrain-oriented objective. Map 1 on the next page shows the commander's plan, which was to move along an axis in the northern portion of the zone and assault Objective BULL (OBJ BULL). Once at the OPFOR's obstacle belt, the plan called for TFl to breach the obstacle, then continue the attack to seize OBJ MARY, OBJ ANN, and OBJ JAN, in turn. After the TF secured all objectives, the commander planned to reform and continue the attack to seize OBJ BULL.

In the intelligence annex to the TFl operations order (OPORD), the intelligence officer (S2) stated that opposing 1st Brigade are two motorized rifle battalions (MRBs) of the 76th motorized rifle

regiment (MRR), and that "persistent and non-persistent chemical agents have been used. Expect persistent chemicals to be used to close an avenue of approach (AA) and augment final protective fires (FPF). Expect a major AA sealed off with persistent contamination."

In the NBC defense annex to the TFl OPORD, the Chemical Officer (ChemO) listed five possible locations that the OPFOR might contaminate with persistent chemical agents.



Map 1. TF1 area of operations

The OPFOR Mission and Concept

The OPFOR defended with two MRRs in the first defensive echelon and one MRR in the second defensive echelon. The OPFOR commander planned to use chemical weapons as obstacles to shape the battlefield, to assist in counterattacks, and to prevent consolidation by enemy forces. The OPFOR planned to use persistent type agents to create two zones of contamination as obstacles: P1 to block the southern avenue of approach into the sector (considered the most dangerous), and P2 along the northern wall to push attacking units to the south into the "fire sack" and to protect the northern flank.

Nonpersistent agents, such as blood (AC), or nerve (GB), would be employed if the enemy penetrated the first defensive echelon.

What Did TFI Do Incorrectly During The Battle?

During the brigade rehearsal the brigade commander placed the NBC reconnaissance platoon under control of TFl. The NBC reconnaissance platoon's mission was to locate and identify possible contaminated areas along TFl's axis.

Even though the TF ChemO listed possible contaminated areas on the enemy situation template, they were not designated as named areas of interest (NAI) and added into the TF's reconnaissance and surveillance (R&S) plan. In fact, the TF S2 predicted (templated) a contaminated area near the axis of advance for the TF, yet planned a route for a scout section *through* the area to emplace an observation post (OP) team. The scout platoon was not assigned any chemical survey missions nor were they instructed to confirm or deny any of the templated contaminated areas.

The OPFOR, based on intelligence from their OPs, decided to shoot persistent chemicals into target P2. A little past midnight, a 2S3 artillery battalion from the regimental artillery group (RAG) initiated a fire mission that contaminated approximately one square kilometer of ground with thickened nerve agent. While the flashes from impacting artillery rounds were clearly visible past the line of departure, nothing was reported.

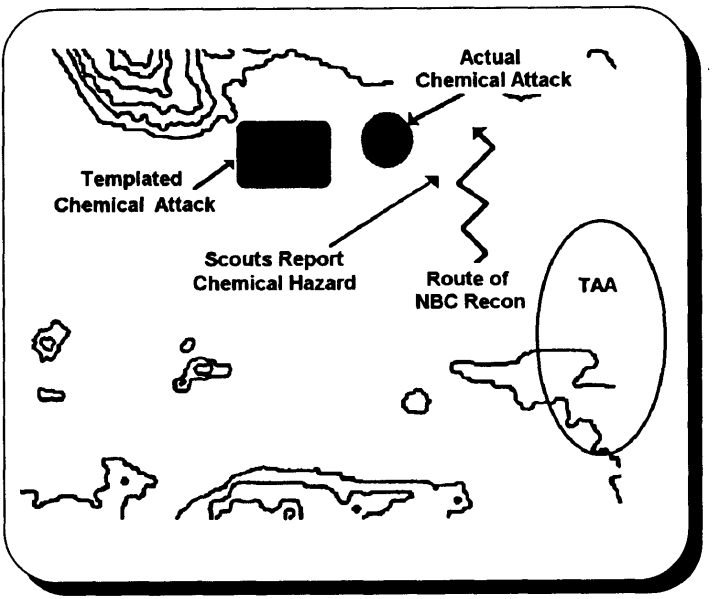
In the early morning hours of the day of the attack, a scout vehicle moved along its designated route to establish a deep OP. The section was in MOPP2, even though their route took them through a templated contaminated area. The crew immediately began to suffer the initial effects of nerve agent poisoning. The scouts then called the TF 1 S2 by radio and informed him of their situation. They were able to identify the contamination by symptoms only, because the scout section was not equipped with any chemical detection or identification equipment (e.g., M256A 1 detector kit, M8A1 chemical alarm, or MS or M9 detector paper). The scouts also reported

their location incorrectly -- approximately 1,000 meters to the southeast of the actual contamination.

TFl reported the location of the chemical contamination to the brigade main command post using a spot report (SPOTREP). The brigade chemical section disseminated a warning to all brigade units informing them of the reported contaminated area.

After the scout report of contamination, the chemical recon platoon was deployed to conduct a survey. It started near the LD and moved north using a zig-zag pattern, but missed the location reported by the scouts by 1,000 meters (see Map 2 below).

The TFl S2, in his intelligence update, reported the suspected contaminated area using the location that the scouts provided. The TFl S3 then directed one of the teams to avoid the contaminated area. There was no change to the directed MOPP level (MOPP2).



Map 2. The battle area for TF1

The TF commander called the NBC reconnaissance platoon leader, but was unable to make contact with him or his platoon. In addition, the TF chemical officer left the TOC to assist in positioning elements of the smoke platoon along the LD. Meanwhile, the NBC reconnaissance platoon ended its mission and later reported no chemical contamination found.

TFl crossed the LD and began to move to the northwest. The lead team, by attempting to go north of the reported contaminated area, ran directly into the actual contaminated area. The team reported this to the TF commander, but by that time the entire team and the TF command group had moved into the contaminated area. Fifteen vehicles were contaminated.

The forward momentum of TFl was halted. A second team hit the contaminated area and reported to a third team. Each team made a decision to move to the south to get around the contamination. Unfortunately, the chemical officer had not yet returned to the TOC and was unable to advise the TF commander against this move.

The OPFOR then began to attrite the stopped teams with close air support and artillery. One team alone lost 10 combat vehicles while the TF was stopped. The TFl command group moved through the contaminated area in MOPP4.

One team used an M256 kit to determine if they were in the chemical hazard area. The result of the kit was misread as “nonpersistent nerve” instead of “all clear.” The results of the test were sent to the TF commander on the command net, compounding the problem of identifying the exact NBC threat facing the TF. Based on the knowledge that the NBC recon platoon found no contamination and the team had identified the agent as nonpersistent nerve, the TF commander and S3 assumed that the first team had been hit by a nonpersistent chemical attack. After hearing several units report all clear readings on the command net, the commander ordered the TF to MOPP2. Within minutes after removing his mask, the TF commander becomes a nerve agent casualty.

One team, now attrited to platoon size, continued to move west to occupy the designated support by fire position. The team remained in MOPP4, even though two subsequent M256 tests indicated no

chemical agents present. Target identification was difficult and the team began to tier from accurate long-range fires. It was not until most of the team was destroyed that the MOPP level was reduced.

The remainder of TFl assaulted through a breach in the OPFOR obstacle system, but did not have sufficient combat power to continue the attack. The brigade ordered TF1 to assume a hasty defense. The brigade's MECH TF began to move forward with the mission to pass through TFl and continue the attack.

The MECH TF crossed the LD and moved toward the contaminated area. Although the MECH TF received warnings of the contaminated area, the warning was not fully disseminated to the subordinate units. As a result of the failure of the lead TF to report and mark the contamination, a significant number of vehicles from the MECH TF entered the contaminated area.

What is Important for You to Know?

- The protective mask is the most critical item of protective equipment (page 3-2)
- Template all likely NBC targets and designate templated areas as NAI (page A-1)
- Ensure your unit carries their basic load of NBC defense equipment (pages 5-2 and C-1)
- Report NBC attacks or contact with NBC contamination hazards (pages 3-4 and A-2)
- NBC information must be present and visible in TOC (pages 4-6 and 4-8)
- Identify the NBC threat and determine how the enemy will employ NBC agents (pages 1-7 through 1-10)
- If contamination in the NAI could affect the scheme of maneuver, attempt to recon the NAI (page 2-10)
- Threat capability and intent to employ weapons of mass destruction should be a priority information requirement PIR (page A-1)
- The supporting chemical units must execute their assigned missions in support of your intent (Chapter 8)

Chapter 1
WINNING UNDER NBC CONDITIONS

"I also worried about the great empty area of southern Iraq where the Army would launch its attack. I kept asking myself, 'What does Saddam know about that flank that I don't? Why doesn't he have any forces out there?' The intelligence people suggested offhandedly, 'Maybe he plans to pop a nuke out there.' They then nicknamed the sector the 'chemical killing sack.' I'd flinch every time I heard it. I had a nightmare vision of Fred Franks and Gary Luck hitting that area only to have the Iraqis dump massive quantities of chemicals while the Republican Guard counterattacked and fought us to a stalemate. I became increasingly jumpy."

General H. Norman Schwartzkopt, 1991

Nuclear, biological and chemical (NBC) weapons have had a profound impact on how our world is shaped and how our forces will fight. Each technology change has altered doctrine, tactics, techniques, and procedures. For decades, our leadership has struggled to prevent the proliferation of NBC weapons. Nevertheless, the list of countries that possess NBC capabilities grows each year. As a result, countries possessing these weapons could threaten the interests of the United States of America in every possible theater of the world.

No enemy has used NBC weapons against the United States in over 75 years. This is a testament to the fact that our forces:

- Possess the best NBC defensive equipment in the world
- Until recently, possessed a credible nuclear and chemical retaliatory capability
- Have had time to train prior to fighting an enemy with NBC capabilities

United States (US) policy is summarized in table 1-1.

Table 1-1. US policy

NBC Employment	NBC Defense
• Nuclear - Possible first use	• Avoidance
• Biological - No use	• Protection
• Chemical - No use	• Decontamination

The effects of NBC weapons upon personnel and unit operations will range from limited to severe. Individual protection for chemical agents will be the most degrading, while the effects of nuclear and biological weapons will be more far-reaching. Probably the greatest challenge you will face will be the physiological and psychological impacts on yourself and your subordinates.

The best means at your disposal to lessen these impacts are: knowledge of your soldiers; knowledge of the threat; and stressful, realistic training under NBC conditions on a repetitive basis. The following will first discuss what is required of you under NBC conditions, followed by a discussion of leadership the threat, and Chapter 2, training.

NBC WARFARE REQUIREMENTS

NBC warfare requires that you ensure:

- Individual soldiers are proficient in basic NBC survival skills
- Your unit is proficient in NBC collective skills and in performing mission essential tasks under NBC conditions
- Your subordinate leaders understand the nature of NBC warfare and its physiological and psychological implications for themselves and for their soldiers
- Your unit is able to project power under NBC conditions

To project power, your forces must be able to deploy with little notice. You may have to deploy against a potential adversary who has both the capability and intent to use NBC weapons against your force, perhaps even to deny/delay entry into the Theater of Operations.

Operation DESERT SHIELD/DESERT STORM showed that:

- Our forces were not completely prepared to defend against Iraqi use of chemical or biological weapons until just before commencing ground offensive operations
- Complacency and the absence of command emphasis prior to deployment were among the root causes of this lack of preparedness

United States policy prohibits use of chemical or biological weapons. Treaty-based deterrence mandates that you be prepared to deploy in a high state of NBC defense readiness or accept greater risk of loss if the enemy uses NBC weapons against your forces. You may not have the grace period enjoyed by previous commanders to adequately prepare for NBC defense the next time your forces are called on to project power. To be fully trained and ready at all times, you must develop and maintain a steady level of NBC awareness throughout your unit's training cycle.

LEADERSHIP

Knowing your soldiers' abilities has always been a key component of successful leadership. Under NBC conditions, knowing your soldiers becomes even more important. Some soldiers have difficulty operating in MOPP. Leaders must identify these soldiers. Operationally stressful NBC training situations provides an indication of soldier performance. Once identified, direct your subordinate leaders and medical staff to closely monitor these soldiers.

Leaders can extend soldier performance under NBC conditions through:

- Motivation
- Repetitive training
- Physical fitness
- Cross training
- Crew rotation
- Work/rest cycles
- Sleep discipline
- Enforced hydration

You must have confidence in your soldiers, your equipment, and your own ability to lead under NBC conditions.

MYTHS AND TRUTHS

Because of the mystery surrounding the effects of NBC weapons, some common misperceptions have grown over time. This section is designed to dispel those myths and help you instill the necessary confidence in your soldiers.

MYTH: *All individual and ARTEP tasks are seriously degraded when performed in full NBC protection.*

TRUTH: Many tasks can be performed effectively in MOPP4, especially routine tasks that have been performed regularly. Difficult, complex tasks are performed more slowly in MOPP4. Some tasks, such as those requiring fine manual dexterity or unimpaired vision or hearing, if not critical, maybe delayed until a clean area is found or an area with collective protection is available.

MYTH: *All soldiers are affected similarly in full NBC protection.*

TRUTH: While all soldiers will be degraded to some degree, leaders are more adversely affected on the NBC battlefield. Leaders tend to be more physically active, sleepless, delegate less, manage more closely, and therefore become the first casualties in full protection.

