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CHEMICAL AND BIOLOGICAL DEFENSE

Emphasis Remains Insufficient to Resolve Continuing Problems



**National Security and
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The Honorable Herbert H. Bateman
Chairman
The Honorable Norman Sisisky
Ranking Minority Member
Subcommittee on Military Readiness
Committee on National Security
House of Representatives

U.S. forces face an increasing number of potential enemies capable of waging chemical and biological warfare. Experiences during the Gulf War and subsequent Department of Defense (DOD) studies suggest that U.S. forces may not be sufficiently prepared to survive and fight in a chemically or biologically contaminated environment. In accordance with the House National Security Committee report on the National Defense Authorization Act for Fiscal Year 1996, we evaluated U.S. chemical and biological warfare defense capabilities.

By using the Gulf War experience as a baseline and applying DOD and military service readiness standards, we examined the preparedness of early deploying U.S. ground forces to survive and fight in a chemical or biological environment. Our objectives were to determine (1) DOD's actions to address chemical and biological warfare defense problems identified during the Gulf War and (2) the current preparedness of U.S. ground forces to operate in a contaminated environment. This report summarizes the information we provided to your staff on February 29, 1996. In addition, information contained in this report was summarized in a statement for the record¹ provided to the Subcommittee on Military Research and Development, House Committee on National Security, on March 12, 1996.

Background

For decades, the United States has struggled to prevent the proliferation of nuclear, biological, and chemical weapons. Nevertheless, the number of countries that possess nuclear, biological, or chemical capabilities grows each year. As a result, countries possessing these weapons could threaten the interests of the United States in every possible theater of the world. The Gulf War experience exposed (1) weaknesses in the U.S. forces' preparedness to defend against chemical or biological agent attacks and

¹Chemical and Biological Defense: Emphasis Remains Insufficient to Resolve Continuing Problems (GAO/T-NSIAD-96-123, Mar. 12, 1996).

(2) the risks associated with reliance on post-mobilization activities to overcome deficiencies in chemical and biological readiness. Post-conflict studies confirmed that U.S. forces were not fully prepared to defend against Iraqi use of chemical or biological weapons and could have suffered significant casualties had they been used. Units and individuals often arrived in theater without needed equipment, such as protective clothing and adequate chemical and biological agent detectors. Active and reserve component forces required extensive chemical and biological training before and after arrival in Southwest Asia. Medical readiness problems included inadequate equipment and training. Biological agent vaccine stocks, and policies and procedures for their use, were also inadequate. While post-mobilization and in-theater activities increased readiness, equipment and training problems persisted to varying degrees throughout the conflict. Complacency and the absence of command emphasis on chemical and biological defense prior to deployment were among the root causes of this lack of preparedness. We previously reported on these problems in May 1991.²

Since the Gulf War, Congress has expressed concern about the proliferation of chemical and biological weapons and the readiness of U.S. forces to operate in a contaminated environment. In November 1993, the National Defense Authorization Act for Fiscal Year 1994 (P. L. 103-160) directed the Secretary of Defense to take specific actions designed to improve chemical and biological defense and to report annually to Congress on the status of these efforts.

Results in Brief

Units designated for early deployment today continue to face many of the same problems experienced by U.S. forces during the Gulf War. Activities undertaken by DOD since the war are improving the readiness of U.S. forces to operate in a chemically or biologically contaminated environment. However, equipment, training, and medical shortcomings persist and are likely to result in needless casualties and a degradation of U.S. war-fighting capability.

Today, chemical and biological defense activities at all levels (from the Joint Staff to individual Army and Marine units) tend to continue to receive a lower level of emphasis than other high-priority activities, such as performing traditional operational mission tasks. This lower emphasis is seen in the funding, staffing, monitoring, and mission priority given to

²Chemical Warfare: Soldiers Inadequately Equipped and Trained to Conduct Chemical Operations (GAO/NSIAD-91-197, May 29, 1991).

chemical and biological defense activities. Army officials contend that increased operational deployments coupled with reduced forces and budgetary constraints force commanders to make decisions regarding which aspects of operational preparedness to emphasize and those for which they are willing to accept increased risk. Thus, many commanders have accepted a level of chemical and biological defense unpreparedness and believe the resources currently devoted to this area are appropriate, given other threats and current budgetary constraints. Activities to equip, train, and otherwise prepare U.S. forces to operate in a contaminated environment have therefore received insufficient attention to resolve many continuing problems.

Problems Experienced in the Gulf War Remain

Although DOD is taking steps to improve the readiness of U.S. ground forces to conduct operations in a chemical or biological environment, serious weaknesses remain. Many early deploying active and reserve units do not possess the amount of chemical and biological equipment required by regulations, and new equipment development and procurement are often proceeding more slowly than planned. Many units are not trained to existing standards, and military medical capability to prevent and treat casualties on a contaminated battlefield is very limited.

Early Deploying Units Lack Required Equipment

During the Gulf War, units and individuals often deployed without all the chemical and biological detection, decontamination, and protective equipment they needed to operate in a contaminated environment. For example, some units did not have sufficient quantities or the needed sizes of protective clothing, and chemical detector paper and decontamination kits in some instances had passed expiration dates by as much as 2 years. These shortages in turn caused logistical problems, such as the rapid depletion of theater equipment reserves, and required extraordinary efforts by logisticians and transporters to rectify the situation during the 6-month interval between deployment and the initiation of major combat. Had chemical or biological weapons been used during this period, some units might have suffered significant, unnecessary casualties.

To prevent this problem from recurring in future conflicts, in 1993 the U.S. Forces Command (FORSCOM) revised its requirements regarding the amount of chemical and biological defense equipment early deploying active and reserve units are required to store on hand.³ This action was

³FORSCOM is responsible for training and equipping all Army forces located in the continental United States. The revised requirements are contained in FORSCOM Regulation 700-2 (June 15, 1993).

intended to ensure that these units would have sufficient equipment on hand upon deployment until in-theater logistical support could be established.

We found that neither the Army's approximately five active divisions composing the crisis response force (divisions with mobilization to deployment requirements of less than 30 days) nor any of the early deploying Army reserve units we visited were in full compliance with the new stock level requirements. All had shortages of various types of critical equipment. For example, three of the active divisions had 50 percent or greater shortages of protective clothing (battle dress overgarments), and shortages of other critical items (such as protective boots, gloves, hoods, helmet covers, mask filters, and decontamination kits) ranged from no shortage to an 84-percent shortage depending on the unit and the item concerned.

Shortages in on-hand stocks of this equipment were often exacerbated by poor inventorying and reordering techniques, shelf-life limitations, and difficulty in maintaining appropriate protective clothing sizes. For example, none of the active units we visited had determined how many and what sizes of chemically protected overgarments were needed. FORSCOM officials told us the Army's predetermined standard formula for the numbers of different clothing sizes needed by the average unit was often inaccurate, particularly for support units that are likely to have larger percentages of female soldiers. Furthermore, shortages of chemical protective clothing suits are worsening because most of the active divisions we visited had at least some of these items on hand with 1995 expiration dates. Unit stock levels are also being affected by problems with the availability of appropriate warehouse space at most of the installations we visited.

Army officials at FORSCOM and in the active units we visited were aware of these shortages. They said that the operation and maintenance funds normally used to purchase this equipment had been consistently diverted by unit commanders to meet other higher priority requirements such as base operating costs, quality-of-life considerations, and costs associated with other-than-war deployments such as those to Haiti and Somalia. Our review of FORSCOM financial records showed that while the operation and maintenance account included funds budgeted for chemical and biological training and equipment, very little had actually been spent on equipment during fiscal year 1995 at the FORSCOM units we visited. Army records were inadequate to determine for what purposes the diverted funds had been

used except by reviewing individual vouchers. We did not attempt to review these because of the time and resources such a review would require.

Army officials acknowledged that increasing operation and maintenance funding levels was unlikely to result in increased unit chemical equipment stocks unless in operation and maintenance funding increases are specifically designated for this purpose. Numerous other activities also dependent on operation and maintenance funding are being given a higher priority than chemical defense equipment by all the early deploying active Army divisions we visited. The cost of purchasing this equipment is relatively low. Early deploying active divisions in the continental United States could meet current stock requirements for an additional cost of about \$15 million. However, some may need to acquire additional warehouse storage space for this equipment. FORSCOM officials told us that due to a variety of funding and storage problems, they were considering decreasing chemical defense equipment contingency stock requirements to the level needed to support only each early deploying division's ready brigade and relying on depots to provide the additional equipment needed on a "just-in-time" basis before deployment.

