United States General Accounting Office

GAO

Report to the Chairman, Subcommittee on Military Readiness, Committee on Armed Services, House of Representatives

September 2001

CHEMICAL AND BIOLOGICAL DEFENSE

Improved Risk Assessment and Inventory Management Are Needed

GAO

Accountability * Integrity * Reliability

GAO-01-667

Contents

Figures

Abbreviations

DOD	Department of Defense
JSLIST	Joint Service Lightweight Integrated Suit Technology

GAO
Accountability * Integrity * Reliability
United States General Accounting Office
Washington, DC 20548

September 28, 2001

The Honorable Joel Hefley
Chairman, Subcommittee on Military Readiness
Committee on Armed Services
House of Representatives

Dear Mr. Chairman:

The Department of Defense (DOD) believes it is increasingly likely that an adversary will use chemical or biological weapons against U.S. forces to degrade superior U.S. conventional warfare capabilities, placing servicemembers' lives and effective military operations at risk. To reduce the effects of such an attack on military personnel, DOD has determined the quantity of chemical and biological protective suits, masks, breathing filters, gloves, boots, and hoods (together known as protective ensembles[1]) that are needed on the basis of projected wartime requirements.

In response to a request from the former Chairman of your Subcommittee, we reviewed U.S. forces' readiness in terms of the protective equipment needed for operations in a chemically or biologically contaminated environment. We determined (1) whether DOD's process for assessing the risk to military operations on the basis of wartime equipment requirements is reliable and (2) how DOD's inventory management of chemical and biological protective gear has affected the risk level. Also, as requested by the former Chairman, we will soon issue two additional reports on the readiness of military medical support in Korea and of the Military Sealift Command to operate in a contaminated environment.

Prior to 1994, each service had its own chemical and biological defense program and developed and procured individual protection equipment that was not always interoperable. The National Defense Authorization Act for Fiscal Year 1994 (Pub. L. 103-160),[2] however, required the Secretary of Defense to conduct a DOD-wide program for chemical and biological

[1] DOD's requirements also specify equipment to detect the presence of chemical or biological agents, to decontaminate equipment, and to provide protection for servicemembers in groups.

[2] 50 U.S.C. §§ 1522 and 1523.

warfare defense, to exercise program oversight, and to report annually to the Congress on the program's status. The Secretary assigned responsibility for the program to the Under Secretary of Defense for Acquisition, Technology, and Logistics. Subsequently, the Joint Nuclear, Biological, and Chemical Defense Board, which comprises the services' representatives, was created to address related policy, joint requirements, funding issues, and plans for modernization and logistics.

To assist in program oversight, the Joint Board publishes the *Joint Service Nuclear, Biological, and Chemical Defense Logistics Support Plan: Readiness and Sustainment Status*, which provides an assessment of the overall logistics readiness of the armed forces to survive and sustain combat operations in a contaminated environment. Also, DOD's *Chemical and Biological Defense: Annual Report to Congress*, which is partially derived from information provided by the services and the Defense Logistics Agency, provides an assessment of the overall readiness of the armed forces to fight in a chemically or biologically contaminated environment.

Results in Brief

DOD's assessment process is unreliable for determining the risk to military operations; as a result, in its 2000 report to the Congress, the Department inaccurately reported the risk in most cases as "low." The report is inaccurate because it includes erroneous inventory data and wartime requirements. More important, the process for determining risk is fundamentally flawed because (1) the Department determines requirements by individual pieces of protective equipment rather than by the number of complete ensembles that can be provided to deploying servicemembers, and (2) the risk-determining process combines individual service requirements and reported inventory data into general categories, masking specific critical shortages affecting individual service readiness. Had the Department assessed the risk on the basis of the number of complete ensembles it had available, by service, the risk would rise to "high" in all cases.

