



Donning protective gear during Desert Storm.

U.S. Army

# **THE IMPACT OF** **NBC Proliferation** on Doctrine and Operations

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[Editor's Note: From October 1994 to September 1995, the Center for Counterproliferation Research at the National Defense University held a series of workshops to examine how service doctrine, operational concepts, and capabilities take into account the threat from the proliferation of nuclear, biological, and chemical weapons (NBC). The workshops represented the first time that the majority of constituencies in the defense establishment that are responsible for evaluating and designing military responses to proliferation were assembled. Collectively, the workshop series involved more than four hundred participants drawn primarily from the services but also included members of policy,

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intelligence, research and development, and other organizations. Perhaps most unique, the workshops included broad participation from planners, operators, and trainers from all the services. Although the workshop recommendations, detailed in a number of reports, covered several broad areas—national military strategy, defense policy, and military capabilities—the central purpose of the series was to enlighten the operational context. Presentations, discussions, and gaming focused on service capabilities for joint and coalition warfare in NBC environments. This article presents those findings that are most germane to the further development of joint and service NBC doctrine.]

**NBC** proliferation is recognized as a serious threat across the operational spectrum—from the deployment of forces to post-hostility activities. References to NBC—frequently aggregated under the rubric of weapons of mass destruction (WMD)—appear often in policy and capstone statements such as the national military strategy and *Joint Vision 2010*.

At present NBC is also mentioned in service doctrine (for example, Army Field Manual 100-5 and Air Force Manual 1-1) as well as in more technical manuals on detection, decontamination, individual protection, and biological warfare/chemical warfare (BW/CW) shipboard defense. Aspects of the NBC threat are also the focus of joint doctrine publications, foremost among them Joint Pub 3-11, *Joint Doctrine for Nuclear, Biological, and Chemical (NBC) Defense*, which provides a general overview of NBC defense operations.

Furthermore, counterproliferation is being embedded in the planning process, as evidenced by the missions and functions study completed by the

Joint Staff in spring 1996. In addition, the geographic CINCs have been charged with implementing counterproliferation policy in their areas of responsibility. They are in the process of developing counterproliferation contingency plans to define how they intend to conduct counterproliferation operations. The Joint Staff is also working with the CINCs to assist them in identifying and developing those capabilities which they will need to accomplish their counterproliferation objectives.

As a framework for military counterproliferation operations takes shape, the Joint Staff and services are focusing on the doctrine, operational concepts, and training to better prepare our forces for operations in an NBC environment. Furthermore, on the policy level, the recent establishment of the Counterproliferation Council chaired by the Deputy Secretary of Defense illustrates high level interest in the NBC threat and the commitment to respond to that threat.

The above responses begin to address many deficiencies identified in the workshop series. Overall, the findings suggest that the response to the threat has been uneven. There are pockets of strength, such as procurement of passive defense capabilities at the individual level. There are also more recent areas of progress, mostly programmatic and focused on technology solutions, such as developing light-weight suits and improving our detection capabilities. But on balance, our words on countering the NBC threat have been stronger than our deeds.

The workshops surfaced a number of weaknesses in the areas of doctrine, force structure, training, and education. Identifying these weaknesses and recommending improvements were the main focus of this work. In that context, it should be noted that weaknesses do not mean that the joint community and services have failed to address the challenge. No one should expect them to have resolved all of the difficult problems associated with this complex and growing threat. That said, solutions will be found only when existing vulnerabilities are acknowledged and the Armed Forces begin to think comprehensively about how to overcome them.

## Doctrine

For purposes of the workshop series, *doctrine* was defined as how we think about the conduct of war and the principles for conducting operations. The definition found in Joint Pub 1, fundamental principles that guide the employment of forces in support of national objectives, is entirely consistent with this working definition.

One deficiency common to service doctrine is the failure to understand how an enemy may employ NBC against us. Lacking such knowledge, doctrine is silent on this point; hence, concepts of

Chemical attack exercise at Camp LeJuene.



U.S. Marine Corps (G.D. Clark)



Decontaminating F-15 during exercise.

U.S. Air Force

enemy NBC use are absent from the relevant documents and operational publications mentioned earlier.

In general, NBC concerns are confined either to very broad statements about the threat and need to plan against “weapons of mass destruction” or to detailed technical data on how to put on mission oriented protective posture (MOPP) gear and wash down contaminated ships. Between these extremes—doctrine, tactics, techniques, and procedures (TTP) for combat in various scenarios—there exists a relatively blank page on which we must focus our attention.