MYTH: *Troops cannot effectively fire their weapons (individual or crew served) in full NBC protection.*

TRUTH: Target acquisition difficulties due to a reduced field of view (caused by the mask) and reduced hearing (caused by the hood) contribute to soldiers firing fewer rounds; once a target is acquired, accuracy is about the same in MOPP4 as in MOPP Zero.

MYTH: *It is more likely that troops will be killed by direct friendly fire when in M0PP4.*

TRUTH: This is no myth, it is **true,** especially by individual weapon systems. The root causes are recognition problems (incorrect combat ID) and disorientation (no situational awareness).

MYTH: *You cannot effectively communicate on the radio or person-to-person in full NBC protection.*

TRUTH: Receiving (hearing) is the primary problem; however, radio, telephone, and face-to-face communications can be effective in MOPP4 after only a few hours of training. Identification and recognition of individuals are more difficult, but training in your local ID system reduces the impact.

MYTH: *Water requirements are the same in hot climates whether you are in MOPP4 or not.*

TRUTH: Troops require more water when in MOPP4, and all must drink large quantities of water. Leaders are the worst offenders of water discipline and are among the first to become dehydrated.

MYTH: *Troops cannot operate for long periods of time in an NBC environment.*

TRUTH: It is true that unit effectiveness will be reduced in an NBC environment, but well-trained, disciplined units are able to operate at reduced efficiency for days if MOPP levels can be reduced periodically to MOPP Zero/1/2, allowing recovery to take place.

MYTH: *An excellent way to prepare or NBC conditions is to have troops wear MOPP4 when jogging, or playing volleyball, basketball, or other sports.*

TRUTH: This training may improve physical conditioning but fails to prepare troops to perform their primary mission under NBC conditions. Physical conditioning is critical to minimizing the degradation from MOPP gear, but METL training under NBC conditions provides the biggest payoffs.

MYTH: *Plans for operating in a conventional environment are the same in an NBC environment.*

TRUTH: Inadequacies or complexities in conventional operational plans are magnified in an NBC environment. Attacks take longer, vehicles use more indirect fire is used. Simple plans are the most successful under NBC conditions.

Actions which address these truths will be discussed in subsequent chapters.

WORLDWIDE NBC THREAT

The threat of NBC weapons being used against US forces is as great now as anytime in history. There are significant indications that the spread of weapons of mass destruction is accelerating, as illustrated by Figure 1-1 below.

Any nation with the will and resources can turn its legitimate nuclear, medical, and chemical facilities to the development of NBC weapons. Regional conflicts can quickly escalate to international concern and efforts at resolution may be complicated by the use of, or the threat to use, NBC weapons.

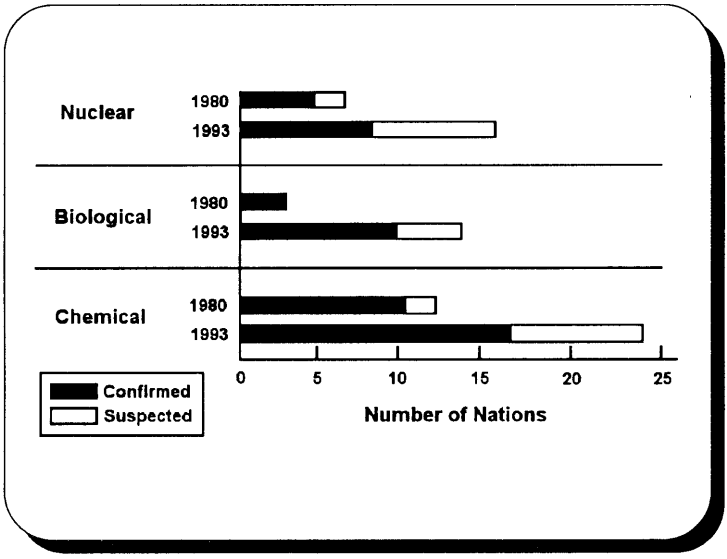


Figure 1-1. NBC proliferation

When employed properly and without warning, weapons of mass destruction can:

- Cause excessive casualties among poorly trained or poorly equipped troops
- Degrade the effectiveness of weapons, vehicles, and command posts by causing their operators to wear protective equipment
- Reduce the speed, cohesion, and freedom of movement of formations
- Restrict the use of weapons, supplies, equipment, and key terrain by contamination
- Disrupt rear area operations
- Enhance the effects of other enemy fire support
- Force decontamination operations and complicate the handling of casualties and contaminated remains

Threat of use, coupled with capability, is equally degrading.

Nuclear Capabilities

Despite existing nonproliferation agreements, at least four Third World states are technologically capable of producing nuclear weapons. The list could soon expand to include seven or eight others; for example: North Korea and Pakistan have a nuclear weapons program, and Iraq was on the verge of developing a nuclear weapon. Also to be considered is the possibility of a breakdown of accountability in the states of the former Soviet Union which have nuclear weapons. Weapons or nuclear material could find their way to potential trouble spots or terrorist organizations. A summary of nuclear weapons effects is shown in Table 1-2.

Table 1-2. Nuclear weapons effects

Effect	Target Effect
Blast/Shock	Crushes, deforms, tumbles, shocks, creates missiles and terrain obstacles
Thermal Radiation	Causes fires, burns, eye damage
Nuclear Radiation	Results in immediate or delayed casualties, material and terrain contamination
Transient Radiation Effects on Electronics (TREE) and Electromagnetic Pulse (EMP)	Causes permanent or temporary impairment of electrical, electro-optical, and electronic equipment

Biological Capabilities

Biological warfare is the employment of biological agents or agents of biological origin (toxins) to produce casualties in man or animal and damage to crops or material. Medical and pharmaceutical facilities, widely established in the Third World, can produce BW agents as well as medicines. Biological weapons systems can provide the widest area coverage per pound of payload of any weapon system. Live pathogens, such as anthrax and plague, and botulinum toxin formed the basis of the biological threat two decades ago and have reemerged as the principal threat today.

Naturally or artificially produced toxins are faster acting and more stable than live pathogens. A summary of biological agents is shown in Table 1-3.

Table 1-3. Possible biological weapons

Microorganism Group	Time for Impact
Bacterial (e.g., anthrax)	1-21 days
Rickettsial (e.g., typhus)	3-21 days
Viral (e.g., rabies)	3-24 days
Fungal (e.g., potato blight)	5-21 days
Toxins (e.g., botulinum)	< 12 hours

Chemical Capabilities

Today, twenty-four or more countries maybe developing chemical weapons. Iraq successfully used chemical weapons in its war with Iran, and Iran used them as well. Libya and Syria produce and weaponize chemical warfare agents. In the Far East, North Korea has followed Russia and China in acquiring chemical weapons.

The hazards from a chemical strike may last for less than an hour or for several weeks. The effects on personnel maybe immediate. For soldiers forced into the higher levels of protection (M0PP3/4), tasks are more difficult and can take longer to perform. A summary of chemical weapons effects is shown in Table 1-4.

Table 1-4. Chemical weapons effects

Chemical Agent	Target of Choice	Target Effect
Nonpersistent Nerve (NPN)	Personnel	Immediate and lethal
Persistent Nerve (PN)	Terrain, material, CSS, C2, & CS facilities	Restrict use, cause casualties, strain logistics and C2
Persistent Blister (PB)	Same as PN	Same as PN but not necessary lethal
Nonpersistent Blood (NPB) and Choking (NPC)	Personnel	Immediate, lethal or casualty producing

NBC DEFENSE PRINCIPLES

Contamination Avoidance

Contamination avoidance forms the cornerstone of NBC defense. If you can avoid NBC effects through active or passive defensive measures, casualties can be reduced and operations facilitated. The burdens of protection and decontamination are avoided, eliminating significant time and resource requirements and operational degradation. Avoidance measures include:

- Active, aggressive NBC reconnaissance, timely warning, and reporting
- Destruction of enemy NBC capabilities
- Camouglauge, concealment, and deception (to include integration of smoke into concealment and deception plans)
- Dispersion of forces and mobility
- Avoiding or limiting spread of contamination
- Marking known contaminated areas

Protection

If operations in a contaminated area are necessary or unavoidable, you must protect your personnel, equipment, and supplies. Protection includes:

- Hardening positions and material
- Applying MOPP principles
- Covering supplies
- Using collective protection of fighting systems and essential facilities
- Performing individual and unit survival actions before, during, and after an NBC attack

Decontamination

Once personnel and material are contaminated, they must be decontaminated to reduce protection and restore full combat power. The major goal of decontamination is to reduce protection levels. How much decontamination you do and when you do it depends on your mission, the enemy, the terrain, and the troops and time available (METT-T).

Levels of Decontamination
Immediate Operational Thorough

NBC DEFENSE SUPPORT

You have access to a variety of NBC battle staff and chemical unit support. Figure 1-2 shows the chemical battle staff available in the maneuver elements of a corps.

These personnel can provide valuable assistance to you and the rest of your battle staff. Each has been trained under real chemical agent conditions at the Chemical Defense Training Facility at the Chemical School. They can attest to the effectiveness of NBC protective and detection equipment through personal experience. Operation DESERT SHIELD/STORM validated that they were able to pass on their confidence in NBC defensive material to all soldiers.

Corps Support Commands, Division Support Commands, and other corps and divisional units (e.g., artillery battalions; air defense brigades) also have chemical troops in their infrastructure. The staffiing levels are similar to the structure shown in Figure 1-2.

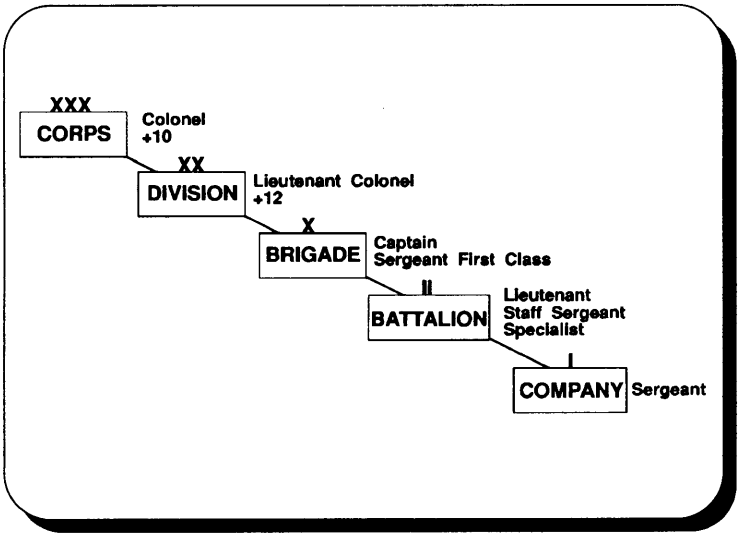


Figure 1-2. Chemical battle staff assignments

Chemical Battle Staffs

Since chemical staff resources within your units are limited, you must provide nonchemical personnel for specific NBC tasks to organize teams for detection and equipment decontamination and to assist in NBC defense training.

Company Chemical Battle Staff

Most companies, batteries, or troops have a chemical NCO (MOS 54B) authorized. A trained NBC defense officer (ASI 3R) and an enlisted alternate (SQI C) will also be appointed from unit assets (nonchemical personnel receive the ASI/SQI through completion of a two-week NBC defense course). These three individuals constitute the company-level commander's principal trainers and advisers on NBC defense operations and NBC equipment operation and maintenance.

TC 3-10

Battalion and Brigade Chemical Battle Staffs

In combat:

- Integrate enemy NBC, smoke, and flame, incendiaries and nonlethal (FINL) weapons into the intelligence preparation of the battlefield (IPB) process
- Collect, coordinate, and distribute all NBC reports from subordinate, adjacent, and higher organizations
- Plan NBC reconnaissance for the R & S plan
- Coordinate closely with the intelligence and fire support sections
- Provide chemical hazard area and current smoke operations information
- Assist on NBC logistics matters
- Develop chemical support plan to OPLAN/OPORD
- Advise the commander on employment of supporting chemical units
- Develop a smoke operations plan to support battalion/brigade operations
- Develop an integrated smoke plan to support scheme of maneuver

In garrison:

- Advise commander on NBC training requirements
- Provide training to subordinate chemical personnel
- Conduct training visits and evaluations
- Sustain leader and collective NBC task training proficiency

Chemical Combat Support Units

Depending upon the type and level of organization, a variety of specific chemical units is available to support NBC and smoke operations. These range from special reconnaissance teams to mechanized smoke companies. Details of these units and their

capabilities are at Appendix B. General principles for employing chemical units are:

- Task organize chemical units to requirements
- Give priority to the main effort (chemical unit resources are limited)
- Integrate chemical units with maneuver and fires (especially smoke and NBC recon units)
- Do not hold chemical units in reserve

NBC Reconnaissance Platoons

- Provide point detection of nuclear and chemical hazards
- Collect samples of NBC hazards/contamination
- Confirm or deny contaminated areas
- Identify passage lanes through or around contaminated areas
- Provide additional reconnaissance assets
- Can operate as squads or as a platoon

Smoke Platoons

- Provide large area smoke support ($\geq$ 1.25 km^2)
- Most can make mobile smoke
- Require security from your force if operating at or forward of the forward line of own troops (FLOT)
- Can operate as platoons, never as squads
- Need time to develop smoke coverage (approximately 30 minutes)
- Depending on the type of equipment, smoke platoons can make smoke for up to 1-2 hours without refueling.