FORSCOM officials told us that other potential solutions were also being considered, such as funding these equipment purchases through procurement rather than operation and maintenance accounts, or transferring responsibility for purchasing and storing this material on Army installations to the Defense Logistics Agency. It is unclear to what extent this and other alternatives might be effective in providing the needed equipment prior to deployment.

Research and Development Progress Is Slower Than Planned

At the beginning of the Gulf War, U.S. forces were vulnerable because the services lacked such things as (1) effective mobile systems for detecting and reporting chemical or biological agents; (2) a decontaminate solution suitable for use in sensitive interior areas of aircraft, ships, and vehicles; and (3) a suitable method for decontaminating large areas such as ports and airfields. Protective clothing was problematic because it was heavy, bulky, and too hot for warm climates.

In response to lessons learned in the Gulf War and subsequent congressional guidance, DOD has acted to improve the coordination of chemical and biological doctrine, requirements, research, development, and acquisition among DOD and the military services. During 1994 and

1995, DOD planned and established the Joint Service Integration and Joint Service Materiel Groups, which are overseen by a single office within DOD—the Assistant Secretary of Defense (Atomic Energy/Chemical and Biological Matters). The Joint Service Integration Group is to prioritize chemical and biological research efforts and establish a modernization plan, and the Joint Service Materiel Group is to develop the research, development, acquisition, and logistics support plans.

These groups have begun to implement the requirements of Public Law 103-160. However, progress has been slower than expected. At the time of our review, the Joint Service Integration Group expected to produce its proposed (1) list of chemical and biological research priorities and (2) joint service modernization plan and operational strategy during March 1996. The Joint Service Materiel Group expects to deliver its proposed plan to guide chemical and biological research, development, and acquisition in October 1996. It is unclear whether or when DOD will approve these plans. However, fiscal year 1998 is the earliest that DOD can begin their formal implementation if they are quickly approved. Consolidated research and modernization plans are important for avoiding duplication among the services and otherwise achieving the most effective use of limited resources. DOD officials told us progress by these groups has been adversely affected by personnel shortages and other assigned tasks.

DOD's efforts to develop and improve specific equipment have had mixed results. The Fox mobile reconnaissance system, fielded during the Gulf War, features automated sampling, detection, and warning equipment. However, due to budgetary constraints, DOD approved the acquisition of only 103 of the more than 200 Fox systems originally planned. Early deploying Army mechanized and armored divisions have been assigned 6 Fox vehicles each, the Marine Corps has 10, and virtually all the remainder have been assigned to a chemical company from which they would be assigned as needed in the event of a conflict. Our discussions with Army officials revealed concerns about the adequacy of assigning only 6 Fox vehicles per division. They said a total of 103 Fox vehicles might be insufficient to meet needs if chemical and/or biological weapons are used in two nearly simultaneous regional conflicts, particularly until the Army's light divisions and the Marine Corps are equipped with a planned smaller and lighter version of a reconnaissance system. In January 1996, DOD also began to field the Biological Integrated Detection System, a mobile system for identifying biological agents, and plans to field 38 by September 1996.

Other programs designed to address critical battlefield deficiencies have been slow to resolve problems. DOD's 1995 Annual Report to Congress identified 11 chemical and biological defense research goals it expected to achieve by January 1996. Of these, five were met on time. Of the remaining goals, two will not be achieved by 1997, and it is unclear when the remainder will be achieved. An effort ongoing since 1987 to develop a less corrosive and labor-intensive decontaminate solution is not expected to be completed until 2002. Work initiated in 1978 to develop an Automatic Chemical Agent Alarm (designed to provide visual, audio, and command-communicated warning of chemical agents) remains incomplete, and efforts to develop wide-area warning and decontamination capabilities are not expected to be achieved until after the year 2000.

Army and Marine Forces Remain Inadequately Trained for Effective Chemical and Biological Defense

Army and Marine Corps regulations require that individuals be able to detect the presence of chemical agents, quickly put on their protective suits and masks, decontaminate their skin and personal equipment, and evaluate casualties and administer first aid. Units must be able to set alarms to detect agents, promptly report hazardous agent attacks to higher headquarters, mark and bypass contaminated areas, and remove hazardous agents from equipment and vehicles. Commanders are required to assess their units' vulnerability to chemical or biological attacks, determine the level of protection needed by their forces, implement a warning and reporting system, employ chemical units to perform reconnaissance and decontamination operations, and ensure that adequate measures are in place to evacuate and treat casualties. Training for these tasks is accomplished through a variety of live and simulated exercises conducted at units' home stations and at combat training centers such as the Army's National Training Center at Fort Irwin, California, and the Marine Corps Air Ground Combat Center at 29 Palms, California.

Since the Gulf War, the services have acted to improve their chemical and biological training. They (1) issued policy statements on the importance of chemical and biological readiness, (2) revised doctrinal guidance and training regulations, and (3) collocated chemical defense training for all four services at the Army's Chemical School, Fort McClellan, Alabama.⁴ Commanders were instructed to ensure that their units were fully trained to standard to defend and sustain operations against battlefield chemical and biological hazards. Further, they were instructed that chemical and

⁴The Defense Secretary's Commission on Base Realignment and Closures has recently recommended relocating the U.S. Army Chemical School to Fort Leonard Wood, Missouri.

biological training must be fully integrated into unit exercises and must test the capability of commanders, staffs, and units to perform their mission under chemical and biological conditions.

In spite of these efforts, many problems of the type encountered during the Gulf War remain uncorrected, and U.S. forces continue to experience serious training-related weaknesses in their chemical and biological proficiency. In a series of studies conducted by the Army from 1991 to 1995, the Army found serious weaknesses at all levels in chemical and biological skills. For example, a 1993 Army Chemical School study found that a combined arms force of infantry, artillery, and support units would have extreme difficulty in performing its mission and suffer needless casualties if forced to operate in a chemical or biological environment. The Army concluded that these weaknesses were due to the force being only marginally trained to operate in a chemical and biological environment. Many of these problems had been identified a decade ago. For example, the Army found similar problems in three other studies of mechanized and armored units conducted by the Chemical School in 1986, 1987, and 1989.

Our analysis of Army readiness evaluations, trend data, and lessons learned completed from 1991 to 1995 also showed serious problems. At the individual, unit, and commander level, the evaluations showed a wide variety of problems in performing basic tasks critical to surviving and operating in a chemical or biological environment. These problems included (1) inability to properly don protective masks, (2) improper deployment of detection equipment, (3) inability to administer first-aid to chemical or biological casualties, (4) inadequate planning on the evacuation of casualties exposed to chemical or biological agents, and (5) failure to integrate chemical and biological issues into operational plans. More detailed information on these problems is contained in appendixes I and II.

Our work showed that the Marine Corps also continued to be affected by many of the same problems experienced during the Gulf War. Marine Corps 1993 trendline data from its combat training center at 29 Palms, California, showed that (1) submission of chemical and biological warning reports were not timely, (2) units and individuals were inexperienced with detection equipment, and (3) units did not properly respond to a chemical attack, issue alarms to subordinate elements, and follow proper unmasking techniques following a chemical attack.

Joint Exercises Include Little Chemical or Biological Defense Training

Current U.S. military strategy is based on joint air, land, sea, and special operations forces operating together in combat and noncombat operations. The Chairman of the Joint Chiefs of Staff (CJCS) Exercise Program is the primary method DOD uses to train its commanders and forces for joint operations. Our analysis of exercises conducted under the program showed that little chemical or biological training was being done.

In October 1993, the Joint Staff issued the Universal Joint Task List for the regional commanders in chief (CINCPAC) and the services to use to help define their joint training requirements. The list includes 23 chemical and biological tasks to be performed, such as gathering intelligence information on the enemy's chemical and biological warfare capabilities, assessing the effects of these agents on operations plans, and performing decontamination activities. In fiscal year 1995, 216 exercises were conducted under the CJCS program. These were planned, conducted, and evaluated by each CINCPAC.

Our analysis of the exercises conducted by four major CINCPACs (U.S. Atlantic, Central, European, and Pacific commands) in fiscal year 1995 and planned for fiscal year 1996 showed little joint chemical or biological training is being conducted. Overall, these CINCPACs conducted at least 70 percent of the total number of CJCS exercises held in fiscal year 1995 and planned for fiscal year 1996. However, only 10 percent of the CJCS exercises they conducted in 1995 and 15 percent of those to be conducted in fiscal year 1996 included any chemical or biological training. Of the exercises conducted, none included all 23 tasks, and the majority included less than half of these tasks. Appendixes III and IV show the amount of joint training being conducted by these CINCPACs.