Only by embedding enemy use concepts in doctrine can the Armed Forces develop courses of action above the individual and small unit level to counter the NBC threat to U.S. forces. More specifically, because doctrine does not take into account enemy NBC employment concepts, we also lack TTP needed to overcome key vulnerabilities identified by operators and planners. These vulnerabilities include protection of facilities such as ports and prepositioning depots, large groups of personnel, and essential equipment and supplies; decontamination capabilities for large areas and sensitive materiel such as airfields and aircraft; and handling contaminated casualties and cargoes. Moreover, without such concepts,

we miss an opportunity to take advantage of the vulnerabilities in an enemy’s NBC posture.

Adversary employment concepts for conventional conflict are recognized as essential for the development of service and joint doctrine and operating principles for conventional defensive as well as offensive operations. Concepts of enemy conventional operations are fully embedded in doctrine, force development, and training. Failure to develop and embed similar concepts relating to NBC may expose forces in the field and fleet to risks that could have been mitigated had likely employment concepts been understood and corrective action taken.

### Force Structure

A number of workshop participants emphasized the need to remedy identified shortfalls in force structure, especially for forces that would be called on for crisis response. Some questioned whether sufficient mobile detection vehicles were being acquired. Similar questions were raised about the biological integrated detection system (BIDS), and specifically its emerging employment concept which emphasizes forward deployment of scarce assets. Others questioned the planned level of on-hand stocks of MOPP gear in light of the requirement for possible suit changeouts every other day for forces and critical civilians needed to prosecute an operation abroad in a BW or CW environment.

Chemical Biological International Reaction Force (CBIRF) washing down M-93 FOX.



U.S. Marine Corps (C.D. Clark)

Participants also stressed the risks associated with the current heavy reliance on Reserve NBC defense units, again as with BIDS, particularly in contingencies such as Desert Shield that do not have the luxury of a buildup period. This would be especially true if the adversary were to use NBC early to deter the United States from intervening by posing the prospect of high casualties.

Finally, some participants questioned the organizational designs of service NBC-related units. For instance, in the Army (which has the preponderance of these units) the design of division level chemical companies appears to be incompatible with current responsibilities (such as smoke generation and NBC decontamination) which may be required simultaneously under foreseeable operational circumstances. In high tempo combat, commanders may be forced to limit the use of smoke as a battlefield obscurant to enhance force protection in favor of time-urgent decontamination. Because there are few of these specialized units in the force structure, commanders may be faced with an unacceptable dilemma. A similar circumstance may occur with Air Force civil engineering units assigned both base maintenance and aircraft and base decontamination missions. The question is not whether units need to be dual tasked but whether the current assignment of tasks, based on the Cold War model of conflict in Europe, is the most rational for regional NBC contingencies, and whether

these units have been properly prepared for their secondary NBC defense roles.

In this context, one related point that came up repeatedly was the assertion by Air Force representatives that the Army was responsible for decontamination of large areas, such as air bases. Army participants consistently responded that they had neither the mission nor the capability.

### Training

Perhaps the most critical requirement for deterring NBC use, and for successful operations should deterrence fail, are forces fully trained across the NBC threat spectrum. Training converts theory into practice by preparing forces to accomplish their mission in an operational environment. While recognizing a number of improvements that have been made in establishing training standards and programs to enhance NBC readiness, such as training NBC defense experts from all services at Fort McClellan, this is an area of particular weakness.

Throughout the workshops the planners, operators, and even trainers themselves cited shortfalls in their own individual and unit training experiences. Most of those cited have been previously documented, such as in the DOD annual NBC warfare defense report to Congress and

by the General Accounting Office. These deficiencies deal with inadequacies in such basic but central areas as the inability to handle CW and BW casualties, improper wearing of masks, and the inability to operate detection equipment. Such inadequacies—which reflect the current concentration of training on individual protection and specialized units—are the subject for corrective action.



U.S. Marine Corps (C.D. Clark)

Evacuating exercise  
"victims".