Decontamination Platoons

- Provide operational decontamination support
- Provide thorough decontamination support
- Can operate as squads or as a platoon
- Require security and personnel augmentation from your unit

Smoke/Decontamination Platoons

- Provide smoke or decontamination support, but not at the same time
- Require a secured laager for decontamination trailers if making mobile smoke
- Can operate as a platoon for smoke; can operate as squads for decontamination

NOTES:

Chapter 2
Power Projection

" ... we could all be dying right now because we were not prepared to do our mission (under NBC conditions)."

Mortar Platoon Sgt
Light Infantry Company
Light Forces Field Test, 1992

CONCEPT

Power projection is the capability to project military power from CONUS and other locations in response to regional crises to achieve national security objectives. Your unit must be prepared to deploy on short notice for contingency operations. These may range from relatively small actions to protect or evacuate US citizens, to much larger engagements against heavy forces with weapons of mass destruction. Even low-level conflicts could include NBC weapons because of the proliferation of such weapons.

Consequently, you must place greater emphasis on NBC training for contingency operations. Training must be demanding and to standard and must include stresses such as could be expected under NBC conditions. The power projection Army must be prepared to survive and operate under NBC conditions.

A unit is NBC trained and ready when it can effectively employ its battlefield operating systems under NBC conditions. To achieve NBC readiness, you must ensure that:

- Individual soldiers (all ranks) are able to survive

- Unit leaders can perform their individual NBC leader tasks
- Units are able to perform common collective (ARTEP) NBC tasks
- Unit NBC equipment operators and crews are able to monitor, decontaminate, and report
- NBC defense equipment is available and operational
- Chemical battle staffs are trained

READINESS KEY:
Units must be able to perform their mission under NBC conditions

The Combined Arms in a Nuclear/Chemical Environment (CANE) series of tests showed the value added by training under NBC conditions. These force-on-force field trials, conducted over 3 to 4 days for each trial, use real-time-casualty-assessment to measure losses. Each test unit would conduct an entire trial in the baseline (no NBC threat), and then repeat the same scenario with soldiers in MOPP4 for significant periods (the order was reversed for some of the trials - MOPP4 first, then baseline).

In the most recent test, the scenario consisted of an attack on each of the first two nights, followed by a daylight defense and then another night attack. During this test, soldiers reported that they had very little NBC-related training prior to the test (e.g., 78% of the soldiers had never worn MOPP4 for more than three hours consecutively, and 42% had never fired their individual weapon in MOPP4 at their unit).

Figure 2-1 on the next page compares how effective the unit was in destroying OPFOR targets in the baseline versus unit effectiveness when the NBC situation forced them to fight in MOPP4. Figure 2-1 illustrates that while the units averaged about one-fifth as many targets destroyed per battle on the first day of testing, by the third day of intensive experience in MOPP gear, the ratio improved to nearly three-fourths as many targets destroyed per battle.

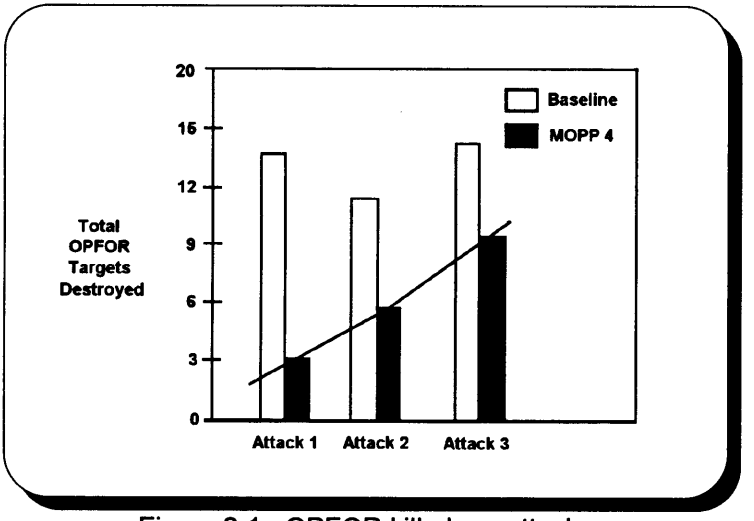


Figure 2-1. OPFOR killed per attack, CANE Combat Light Test

TRAINING RESPONSIBILITIES

Training requirements and responsibilities to achieve and sustain NBC readiness are shown at Table 2-1.

Table 2-1. Training responsibility matrix

Task Trained	Initial Training	Responsibility	Authority
Survival STP 21-1/MQS I	IET	Chain of Command	AR 350-1
Weapons qualification in MOPP 4	IET	Chain of Command	AR 350-1
Leader skills STP 21-24/MQS II	NCOES/OES	Unit NBC Off/NCO	AR 350-1
Collective NBC tasks	Unit	Unit NBC Off/NCO	ARTEP
METL in MOPP 4	Unit	Chain of Command	AR 350-1

MISSION ESSENTIAL TASKS LIST (METL)

You should review your METL and identify those tasks that are most degraded by MOPP gear and therefore must be trained in MOPP3/4. NBC events become conditions, like night, under which battlefield tasks are performed. A review of your METL should result in tasks being sorted into four categories for training program development:

- Tasks which can be done in MOPP3/4 with little or no change in performance (normally routine and practiced tasks); most tasks will probably fall into this category
- Tasks that cannot be delayed but which are severely degraded in MOPP4; these require the most training and the developing of work-arounds which should be reduced to SOP
- Tasks which, through training, you find cannot be done effectively in MOPP4, and can be delayed until the unit can reduce protection to MOPP2 or lower (e.g., skilled maintenance tasks where the mask or gloves prohibit correct performance)
- Tasks that cannot be delayed, are severely degraded in MOPP3/4, and cannot be effectively improved through training or work-arounds; identify as a battlefield deficiency and forward through chain of command to the battlefield operating system (BOS) proponent for solution (e.g., organizational, doctrinal, or materiel solution required)

BATTLE-FOCUSED TRAINING

Battle-focused training requires you to train as you fight. The unit officers should do the unit NBC collective training, and the NCOs the individual NBC skills training. The chemical battle staff and unit NBC officer and NCO assist in the training. NBC training should not be turned over to the chemical battle staff except in a train-the-trainer or train-the-operator role. Focus of training should be on performing vital METL tasks to standard under NBC conditions. The following areas have been shown through field testing and experience to be key training needs requiring practice, innovation, adaptation, and command emphasis:

Operating in MOPP Gear

Soldiers of all ranks must become acclimated to all components of their MOPP gear. This does not happen by performing some task in MOPP gear over a few hours, a few times a year. Field tests have shown that degradation caused by MOPP gear decreases with training. Soldiers become more confident in their own abilities to perform their mission in MOPP gear. Problems with fitting, especially the mask, can be readily identified and corrected.

MOPP Relief

The longer soldiers are in MOPP4, the more they worry about survival and less about task performance. Field tests have shown that even short periods of relief from wearing the mask and hood (MOPP4) add to soldier endurance and effectiveness. Locating clean areas, decontamination, and/or the use of collective protection can provide this relief.

Tactical Movement and Movement to Contact

Units in MOPP4 tend to take greater risks, especially light and dismounted infantry (e.g., using easier routes and closer formations, not always sterilizing kill zones before crossing). All leaders must enforce tactical discipline, especially light and noise.

Target Acquisition

Target acquisition in MOPP4 is more difficult because of a reduced field of view and restricted hearing. Target acquisition can be improved by practicing scanning techniques, reducing assigned fields of observation, and rolling the hood on the mask.

Land Navigation

Disorientation and bunching-up of armored, mechanized and dismounted soldiers occur under NBC conditions. Rehearsals, reconnaissance, and leadership are needed to overcome these problems.

Recognition

Recognition and identification of soldiers and leaders in MOPP3/4 are problems as the usual visual cues are masked. This can also lead to communications problems (radio and face-to-face) and fratricide from direct-fire weapons. Fire discipline, marking systems, practice, and adaptation are needed.

Fire Support

Indirect fire support is less responsive as artillery and mortar units sacrifice time for accuracy. There is also a tendency for decreased use of direct-fire weapons and more calls for indirect fire, which has Class V supply implications. Plans must account for these phenomena, and active measures taken to reduce the MOPP level requirements for indirect fire support units.

Planning and Coordination

Movement, maneuver, and fire support are harder to synchronize, and many tasks take longer to perform under NBC conditions (e.g., rates of march can decrease significantly and lead to increased fuel usage). Planning needs to account for this time increase, and simplicity in plans and operations practiced to improve synchronization.

Camouflage, OPSEC, and Maintenance

These are generic Army training problems which are worse under NBC conditions (e.g., more reliance on radio than arm and

hand signals) and which require command emphasis down to the squad level.

Leaders

Leaders tend to supervise more closely, delegate authority less, and rest less. Mental fatigue is a larger factor of degradation than physical fatigue. The hours between 0100 and 0700 are the most critical time because of reduced clarity of thought and mental concentration. Leaders must develop more self-discipline and enforce sleep plans (leaders must sleep, too) to reduce these problems.

Combat Support and Combat Service Support

Synchronization and coordination of CS and CSS operations are more difficult under NBC conditions. Include appropriate support elements in your mission training program on a regular basis.

Water Intake

Enforced water intake is required when in MOPP4, especially in warm climates. This is understood by most leaders, but is not always properly supervised at the individual soldier level. Over hydration can reduce body temperatures and lessen heat stress.

Physical Conditioning

Long periods in MOPP4 sap soldier energy. Endurance training is more beneficial than speed or strength training.

Although imposing NBC conditions on your METL training adds complexity and difficulty to mission performance, it supports battle focused training, and trains your soldiers and leaders to cope with complex, stressful, and lethal situations. Extended field tests conducted under NBC conditions have shown that soldiers and

leaders emerge with a sense of pride, accomplishment, and the realization that, with practice, they can survive and win.

PRE-DEPLOYMENT

In a power projection role, the unit must be prepared to deploy on short notice with:

- All individual protective gear of the proper type, size, and fit
- All unit NBC equipment (including training equipment and material) in operating condition with spare parts and supplies (e.g., batteries, kits)
- Deployment training packages to rapidly refresh and sustain key training areas
- A preliminary IPB analysis of the threat

You should use all opportunities to assess the proficiency of your soldiers, subordinate leaders and units to perform their METL under NBC conditions. In addition to the usual training and equipment assessment tools, periodically sample the individual NBC survival skills of your soldiers and staff personnel, and the collective NBC skills of subordinate leaders. The standards for these skills can be provided by your chemical battle staff from Soldier Training Publications (STP), Military Qualification Standards (MQS) manuals, and ARTEP mission training plans (AMTP). Although the chemical battle staff can perform a major portion of the overall assessment of the unit's NBC skills, only you can adequately assess the unit's ability to perform its mission tasks under NBC conditions, plus provide the command emphasis to ensure the unit is clear on the intent of your training objectives. Your assessment should:

Focus directly on key METL training objectives.

Emphasize meeting Army standards.

Ask three key questions about your unit when assessing or evaluating your subordinates' feedback:

- Would my soldiers survive an attack with NBC weapons?
- Is NBC integrated as a condition (like night or cold weather) into unit training exercises or is it done merely as an event?
- Can my unit perform its basic mission (i.e., METL tasks) under NBC conditions?

The following job aid will assist you in answering these questions:

Survival

- Is there an efficient and effective local alarm system for NBC at each of my units' positions?
- Do my soldiers properly don, clear, and seal their protective masks (9 seconds) and place the hood over the head and secure the hood (untimed)?
- Can my soldiers put on and wear MOPP gear?
- Are my officers and NCOs proficient in individual NBC survival tasks?
- Are my officers and NCOs proficient in preparing for attacks by NBC weapons (e.g., disperse vehicles, check alarms, cover supplies, monitor)?
- Are my officers and NCOs proficient in responding to attacks by NBC weapons (e.g., correctly using shelters for work/rest cycles, planning decontamination, identifying and avoiding hazards, adjusting protection)?

Integrated NBC Training

- Does my training guidance specify NBC as a condition, not an event?
- Does my training guidance specify parameters for training exercises? For example-
  - In each FTX, develop/use an NBC threat scenario consistent with our deployment mission(s)

•• Conduct at least two STXs with threat or NBC events that drive protection to MOPP3 or 4

•• During weapons qualification, ensure all soldiers fire their individual weapons while wearing MOPP4

• Do my units conduct training of a task in MOPP Zero, then repeat the training in MOPP4?

• Have my subordinate leaders identified tasks they must delay or defer (in MOPP4)?

• Do my subordinate leaders use chemical battle staff as observer/controllers (O/C) on FTXs, or "borrow" experts from sister units to conduct after action reviews (AAR)?

• Does my training guidance encourage acclimatization in MOPP gear?

Mission Tasks

• Does my unit perform its METL tasks to standard in MOPP4 (or with a high nuclear threat scenario)?

• Does contamination seriously disrupt my operations?

• Do training exercise casualties increase such that we have unacceptable losses under NBC conditions?

In addition to your own assessments, you must have an active feedback program from your chemical battle staff and subordinate commanders on the NBC training and equipment status of your unit.

INTELLIGENCE PREPARATION OF THE BATTLEFIELD

The intelligence BOS includes functions that generate knowledge about the enemy, weather, and terrain. If the operation involves a potential NBC threat, information about enemy NBC capabilities, dispositions, and intent should be among your top priority intelligence requirements (PIR).