Inadequate management of inventory is an additional risk factor because readiness can be compromised by DOD's inventory-management practices, which prevent an accurate accounting of the availability or adequacy of its protective equipment. These practices can also undermine efforts to mitigate the risk. Moreover, these practices indicate problems in the

Department's management of inventory that we have noted in a previous report.[3] The practices that we identified in the current report regarding inventories of chemical and biological equipment contribute to the development of erroneous inventory data that in turn affect the accuracy of the risk assessment. First, DOD cannot monitor the status of the entire inventory of protective equipment because the services and the Defense Logistics Agency use at least nine different systems of inventory management with differing data fields to manage suit inventories, and the systems' records contain data that cannot be easily linked. Second, DOD cannot determine whether all of its older suits would adequately protect servicemembers because some of the systems' records omit essential data on suit expiration. Third, DOD cannot easily identify, track, and locate defective suits because inventory records do not always include contract and lot numbers. Finally, DOD has miscalculated the requirements for suits and the number available; for example, the Department counted new suits as on hand before they had been delivered and consequently overstated the actual inventory.

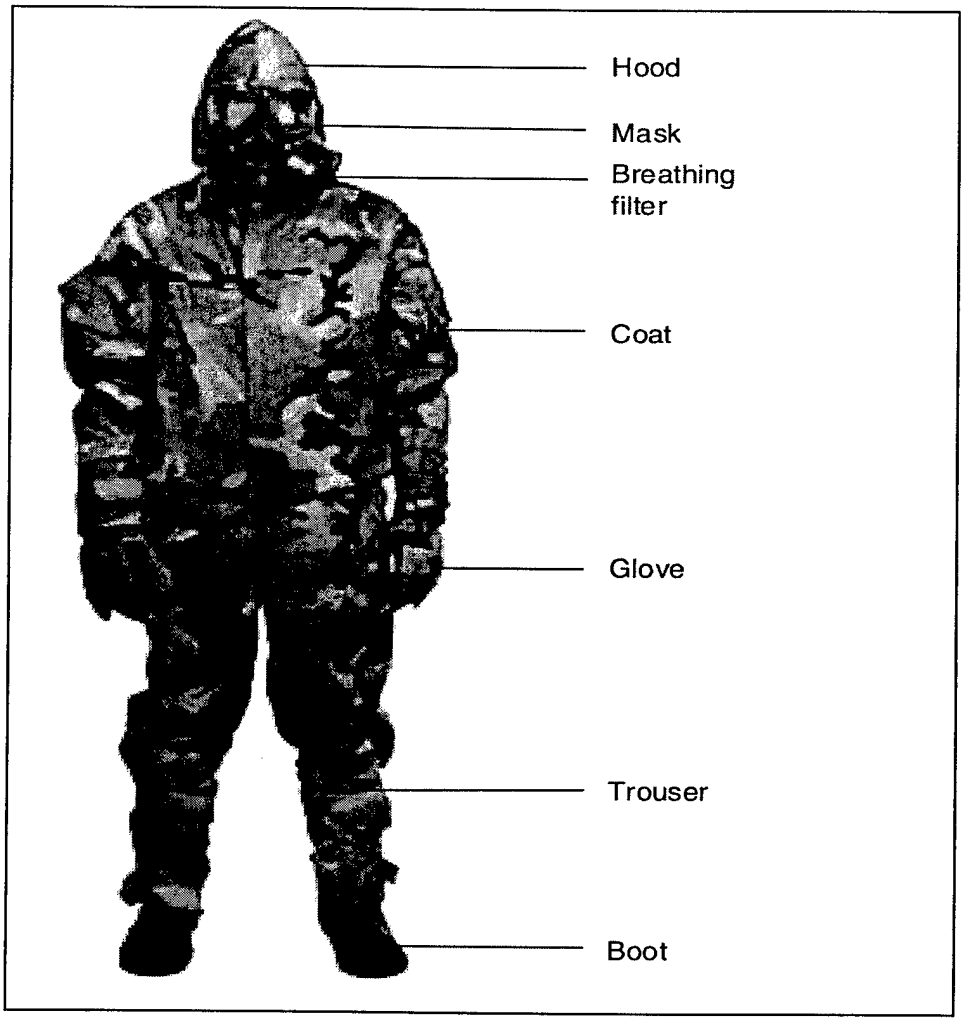
We are making recommendations to assist DOD in better assessing risk and improving oversight of the inventory of chemical protective equipment.

[3]*Major Management Challenges and Program Risks: Department of Defense* (GAO-01-244, Jan. 2001).