However, participants identified other key training shortfalls. At present, primary service guidance on NBC attempts to ensure that personnel maintain their proficiency in taking individual protective measures like donning protective garb. Specialized NBC defense units have adequate guidance to perform their unique technical functions such as decontamination. However,

### training guidance is inadequate for producing the proficiency needed to operate in regional NBC environments

there is inadequate guidance within the services or from operational chains of command that defines tasks, conditions, or standards for more complex NBC activities such as operational planning to minimize the potential effects of enemy NBC use. Even at highly instrumented Army combat training centers (CTCs) there are not adequate models or templates to train soldiers against likely enemy NBC use in future conflicts. The commanders of units undergoing training essentially determine the scope and nature of NBC play, if any, to be included in the scenarios by CTC controllers and opposing forces.

During the workshops service representatives candidly discussed difficulties encountered in training for operations in NBC environments

under current threat conditions. Training guidance within the services and combatant commands is inadequate for producing the proficiency needed to operate in regional NBC environments. Notably absent is useful staff training for developing combat campaigns and courses of action for operations involving an NBC-armed enemy.

All services need more realistic NBC events incorporated into individual, unit, and staff training. Current simulations, which form the basis of much individual and unit training, do not realistically depict potential NBC use in likely combat and non-combat contingencies. There was consensus that existing models and simulations inadequately portray the types of environments that could result from the NBC proliferation threat and, specifically, that its impact on land, sea, and air operations—as well as civilian populations—is routinely understated in wargames. One reason is that current models are not capable of providing essential information about CW and, especially, BW effects. In workshop games, red players saw NBC capabilities as important weapons to assail U.S. vulnerabilities and to reduce the significance of U.S. conventional technological superiority. The same players, when cast in the role of blue planners, consistently minimized the difficulties of operations in NBC environments.

Many participants also noted that there has been insufficient NBC play in joint and combined exercises. While measures are being undertaken to enhance joint training, little progress has been made in exercising with potential coalition partners. Yet coalition operations will likely be the norm for regional conflict. It is clear that, despite the deficiencies of U.S. forces in the NBC area, they are relatively better equipped and trained to operate in NBC environments than the forces of many if not all allies and potential coalition members. Therefore, combined exercises and training could provide a useful foundation for operations in the event of an actual conflict. It is essential to work in advance with allies in the region to ensure cooperation when hostilities begin.

On a more anecdotal basis, discussions in the workshops pointed to the potentially harmful effects of current NBC training practices. For example, most Army participants affirmed that they had trained for CW events. As the conversation developed, however, it became clear that the CW uses against which they trained were almost always limited and discrete events in a broader exercise. In almost every experience, U.S. forces were able to go around or through such use with little effect on operational tempo. Two explanations were given for why the play was structured in this

fashion: first, the chemical event could not be allowed to derail the larger exercise, and second, the commanders who believed they would be graded on the overall results of the exercise could not let the CW play affect the outcome.

If these observations reflect widespread practice, one must ask whether such experiences do more harm than good if they lead to a false sense of complacency that a clever enemy could exploit.

### Education

A consensus of workshop participants from all services indicated that professional military education (PME) will be key to overcoming the NBC challenge in the long run. Put simply, in a

### advanced courses on proliferation and counterproliferation reach only a small fraction of students

proliferated world involving regional conflict, future leaders must think differently about deterrence and defense. Senior service colleges have made notable progress in designing advanced courses on proliferation and counterproliferation. They reach only a small fraction of students, however. Most important, core curricula at these institutions require added emphasis on the political-military and operational implications of the NBC threat. At the intermediate and precommissioning levels, where student exposure to NBC issues is cursory at best, even more must be done.

To strengthen PME, the Counterproliferation Center at the National Defense University has designed a counterproliferation awareness game—in which players act as both red and blue team members on the operational level—that was used for the first time in April 1996 by the National War College. Other senior service colleges have expressed interest in adopting the game. This tool will also help inform us about enemy use concepts and, in turn, assist in developing doctrine.

### NBC Challenges

Taken together, the workshop findings suggested a clear bottom line from which obvious challenges emerge. The first is to better know the enemy. Here, we need to think differently about intelligence requirements and tailor assets to the operational needs of the supporting services and combatant commands, placing more emphasis on enemy NBC operational concepts, employment doctrines, and capabilities. At the same time, it is essential to recognize that, although important, better intelligence alone is not sufficient.

Another promising tool is the creation of dedicated NBC red teams with the authority to challenge conventional thinking—both in terms of enemy use and U.S. responses. It is especially useful to have in place a disciplined process with dedicated professionals for critically examining alternative courses of action and capabilities. This tool can be applied by operators, planners, and trainers across a broad spectrum of activities, from identifying critical intelligence and counterforce capabilities for early deployment to planning for civil-military emergency response cooperation in contingency theaters of operation.