Upon receiving actual missions, the chemical battle staff needs the following type of guidance to execute the IPB:

- Discuss your common understanding of the upcoming fight
- Determine the extent of your area of interest (AI)
- Identify all enemy units that you might engage

Your battle staff prepares the intelligence estimate, then:

- Recommends NAI for this mission based on templated areas of expected contamination
- Recommends PIR to solve any uncertainties
- Recommends unit taskings for the R&S plan for NBC reconnaissance tasks
- Conducts a vulnerability assessment and integrates this into the decision support template
- Based on the vulnerability assessment, the chemical battle staff recommends:
  - Contamination avoidance measures (e.g., bypass choke points)
  - NBC protective measures (e.g., MOPP levels)
  - Decontamination sites and task organizations (e.g., preplanned decon sites and water points)

JOINT AND COMBINED OPERATIONS

Specific considerations for joint and combined operations include:

- NBC warning and reporting systems (NBCWRS) are not standard throughout services or armies. Use liaison personnel to coordinate NBCWRS SOP
- Communications equipment may not interface with supported and supporting units and may require alternate means of communications
- Differences may exist in detection equipment and capabilities; if so, this must be understood
- NBC terminology, MOPP levels, and MOPP concepts may not be standard

• Logistics capabilities of supporting allied forces may be inadequate in types and amounts of NBC supplies

• Doctrinal literature and TTP are not standard throughout services/nations

• In many cases, joint doctrine does not exist (e.g., smoke operations)

NOTES:

Chapter 3
SURVIVAL

"My nightmare was that our units would reach the barriers in the very first hours of the attack, be unable to get through, and then be hit with a chemical barrage. We'd equipped our troops with protective gear and trained them to fight through a chemical attack, but there was always the danger that they'd end up milling around in confusion - or worse, that they'd panic. The United States had not fought in a gas attack since World War I. The possibility of mass casualties from chemical weapons was the main reason we had sixty-three hospitals, two hospital ships, and eighteen thousand beds ready in the war zone."

General H. Norman Schwarzkopf, 1991

CONCEPT

The actions of your unit when it encounters its first NBC attack are major factors in determining success. If not properly prepared, the psychological impact of NBC can be devastating to your unit's combat effectiveness. Your unit, if trained and confident, can survive an NBC attack and minimize casualties.

Chemical and Biological

Two basic actions are required for your unit to survive a CB attack. The first action is to mask quickly and properly, and the second is to warn or alert all personnel of the attack. There are three ways your unit may be warned or alerted to mask.

• Your unit may be notified through command or NBC channels that it is in a downwind hazard zone. This method provides adequate time for all individuals to mask or obtain overhead cover or collective protection. Your major concern is an effective notification system

• The attacks may activate unit NBC alarms. You do not have as much time as above, but there should be sufficient time to warn all personnel

• Your unit may encounter a direct attack, which triggers your automatic masking criteria. This is the most dangerous situation, but a well trained unit can survive and minimize casualties

The mask is the most critical item of protective equipment.**Over 90% of chemical and biological warfare casualties are caused by agent entering through the respiratory system or eyes; therefore, a serviceable, properly fitted mask protects you against this threat.** However, many soldiers do not believe their NBC protective equipment provides adequate protection and do not use proper procedures to mask and unmask. This equipment is excellent, and the individual soldier must be made aware of its protective capability. Use your chemical battle staff to instill soldier confidence in their NBC equipment.

Nuclear

The three basic actions for nuclear survival are:

• Use the best cover and concealment (e.g., fighting positions, covered/concealed movement, and shelters)

• Disperse materiel and soldiers as much as the situation allows

• Keep exposed skin covered

These are critical survival actions in the face of **any** threat, not just nuclear capable opposition. Maintaining good operations security/ communications security (OPSEC/COMSEC) are supplemental activities that futher reduce vulnerability.

What Are Your Major Survival Concerns?

How Do you Address These Concerns?

Soldier's Masks are Serviceable and Properly Fitted

The mask is the most important item of protective equipment. Most chemical/biological casualties are caused by agents entering the body through the eyes or the respiratory system.

Ensure all individual protective equipment is available, serviceable, and with soldiers. Test fit of all masks using the M41 protective mask fit validation system (PMFVS).

Panic

This may be your biggest problem. WWI troops broke ranks, removed masks, and reported to medical channels even when not gassed.

Panic can only be avoided by soldiers having confidence in their equipment and state of NBC training. Leaders must discuss what to expect from an NBC attack and instill confidence in their NBC system including their equipment. Leaders must become the principal NBC trainers to have an effective program.

All Individuals (To Include Senior Leaders) are Proficient in Common NBC Tasks

These tasks are found in the Soldier's Manual of Common Tasks - Skill Level 1.

These common tasks must be rehearsed and evaluated during the Skill Development Test. To survive an NBC attack, soldiers must be proficient in masking and then first aid, buddy-aid, and individual decon.

Unit Has an Effective NBC Warning and Reporting System

This system is used to rapidly report an NBC attack in order for troops to take protection, and to report attacks to higher, subordinate, and adjacent headquarters

Rehearse warning and reporting system including the employment of NBC detectors and alarms. Use all these methods to determine an attack has occurred, (i.e., through command channels, unit NBC detectors, and direct attack on your unit).

What Are Your Required Actions?

- **Obtain information on attack**
- **Make MOPP decisions**
- **Make movement decisions**
- **Make decontamination decisions**

Obtain Information on Attack

Obtain and report number of casualties and contamination status (personnel, equipment, and terrain).

Make MOPP Decisions

Units will aromatically increase there MOPP posture after being attacked. Units not in the immediate attack area, but in the downwind hazard area may need to increase there MOPP level. The goal is to remain in the minimum MOPP level as possible and reduced MOPP as quickly as possible. If the attack was not directly on your unit,

you may be able to reduce MOPP to just the mask. A mask only posture can be assumed only if there is no liquid agent present and the agent is not blister. Use your chemical battle staff and Table 3-1 below for recommendations.

Table 3-1. Standardized MOPP levels

MOPP Level	Over Garment	Overboots	Mask/ Hood	Gloves
0	Readily Available	Readily Available	Carried	Readily Available
1	Worn[A]	Carried	Carried	Carried
2	Worn[A]	Worn	Carried	Carried
3	Worn[A]	Worn	Worn[B]	Carried
4	Worn	Worn	Worn	Worn
Mask Only	Readily Available	Readily Available	Worn	Readily Available

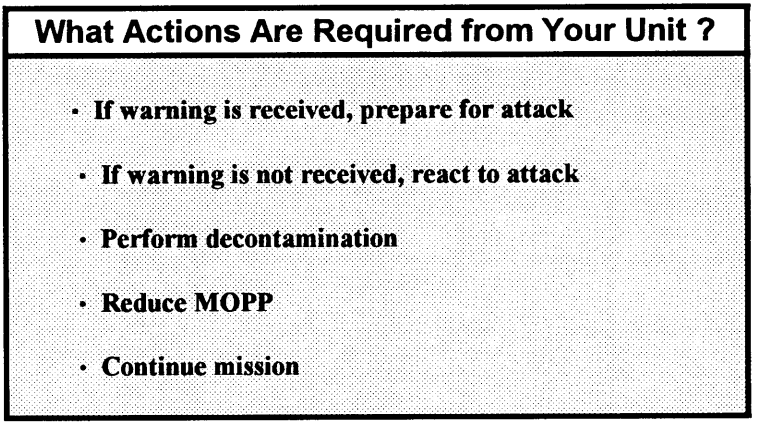
[A] Jacket worn open or closed based on temperature
[B] Hood worn open or closed based on temperature

Make Movement Decisions

Don't move from a contaminated area unless it is tactically sound. However, plan to move as soon as possible to reduce risk of casualties from contamination or heat stress

Make Decontamination Decisions

- Individuals automatically decontaminate themselves and their equipment, if required
- You must decide when and if there is a need for further decontamination (i.e., get recommendations from your chemical battle staff)



If Warning Is Received, Prepare for Attack

- Notify all personnel through warning and reporting system
- All personnel go into MOPP3 or 4
- Notify higher, adjacent, and lower headquarters when hazard arrives
- Leaders should be visible to reduce fear
- Cover equipment, if mission permits, to minimize contamination

If Warning Is *Not* Received, React to Attack

- Personnel mask automatically -- masking guidance should be established based on threat and vulnerability analyses (have chemical battle staff prepare a recommendation)
- Notify higher, adjacent, and lower headquarters immediately
- Conduct first aid and personnel decontamination if required
- Leaders should be visible to reduce fear

Perform Decontamination

In addition to personnel decontamination, perform decontamination on unit equipment, if time is available and if necessary to restore combat power.

Reduce MOPP

Reduce MOPP levels based on chemical staff recommendations and when detection efforts indicate higher MOPP is no longer required.

Continue Mission

One of the most important actions under NBC conditions is to continue to focus on your mission. Do not over emphasize or concentrate on the NBC attack at the expense of your primary mission.

What Actions Are Required from Your Chemical Battle Staff?

- **Perform threat and vulnerability analysis**
- **Check status on all NBC actions**
- **Send, receive, and analyze NBC reports**
- **Perform MOPP analysis**
- **Perform contamination analysis**

Perform Threat and Vulnerability Analysis

Determine type of agent and delivery systems, vulnerability of units, and automatic masking procedures.

Check Status on All NBC Actions

Obtain status of casualties, contamination, and decontamination operations.

Send, Receive, and Analyze NBC Reports

Ensure all reports are submitted accurately and expeditiously.

Perform MOPP Analysis

Perform MOPP analysis and provide MOPP level recommendations based on METT-T.

Perform Contamination Analysis

Recommend decontamination actions and whether/when unit should move based on a contamination analysis.

NOTES:

Chapter 4
OPERATIONS IN AN NBC ENVIRONMENT

"Whether or not gas will be employed in future wars is a matter of conjecture, but the effect is so deadly to the unprepared that we can never afford to neglect the question."

General of the Armies John J. Pershing, 1919

CONCEPT

After your unit has survived an NBC attack, it may have to operate under NBC conditions for an extended period. Your goal should be to perform your combat tasks with minimum degradation and suffer few or no NBC casualties. A well-trained unit can attain this goal. Well-trained troops can perform most collective tasks in MOPP4 with minimum reduction in combat effectiveness. Try to avoid changing normal procedures, because most routine tasks can be performed in MOPP4. Non-routine or cognitive tasks cannot be performed as readily, and some degradation will occur. As much as possible, keep operations simple and routine, and develop work-arounds where problems exist.

Although you can perform most mission tasks with minimum reduction in effectiveness, the longer your troops are in MOPP4, the more degradation will occur. Therefore, your priority should be to avoid contamination to fight clean or, if that is not possible, find ways to reduce the MOPP level as quickly as possible. This may

require you to move from contaminated areas to clean areas or find ways to periodically reduce to MOPP1/2. Avoid operating in contaminated areas for long periods.

Complete decontamination of vehicles and terrain is difficult, time consuming, and a logistical burden. This should have a low priority. However, decontamination of personnel and personal equipment should have top priority and be performed immediately. Operational decontamination of crew-served weapons and vehicles should be accomplished when the situation permits.

Continue your mission because you can operate effectively in an NBC environment. Your unit is NBC ready when it can accomplish its battle tasks in MOPP4.

NOTES:

What Are Your Major Operational Concerns?
How Do You Address These Concerns ?

Fear
You must instill confidence in soldiers through realistic training and information briefings.
Address fear or psychological factors by establishing confidence in equipment, discussing what to expect during sustained operations in an NBC environment, and by the unit being NBC ready. Ensure NBC equipment is available, properly fitted and maintained, and in correct quantities. You must instill confidence in soldiers through realistic training. Use your chemical battle staff.

Effectiveness
You should be able to perform your primary mission with minimum degradation in an NBC environment.
Train your unit to operate in an NBC environment. Three things to emphasize are doing primary tasks in MOPP4, care and fit of the protective masks, and physical fitness. The Battle Command Training Program (BCTP) and other CTCs are excellent vehicles to train collective tasks under NBC conditions.

Sustainment

Sustainment is more difficult under NBC conditions because CSS tasks are adversely affected due to troops wearing individual protective equipment. There will also be a greater demand for water, fuel, NBC equipment, and medical services.

Unique NBC requirements must be emphasized and addressed for all phases of your operations. Use chemical battle staff -- for details see Chapter 5.

Fatigue

MOPP level should be lowered when possible to improve unit effectiveness and reduce psychological impact. It is more difficult to decide when and to what level to reduce, than to increase MOPP level.

As discussed in the survival chapter, there are specific guidelines on when to go into MOPP4. The more difficult decision is when to reduce. If the attack is not directly on your unit, you can probably reduce to MOPP3 (check with detector paper or downwind hazard predictions.) Have chemical battle staff provide recommendations; your goal is to reduce from MOPP4 as soon as possible.

Leaders

Leaders are usually the most adversely affected individuals on the battlefield. Recent tests have shown they tend to delegate less, get less sleep, and "burn out" faster in an NBC environment.

They should be monitored to ensure they are properly pacing themselves, getting rest, drinking water, and delegating tasks (this includes you!). Make sure your subordinate leaders are aware of this problem.

Contamination Avoidance

By avoiding contamination, you eliminate or reduce the need for NBC protection and decontamination.

Actions include conducting vulnerability analysis, locating and identifying NBC hazards, using cover and concealment, preventing the spread of contamination, moving from contaminated areas, and not moving through or into contaminated areas. Use the chemical battle staff for recommendations.

What Are Your Required Actions?