Two reasons account for the little amount of joint chemical and biological training. First, notwithstanding Joint Staff guidance to CINCPACs on the need to train for chemical and biological warfare threats, the CINCPACs generally consider chemical and biological training and preparedness to be the responsibility of the individual military services. Second, most of the CINCPACs have assigned a lower priority to chemical and biological issues than others that they feel more directly relate to their mission. In this regard, CINCPACs and other major commanders have made a conscious decision to better prepare for other, more likely threats and to assume greater risk regarding chemical and biological defense.

Biological Agent Vaccine Stocks and Immunization Plans Remain Inadequate

For many years, DOD has maintained a medical research and development program for biological defense. However, at the time of the Gulf War, the United States had neither fielded equipment capable of detecting biological agents nor stocked adequate amounts of vaccine to protect the force. When the Gulf War started, DOD also had not established adequate policies and procedures for determining which vaccines needed to be administered, when they were to be given, and to whom. According to DOD officials, this caused much DOD indecision and delay and resulted in U.S. forces being administered varying types of vaccines about 5 months after they began arriving in theater and only a month or so before the major ground offensive began. Sufficient protection was not provided by the time the offensive began either, since virtually all biological agent vaccines require a minimum of 6 to 12 weeks or longer after immunization to become effective.

Since the Gulf War, DOD has increased the attention given to biological warfare defense. DOD consolidated the funding and management of several biological warfare defense activities, including vaccines, under the new Joint Program Office for Biological Defense. In November 1993, DOD established the policy, responsibilities, and procedures for stockpiling biological agent vaccines and determined which personnel should be immunized and when the vaccines should be administered. This policy specifically states that personnel assigned to high-threat areas and those predesignated for immediate contingency deployment to these areas (such as personnel in units with deployment dates up to 30 days after mobilization) should be vaccinated in sufficient time to develop immunity prior to deployment. DOD has also identified which biological agents constitute critical threats and determined the amount of vaccine that should be stocked for each. At present, the amount of vaccines stocked remains insufficient to protect the force.

The Joint Chiefs of Staff and other high-ranking DOD officials have not yet approved implementation of the established immunization policy. No decision has yet been made on which vaccines to administer, nor has an implementation plan been developed. DOD officials told us the implementation plan should be developed by March 1996, but this issue is highly controversial within DOD, and it is unclear whether the implementation plan will be approved and carried out. Until such an implementation plan is developed and approved and immunizations are given, existing vaccines cannot provide the intended protection from biological agents for forces already stationed in high-threat areas and

those designated for early deployment if a crisis occurs and biological agents are used.

Problems also exist with regard to the vaccines available to DOD for immunization purposes. Only a few biological agent vaccines have been approved by the Food and Drug Administration (FDA). Many remain in Investigational New Drug (IND) status. Although IND vaccines have long been safely administered to personnel working in DOD vaccine research and development programs, the FDA usually requires large-scale field trials in humans to demonstrate new drug safety and effectiveness before approval. DOD has not performed such field trials because of the ethical and legal considerations involved in deliberately exposing humans to toxic or lethal biological agents; nor has it effectively pursued other means of obtaining FDA approval for IND vaccines. IND vaccines can therefore now be administered only under approved protocols and with written informed consent.

During the Gulf War, DOD requested and received a waiver from the FDA requirement for written informed consent since this was a contingency situation. If DOD intends to use vaccines to provide protection against biological agents to personnel already assigned to high-threat areas or designated for rapid deployment, then it needs to make the required decisions for proceeding with immunizations and either using IND vaccines or obtaining FDA approval for them. DOD officials told us they hoped to acquire a prime contractor during 1996 to subcontract vaccine production with the pharmaceutical industry and take the actions needed to obtain FDA approval for existing IND vaccines.

Army Medical Units Often Lack Chemical and Biological Defense Equipment

Medical units assigned to support the early deploying Army divisions we visited often lacked certain types of equipment needed to treat casualties in a chemically or biologically contaminated environment. For example, these units are authorized chemical patient treatment sets and patient decontamination kits that contain items such as suction apparatuses and airways, aprons, gloves, scissors, and drugs and chemicals for treating or decontaminating casualties. Overall, the medical units we visited had on hand only about 50 to 60 percent of their authorized patient treatment kits and patient decontamination kits. Some units we visited had not been issued any of these kits. Further, our inspection of some kits showed that they were missing critical components, such as drugs used for treating chemical casualties. Army officials said that the shelf life of these items

had expired and that operation and maintenance funds were not available to replace them.

Forward medical support for combat units, such as battalion aid stations and mobile army surgical hospitals, need to be capable of operating in contaminated environments. However, none of the medical units we visited had any type of collective shelter that would enable them to provide such treatment. Army officials acknowledged that the lack of shelters would virtually prevent any forward area treatment of casualties, and would cause greater injury and death rates. They told us that older versions of collective shelters developed to counter the Soviet threat were unsuitable, unserviceable, and no longer in use. While new shelters—both a field hospital version and a small mobile version mounted on a vehicle—are in development, they are not expected to be available for initial issuance to units until at least fiscal years 1997 and 1998. Furthermore, Army officials told us that the Army plans to limit issuance of the mobile shelters to about 90 percent of the crisis response force, has canceled plans for a tracked version for mechanized and armored divisions, and might not purchase the currently planned version due to its funding priority.

**Methods to Ensure That
Medical Personnel Receive
Chemical and Biological
Training Need
Improvement**

Military physicians assigned to medical units supporting early deploying Army divisions need to be trained to treat and manage casualties in a chemical or biological environment. All Army physicians attend the Medical Officer Basic Course and receive about 44 hours of training on nuclear, biological, and chemical (NBC) topics. The Officer Advanced Course provides another 40 hours of instruction for medical officers when they reach the rank of major or lieutenant colonel, but is optional. Also optional, the Management of Chemical and Biological Casualties Course provides 6-1/2 days of classroom and field instruction to military health care providers and is designed to establish the essential skills needed to save lives, minimize injury, and conserve fighting strength in a chemical or biological warfare environment. During Operation Desert Storm, this course was provided on an emergency basis to medical units already deployed to the theater. These three courses constitute the bulk of formal military medical training specifically oriented toward chemical and biological warfare casualty treatment, with some additional training provided through other shorter courses.

Our examination showed that of the physicians either currently assigned to medical units in selected early deploying Army divisions or designated

to report to these units at deployment, only a limited number had completed the medical officer advanced and casualty management courses. The percentage of physicians that had attended the advanced course ranged from 19 to 53 percent, while from 3 to 30 percent had attended the casualty management course. Army medical officials told us that the demands of providing peacetime medical care to military personnel and their dependents often prevented attendance at these courses. Furthermore, the Army had made no effort to monitor whether these physicians had received this training, and attendance of the casualty management course was neither required nor targeted toward physicians assigned to early deploying units or otherwise needing this training.

We also found little or no training is being conducted on casualty decontamination from chemical or biological agents at most of the early deploying divisions and medical units we visited. There was usually confusion among these units regarding who was responsible for performing this task. According to Army doctrine, tactical units are expected to conduct initial casualty decontamination before their evacuation or arrival at forward medical treatment facilities. Army lessons learned from Operation Desert Storm noted that some units lacked understanding of the procedures and techniques used to decontaminate casualties. This situation had not been corrected at the time of our review.

Problems Remain Due to Limited Emphasis on Chemical and Biological Defense

Although DOD has taken actions to improve chemical and biological defense since the Gulf War, DOD's emphasis has not been sufficient to resolve many serious lingering problems. Our measurement of key indicators—DOD funding, staffing, mission priority, and monitoring—showed that chemical and biological defense tends to be relegated a lower level of priority than other threat areas.

Funding

Historically, DOD has allocated less than 1 percent of its total budget to chemical and biological defense. Annual funding for this area has decreased by over 30 percent in constant dollars, from approximately \$750 million in fiscal year 1992 to \$504 million in fiscal year 1995. Funding for chemical and biological defense activities could decrease further if the Secretary of Defense agrees to a recent proposal by the Joint Staff. In response to a recent Joint Staff recommendation to reduce counterproliferation funding over \$1 billion over the next 5 years, DOD identified potential reductions of approximately \$800 million. DOD officials told us that, if implemented, this reduction would severely impair planned

chemical and biological research and development efforts and reverse the progress already made in several areas. For example, procurement of the Automatic Chemical Agent Alarm would be delayed well into the next century, as would the light NBC reconnaissance system.