Background

DOD may be unable to prevent an attack using chemical or biological weapons. Therefore, DOD has determined that servicemembers must be protected to survive and conduct effective military operations. Consequently, DOD supplies servicemembers with a protective ensemble consisting of a suit, mask with breathing filter, rubber boots, butyl gloves, and hoods as required. Figure 1 displays the components that comprise a protective ensemble.

Figure 1: Components of the Protective Ensemble



Note: The new JSLIST suit has an attached hood so a separate hood would no longer be necessary.

Source: The Army's Soldier Biological and Chemical Command.

During Operation Desert Shield/Desert Storm, DOD noted that most of this equipment (1) could cause unacceptable heat stress to the wearer, (2) could limit freedom of movement and impair job performance, (3) is bulky, and (4) is not fully interoperable across the services. Furthermore, most of the existing suits (1) are no longer manufactured, (2) can be used for up to 14 years from the date of manufacture, and (3) will expire by 2007. To address these issues, DOD developed new, lightweight individual protective equipment such as the Joint Service Lightweight Integrated Suit Technology (JSLIST) trousers and coat to replace the current protective suits. DOD began procuring the JSLIST suits in 1997. An improved multipurpose overboot is in procurement and new protective gloves are under development to improve manual dexterity and/or reduce heat stress on the wearer. Similarly, since the existing masks may cause some breathing difficulty, DOD is developing a new mask but does not expect to begin procurement until fiscal year 2006.

During fiscal years 2002 through 2007, DOD plans to spend about $5.7 billion on planning for chemical and biological defense, acquisition of defense equipment, facilities construction, and research and development. In 1999, we recommended that DOD develop a performance plan guided by outcome-oriented management principles embodied in the Government Performance and Results Act of 1993 (Pub. L. 103-62).[4] DOD created a plan; however, performance goals and measures were being developed at the time of our review.

DOD's Assessment Process Is Unreliable for Determining Risk to Military Operations

DOD's assessment process for determining the risk to military operations is unreliable, and, as a result, the Department's current determination that the risk is generally low is inaccurate. Although the Department uses the Chemical and Biological Defense Program Annual Report to Congress to indicate its readiness for operations in a chemically and biologically contaminated environment, the 2000 report contains erroneous inventory data and understates equipment requirements. More important, the methodology for assessing the risk is flawed because it is not based on the number of complete ensembles needed and it obscures military service readiness by combining service data and reporting the results jointly.

[4] *Chemical and Biological Defense: Program Planning and Evaluation Should Follow Results Act Framework* (GAO/NSIAD-99-159, Aug. 1999).

DOD's Process to Assess Risk

DOD's criteria for assessing the risk of wartime shortages is to determine the numbers of protective suits, masks, breathing filters, gloves, boots, and hoods it has on hand, compare them against the requirements for those individual items, and then assign risk. (See table 1)

Table 1: DOD's Criteria to Assess Risk

Risk level	Wartime requirements on hand (percent)
Low	At least 85
Moderate	From 70 to 84
High	Less than 70

Source: Chemical and Biological Defense Program: Annual Report to Congress, March 2000.

Erroneous Suit Inventory and Requirements Data Compromise DOD's Risk Analysis

In the draft fiscal year 2001 annual report to Congress provided to us in June 2001, DOD reported that it was generally at low risk for suits.[5] However, the risk assessment process was flawed in part because DOD used erroneous data on protective suits. For example

- DOD made computational errors in comparing the older suits and JSLIST suits against a combined total suit requirement,
- the Air Force overreported its suit requirement by 801,167 suits,
- DOD reported it had 1,229,935 JSLIST suits on hand as of September 30, 2000, but overcounted its inventory by 782,232 JSLIST suits,
- the Navy included about 117,000 suits that had passed their expiration dates and were therefore unusable, and
- the Army underreported its suit stocks by an estimated 231,050 suits.

These errors occurred in large part as the result of problems in DOD's systems for managing protective suit inventories.[6] We believe that the services collectively had no more than 4,348,999 suits of all types on hand as of September 30, 2000. When we included all the suits for wartime use and adjusted the numbers to account for the errors and miscounts, the risk category changed to high for suits, as shown in table 2.

[5] DOD has already published the same inventory data in its fiscal year 2001 Logistics Support Plan.