- **Make MOPP decisions**
- **Make avoidance decisions**
- **Use chemical battle staff**

Make MOPP Decisions

Your goal is to reduce protection to MOPP1/2 as soon as possible. Use chemical battle staff for recommendations.

Make Avoidance Decisions

If you have a choice, do not move through a contaminated area. However, if you must:, raise your NBC protection level and do not stop -- you will probably receive very little contamination. Move out of contaminated areas as soon as possible; over 40% of gas casualties in WWI were from units staying unnecessarily in contaminated areas.

Use Chemical Battle Staff

Use chemical battle staff for recommendation on MOPP levels, the NBC threat, NBCWRS, movement through or out of contaminated areas, and decontamination. Ensure they are integrated into all facets of staff operations.

What Actions Are Required From Your Unit?

- **Continue the mission**
- **Perform individual NBC tasks (all ranks)**
- **Perform unit NBC tasks**
- **Avoid contamination**
- **Make MOPP decisions**
- **Perform selective decontamination**

Continue the Mission

Continuing the mission must have top priority. NBC considerations must not become a dominant factor in determining mission decisions. An NBC-ready unit can operate effectively in this environment. Keep operations simple.

Perform Individual NBC Tasks (All Ranks)

Conduct these tasks as required by the situation. Tasks include donning masks, performing first aid, and conducting personal wipe down.

Perform Unit NBC Tasks

Report status of casualties and contamination. Mark contaminated areas. Perform surveys as time and resources permit.

Avoid Contamination

Monitor with RADIAC instruments, chemical detectors and alarms, and chemical detector paper, as appropriate, when not moving. Avoid or limit contamination by moving to clean areas as soon as possible. To locate clean areas, use organic and available chemical units to perform NBC reconnaissance.

Make MOPP Decisions

Use MOPP analysis to determine the applicable MOPP level. Operate with minimum amount of NBC protection by reducing MOPP as quickly as possible. Seek recommendations from the chemical battle staff.

Perform Selective Decontamination

Individual decontamination is usually done after a direct attack to allow soldiers to survive and continue the mission. Contaminated equipment is decontaminated to allow the mission to continue. Decontamination reduces the time your unit stays in MOPP4 and limits the spread of contamination. Both operational and thorough decontamination are resource intensive operations. Weathering can enhance decontamination and may under certain situations eliminate the need for thorough decontamination.

What Actions Are Required From Chemical Battle Staff?

- **Keep commander informed**
- **Perform MOPP analysis**
- **Request decontamination, reconnaissance, and smoke support**
- **Perform vulnerability analysis**

Keep Commander Informed

This includes all aspects of the NBC situation; recommendations on MOPP levels, decontamination, reconnaissance, smoke; and vulnerability/threat for future operations.

Perform MOPP Analysis

This is a continuous process and is based on METT-T. Provide recommendations to the commander on MOPP levels.

Request Decontamination, Reconnaissance, and Smoke Support

Develop and recommend decontamination, reconnaissance, or smoke support based on METT-T. Coordinate actions with both the unit providing the support and the unit receiving support.

Perform Vulnerability Analysis

Conduct a vulnerability analysis and recommend if unit should move from contaminated area based on METT-T.

Chapter 5
Sustainment

"It is worth noting that a great deal of time was available to accomplish logistic objectives without the exacerbating pressures of combat, and there were no other major crises competing for resources."

Secretary of Defense Richard Cheney, 1991

CONCEPT

In future combat, we probably will not have the amount of time that we had in the 1991 Persian Gulf Conflict. The very meaning of the phrase "combat readiness" implies being prepared today to fight tonight. To realize your unit's full potential, you must support your operations with robust, flexible, self-sufficient sustainment systems.

Focus your efforts on premobilization acquisition, storage, maintenance, and reporting of adequate stocks of chemical defense equipment (CDE). After training, this is the single most important action to prepare for the NBC environment.

To survive, every one of your soldiers must have a protective mask that fits well and works correctly, along with the rest of his authorized items of individual protective equipment (IPE) (Appendix C). This IPE is also called MOPP gear -- the mask and hood plus overgarments, overboots, and gloves. Deploy with these to any theater in the world, as these items give you the basic protection from chemical and biological hazards, and the overgarments can also serve as a sacrificial covering for fallout.

Besides MOPP gear, IPE also includes nerve agent pyridostigimine pretreatment (NAPP), antidotes, personal dosimeters, chemical detection paper, and decontamination kits. Be prepared to take everything when you deploy, but plan to operate with the equipment that fits the enemy's capabilities. Ensure all personnel have all required immunizations, including those for suspected biological agents. Your chemical battle staff must participate in the IPB process to determine the probable NBC capabilities you may face. Base your sustainment plans for operations in theater on this assessment.

The NBC environment provides unique challenges for leaders at all levels, but there are few challenges as big as sustaining your force under NBC conditions. You must anticipate your support needs, integrate support for every phase of your operation, preclude interruption of sustainment functions, prepare sustainment systems for the surge that accompanies a crisis, all under the degradation that accompanies the NBC environment.

WHAT ARE YOUR MAJOR SUSTAINMENT CONCERNS?
HOW DO YOU ADDRESS THESE CONCERNS?

Pre-Deployment
During Operation DESERT SHIELD, some units found that the installation actually "owned" a large portion of their deployment stocks. Failure to purchase stock-funded items (e.g., overgarments) resulted in many units having to "rob" them from nondeploying units.
Allocate resources to acquire, store, maintain, man, and protect the systems required for NBC readiness. Plan to take all stocks of CDE and unit equipment during deployment.

CSS Survivability
Soldiers in MOPP4 often fail to keep up camouflage, concealment, and other passive defense measures -- making the already vulnerable CSS activities a fat target of opportunity.
Ensure the brigade support area (BSA or trains) has effective command and control and has established active and passive NBC defense measures. Plan to quickly identify and control contaminated areas to minimize spread of hazards.

Supply
Logistics packages (LOGPAC) operations require more time in MOPP4.
Take the guesswork out of CDE resupply. Organize CDE into LOGPACs that contain all items needed for unit recovery. Simple supply and services work best -- NBC can foul up the best plans, and complexity adds to the confusion. Rehearse NBC defense material distribution and reissue plans. Rehearse LOGPAC operations in MOPP 4.

Maintenance
Under NBC conditions, maintenance is extremely strenuous -- In MOPP4, recovering armored vehicles takes up to 20% more time, replacing armored vehicle power packs takes up to 35% more time, and repairing weapons takes up to 70% more time.
Plan for additional time, use work/rest cycles to the fullest, and try to keep maintenance work areas free of contamination. Check to see that leaders are enforcing the buddy-check system. Rehearse vehicle recovery plans in MOPP4.

Transportation
Because of disorientation and how the mask impacts on peripheral vision, land navigation under NBC conditions is seriously degraded, particularly at night.
Plan for more transport time for materials, more fuel (because transportation assets/LOGPACS tend to get lost), and movement controls to minimize the impact on your operations. Rehearse movement in MOPP4 from your BSA or trains to the supported unit.

Safety and Fratricide
People fatigue easier in MOPP4. Accidents are more frequent and fratricidal engagements increase when troops are in MOPP4.
Manage risk -- plan and enforce work/rest cycles, water discipline, and unit sleep plans. Situational awareness and fire control/identification friend-or-foe training is critical.

Preventive Medicine and Physical Fitness
A high degree of physical fitness is a life and death matter if your soldiers must operate in MOPP4. Soldiers have been found to be clinically dehydrated after wearing MOPP gear for extended periods. Tests have shown a direct correlation between high Army physical fitness test scores and the ability to operate in MOPP4 for extended periods and with less degradation to cognitive skills.
Support your surgeon in keeping immunizations and physicals up to date. Your surgeon must plan to receive and handle contaminated casualties. Ensure your units are conducting proper field sanitation and hygiene measures.

What Are Your Required Actions?

- **Make avoidance decisions**
- **Make protection decisions**
- **Make decontamination decisions**

Make Avoidance Decisions

Try to keep work areas free of contamination by limiting access/movement to mission-essential traffic only. When there is actual contamination, determine where it starts and ends as soon as possible. If you need to use an area, ensure your soldiers mark the limits of contamination. If your forces are occupying the area, prepare to move them or accept the risk of degradation or casualties over time.

Make Protection Decisions

Enforce work/rest cycles, command drinking and unit sleep plans, and conduct frequent checks to prevent accidents. Check to ensure soldiers maintain MOPP discipline, particularly in maintenance work areas.

Make Decontamination Decisions

Decontamination requires large quantities of water and decontaminants -- you must decide to commit transportation assets or preposition water sources. Check power driven decontamination equipment (PDDE) crew operations -- focus on support to rapidly restore combat power.

What Actions Are Required from Your Unit?

- **Perform predeployment preventive measures**
- **Prepare CSS activities**
- **Check supplies**
- **Prepare and train maintenance crews**
- **Prepare and train transportation crews**

Perform Pre-deployment Preventive Measures

Establish an aggressive program to be ready for deployment. The program must cover preventive medicine, physical fitness, command supply discipline, maintenance, and test, measurement and diagnostic equipment (TMDE) programs. Plan immunizations and physicals on the long-range training calendar. Budget and allocate funds to purchase stock-funded NBC defense materials; buy and correctly store, maintain and package them for deployment.

Prepare CSS Activities

Plan to quickly identify and control contaminated areas to minimize spread of hazards. Plan alternate positions for CSS activities. Conduct NBC route reconnaissance along main supply routes (MSR). Plan and rehearse NBC warnings in your trains/brigade support area (BSA).

Check Supplies

Plan to take all stocks of CDE and unit equipment during deployment. Check/report status of critical items of NBC defense equipment according to SOP.

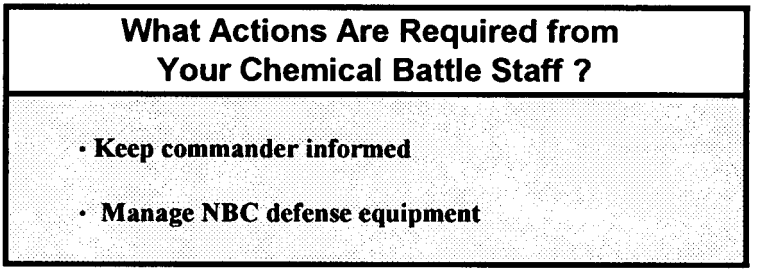
Place supplies and equipment indoors or cover with sacrificial covers -- especially critical with ammunition, since it will be inside enclosed vehicles with soldiers.

Prepare and Train Maintenance Crews

Assign maintenance crews based on the buddy system -- no one works alone. Plan work/rest cycles and frequent checks to prevent accidents. Rehearse vehicle recovery plans in MOPP4.

Prepare and Train Transportation Crews

Rehearse NBC defense materiel movement plans. Rehearse LOGPAC movement to supported units in MOPP4. Emplace road guides along MSRs -- ensure they have communications to the BSA or trains.



Keep Commander Informed

The chemical battle staff must keep you current on the operational aspects of the NBC threat or hazard.

Situational awareness is a key element in fratricide prevention: check to ensure combat units know where their support elements are located and to ensure CSS elements know the location of combat units.

Ensure your intelligence collection plan is executed, information is evaluated, and the chemical battle staff provides you with an analysis and recommended courses of action.

Manage NBC Defense Equipment

Verify sizing and fit of MOPP gear. Conduct frequent serviceability checks of NBC defense equipment.

The chemical staff has the responsibility to monitor NBC defense equipment supply, maintenance, and transport. When not actively engaged in operations, the chemical staff should visit units and inspect individual and unit NBC defense equipment.

Commanders of units that capture or will be responsible for enemy prisoners of war (EPW) must consider IPE required to sustain the EPW.

NOTES:

Chapter 6
Special Conditions

There are special considerations associated with operating in unique environments and climatic regions. Each geographic area, terrain type, unique terrain feature, climatic condition, and NBC defense posture has unique considerations that must be evaluated where NBC weapons may be employed.