At the time we completed our work, DOD officials told us that DOD was considering reducing the amount of the proposed funding reduction to about \$33 million, resulting in a far less serious impact on chemical and biological warfare programs. However, we believe that the limited funding devoted to chemical and biological defense, the tendency to reduce this funding to avoid cuts in other operational areas, and the tendency of commanders to divert operation and maintenance funding budgeted for chemical and biological defense is indicative of the lower priority often given this area.

Staffing

Chemical and biological defense activities were frequently understaffed and heavily tasked with other unrelated duties. At the CINC and military service levels, for example, chemical officers assigned to CINC staffs were often heavily tasked with duties not related to chemical and biological defense. At FORSCOM and U.S. Army III Corps headquarters, chemical staff positions were being reduced, and no chemical and biological staff position exists at the U.S. Army Reserve Command. Finally, according to DOD officials, the Joint Service Integration and Joint Service Materiel Groups (the groups charged with overseeing research and development efforts for chemical and biological equipment) have made less progress than planned due to staffing shortages and other assigned tasks.

Mission Priority

The priority given to chemical and biological defense matters varied widely. Most CINCS appear to assign chemical and biological defense a lower priority than other threats. CINC staff members told us that responsibility for chemical and biological defense training was primarily a service matter, even though the Joint Staff has tasked the CINCS with ensuring that their forces are trained in certain joint chemical and biological tasks. Several high-ranking DOD officials told us that U.S. forces still face a limited, although increasing, threat of chemical and biological warfare.

At Army corps, division, and unit levels, the priority given to this area depended on the commander's opinion of its relative importance. For example, one early deploying division we visited had an aggressive system

for chemical and biological training, monitoring, and reporting. At another, the division commander made a conscious decision to emphasize other areas due to limited resources and other more immediate requirements, such as other than war deployments and quality of life considerations. As previously discussed, Army medical officials told us that the demands of providing peacetime medical care to military personnel and their families often interfered with medical training oriented toward combat-related subjects such as chemical and biological casualties.

Officials from Army major commands, corps, divisions, and individual units said that chemical and biological defense skills not only tended to be difficult to attain and highly perishable but also were often given a lower priority than other areas for the following reasons:

- too many other higher priority taskings,
- low levels of monitoring or interest by higher headquarters,
- the difficulty of performing tasks in cumbersome and uncomfortable protective gear,
- the time-consuming nature of chemical training,
- heavy reliance on post-mobilization training and preparation, and
- the perceived low likelihood of chemical and biological warfare.

Monitoring

The lower emphasis given to chemical and biological matters is also demonstrated by weaknesses in the methods used to monitor its status. DOD's current system for reporting overall readiness to the Joint Staff is the Status of Resources and Training System (SORTS). This system measures the extent to which individual service units possess the required resources and are trained to undertake their wartime missions. SORTS was established to provide the current status of specific elements considered essential to readiness assessments, such as personnel and equipment on hand, equipment condition, and the training of operating forces. The SORTS elements of measure, "C" ratings that range from C-1 (best) to C-4 (worst), are probably the most frequently cited indicator of readiness in the military.

In a 1993 effort to improve the monitoring of chemical and biological defense readiness, DOD required units from all services to assess their equipment and training status for operations in a contaminated environment and report this data as a distinct part of SORTS. DOD's 1994 and 1995 annual reports to Congress on nuclear, biological, and chemical warfare defense reported the continued lack of an adequate feedback

mechanism on the status of chemical and biological training, equipment, and readiness.

We found that the effectiveness of SORTS for evaluating unit chemical and biological readiness is limited. While the current report requires unit commanders to report shortages of critical chemical or biological defense equipment, it leaves the determination of which equipment is critical up to the commander. The requirements also allow commanders to subjectively upgrade their overall SORTS status, regardless of their chemical and biological status. For example, one early deploying active Army division was rated in the highest SORTS category (C-1) despite rating itself in the lowest category (C-4) for chemical and biological equipment readiness. In addition, SORTS does not require reporting of some critical unit and individual equipment items if they are being stored at corps, rather than unit level, and SORTS reports are sometimes inaccurate due to poor equipment inventorying techniques.

Furthermore, while individual units must fill out these reports, divisions are not required to do so. FORSCOM officials told us that most of the early deploying active Army divisions did not complete summaries of this report for at least 4 months in 1995 and that FORSCOM did not monitor these reports for about 6 months in 1995 due to a lack of personnel and other priorities. FORSCOM officials told us they normally performed only limited monitoring of unit chemical and biological readiness and relied mostly on unit commanders to report any problems. The U.S. Army Reserve Command does not have an office or individual assigned to monitor reserve units' chemical and biological equipment and training status.

With the exception of SORTS, the monitoring of chemical and biological readiness varied widely. At the CINC level, virtually no monitoring was being done. None of the CINCS we visited required any special reports on chemical or biological matters or had any special monitoring systems in place. At lower levels, monitoring was inconsistent and driven by the commander's emphasis on the area. At both division and corps levels, monthly briefings, reports, and other specific monitoring of chemical and biological readiness were sometimes required and sometimes not, depending on the commander's view of the importance of this area.

Other methods the Army uses to monitor chemical and biological proficiency are (1) after-action and lessons-learned reports summarizing the results of operations and unit exercises at the Army's combat training centers and (2) operational readiness evaluations. The effectiveness of

these tools is hindered by the varying amounts of chemical and biological training included in unit rotations at the combat training centers and the frequent lack of realism under which chemical and biological conditions are portrayed. Unit commanders influence the amount of chemical and biological training to be included in exercises at the centers and how and when it will be used in the exercises. In some cases, Army officials said that these exercises often include little chemical and biological training and that in others it is conducted separately from more realistic combat training.

Operational readiness evaluations (ORE), on the other hand, were more standardized in the areas of chemical and biological proficiency that were assessed. FORSCOM used ORES to obtain external evaluations of active, reserve, and National Guard unit readiness and to identify areas needing improvement. These evaluations focus on unit ability to perform its wartime missions prior to mobilization and deployment. ORES consist of a records check of personnel, logistics, training, and mobilization data and an assessment of a unit's ability to perform critical collective and individual mission tasks, including chemical and biological defense tasks. However, since the second quarter of fiscal year 1995, the Army has discontinued ORES at all active units and certain Army National Guard units.

Marine Corps monitoring of chemical and biological matters was more extensive than the Army's. The Marine Corps conducts standardized Operational Readiness and Commanding General Inspections, Combat Readiness Evaluation Programs, and Marine Corps Combat Readiness Evaluations that assess chemical and biological proficiency. The Corps also requires monthly reports to division commanders that assess home station training in several specified chemical and biological areas. However, the effectiveness of some of its evaluation tools is also questionable for some of the same reasons as those we found for the Army.

As discussed earlier, Marine Corps trend data and lessons-learned information from its main combat training center at 29 Palms, California, showed serious weaknesses in units' chemical and biological proficiency. Despite these deficiencies, in 1994 the Marine Corps decided, as a result of downsizing, to discontinue comprehensive exercises and evaluations of unit chemical and biological defense proficiency at the 29 Palms combat training center and concentrate instead on fire support and maneuver training. Marine chemical and biological training is therefore now largely

relegated to the home station training exercises and evaluations mentioned above.

Like the Army, the Marine Corps now relies on unit commanders to determine the amount of chemical and biological training needed at their home stations based on their assessments of their units' capabilities and the evaluations described above. The commander's primary source of determining unit chemical and biological readiness is the Operational Readiness Inspection. Our analyses of these inspections conducted in 1994 and 1995 for the 2d Marine Expeditionary Force showed that units were trained with a few minor deficiencies. The other evaluations for the same time period showed little discussion of chemical and biological proficiency. Marine Corps officials stated that unless problems are found, these programs would not include discussions of these matters. In the few instances where the evaluations discussed chemical and biological matters, they for the most part concluded that the units were trained. However, Marine Corps officials told us that these home station evaluations do not expose units to the same training rigor and battlefield conditions as exercises conducted at 29 Palms and therefore are questionable indicators of actual unit chemical and biological defense proficiency. Thus, the extent that the Marine Corps has corrected the chemical and biological problems it encountered during Operation Desert Storm and since is uncertain.