In the near term, interactive gaming can also be effective. Forcing U.S. planners and operators to think like the adversary is invaluable. The process can generate insights about issues that military planners and operators could face when confronting an NBC-armed opponent.

Finally, we need to think about NBC differently than we did in the East/West context. Today the likelihood that NBC will be used against us is much greater. A number of factors explain this. In the bipolar Cold War context, regional states were less free to pursue their own aggressive political, ideological, and in some cases religious objectives through the use of force. The current lack of discipline is compounded by the fact that proliferation

| Biological Weapons Effects: What We Know |                   |               |                   |                              |
|------------------------------------------|-------------------|---------------|-------------------|------------------------------|
| LEVELS \ TYPES                           | "Real World" Data | Exercise Data | Experimental Data | Studies, Models, Simulations |
| People                                   | ●                 | ●             | ●                 | ●                            |
| Small Units                              | ●                 | ●             | ●                 | ●                            |
| Divisions and Above                      | ●                 | ●             | ●                 | ●                            |
| "Systems" (ports, airfields, etc.)       | ●                 | ●             | ●                 | ●                            |
| Civilian Populations                     | ●                 | ●             | ●                 | ●                            |

● Little or no reliable information    ● Incomplete or nonconclusive information    ● Generally good information/accepted as reliable

| Chemical Weapons Effects: What We Know |                   |               |                   |                              |
|----------------------------------------|-------------------|---------------|-------------------|------------------------------|
| LEVELS \ TYPES                         | "Real World" Data | Exercise Data | Experimental Data | Studies, Models, Simulations |
| People                                 | ●                 | ●             | ●                 | ●                            |
| Small Units                            | ●                 | ●             | ●                 | ●                            |
| Divisions and Above                    | ●                 | ●             | ●                 | ●                            |
| "Systems" (ports, airfields, etc.)     | ●                 | ●             | ●                 | ●                            |
| Civilian Populations                   | ●                 | ●             | ●                 | ●                            |

is occurring in regions of vital interest to the United States, regions in which we have security commitments and forward-based forces.

In addition, within a regional context, the prospects for traditional deterrence succeeding—



U.S. Marine Corps (C.D. Clark)

Treating "casualty" under NBC exercise threat.

that is deterrence based on retaliation and punishment alone—are problematic and in fact are more likely to fail for several reasons: the absence of such conditions as mutual understandings and effective communications, the risk-prone strategic personalities of regional adversaries we are likely to confront, and the asymmetric nature of deterrence in a regional contingency where U.S. survival is not at risk but the enemy likely sees his own at stake, or at least that of his regime. This could prompt him to use NBC with little concern about the consequences.

Perhaps most significant is that the employment concepts of regional adversaries are also likely to be much different than those assumed about adversaries in the past. In this context, NBC capabilities are seen as weapons of the weak against the strong, as the only arms that can overcome the conventional superiority of the West. They are not seen as weapons of last resort, but rather weapons of choice to be threatened or used early in a conflict for political and psychological as well as military purposes. For this reason, understanding enemy concepts of use is central to the U.S. response to proliferation.

The second challenge is to better know ourselves. We will not have fully met it until we understand the effects of BW/CW on operations involving U.S. and coalition forces and develop appropriate concepts of operations based on solid

doctrine. A survey of existing data by the center indicates several major gaps in our knowledge base, such as effects of BW and CW use on units above the battalion level, on key nodes such as ports, and on civilian populations.

The accompanying illustrations (shown on the previous page) provide an overview of some of those weaknesses. The green symbols indicate that we have generally good data on the effects of CW on individual soldiers. This applies particularly to physically fit males because relatively little information exists on women. The red symbols tell us where we have very little or no reliable information about the effects of BW and CW, for example, on large unit operations.

The third challenge is to fully train and educate the force. Several suggestions have been covered earlier, from developing standards for larger units and complex tasks, to creating more realistic models for games and simulations, to the extensive use of red teams.

The fourth and final challenge is to design and equip forces to meet the new realities of the NBC threat. Key to this effort is integrating materiel and non-materiel initiatives. Since 1994, the U.S. Government has issued a Counterproliferation Review Committee report with details on the required technology initiatives, but non-materiel initiatives remain scattered. Not until a companion volume on non-materiel initiatives is prepared, and comprehensive doctrine developed, will there be essential guidance for defining the way we equip, train, and fight in an NBC conflict. **JFQ**