- Defenders may use weapons of mass destruction to cause panic among the unprotected population, to impede movement of attacking forces, and to impose increased MOPP requirements against attacking elements
- Soldiers may be less inclined to fight in the presence of civilian NBC casualties, particularly in confined spaces and partially destroyed buildings
- NBC detection equipment value may be limited due to the speed and constant movement of forces
- Naturally occurring endemic diseases and vectors, which mimic biological agent use, increase as sanitation decreases
- Security is difficult. Defenders may not be readily identifiable from noncombatants

Commander's Considerations

- Soldiers must be psychologically prepared for large numbers of civilian casualties which will include women and children; prepare soldiers to carry out orders/missions when civilian population is used to impede movement; practice mission requirements while wearing MOPP gear

- Prepare soldiers to continue the mission while working in confined spaces and to recognize hazards associated with damaged buildings and utilities
- Train soldiers in use of detection equipment, use of M8/M9 paper, and to recognize NBC employment in the absence of detection equipment
- Maintain current immunizations. Train soldiers in field sanitation and vector control

MILITARY OPERATIONS IN ARCTIC TERRAIN

Nuclear Weapons Impacts

- Light and heat will be reflected by the snow causing dazzle, snow blindness, and burn casualties long distances from ground zero
- Avalanches may be created as far as 30 kilometers from ground zero
- Heat from the initial effects will create quick thaws, which may affect vehicle and foot movement over roads, frozen streams and lakes, and marshy areas; refreezing may lock vehicles and equipment in place
- Blast effects will create projectiles from frozen material and snow storms picked up by the advancing shock wave

Chemical Weapons Impacts

- Agents picked up by individual clothing may not be detected and may not become an immediate hazard due to multi-layer clothing
- Wearing contaminated clothing into a heated shelter will volatize the agent and create casualties
- In extreme cold temperatures, chemical agent effects are limited to on-target; there is minimal downwind hazard
- Frost will restrict the airflow through the air inlet valves of the protective mask
- Frostbite of the face may occur if the protective mask head harness is secured too tightly

• Water-based decontaminants are less effective at temperatures near freezing

Biological Weapons Impacts

• Biological agents are less effective in cold temperatures
• Biological agents are more persistent in cold temperatures

Smoke Impacts

• White phosphorous (WP) cartridges get buried in deep snow, and WP often burns undetected in the snow
• WP smoke tends to pillar rather than disperse

Commander's Considerations

• Sunglasses provide some eye protection from reflected light
• Operations plans should include alternate routes if frozen and low areas become impassable. When possible, plan for and rehearse alternate routes and escape routes
• Practice decontamination and MOPP exchange as part of collective protection training; inspect mask inlet valves routinely for frost buildup, and brush to keep clear
• NBC awareness is key; biological agents may take hours to days to show symptoms
• Water-based decontaminants are less effective at temperatures near freezing. Alternate decontaminants must be considered (blown air, solvents)

MILITARY OPERATIONS IN DESERT TERRAIN

- Day temperatures will be extremely high. Day/night temperatures vary greatly
- During day temperature extremes, the soldier's ability to function effectively is severely limited. MOPP gear can cause a rapid buildup of body core temperature
- Soldiers may be able to function for longer periods at night in MOPP gear before heat buildup becomes a factor, but dehydration remains a major concern, even at night
- Chemical and biological agents will probably be employed more often during night because of more favorable meteorological conditions
- Successful campaigns under NBC conditions may require a choice between lower levels of protection and accepting more chemical casualties, and fully protected troops with reduced efficiency and higher probability of numerous heat casualties
- Nuclear hazard increases at night. Dazzle may be effective for up to 50 kilometers
- Water consumption requirements will vary, but large quantities will be required
- WP cartridges get buried in sand and are often ineffective in sandy or dune deserts
- Convection currents and high winds in rocky plateau deserts tend to rapidly disperse smoke

Commander's Considerations

- Organize bulk of mission requirements for cooler periods of night to extend capabilities
- Plan for light work and numerous work/rest cycles even in light work; make maximum use of shade and collective protection
- Increase NBC awareness during night hours when the threat of NBC employment is greatest; security personnel in sleep and work areas should sound alarm in event of employment
- Ensure soldiers cover their skin when not in MOPP gear and when wearing mask only; plan for increased casualties and medical treatment, increase medical screening to limit prolonged casualties

- Enforce hydration while in MOPP gear
- Drink and eat from approved sources; desert water sources that have been tainted with NBC hazards may have local insect and animal life forms dead or dying nearby
- Encourage reporting of even minor cuts, abrasions, or illness to medical personnel for immediate treatment
- Plan how to provide water for decontamination, including dedicating transportation assets

MILITARY OPERATIONS IN JUNGLE TERRAIN

- Land navigation by foot is slow; foot travel is further degraded when wearing MOPP gear
- When in MOPP gear, peripheral vision is reduced and forward vision may be limited to a few feet
- The jungle canopy creates good overhead cover from aircraft spray; however, if the dense jungle foliage is contaminated, soldiers can easily pick up the contamination as they move through the area
- Biological hazards maybe more difficult to identify
- Minor sickness or injury may become serious
- Thick vegetation prevents effective downwind travel of smoke

Commander's Considerations

- Plan for extra time when moving by foot when in MOPP gear
- Heat stress is increased due to the high humidity; plan for relief from MOPP gear
- Train soldiers to minimize physical contact with potentially contaminated vegetation
- Medical personnel must provide immediate treatment for any sickness, illness, or small cuts or abrasions of the skin
- Avoid taking positions near stagnant or slow-moving water and near decaying plant/animal matter

MILITARY OPERATIONS IN MOUNTAIN TERRAIN

• The concentration of units along narrow roads where no egress is possible may make them more vulnerable to NBC hazards. This is particularly true in narrow canyons or valleys where movement may be restricted and in staging areas at the base of mountains

• Chemical agent vapors are heavier than air and will settle in valleys and depressions

• MOPP gear reduces foot soldiers' ability to traverse mountain terrain off roads and off normal foot trails

• Smoke tends to follow valleys, roads, and ravines and is effective in denying the enemy use of these narrow passages

• Swirling winds make smoke difficult to adjust and maintain

Commander's Considerations

• Disperse if tactically possible; movement by several means and routes limits concentration of forces

• Limit movement through valleys and depressions; move through rapidly when cleared

• Limit off-road movement when in MOPP gear. Soldiers are less effective and the rugged mountain terrain is very hard on MOPP clothing and equipment

MILITARY OPERATIONS IN URBAN TERRAIN (MOUT)

• Enemy forces may use weapons of mass destruction to panic populations, to impede movement of attacking forces, and to impose increased MOPP requirements on attacking forces

• Reduced sanitary conditions will increase the available growth medium for biological organisms and resultant probability that naturally occurring biological agents and vectors will increase the health risks to soldiers and noncombatants

• Buildings may break up smoke streamers, reducing downwind coverage of smoke

• Smoke tends to rise over water (e.g., ponds, lakes), garden plots, parks, and open expanses of concrete

• Smoke is very effective to protect from snipers, except burning rubble degrades screening efficiency

Commander's Considerations

• Use smoke to obscure build-up areas before you attempt to secure them

• Pay particular attention to personal hygiene and field sanitation in cities; be alert to covert dissemination of NBC hazards through water or sanitary systems

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Chapter 7
SMOKE and OBSCURANTS

The US Army uses smoke and obscurants (S/0) to attack threat reconnaissance, surveillance, and target acquisition (RSTA) efforts; to protect the force; and to support tactical deception operations. By combining obscuration with maneuver, you can protect your force and deny the threat the ability to acquire and engage.

CONCEPT

Obscurants are man-made or naturally occurring particles suspended in the air that block or weaken (attenuate) the transmission of a particular part or parts of the electromagnetic spectrum, such as visible light, infrared (IR), or microwaves. Fog, mist, dust, smoke, and chaff are examples of obscurants.

Smoke is an artificially created obscurant normally produced by burning or vaporizing some product. An example is the vaporization of fog oil to produce smoke from a mechanical smoke generator.

Uses

We can render some electro-optical (EO) target acquisition and sighting devices ineffective; others we can degrade significantly; some we cannot affect at all. As a result of the development of IR and radar devices during World War II and subsequent

technological advances, EO devices have supplemented visual methods of target acquisition and aiming weapons. Precision-guided munitions and sophisticated sensors provide the ultimate in lethality: What can be seen can be hit and killed.

We use visual obscurants to defeat the enemy's battlefield viewers and weapon guidance systems, such as command line-of-sight or terminal homing systems on antitank and air defense missiles. When fielded, we will use multispectral obscurants to defeat the enemy's battlefield viewers, weapon guidance systems, radar systems, and high-energy, and microwave-directed energy weapons. Smoke and obscurants change the previous truism: what can be seen may not necessarily be hit and killed.

Appendix A has a tactical decision aid for selecting the type smoke to defeat a particular EO system.

Operational Concept for Smoke and Obscurants

Smoke and obscurants themselves are not lethal. However, when synchronized throughout the depth of the battlefield they enhance your unit's ability to maneuver. They help to concentrate combat power against enemy vulnerabilities at the critical time and place. They help to reduce your own vulnerability to enemy intelligence and target acquisition. Smoke and obscurants provide another means to meet the imperatives of battlefield operations by:

- Degrading the enemy's ability to see
- Disrupting the enemy's ability to communicate
- Concealing friendly forces
- Deceiving the enemy
- Providing a means to identify and signal
- Degrading or defeating directed-energy weapons
- Enhancing friendly weapon system effectiveness

WARNING

When employing or operating in HC smoke, M8 white smoke grenade, or metallic powder obscurants, personnel are required to wear their protective masks.

HOW AND WHERE TO USE SMOKE

Smoke aids in deceiving the enemy, conceals maneuver, and increases your potential force-on-force ratio when your target acquisition systems can see through the smoke and the threat's cannot. For smoke to help, develop a plan to use smoke synchronized with your tactical plan.

Give planning guidance to the staff that answers the following questions:

- What do I want smoke and obscurants to accomplish? (Degrade target acquisition? Conceal the movement of my main attack? Aid in deception?)
- Where and for how long am I willing to sustain this smoke cloud? (Over my own position? Between my unit and the enemy? On the enemy?)
- How much restriction in my own mobility can I accept? (Visibility 50 meters or less? More?)
- How much restriction in my own target acquisition and engagement capabilities can I accept? (If I deny the enemy use of laser designators, I also deny mine; but my thermal sights are unaffected)
- When might on-call hasty or deliberate smoke benefit? (Where does my decision support matrix indicate I maybe exposed and need immediate smoke to obscure the enemy?)
- How will countersmoke help? (If the enemy uses smoke, where and how should I retaliate with smoke to interfere with their synchronization?)

Smoke Support Plan Execution

The extreme impact of smoke on tactical operations mandates close coordination, control, and planning for contingencies. Command and staff supervision is essential to ensure the use of smoke enhances, rather than degrades, mission success.

Control smoke in your area of operations. Use decision points based on IPB and human feedback to control when you start and stop smoke. Smoke unit leaders monitor the communications nets for the supported unit as well as internal nets. This ensures you have an immediate response to start or stop smoke at a particular point or time.

Plan to minimize friendly force degradation from our own use of smoke. Rehearse those contingencies. An antitank position with a clear field of fire may be useless in dense smoke unless the gunner or section leader has rehearsed movement to previously prepared alternate positions (limited visibility positions).

Commander's Considerations

- Consider the use of smoke to enhance friendly scheme of maneuver
- Train for limited visibility operations to minimize friendly force degradation

WHAT ARE YOUR ACTIONS?

Coordinate with all units participating in or influenced by the smoke operation. Define smoke support requirements to include:

- Intent
- Location and size of the smoke target area (designate as a TAI)
- Time for effective smoke to be on the target
- Duration of effective smoke on the target

- Security of smoke assets
- Delivery options
- Preparation of a smoke annex for the operation

WHAT ARE THE SMOKE UNIT COMMANDERS ACTIONS?

When the smoke plan calls for support from a smoke generator unit, the commander of the smoke unit is responsible for establishing and maintaining smoke on the designated target. Based upon information from the maneuver commander, the smoke unit commander:

- Plans for map, air, or ground reconnaissance
- Coordinates the mission with supported and adjacent units
- Selects and coordinates smoke lanes (mobile smoke) or smoke lines (stationary smoke)
- Coordinates communications nets
- Provides input for the smoke annex
- Identities additional support requirements

WHAT ARE YOUR CHEMICAL BATTLE STAFF'S ACTIONS?

The chemical staff officer plans and monitors the execution of the smoke plan, in coordination with the FSO and smoke unit commander. The procedures for smoke planning have been discussed. The procedures for monitoring execution are:

- Monitor planned smoke engagement by fire support assets
- Monitor planned smoke engagement by smoke unit assets
- Update status displays
- Respond, if necessary, to coordinate smoke support from other than fire support assets

NOTES:

Chapter 8
USING YOUR ASSETS

Corps and divisions have chemical assets that can be pushed down to brigade or even battalion level. By combining NBC reconnaissance with maneuver, you can protect your force; by combining decontamination with force protection, you can restore combat power.

Chemical units do not come with a significant slice of CSS assets. Table 8-1 on page 8-7 displays the "care and feeding" responsibilities inherent with the command or support relationship that you have with the chemical unit.

NBC RECONNAISSANCE

NBC reconnaissance aids in maneuver. For NBC reconnaissance to do this, you must develop an R & S plan that is synchronized with your tactical plan.

Command and staff supervision is essential to ensure NBC reconnaissance elements report timely and accurate information. Give planning guidance to the staff that answers the following questions.

- What do I want NBC reconnaissance to accomplish? (Locate clean routes? Collect samples? Conduct a survey?)
- Where and for how long am I willing to delay movement to conduct NBC reconnaissance? (Do I mark clean route markers and move faster? Do I emplace road guides?)

- How much restriction in my own mobility can I accept? (Do I cross large contaminated areas? Do I bypass them and move into possible kill zones?)
- How will counter-reconnaissance (CR) help me? (If I use the NBC reconnaissance unit in the CR plan, what are the costs?)

NBC Reconnaissance Plan Execution

The extreme impact of NBC hazards on tactical operations mandates close coordination, control, and planning for contingencies. You must control NBC reconnaissance in your AO. Designate NAI and include them in the R & S plan. Task units to observe the NAI and conduct physical reconnaissance of NAI that are in the scheme of maneuver. NBC reconnaissance unit leaders must monitor your communications nets as well as their internal nets.

Commander's Considerations

- Consider NBC reconnaissance to enhance friendly scheme of maneuver
- Anticipate enemy NBC weapons use
- Provide security for NBC reconnaissance assets

WHAT ARE YOUR NBC RECON ACTIONS?

Coordinate with all units participating in or influenced by the effects of NBC weapons use in your AO. Define support requirements to include:

- Intent
- Location of the potential (templated) target
- Security of NBC reconnaissance assets
- Immediate support available for the mission

WHAT ARE YOUR NBC RECON UNIT COMMANDER'S ACTIONS?