Conclusions

Although DOD has improved chemical and biological defense capability since the Gulf War, many problems of the type experienced during this war continue to exist. This is in large part due to the inconsistent but generally lower priority DOD, and especially the Joint Chiefs of Staff and the warfighting CINCS, assign chemical and biological defense relative to other priorities. These problems are likely to continue given current reductions in military funding and the limited emphasis placed on chemical and biological defense, unless the Secretary of Defense and the CJCS specifically assign a higher priority to this area. Until these problems are resolved, U.S. forces are likely to encounter operational difficulties and could incur needless casualties if attacked with chemical or biological weapons.

Recommendations

We could not determine whether increased emphasis on chemical and biological warfare defense is warranted at the expense of other priorities. This is a matter of DOD's military judgment and congressional funding priorities.

In view of the increasing chemical and biological warfare threat and the continuing weaknesses in U.S. chemical and biological defense capabilities noted in this report, we recommend that the Secretary of Defense reevaluate the priority and emphasis given to this area throughout DOD. We also recommend that the Secretary, in his next annual report to Congress on NBC Warfare Defense, address (1) proposed solutions to the deficiencies identified in this report and (2) the impact that shifting additional resources to this area might have on other military priorities.

If the Secretary's reevaluation of the priority and emphasis given chemical and biological defense determines that more emphasis is needed, and if efforts by the Joint Service Materiel and Joint Service Integration Groups prove less effective than desired, the Secretary should consider elevating the single office for program oversight to the assistant secretary level in DOD rather than leaving it in its present position as part of the Office of the Assistant Secretary for Atomic Energy. The Secretary should also consider adopting an increased single manager concept for the execution of the chemical and biological program. This would provide a single manager with more authority, responsibility, and accountability for directing program management and acquisition for all the services.

We further recommend that the Secretary of Defense take the following specific actions designed to improve the effectiveness of existing activities:

- Direct FORSCOM to reevaluate current chemical defense equipment stock requirements for early deploying active and reserve units to determine the minimal amounts required to be on hand to meet deployment requirements and to determine any additional storage facility requirements. If chemical defense equipment stock requirements are retained, we recommend that FORSCOM take the actions necessary to see that early deploying units can and do maintain these stocks.
- Review some services' practice of funding the purchase of this equipment through Operation and Maintenance, rather than Procurement, funds. This review is necessary because Operation and Maintenance funds intended for chemical and biological defense equipment and training are too easily and frequently diverted to other purposes, and the uses of these funds are

not well recorded. A consistent DOD system for funding these activities and recording the amount of funds spent on chemical and biological defense would greatly improve oversight of the resources and emphasis directed to this area. We recommend that DOD also consider at least temporarily earmarking Operation and Maintenance funds to relieve existing shortages of this equipment if current funding practices for purchasing this equipment are retained.

- Consider modifying SORTS to require active Army divisions to complete and submit SORTS division summaries for chemical and biological reporting categories, and implementing changes that would require overall unit readiness assessments to be more directly affected by their chemical and biological readiness status. More emphasis should be placed on accurately inventorying and reporting unit stocks of critical chemical and biological defense equipment through SORTS and other monitoring and reporting systems. SORTS reporting requirements should also be modified to more accurately reflect shortcomings in units' ability to meet existing chemical and biological training standards.
- Determine and direct the implementation of an effective and appropriate immunization program for biological warfare defense that is consistent with existing DOD immunization policy.
- Direct that DOD medical courses of instruction regarding chemical and biological warfare treatment techniques, such as the Management of Chemical and Biological Casualties Course, be directed toward those personnel occupying positions in medical units most likely to have need of this training and that medical units assigned such personnel keep adequate records to determine whether the appropriate number and types of their personnel have attended such courses.
- Direct the Secretary of the Army to ensure that tactical unit training addresses casualty decontamination and that the current confusion regarding responsibility for performing casualty decontamination is corrected.
- Direct the Secretary of the Army and the Commandant of the Marine Corps to ensure that all combat training centers routinely emphasize and include chemical and biological training, and that this training is conducted in a realistic manner. Further, we recommend that the Secretary and the Commandant direct units attending these centers to be more effectively evaluated on their ability to meet existing chemical and biological training standards.
- Direct the CINCS to routinely include joint chemical and biological training tasks in exercises conducted under the CJCS exercise program and evaluate the ability of joint forces to perform chemical and biological tasks.

Further, we recommend that the Secretary direct the CINCS to report annually on the results of this training.

Agency Comments

DOD generally concurred with the report findings, and acknowledged that a relatively low emphasis has been placed on chemical and biological defense in the past. DOD also concurred with 9 of the 10 report recommendations. In commenting on this report, DOD stated it has recently increased the emphasis and funding given to chemical and biological defense and has begun a number of initiatives that are expected to address many of the problems we identified. DOD's full comments and our evaluation are shown in appendix VI.

A discussion of our scope and methodology is in appendix V. We conducted our review from October 1994 to December 1995 in accordance with generally accepted government auditing standards.

We are sending copies of this report to the Chairmen and Ranking Minority Members of the Senate Committee on Armed Services, the House Committee on National Security, and the Senate and House Committees on Appropriations; the Secretaries of Defense and the Army; the Commandant of the Marine Corps; and the Chairman, Joint Chiefs of Staff. Copies will also be made available to others upon request.

Please contact me at (202) 512-5140 if you or your staff have any questions concerning this report. Major contributors to this report are listed in appendix VII.



Mark E. Gebicke
Director, Military Operations
and Capabilities Issues

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Abbreviations

CJCS	Chairman of the Joint Chiefs of Staff
CINC	commanders in chief
DOD	Department of Defense
FDA	Food and Drug Administration
FORSCOM	U.S. Forces Command
IND	Investigational New Drug
NBC	nuclear, biological, and chemical
ORE	operational readiness evaluation
SORTS	Status of Resources and Training System

Recurring Weaknesses in Army Chemical and Biological Capabilities, Fiscal Years 1994-95

Task	2d Army^a (percentage of units inadequately trained)^b	5th Army^c (percentage of units inadequately trained)	Found in Gulf War
Donning protective masks			Yes
Active	39	50	
National Guard	57	88	
U.S. Army Reserve	84	81	
Decontamination			Yes
Active	33	10	
National Guard	61	60	
U.S. Army Reserve	48	75	
School-trained NBC officer			Not applicable
Active	5	17	
National Guard	31	34	
U.S. Army Reserve	35	19	
Preparing for a chemical attack			Yes
Active	67	23	
National Guard	77	50	
U.S. Army Reserve	50	60	
Responding to a chemical attack			Yes
Active	63	15	
National Guard	53	67	
U.S. Army Reserve	56	60	
Integrating chemical and biological tasks into training			N/A
Active	26	0	
National Guard	31	35	
U.S. Army Reserve	29	40	

(Table notes on next page)

Appendix I
Recurring Weaknesses in Army Chemical
and Biological Capabilities, Fiscal Years
1994-95

^aIn June 1995, the 1st Army, located at Fort Meade, Maryland, and the 2d Army, located at Fort Gillem, Georgia, were consolidated. The new consolidated unit is called the 1st Army. Our review of operational readiness evaluation (ORE) covered the 138 evaluations conducted by the former 2d Army in fiscal year 1994 and the first half of fiscal year 1995. Second Army OREs included 138 units—19 Active, 31 Army Reserve, and 88 National Guard.

^bBased on the results of our ORE analysis, we considered units to be inadequately trained if they were classified by the Army as being either untrained or partially trained.

^cIn May 1995, the 6th Army located at the Presidio of San Francisco, California, and the 5th Army located at Fort Sam Houston, Texas, were consolidated as the new 5th Army. Our review of OREs covered the 83 evaluations conducted by the former 5th Army in fiscal year 1994 and the first half of fiscal year 1995. Fifth Army OREs included 83 units—18 Active, 28 Army Reserve, and 37 National Guard.

Sources: Operational Readiness Evaluations, 2d and 5th Continental U.S. Armies, and Chemical Lessons Learned, Documents From Operations Desert Shield/Storm, August 1990 through July 1991.