[6] Some of these problems and their causes are discussed later in this report in more detail in the section on inventory management.

Table 2: Risk Based on Protective Items Available in Wartime

Item	Requirement	Inventory	Inventory as a share of requirements (percent)	Risk level
Suits	6,346,599	4,348,999	68.5	High
Masks	2,120,823	2,278,322	107.4	Low
Filters	3,479,307	4,762,358	136.9	Low
Gloves	7,720,150	7,424,811	96.2	Low
Boots	5,061,719	3,887,172	76.8	Moderate
Hoods	2,481,051	3,559,906	143.5	Low

Source: Our analysis based on data in DOD's Logistics Support Plan for fiscal year 2001.

In February 2001, the military services informed the Joint Nuclear, Biological, and Chemical Defense Board that equipment requirements were actually much higher than those reported to Congress and included in the fiscal year 2001 Logistics Support Plan. The board subsequently accepted the new requirements. Based on these new requirements, the risk remained high for suits; changed to high for filters, boots, and hoods; and remained low for gloves and masks, as shown by comparing the risk level columns in tables 2 and 3.

Table 3: Risk Based on New Requirements and Protective Items Available in Wartime

Item	New requirements	Inventory	Inventory as a share of requirements (percent)	Risk level
Suits	6,354,678	4,348,999	68.4	High
Masks	1,655,964	2,278,322	137.6	Low
Filters	7,223,660	4,762,358	65.9	High
Gloves	7,082,772	7,424,811	104.8	Low
Boots	5,844,656	3,887,172	66.5	High
Hoods	5,521,232	3,559,906	64.5	High

Source: Our analysis based on guidance provided by the services.

Assessing Readiness by Individual Items and by Individual Service Obscures the Risk

DOD has inaccurately assessed the risk to military operations by determining the number of individual items of equipment it has on hand and by combining the services' inventories of individual items. Service guidance specifies that a total of 1,573,866 active and reserve servicemembers need protection to meet current operations plan requirements. DOD provides each deploying servicemember with up to four ensembles either at deployment or held in war reserve and distributed

to theater operating forces when needed. The ensembles consist of five components: (1) four protective suits, (2) between four and eight pairs of gloves and boots, (3) between four and eight hoods, (4) up to four breathing filters, and (5) one mask.

Because DOD does not report each service's readiness based on the equipment it has on hand, but rather provides a joint assessment, critical service shortages or opportunities for cross-service assistance tend to be obscured. In fact, each service reported shortages of one component of the ensemble. Specifically, the Army reported critical shortages of hoods; the Air Force reported shortages of gloves; the Navy, shortages of suits; the Marine Corps, shortages of boots. When we compared the number of ensembles required by each service's guidance and applied the DOD risk criteria, the risk was high for all four services. As a result, DOD cannot provide all the required ensembles for 682,331 servicemembers scheduled for wartime deployment, as shown in table 4.

Table 4: Servicemembers With Required Protective Ensembles

	Servicemembers				
Service	Require protection	Protected	Not protected	Percent protected	Risk level
Army	725,000	467,574	257,426	64.5	High
Navy	354,182	160,668	193,514	45.4	High
Air Force	281,390	168,479	112,911	59.9	High
Marine Corps	213,294	94,814	118,480	44.5	High
Total	1,573,866	891,535	682,331	56.6	High

Source: Our analysis based on data from the Army, Navy, Air Force, and Marine Corps.

The risk posed by suit shortages is likely to worsen through 2007 due to increasing rates of older suits' expiration and DOD's plan not to replace all of them. As of October 1, 2000, DOD reported a shortage of about 1.7 million protective suits; it believes about 3.3 million, or 75 percent, of the current suit inventory will expire by 2006. JSLIST suits cost about $203 each compared to about $80 each for most of the existing suits, and DOD plans to buy only about 2.8 million JSLIST suits as replacements. Therefore, the shortage will increase to about 2.2 million suits by 2006.

DOD's plan to buy fewer new suits is also influenced by expiration of the suits and budgetary considerations. By replacing suits at a rate slower than the expiration rate, DOD plans to spread future suit purchases over more years to avoid a disproportionately large amount of suits expiring in any one year. This tactic allows greater dispersion of future suit expirations

and replacement costs but is likely to also increase the short-term risk of wartime shortages.