When the plan calls for support from an NBC reconnaissance unit, the commander of that unit is responsible for the planning, coordinating, and execution of his assigned NBC reconnaissance missions. Based upon information from the maneuver commander, the NBC reconnaissance unit commander:

- Plans for map, air, or ground reconnaissance
- Coordinates the mission with supported and adjacent units
- Selects and coordinates movement and reconnaissance techniques for the mission
- Coordinates communications nets
- Provides input for the chemical support annex
- Identities additional support requirements

WHAT ARE THE CHEMICAL BATTLE STAFF'S RECON ACTIONS?

The chemical staff officer plans and monitors the execution of the R&S plan, in coordination with the S2 and NBC reconnaissance unit commander. The procedures for NBC reconnaissance planning have been discussed. The procedures for monitoring execution are:

- Monitor the R & S plan
- Monitor SPOTREP or contact reports indicating contact with NBC hazards
- Update status displays
- Analyze results

NBC DECONTAMINATION

NBC decontamination aids in protecting the force and restoring combat power.

Give planning guidance to the staff that answers the following questions.

- What do I want NBC decontamination to accomplish? (Temporary relief from MOPP? Reducing local hazards? Complete restoration of combat power?)
- Where and for how long am I willing to keep to units out of the fight to conduct decontamination? (Do I accept higher risk of heat casualties and put the unit straight back into the fight after a quick vehicle wash down? Do I allow the unit to conduct decontamination, get rest and relief, and come back at nearly 100% but lose them from the fight for up to 48 hours?)
- How much risk can I accept? (If my equipment still shows some hazard after decontamination, do I accept the risk of higher NBC casualties and kill more enemy targets? Do I remain highly protected and risk more heat or enemy fire casualties?)

NBC Decontamination Plan Execution

The extreme impact of NBC hazards on tactical operations mandates close coordination, control, and planning for contingencies. Command and staff supervision is essential to ensure the decontamination assets are set up in the right place at the right time.

You must control NBC decontamination in your area of operations. Designate a reconstitution officer and include this in the plan (e.g., battalion executive officer is a logical choice). Task units to perform specific portions of the plan -- for example, the support platoon would be tasked to supply water and bring replacement overgarments and other items to the decontamination point.

NBC decontamination unit leaders must monitor your communications nets as well as their internal nets.

Commander's Considerations

- Decontaminate only what is necessary
  - Whole units will not be dripping in contamination
  - Check and segregate the clean from the dirty
  - Send only dirty vehicles to the decontamination point
- Decontaminate as soon as possible
- Decontaminate as far forward as practical
- Decontaminate by priority -- determine your needs for the next battle.

WHAT ARE YOUR DECONTAMINATION ACTIONS?

Coordinate with all units participating in or influenced by the effects of NBC weapons use in your AO. Define support requirements to include:

- Intent
- Security of decontamination assets
- Immediate support available for the mission

WHAT ARE THE DECON UNIT COMMANDER'S ACTIONS ?

Based upon your situation, you may be able to decontaminate with your existing assets. However, the decontamination work load may exceed your capabilities or you may require complete relief from MOPP gear. Based on information from you, the NBC decontamination unit commander:

- Plans for map and air or ground reconnaissance
- Selects and coordinates decontamination site from your preplanned list
- Designates link-up point to lead contaminated unit into the decontamination site
- Coordinates the mission with supported and adjacent units

- Prepares decontamination site for operations
- Coordinates communications nets
- Provides input for the chemical support annex
- Identifies additional support requirements

WHAT ARE THE CHEMICAL BATTLE STAFF'S DECON ACTIONS?

The chemical staff officer plans and monitors the execution of the decontamination plan, in coordination with the XO, S4, and decontamination unit commander. Procedures include:

- Monitor decontamination plan execution
- Monitor movement of contaminated elements to the decontamination site
- Monitor SPOTREP or Contact Reports indicating contact with NBC hazards
- Update status displays
- Locate potential decontamination sites
- Locate potential water sources

NOTES:

Table 8-1. Inherent responsibilities

	Inherent Responsibilities									
	A chemical element with a relationship of:	Is commanded by:	Maintains liaison and communications with:	May be task task organized by:	Can be:	Responds to support requests from:	Has its work priority established by:	Makes its spare work effort available to:	Forwards requests for additional support through:	Receives logistic support from:
SUPPORT RELATIONSHIP	Direct Support (DS)	Parent unit	Supported and parent units	Parent unit	Dedicated support to a particular unit. May be given task or area assignments.	Supported unit	Supported unit	Parent unit	Parent unit	Parent unit
	General Support (GS)	Parent unit	Supported and parent units	Parent unit	Used only to support the parent force as a whole. May be given an area or task assignment	Parent unit	Parent unit	Parent unit	Parent unit	Parent unit
COMMAND RELATIONSHIP	OPCON	Supported unit	Supported and parent units	Supported unit	Placed OPCON to other chemical or maneuver units or made DS to bdes or task forces.	Supported unit	Supported unit	Supported unit	Supported unit	Parent unit
	Attached Assigned	Supported unit commander	Supported units	Support unit commander	Further attached, OPCON or DS to bdes or task forces or retained GS.	Supported unit	Supported unit	Supported unit	Supported unit	Supported unit

NOTES:
1. **It is possible that units will receive additional chemical support without a command relationship - the support relationship of DS to the division.**
2. **When attached, the chemical element is provided administrative/logistic support.**

NOTES:

Appendix A
COMMANDER'S JOB AID

INTELLIGENCE AND ELECTRONIC WARFARE (IEW)

Planning Phase

- Does the Situation Template (SITEMP) consider the NBC Threat?
- Do my priority intelligence requirements (PIR) include capability and intent:
  - Enemy nuclear delivery systems?
  - Enemy chemical delivery systems?
  - Enemy biological delivery systems?
- Does intelligence collection plan include NBC reconnaissance/templated areas?
- Did I provide any NBC-related assumptions for consideration in the plan:
  - Enemy use of NBC weapons to deny/restrict use of key terrain?
  - Enemy use of NBC weapons to cause casualties in forward elements?
  - Enemy use of NBC weapons against my trains to create additional logistical burdens?

Preparation Phase

- Has my chemical staff "activated" the NBCWRS?
  - Conducted communications checks?
  - Received and disseminated meteorological data (CDM and/or EDM)?
  - Posted current data on displays?
- Are chemical agent alarms, detector paper or RADIAC instruments deployed?

Execution Phase

- Has my unit executed the intelligence collection plan?
  - Contaminated areas identified and reported?
  - Do we know the type and extent of contamination?
- Is my chemical battle staff rapidly disseminating:
  - Hazard information ($\leq$ 5 minutes after receipt)?
  - Meteorological information ($\leq$ 30 minutes after receipt)?
- Am I effectively suppressing enemy RSTA with smoke?

COMMAND AND CONTROL (C2)

Planning Phase

- Does my plan consider mental stress of MOPP4?
  - Is the plan simple?
  - Is the plan well synchronized?
- Does my plan consider physiological degradation of MOPP4?
  - Work/rest plan?
  - Command drinking plan?
- Which net will I designate to pass NBC attack information?

Preparation Phase

- Have my subordinate leaders established work/rest and water plans?
- During rehearsals in MOPP4, was the planned operation well synchronized?
- Under a high nuclear threat, are all power, communications, and automated data processing cables buried? Have we turned off all nonmission essential electronics equipment and back-up power generators?
- Are situation maps posted and up to date?
- During rehearsals, did each battle staff element make appropriate responses to NBC events?

Execution Phase

- Have my subordinate leaders been enforcing sleep and water plans?
- Are situation maps and displays posted and up to date?
- Is my chemical battle staff providing me with periodic updates on:
  - NBC situation?
  - Smoke operations?
  - Chemical unit support?
- Since going into MOPP3 or 4 have I changed my way of doing business (i.e., Am I sleeping less, managing more closely, or delegating less than before)?

MANEUVER

Planning Phase

- Does my tactical plan take into account the trade-offs and risk:
  - Casualties from NBC weapons if I do not raise protection to MOPP3 or 4?
  - Casualties from enemy tires or heat stress if I do raise protection to MOPP3 or 4?

- Does my tactical plan consider the degradation on operations caused by NBC conditions and wearing MOPP3 or 4?
  - Fewer enemy targets destroyed
  - Attacks can take longer
  - Direct fire weapon systems engage the enemy at shorter distances
  - Risk of fratricide increases
- Have I considered the use of smoke/obscurants to enhance my combat power against a technologically inferior force (See Table A-1 on page A-9)?

Preparation Phase

- During rehearsals in MOPP4, did we practice target acquisition?
- Has my unit adequately rehearsed battle drills while wearing MOPP4?
- During rehearsals in MOPP4, did I identify problems in the tactical plan?

Execution Phase

- Has my unit been able to maintain a high volume of fire or are very few weapon systems engaging the enemy?
- Is the NBC condition imposing greater (or lesser) burdens on maneuver than I had planned? Should I issue a FRAGO to adapt?
- Can I lower protection levels now and increase my unit's effectiveness?

MOBILITY/COUNTERMOBILITY/SURVIVABILITY (M/C/S)

Planning Phase

- Do planned march routes avoid known areas of contamination?
- Do planned march rates consider degradation caused by NBC conditions?
- Does my plan integrate camouflage, concealment, and deception (CCD) measures for passive defense and avoidance?
- Does my plan include integrating smoke to protect my force and defeat enemy reconnaissance, surveillance, and target acquisition (RSTA) systems?
- Did I provide guidance on acceptable levels of risk tied to key decision points or phases of the operation:
  - Operational exposure guidance?
  - MOPP analysis?
- Have I issued automatic masking criteria?
- Did I plan for road guides to help bypass contaminated areas?
- Does my plan include decontamination considerations?
  - Link-up points?
  - Water sources?
  - Replacement stocks of CDE?

Preparation Phase

- Has my unit adequately rehearsed NBC attack/survival drills?
  - React to chemical attack
  - React to biological attack
  - React to nuclear attack
- During rehearsals in MOPP4, did my unit adequately practice movement?
- Will CCD measures used rcduce the risk of attack as a target of opportunity?
- Are all known contaminated areas marked for bypass?

- Did my unit adequately rehearse the decontamination plan?

Execution Phase

- If my unit is in a contaminated area, do I move?
- Have I encountered unexpected contamination and do I now cross or bypass it?
- Is my unit maintaining MOPP discipline?
- Have contaminated areas been marked for bypass?
- Decontamination execution:
  - Has combat power been adversely affected by contamination?
  - Is the decontamination through put fast enough, or do I allocate more resources or accept more risk?

FIRE SUPPORT

Planning

- Does my plan have NBC capable units as high payoff targets?
- Does my plan consider that fire support is less responsive when crews are in MOPP3 or 4?
- Does my plan consider that calls for indirect fire increase under NBC conditions?
- Did I plan for smoke?

Preparation Phase

- Has my unit rehearsed calls for fire while wearing MOPP4?
- Have I adequately exercised/rehearsed the fire support system while crews were wearing MOPP 3 or 4?
- Was smoke execution considered during rehearsals?

Execution Phase

- Have I engaged all NBC capable/high-payoff targets in my AO?
- When in MOPP4, is fire support responsive or, should I:
  - Displace them to clean areas?
  - Reduce their level of protection and accept risk of casualties?
- Did I use smoke?

AIR DEFENSE

Planning Phase

- Does my plan consider using smoke to help restrict aerial observation?
- Does my plan include engaging air targets forward (Active defense/avoidance)?

Preparation Phase

- During rehearsals in MOPP4, did my unit adequately practice scanning and target acquisition?
- Under a high nuclear threat, are all weapon systems and communications cables buried?
- Have I adequately exercised/rehearsed the air defense system while crews were wearing MOPP3 or 4?

Execution Phase

- In MOPP3/4, is air defense responsive, or should I:
  - Displace them to clean areas?
  - Reduce their level of protection and accept risk of casualties?
- Is smoke restricting aerial observation?

COMBAT SERVICE SUPPORT

Planning

- Does the chemical unit supporting my force require sustainment and security support?
- Does my plan consider distribution of NBC equipment?
- Does my plan include transportation to move CDE?
- Does my plan consider that maintenance and transportation operations under NBC conditions are significantly slower?
- Does my plan consider that operations under NBC conditions significantly limit health service support capability?

Preparation Phase

- Did my unit adequately rehearse the CDE resupply plan?
- Are all mission essential supplies covered or placed indoors?
- Have I adequately exercised/rehearsed the CSS system while crews were wearing MOPP4?

Execution Phase

- Since going into MOPP4, are my CSS assets able to keep pace with the battle?
- Will temporary relief from MOPP4 be sufficient or should I lower MOPP levels for a prolonged period and risk casualties?