Army Chemical and Biological Trendline Data From Combat Training Centers, Fiscal Years 1989-90

Task measured	Percent untrained	Found in Gulf War
Battle Management		Yes
Use of chemical units/officers	94	
Casualty evaluation	92	
Threat analysis	60	
Advising commanders	75	
Intelligence preparation of battlefield	60	
Contamination avoidance		Yes
Employment of chemical alarms	90	
Use of detection kits	86	
Implementation of warning system	73	
Decontamination		Yes
Planning	45	
Execution	80	
Protection		Yes
Distribution of protective gear	50	
Donning appropriate gear	73	
Unmasking procedures	100	
Administering first aid	83	

Note: Data collected from 31 rotations of infantry, airborne, special operations, armored cavalry, mechanized and motorized infantry, air assault, and heavy and light forces from October 1988 to October 1990.

Source: Nuclear, biological, and chemical (NBC) Trendline Study from the Command Training Centers Final Report, U.S. Army Chemical School, March 1991, and Chemical Lessons Learned Documents from Operations Desert Shield/Storm, dated August 1990 through July 1991.

CJCS Exercises That Include Joint Training Tasks, Fiscal Years 1995-96

Command	Number of joint exercises		Exercises that include chemical/biological tasks	
	1995	1996	1995	1996
CENTCOM	88	64	2	2
EUCOM	57	69	7	6
PACOM	^a	31	^a	13
USACOM	9	6	6	5
Total	154	170	15	26

Note: CENTCOM, Central Command; EUCOM, European Command; PACOM, Pacific Command; USACOM, Atlantic Command.

^aPACOM did not provide information for fiscal year 1995.

Source: U.S. Central, Atlantic, European, and Pacific commands.

Extent to Which 23 Joint Chemical/ Biological Tasks Are Included in Planned CJCS Exercises, Fiscal Year 1996

Command	Total planned exercises with chemical/ biological tasks	Number of tasks				
		23 tasks	15-22 tasks	10-14 tasks	5-9 tasks	1-4 tasks
CENTCOM	2	0	1	1	0	0
EUCOM ^a	6	a	a	a	a	a
PACOM	13	0	0	0	1	12
USACOM	5	0	0	0	2	3

^aEUCOM did not provide information on specific chemical and biological tasks done in its joint exercises.

Objectives, Scope, and Methodology

The Chairman and Ranking Minority Member, Subcommittee on Military Readiness, House Committee on National Security, requested that we provide a current assessment of the ability of early deploying U.S. ground forces to survive and operate in a chemically or biologically contaminated environment. Our objectives were to determine (1) DOD's actions to address chemical and biological warfare defense problems identified during the Gulf War and (2) the current preparedness of these forces to operate in a contaminated environment.

To determine the Department of Defense's (DOD) actions to correct the problems identified in the Gulf War, we reviewed DOD's Nuclear/Biological/Chemical (NBC) Warfare Defense annual reports submitted in 1994 and 1995 to Congress, lessons-learned documents, and other studies prepared by the Joint Chiefs of Staff, the Army, and the Marine Corps. We performed a similar analysis of problems identified in routine training exercises conducted under the Chairman, Joint Chiefs of Staff Exercise Program and at the Army's combat training centers—the National Training Center, located at Fort Irwin, California; the Joint Readiness Training Center, located at Fort Polk, Louisiana; the Combat Maneuver Training Center, located at Hohenfels, Germany; and the Marine Corps Air Ground Combat Center at 29 Palms, California. We also analyzed operational readiness inspections and evaluations and other Army and Marine Corps documents that assessed the results of home station training exercises.

To determine the preparedness of U.S. ground forces to operate in a chemical or biological environment, we focused on three areas: the availability of critical chemical and biological defense equipment, such as protective suits, masks, and alarms; the adequacy of chemical and biological training, including the extent to which tasks are conducted in joint and service training; and the availability of medical countermeasures to prevent and treat chemical and biological casualties, including supplies of critical vaccines and medical procedures to decontaminate and evacuate casualties.

Regarding equipment availability at the units visited, we compared equipment on hand with that required by Army and Marine Corps regulations. To determine training adequacy, we analyzed Army, Marine Corps, and Joint Staff training guidance specifying chemical and biological tasks to be done as well as after-action and lessons-learned reports to identify any weaknesses. We also analyzed the training exercises conducted under the Chairman, Joint Chiefs of Staff Exercise Program to

determine the extent that joint exercises include chemical and biological defense training. To assess the adequacy of medical countermeasures, we interviewed DOD officials and analyzed lessons-learned reports from the Gulf War to determine what problems had occurred. We then assessed medical unit equipment availability and training, the training provided to military physicians for the treatment and management of chemical and biological casualties, and the adequacy of biological agent vaccine stocks and policies and procedures for their use.

We also assessed the efforts by DOD, the Joint Staff, and CINCS to monitor chemical and biological readiness. We interviewed key officials, examined guidance and reporting requirements, and analyzed reports to determine the extent that chemical and biological matters are included.

We met with key DOD, Joint Staff, and service officials to discuss chemical and biological problems and the efforts to correct them; as well as readiness issues, including the emphasis placed on chemical and biological matters and other issues. At the DOD level, we contacted officials in the offices of the Assistant Secretary of Defense (Atomic Energy) (Chemical and Biological Matters); the Armed Forces Medical Intelligence Center, Fort Detrick, Maryland; and the Joint Program Office for Biological Defense. At the Joint Staff level, we met with officials in the offices of the Director for Strategic Plans and Policy (J-5), Weapons Technology Control Division, and the Director for Operational Plans and Interoperability (J-7), Joint Exercise and Training Division. At the commander in chief (CINC) level, we contacted officials at the U.S. Atlantic, Central, European, and Pacific Commands. At the Army, we held discussions and reviewed documents at U.S. Army Forces Command, Fort McPherson, Georgia; the U.S. Army Reserve Command, Atlanta, Georgia; the Office of the Army Surgeon General, Falls Church, Virginia; the Army Chemical School, Fort McClellan, Alabama; the Army Medical Command and the Army Medical Department Center and School, Fort Sam Houston, Texas; the Chemical and Biological Defense Command, Aberdeen, Maryland; the U.S. Army Medical Research Institute of Infectious Diseases, Fort Detrick, Maryland; Walter Reed Army Medical Center, Washington, D.C.; and the U.S. Army Medical Research and Materiel Command, Fort Detrick, Maryland.

We interviewed officials and reviewed documents at the Army's III Corps Headquarters, Fort Hood, Texas; the XVIII Airborne Corps Headquarters, Fort Bragg, North Carolina; and the Marine Corps' Combat Development and Combat Systems Development Commands, Quantico, Virginia.

We visited four of the 5-1/3 active Army divisions composing the crisis response force as well as the 2d Armored Division, Fort Hood, Texas, and the 25th Light Infantry Division, Schofield Barracks, Hawaii.

We visited the 2d U.S. Army (now 1st U.S. Army) headquarters, Fort Gillem, Georgia; the 5th U.S. Army headquarters, Fort Sam Houston, Texas; the 90th U.S. Army Reserve Command, San Antonio, Texas; the 98th U.S. Army Reserve Support Command, Little Rock, Arkansas; and the 143d Transportation Command, Orlando, Florida. We also visited a chemical company, a chemical detachment, a chemical brigade headquarters, a signal company, an engineer group, and a transportation detachment from the U.S. Army Reserves that, at the time of our review, were designated for deployment in less than 30 days from mobilization.

We visited the following Marine Corps Units:

- II Marine Expeditionary Force, Camp Lejeune, North Carolina;
- II Marine Division, Camp Lejeune, North Carolina;
- II Marine Force Service Support Group, Camp Lejeune, North Carolina;
- and
- II Marine Aircraft Wing, Cherry Point, North Carolina.

We conducted our work from October 1994 to December 1995 in accordance with generally accepted government auditing standards.

Comments From the Secretary of Defense



ATOMIC ENERGY

ASSISTANT TO THE SECRETARY OF DEFENSE
3050 DEFENSE PENTAGON
WASHINGTON, DC 20301-3050

MAR 20 1996



Mr. Mark E. Gebicke
Director, Military Operations and Capabilities Issues
National Security and International Affairs Division
U.S. General Accounting Office
Washington, D.C. 20548

Dear Mr. Gebicke:

This is the Department of Defense (DoD) response to the General Accounting Office (GAO) Draft Report, "CHEMICAL AND BIOLOGICAL DEFENSE: Emphasis Remains Insufficient To Resolve Continuing Problems," dated February 29, 1996 (GAO Code 703082) OSD Case 1099.

While the DoD generally concurs with the draft report, there are underway a number of initiatives as outlined in our responses that will address many of the problems identified.

In addition, over the past two years, the Chemical and Biological Defense (CBD) program has received increased emphasis and funding within the DoD. The DoD is continuing to work diligently to integrate and coordinate all Services' CBD requirements. The current CBD program is also undergoing a detailed program assessment as part of a review of the entire Counterproliferation program. Results of the assessment are expected within the next several months, and will serve to validate existing CBD programs and identify additional program requirements.

The DoD's detailed response to the GAO's recommendations are provided in the enclosure. Other suggestions of a technical nature to improve the accuracy and clarity of the report were provided to the GAO staff separately. The Department appreciates the opportunity to comment on the draft report.

Sincerely,

Harold P. Smith, Jr.

Enclosure

GAO DRAFT REPORT DATED FEBRUARY 29, 1996
(GAO CODE 703082) OSD CODE 1099

**"CHEMICAL AND BIOLOGICAL DEFENSE: EMPHASIS REMAINS
INSUFFICIENT TO RESOLVE CONTINUING PROBLEMS"**

**DEPARTMENT OF DEFENSE COMMENTS ON
THE GAO RECOMMENDATIONS**

RECOMMENDATION 1: In view of the increasing chemical and biological warfare threat and the continuing weaknesses in U.S. chemical and biological defense capabilities noted in the GAO Report, the GAO recommended that the Secretary of Defense reevaluate the priority and emphasis given to this area throughout the Department of Defense.
(p. 20/GAO Draft Report)

DOD RESPONSE: Concur. The Department of Defense (DoD) Chemical and Biological Defense (CBD) Program is a high priority program of this administration. Over the past two years, the CBD program has received increased emphasis and funding. In addition, the Fiscal Year 1994 National Defense Authorization Act has energized and provided direction for significant oversight of the CBD program.

As with all DoD programs, the DoD is continuously analyzing and evaluating threats, mission scenarios, force structures, training requirements, and Research, Development and Acquisition (RDA) programs. The current CBD program is undergoing a detailed program assessment as part of a broader review of the Counterproliferation program. The results of this analysis may impact priority and funding levels. The detailed program assessment is scheduled to be completed on June 30, 1996.

RECOMMENDATION 2: The GAO recommended that the Secretary of Defense, in his next annual report to the Congress on Nuclear, Biological and Chemical (NBC) Warfare Defense, address (1) proposed solutions to the deficiencies identified in this report and (2) the impact that shifting additional resources to this area might have on other military priorities. The GAO suggested that if the Secretary's reevaluation of the priority and emphasis given chemical and biological defense determines that more emphasis is needed, and efforts by the Joint Service Materiel and Joint Service Integration Groups prove less effective than desired, the Secretary may wish to consider elevating the single office for program oversight to the assistant secretary level in the DoD, rather than leaving it in its present position as part

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of the Office of the Assistant [to the] Secretary [of Defense] for Atomic Energy. The GAO further suggested that the Secretary may also wish to consider adopting a single manager concept for the execution of the chemical and biological program. This would provide a single manager with the authority, responsibility, and accountability for directing program management and acquisition for all the services. (p. 20/GAO Draft Report)

DOD RESPONSE: Concur. The previous three Annual Reports to Congress on the CBD Program have highlighted proposed solutions to on-going deficiencies. These on-going RDA solutions are highlighted within our CBD Mission Area Modernization Strategy. In addition, proposed solutions to deficiencies are also identified in the Logistics and Training chapters of the Annual Report to Congress.

Shifting funds into the CBD area should not have a significant impact on other funding areas because the CB funding area is relatively small (less than 1% of the overall budget). However, budget cuts to the CBD area can have major impacts on the CBD program execution. An important point to emphasize here is that Congress recognized that putting additional funds into separate DoD and other department and Agency lines led to duplication and overlap of effort and that any funding increases for CB defense should be put into the single DoD line to ensure a coordinated and integrated program. Putting additional funding into diverse and uncoordinated efforts could lead to a resurgence of this problem.

The 103rd Congress recognized the importance of the CBD program, and changed the name of the Assistant to the Secretary of Defense (Atomic Energy) (ATSD(AE)) to Assistant to the Secretary of Defense (Nuclear and Chemical and Biological Defense Programs) (ATSD(NCB)).

Our current management structure already focuses around a single manager. In accordance with Section 1701 of the Fiscal Year 1994 National Defense Authorization Act, that individual is the ATSD(NCB).

We also concur with the GAO recommendation that if a reevaluation of the priority and emphasis given chemical and biological defense determines that more emphasis is needed, the Secretary may wish to consider elevating the single office for program oversight to the assistant secretary level.

With continued Congressional support, adequate resources to provide oversight of the program and to implement on-going modernization strategies, the program will continue to improve.

See comment 1.

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RECOMMENDATION 3: The GAO further recommended that the Secretary of Defense take the following specific actions designed to improve the effectiveness of existing activities. First, the GAO recommended that the Secretary direct U.S. Army Forces Command (FORSCOM) to reevaluate current chemical defense equipment stocking requirements for early deploying active and reserve units to determine the minimal amounts required to be on hand to meet deployment requirements and to determine any additional storage facility requirements. If chemical defense equipment stocking requirements are retained, FORSCOM needs to take the actions necessary to see that early deploying units can and do maintain these stocks. (p. 20/GAO Draft Report)

DOD RESPONSE: Concur. FORSCOM is currently in the process of revising its policy concerning stocking and storing contingency Chemical Defense Equipment.

RECOMMENDATION 4: Second, the GAO recommended that the Secretary of Defense review the practice of some Services' funding the purchase of this equipment through Operation and Maintenance funding, while others use Procurement funds. The GAO stated that this review needs to be performed because Operation and Maintenance funds intended for chemical and biological defense equipment and training are too easily and frequently diverted to other purposes, and the uses of these funds are not well recorded. The GAO concluded that a consistent DoD system for funding these activities and recording the amount of funds spent on chemical and biological defense would greatly improve oversight of the resources and emphasis directed to this area. The GAO further recommended that the DoD also consider at least temporarily earmarking Operation and Maintenance funds to relieve existing shortages of this equipment if current funding practices for purchasing this equipment are retained. (p. 20-21/GAO Draft Report)

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DOD RESPONSE: Concur. The DoD is reviewing the Uniformed Equipment Acquisition Policy as directed by the Under Secretary of Defense (Acquisition and Technology) (USD(A&T)) to identify the types of CBD equipment that should be centrally procured through the CBD program and the funding lines that need to transfer between the CBD program and Service Accounts. Recommendations from the Equipment Acquisition Integrated Product Team will be forwarded for consideration in April 1996.

RECOMMENDATION 5: Third, the GAO recommended that the Secretary of Defense consider modifying the Status of Resources and

Appendix VI
Comments From the Secretary of Defense

Training System (SORTS) to require active Army divisions to complete and submit SORTS division summaries for chemical and biological reporting categories, and implementing changes that would require overall unit readiness assessments to be more directly affected by their chemical and biological readiness status. The GAO stated that more emphasis should be placed on accurately inventorying and reporting unit stocks of critical chemical and biological defense equipment through SORTS and other monitoring and reporting systems. In addition, the GAO recommended that SORTS reporting requirements should also be modified to more accurately reflect shortcomings in unit ability to meet existing chemical and biological training standards. (p. 21/GAO Draft Report)

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DOD RESPONSE: Nonconcur. SORTS is not intended to function as a detailed management tool to report on all conceivable variables. Rather, SORTS does provides a broad band of information on selected unit status indicators and includes the commander's assessment of the unit's ability to execute its full wartime mission. Units assessed routinely report their equipment on hand and training status for operations in a chemical and biological environment. Commanders combine this information with other factors, including wartime mission to provide an overall assessment of a unit's ability to go to war.

See comment 2.

RECOMMENDATION 6: Fourth, the GAO recommended that the Secretary of Defense determine and direct the implementation of an effective and appropriate immunization program for biological warfare defense that is consistent with existing DoD immunization policy. (p. 21/GAO Draft Report)

Now on p. 20.

DOD RESPONSE: Concur. DoD is reviewing the existing DoD Immunization Policy (DoD Directive 6205.3, Dated November 26, 1993). The Army, as executive agent, is developing alternative vaccine immunization implementation plans to be coordinated with the Joint Staff and the Services leading to a decision by the Deputy Secretary Defense. This process is expected to be completed within the next several months. Funding for procurement of the vaccine stockpile has been identified. At this time, a Request For Proposal is ready for release to procure the vaccine.