Table A-1. Electro-optical systems defeated by smoke

Spectral Region	Electro-Optical System	Type of Smoke
Visible 0.40 - 0.70 μm	Viewers: -Daylight Sights -Naked Eye -Camera Lens -Binoculars/Standard Optics -Battlefield TV -CLOS Missiles (for example AT-3) -Night Sights	All
Near-IR 0.70 - 3.00 μm	Viewers: - SACLOS Missiles (for example, AT-4 and AT-5) - Night Sights	All
	Sensors: - Laser Designators - Laser Range Finders	All
Mid-IR 3.00 - 5.00 μm	Viewers: - Passive Thermal Sights	WP, PWP, RP, Dust, Type II IR Obscurant
Far-IR 8.00 - 14.00 μm	Sensors: - Thermal Imagers - Terminal Homing Missiles	WP, PWP, RP, Dust, Type II IR Obscurant
MM Wave and Lower Frequency 6 Ghz - 140 Ghz	Radar Radio Microwaves	WP and PWP (instantaneous Interruption Only), Developmental Obscurants
X-Ray and Higher Frequency	Directed EMP Nuclear Weapons	Oil Smoke (Attenuation Only), Developmental Obscurants

NOTES:

Appendix B
CHEMICAL TOE UNITS

Type Unit	Assignment	Capabilities
Corps Decontamination Company	Maneuver units forward in division area; units in corps rear or TAACOM;	5 decontamination platoons per company; equipment, fixed site, and terrain decontamination
Motorized Smoke Generator Company	Attached to a chemical battalion in corps area	3 smoke platoons; large area smoke support to a division for tactical operations; each smoke platoon can provide a smoke haze 600 - 1500 meters in width
Mechanized Smoke Generator Company	Attached to a chemical battalion in corps area	3 smoke platoons; large area smoke support to mechanized/armored divisions for tactical operations; each smoke platoon can provide a smoke haze 600 - 1500 meters in width
Smoke/Decontamination Company	Corps/theater/army; corps plug to light infantry division	4 smoke/decontamination platoons per company; large area smoke and equipment decontamination support; platoons cannot conduct both smoke and decontamination operations simultaneously.
NBC Reconnaissance Company	Division/corps/ TAACOM	3 NBC reconnaissance platoons per company; equipped with M93 Fox, M113, or HMMWV (which dictates capabilities); locate, identify, mark, report NBC contamination; locate clean routes, areas, and decontamination sites

Type Unit	Assignment	Capabilities
Chemical Company (Smoke/Decontamination/NBC Reconnaissance)	ACR and separate brigades	1 NBC reconnaissance and 1 smoke/decontamination platoon per company; large area smoke support, equipment decontamination, NBC reconnaissance, and chemical battle staff support
Chemical Company (Heavy Division)	Armored and mechanized divisions; OPCON to Division Chemical Officer	4 decontamination platoons, 1 mechanized smoke platoon, and 1 NBC reconnaissance platoon per company; large area smoke support, equipment decontamination, NBC reconnaissance, and chemical battle staff support
Chemical Company (Airborne/Air Assault)	Airborne and air assault divisions; OPCON to Division Chemical Officer	4 smoke/decontamination platoons per company; large area smoke, equipment decontamination, and chemical battle staff support; platoons cannot conduct both smoke and decontamination operations simultaneously.
Chemical Team FA (Decontamination)	Rear area installations; one team per separate brigade	3 decontamination squads per team; equipment, fixed site, and terrain decontamination
Chemical Team JA (NBC Element)	Separate brigade, unified command, corps, theater headquarters, theater defense brigade	Provide 12-hour shift battle staff support to TOC
Chemical Team JB (NBC Element)	Separate brigade, unified command, corps, theater headquarters, theater defense brigade	Provide 24-hour shift battle staff support to TOC
Chemical Team LB (NBC Reconnaissance) (SF)	Special forces group	Strategic NBC intelligence

Appendix C
BASIC NBC DEFENSE EQUIPMENT

INDIVIDUAL EQUIPMENT

- Protective Mask (plus optical inserts)
- Protective Hood
- Battledress Overgarment (BDO)
- Chemical Protective Undergarment (CPU)
- Protective Gloves
- Protective Boots or Overboots
- Decontamination Kit (M258 andM291 series)
- Nerve Agent Antidote Kit (NAAK)
- Nerve Agent Pyridostigmine Pretreatment (NAPP)
- Convulsive Antidote, Nerve Agent (CANA)

UNIT EQUIPMENT

- Decontamination Kit (M280 and M295)
- Decontamination Equipment (M11, M13)
- Decontamination Apparatus (M17 SANATOR)
- Automatic Chemical Agent Alarm (M8-series)
- Chemical Agent Monitor (CAM)
- Chemical Agent Detector Kit (M256-series)
- Chemical Agent Detector Paper (M8, M9)
- RADIAC meters (AN/PDR-27, IM174 or AN/VDR-2 series)
- Personal Dosimeters and Chargers (IM-93, PP-1578 series, AN/PDR-75)
- NBC Marking Set
- Gas Particulate Filter Units (MS-series for armored vehicles)

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- Simplified Collective Protection Equipment (M20-series)
- Decontaminating Solution Number 2 (DS2)
- Super Tropical Bleach (STB)

NOTES:

Appendix D
LOOK-UP TABLE

TOPIC	SUBTOPICS	MANUAL
Biological Agents		TM 3-216
Chemical Agent Properties	•Blister agents •Incapacitating agents •Lethal chemical agents	FM 3-9 FM 3-9 FM 3-9
Chemical Battle Staffs	•Composition	FM 3-101
Chemical Units	•Command and support relationships •Chemical unit employment •Organization in theater •Organization for combat	FM 3-100 FM 3-101 FM 3-100 FM 3-100
Contamination Avoidance	•Chemical/biological defensive measures •Chemical/biological contamination avoidance principles •Nuclear defensive measures •Nuclear contamination avoidance principles	FM 3-3 FM 3-3 FM 3-3-1 FM 3-3-1
Field behavior of NBC Agents	•Biological agents •Chemical agents •Incendiaries •Nuclear detonations •Smoke and obscurants	FM 3-6 FM 3-6 FM 3-6 FM 3-6 FM 3-6
Fixed site NBC defense	•Principles •Threat	FM 3-4-1 FM 3-4-1
Military chemical compound principles	•Tear/vomiting agents •Binary components	FM 3-9 FM 3-9

TOPIC	SUBTOPICS	MANUAL
Decontamination	•Aviation	FM 3-5
	•Decontamination concepts	FM 3-5
	•Decontamination logistics	FM 3-5
	•Forms of contamination	FM 3-5
	•Immediate decontamination	FM 3-5
	•Material and equipment	FM 3-5
	•Operational decontamination	FM 3-5
	•Patient decontamination	FM 8-10-7
	•Special decontamination	FM 3-5
	•Thorough decontamination	FM 3-5
NBC battle management	•Battle management activities	FM 3-100
	•NBC warning and reporting system	FM 3-100
NBC defense doctrine		FM 3-100
NBC reconnaissance	•Principles	FM 3-19
	•Special	FM 3-18
	• Fox unit employment	FM 3-101-2
Operational and tactical planning for NBC defense		FM 3-100
Preventive medical measures	•Individual	FM 21-10
	•Leaders	FM 21-10
Protection	•Principles	FM 3-4
	•MOPP analysis	FM 3-4
Smoke and obscurants	•Battlefield applications	FM 3-50
	•Delivery means	FM 3-50
	•Description	FM 3-50
	•Effects on electro-optical systems	FM 3-50
	•Operational concept	FM 3-50
	•Planning	FM 3-50
	•Sustainment planning	FM 3-50
	•Uses	
	•Use in Offense	FM 3-50
	•Use in defense	FM 3-50
	•Use in other tactical operations	FM 3-50
	•Smoke unit employment	FM 3-50 FM 3-101-1

TOPIC	SUBTOPICS	MANUAL
Understanding NBC warfare	•NBC challenges for US forces	FM 3-100
	•NBC threat	FM 3-100
	•US policy	FM 3-100
Toxins	•Characteristics	FM 3-9
	•Sources	FM 3-9
	•Technical aspects	FM 3-9

NOTES:

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GLOSSARY

AAR	After-Action Review
ACR	Armored Cavalry Regiment
ADA	Air Defense Artillery
Admin	Administration; Administrative
AI	Area of Interest
AMDF	US Army Master Data File
AMTP	ARTEP Mission Training Plan
AO	Area of Operations
ARTEP	Army Training and Evaluation Program
ASI	Additional Skill Identifier
ASL	Authorized Stockage List
Aslt	Assault
Bde	Brigade
BOS	Battlefield Operating Systems
BSA	Brigade Support Area
BW	Biological Warfare
CANA	Convulsive Antidote, Nerve Agent
CANE	Combined Arms in a Nuclear/Chemical Environment
CB	Chemical/Biological
CDE	Chemical Defense Equipment
CDM	Chemical Downwind Message
ChemO	Chemical Officer
CLOS	Command line of sight
CONUS	Continental United States
Co	Company
COA	Course(s) of Action
C2	Command and Control
CS	Combat Support

CSS	Combat Service Support
CTA	Common Table of Allowances
CW	Chemical Warfare
DA	Department of the Army
Def	Defense
DISCOM	Division Support Command
Div	Division
DOD	Department of Defense
DS	Direct Support
DS2	Decontaminating Solution Number Two
DTG	Date-Time Group
EDM	Effective Downwind Message
EMP	Electromagnetic Pulse
EOD	Explosive Ordnance Detachment
EO	Electro-optical
FA	Field Artillery
FINL	Flame, Incendiaries, and Non-Lethal Weapons
FLOT	Forward Line of Own Troops
FM	Field Manual
FRAGO	Fragmentary Order
Freq	Frequency
FSO	Fire Support Officer
FTX	Field Training Exercise
GP	Group
GS	General Support
GSR	Ground Surveillance Radar
HMMWV	High-Mobility, Multi-purpose, Wheeled Vehicle
HQ	Headquarters
IET	Initial Entry Training
IEW	Intelligence and Electronic Warfare
IPB	Intelligence Preparation of the Battlefield
IPE	Individual Protective Equipment

IR	Infrared
LC	Line of Contact
LD	Line of Departure
LDS	Lightweight Decontaminating System
LOG	Logistics
LOGPAC	Logistics Packages
MED	Medical
METL	Mission Essential Task List
METT-T	Mission, Enemy, Terrain, Troops, and Time Available
MOPP	Mission Oriented Protective Posture
MOS	Military Occupational Speciality
MOUT	Military Operations on Urban Terrain
MQS	Military Qualification Standards
MRR	Motorized Rifle Regiment
MSR	Main Supply Route
MTOE	Modified Table of Organization and Equipment
MTP	Mission Training Plan
NAAK	Nerve Agent Antidote Kit
NAI	Named Area of Interest
NAPP	Nerve Agent Pyridostigmine Pretreatment
NBC	Nuclear, Biological, Chemical
NBCC	NBC Center
NBCE	NBC Element
NBCWRS	Nuclear, Biological, Chemical, Warning and Reporting System
NCE	Nuclear-Chemical Environment
NCO	Noncommissioned Officer
NCOES	Noncommissioned Officer Educational System
NOE	Nap of Earth
NPB	Nonpersistent Blood
NPC	Nonpersistent Choking
NPN	Nonpersistent Nerve

OB	Order of Battle
OBJ	Objective
OC	Observer/Controller
OCONUS	Outside Continental United States
OEG	Operational Exposure Guidance
OES	Officer Educational System
OPCON	Operational Control
OPFOR	Opposing Forces
OPLAN	Operations Plan
OPORD	Operations Order
OPSEC	Operations Security
PB	Persistent Blister
PCI	Precombat Inspections
PDDE	Power-Driven Decontaminating Equipment
PDS	Personnel Decontamination Station
PLL	Prescribed Load List
Plt	Platoon
PMCS	Preventive Maintenance Checks and Services
PN	Persistent Nerve
POL	Petroleum, Oil, Lubricants
POS	Position
PWP	Plasticized white phosphorus
QC	Quality Control
RADIAC	Radiation Detection, Identification, and Computation
R&S	Reconnaissance and Surveillance
RP	Red phosphorus
RSTA	Reconnaissance, Surveillance, and Target Acquisition
S1	Administration Staff Officer
S2	Intelligence Staff Officer
S3	Operations Staff Officer
S4	Logistical Staff Officer
SACLOS	Semi-Automated Line of Sight

SB	Supply Bulletin
SDT	Soldier Development Test
SITEMP	Situation Template
SMCT	Soldier's Manual of Common Tasks
SOI	Signal Operating Instructions
SOP	Standing Operating Procedures
S/O	Smoke/Obscurants
SQI	Skills Qualification Identifier
SQT	Skills Qualifications Test
STB	Super Tropical Bleach
STP	Soldier Training Publication
STX	Situational Training Exercise
TAA	Tactical Assembly Area
TAACOM	Theater Army Area Command
TAI	Target Area of Interest
TAMMS	The Army Maintenance Management System
TB	Technical Bulletin
TC	Training Circular
TDA	Table of Distribution and Allowances
TF	Task Force
TMDE	Test, Measurement, and Diagnostic Equipment
TOC	Tactical Operations Center
TOE	Table of Organization and Equipment
TREE	Transient Radiation Effects on Electronics
TSOP	Tactical SOP
TTP	Tactics, Techniques, and Procedures
US	United States
WO	Warning Order
WP	White Phosphorus
WWI	World War I

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DOCUMENTS NEEDED

This document must be available to the intended users of this publication.

DA Form 2028. Recommended Changes to Publications and Blank Forms. February 1974.

RECOMMENDED READING

These are the recommended documents for further reading and study.

FM 3-19. *NBC Reconnaissance.* Nov 1993.
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Television Tapes

These television tapes are available at your training support center.

TVT 3-19, CANE I Lessons Learned.
TVT 3-23, CANE IIA Lessons Learned (C).
TVT 3-39, CANE IIB Lessons Learned (C).
TVT 3-72, Accomplishing the Mission in a Chemical Environment.

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29 SEPTEMBER 1994

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