RECOMMENDATION 7: Fifth, the GAO recommended that the Secretary of Defense direct that DoD medical courses of instruction regarding chemical and biological warfare treatment techniques, such as the Management of Chemical and Biological Casualties Course, be directed toward those personnel occupying positions in medical units most likely to have need of this training, and that

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Comments From the Secretary of Defense

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medical units assigned such personnel keep adequate records to determine whether the appropriate number and types of their personnel have attended such courses. (p. 21/GAO Draft Report)

DOD RESPONSE: Concur. The DoD agrees that greater should be placed on medically relevant NBC training. The DoD is considering increased medical NBC training as it implements a new DoD Instruction, "Military Medical Readiness Skills Training." The DoD is also considering additional NBC physician training requirements in part of DoDD 6025.13, "Clinical Quality Management Program (CQMP) in the Military Health Services," dated July 20, 1995.

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RECOMMENDATION 8: Sixth, the GAO recommended that the Secretary of Defense direct the Secretary of the Army to ensure that tactical unit training addresses casualty decontamination and that the current confusion regarding responsibility for performing casualty decontamination is corrected. (p. 21/GAO Draft Report)

DOD RESPONSE: Concur. Current Army doctrinal manuals provide specific responses for patient decontamination for all units. These manuals form the basis for training exercises to reinforce these responsibilities. Army doctrine in Field Manual 3-5, NBC Decontamination, specifically assigns responsibility for patient decontamination to a nonmedical team from the supported unit. This team would operate under the supervision of medical personnel to ensure that no further injury is caused to the patient. While current Army doctrinal manuals are clear on this issue, Joint Doctrine across the Services does not yet exist. The DoD is considering an overall departmental policy on this issue.

See comment 3.

RECOMMENDATION 9: Seventh, the GAO recommended that the Secretary of Defense direct the Secretary of the Army and the Commandant of the Marine Corps to ensure that all combat training centers routinely emphasize and include chemical and biological training, and that this training is conducted in a realistic manner. The GAO further recommended that the Secretary and the Commandant should direct that units attending these centers be more effectively evaluated on their ability to meet existing chemical and biological training standards. (p. 21/GAO Draft Report)

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DOD RESPONSE: Concur. The Army and Marine Corps training guidance documents require Commanders to ensure individuals and units are trained to defend and survive in a chemical and biological environment. The Navy and Air Force have similar

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See comment 4.

requirements. For example, the FORSCOM Commander's NBC Defense Training Guidance, dated Sept 29, 1995, requires that commanders ensure that units are fully trained to sustain operations and defend against battlefield NBC hazards. All units are required to: (1) integrate NBC individual and collective tasks into all aspects of training; (2) use the Battle Command Training Program to enhance key leader and staff NBC defense training; and (3) fully demonstrate unit proficiency in realistic battlefield NBC environments at the combat training centers. The DoD, with the Joint Staff and the Services, will review evaluation standards for the training centers, to determine their efficacy.

Now on p. 20.

RECOMMENDATION 10: Finally, the GAO recommended that the Secretary of Defense direct the Commanders-in-Chiefs (CINCs) to routinely include joint chemical and biological training tasks in exercises conducted under the Joint Chiefs of Staff (JCS) Exercise Program and evaluate the ability of joint forces to perform chemical and biological tasks. The GAO further recommended that the Secretary should direct the CINCs to report annually on the results of this training. (p. 21/GAO Draft Report)

DOD RESPONSE: Concur. The DoD agrees with the need to improve CB training in joint exercises. This issue was commended to the CINCs by the Chairman of the JCS (CJCS) as a priority training requirement within the December 1995 Joint Training Master Plan (CJCSI 3500.02). As a result, combatant commands are creating FY 97-99 joint training plans to add the CJCS commended training initiatives to their requirements. This requirement is already being evaluated by the joint exercise and training community.

The following are GAO's comments on DOD's letter dated March 20, 1996.

GAO Comments

1. Our report acknowledges that a single office within DOD currently has responsibility for chemical and biological program oversight and execution. However, as we noted in our report, many aspects of joint military service planning of research, development, acquisition, and logistics support for chemical and biological activities are dependent on the effectiveness of the committee-like Joint Service Integration and Joint Service Materiel Groups. The effectiveness of these groups in resolving interservice chemical and biological issues remains to be seen, and the Joint Service Integration Group was continuing to have start-up staffing problems at the time of our review. Some DOD officials have expressed concern regarding the ability of these groups to obtain sufficient support and emphasis from the individual services to be effective. We believe more of a single manager approach to this planning should be considered if these groups are unable to effectively address current problems and develop timely solutions. We have slightly modified our recommendation to clarify our position on this point.

2. We agree that the Status of Resources and Training System (SORTS) is not intended to function as a detailed management tool. However, the current system leaves significant opportunity for broadly inaccurate reporting of unit chemical and biological preparedness status. For example, although 3 of the 5-1/3 Army divisions composing the crisis response force had 50 percent or less of the protective clothing required by regulations for chemical and biological defense, these shortages were discernable through SORTS for only one of these divisions. This type of problem was evident during the Persian Gulf conflict, as after-action reports and other analyses revealed that units reporting 90 to 95 percent of their equipment on hand through SORTS actually had far less serviceable equipment for a variety of reasons, thereby causing logisticians and transporters to make extraordinary post-mobilization and post-deployment efforts to fill requisitions for unit shortages.

Furthermore, during our review, at least one early deploying division was able to report C-1 for individual protective equipment status (90 percent or more of equipment on hand) although less than 50 percent of the required protective clothing and other items were actually available (C-4 status). This occurred because Army regulations allow units to forego reporting on equipment stored in facilities not specifically controlled by the unit. In this case, the division's chemical defense equipment was stored in a

warehouse controlled by corps headquarters, and reporting these shortages through SORTS was therefore not required, even though the corps headquarters and the division were physically located on the same installation. In this case, the level of stockage was not only inadequate for the division, but for other early deploying units within the corps as well. Also, leaving SORTS reporting mandatory for individual units, but optional for divisions, not only complicates the process but also makes review by higher commands such as U.S. Forces Command (FORSCOM) much more difficult.

Finally, DOD's annual reports to Congress acknowledged continuing problems regarding the accountability and management of NBC defense item inventories. While we concur that SORTS is not an appropriate tool for detailed management, we believe the assessment it provides, particularly regarding unit inventories of critical chemical and biological defense equipment, needs to be reasonably accurate in order to provide a meaningful readiness assessment. As long as units are required to be capable of defending themselves and operating in a contaminated environment, we believe that a readiness evaluation system that permits an overall unit readiness rating of C-1 while chemical and biological equipment readiness is rated C-4 could easily provide misleading information about that unit's actual combat readiness. Also, requiring at least a moderate level of chemical and biological readiness in order to achieve a high overall readiness rating would do much to emphasize chemical and biological defense, and thus address some of the disparity that often occurs between the level of emphasis placed on chemical and biological defense by DOD policy and guidance and that actually being applied at unit level (see comment 4). We are therefore retaining this recommendation.

3. There is no question that Army doctrine and manuals are clear about who has responsibility for patient decontamination. However, both medical and tactical units we visited that were involved in implementing these tasks were often unaware of the doctrine and, consequently, usually had not either planned or trained to perform these functions.

4. We concur that military service training documents and standards require commanders to ensure that units and individuals are trained to defend and survive in a contaminated environment. However, there appears to be a difference between the policy and guidance established and the extent to which it has been effectively applied. For example, while the last two FORSCOM commanders have issued NBC defense training

guidance requiring commanders to ensure that units are fully trained to sustain operations and defend against battlefield NBC hazards, the various DOD readiness and evaluation mechanisms we reviewed continue to indicate that many units are in fact not trained to DOD standards for chemical and biological defense. Our report also shows that Army unit commanders have not met FORSCOM requirements for unit on-hand stocks for critical NBC equipment, and that FORSCOM has not provided either the funds or the supervisory oversight needed to ensure compliance.

Major Contributors to This Report

National Security and
International Affairs
Division, Washington,
D.C.

Sharon A. Cekala
Donald L. Patton
William W. Cawood
Rodney A. Ragan
Penny A. Berrier
Jay S. Willer

Atlanta Field Office

Cherie' M. Stark
Zachary R. White
Stacey E. Keisling

Kansas City Field
Office

Benjamin Douglas
Joseph F. Lenart, Jr.

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