DOD is attempting to mitigate some of the shortages. For example, the Army plans to procure more than 500,000 hoods through fiscal year 2002, and the Defense Logistics Agency was procuring more of the existing generation of boots at the time of our report. Some opportunities also exist for one service to assist another. For example, the Army and Marine Corps reported significantly more gloves on hand than required and could transfer some to the Air Force to offset Air Force shortfalls since all the services use the same gloves. However, other available equipment is not interoperable and cannot be easily shared. For example, the Navy and Marine Corps suits are hooded, so they do not have separate hoods and therefore cannot help alleviate the Army's shortage. If all goes according to plan, such interoperability problems should ease after fiscal year 2006, as all four services begin using the JSLIST suit and new joint masks, gloves, and boots.

Inadequate Inventory Management Is an Additional Risk Factor

Shortcomings in DOD's inventory management of chemical and biological protective equipment adversely affect the Department's ability to accurately assess the readiness of the services to meet requirements for the equipment and mitigate the risk of shortages. DOD's current inventory information on chemical and biological equipment is unreliable for making an accurate risk assessment because DOD and the services cannot easily link inventory records; lack data on suit expiration dates; cannot easily identify, track, and locate defective suits; and have miscalculated the requirements and the number of suits available. These shortcomings are consistent with long-term problems in DOD's inventory management that we have consistently identified since 1990 as a high-risk area due to a variety of problems, including ineffective and wasteful management systems and procedures.[7]

[7] *Major Management Challenges and Program Risks: Department of Defense* (GAO-01-244, Jan. 2001).

DOD's Inventory Management Systems Are Not Linked and Cannot Be Used to Support Risk Assessments

The Defense Logistics Agency and the military services store war reserve inventories of chemical and biological protective suits and other equipment at a variety of depots, warehouses, and storage facilities and as noted earlier, use at least nine different inventory systems to manage the inventories. However, because these systems are not linked, DOD-wide oversight of the inventories is restricted, and the systems are not used to directly support the inventory data in the annual report to Congress and the Logistics Support Plan. Instead, DOD makes an additional effort to collect data theoretically already in the systems. The data collection requires units and depots that store the chemical protective equipment to provide separate data on the equipment annually and relies heavily on government and contractor personnel to manually compile the data.

DOD Does Not Know the Expiration Rate of Older Suits

Although DOD has at least nine major inventory management systems, it cannot accurately determine the expiration rate of most of the older suits used by the Air Force and Army. These account for about 3.3 million of the current suit inventory and can be used for up to 14 years from the date of manufacture after which testing has determined that the suits cannot be used in a contaminated environment. Therefore, knowing the date the suits were manufactured is critical to estimating the suits' expiration rate and the rate at which the suits must be replaced with JSLIST suits. However, neither DOD nor we can accurately determine the expiration rate of the old suits because the Defense Logistics Agency, the buyer of the suits, was unable to locate most of the relevant procurement records. Moreover, many of the inventory systems cannot be used to locate the actual expired suits in specific depots because the systems do not record equipment expiration dates or the manufacturers' contract or lot numbers.

Two examples or illustrations follow:

- The Army does not record suit expiration information in its primary inventory management system. To compensate, the Army has assumed an annual 20-percent expiration rate of its inventory through fiscal year 2005 and expects that all suits will expire by 2005. However, the Army's assumption may be inaccurate. Records from a depot in Kentucky indicate that almost 80,000 suits would be serviceable after 2005 and some as late as 2008.
- The Navy does not know when its suits will expire because, according to the Naval Sea Systems Command, the Navy does not require inventory managers to include the expiration date in inventory records. Nonetheless, in June 2001, the Navy estimated that of 178,000 suits that it had on hand, only about 61,000 were actually serviceable because the rest had passed

their expiration date. Our review of 19 Military Sealift Command ships, which help to sustain deployed U.S. forces, showed that most had severe suit shortages, due mostly to expirations. We found additional problems in 48 ships in the Atlantic and Pacific fleets. These ships currently report that they are missing one or more components of their ensembles and consequently cannot provide a complete ensemble for a single crewmember.

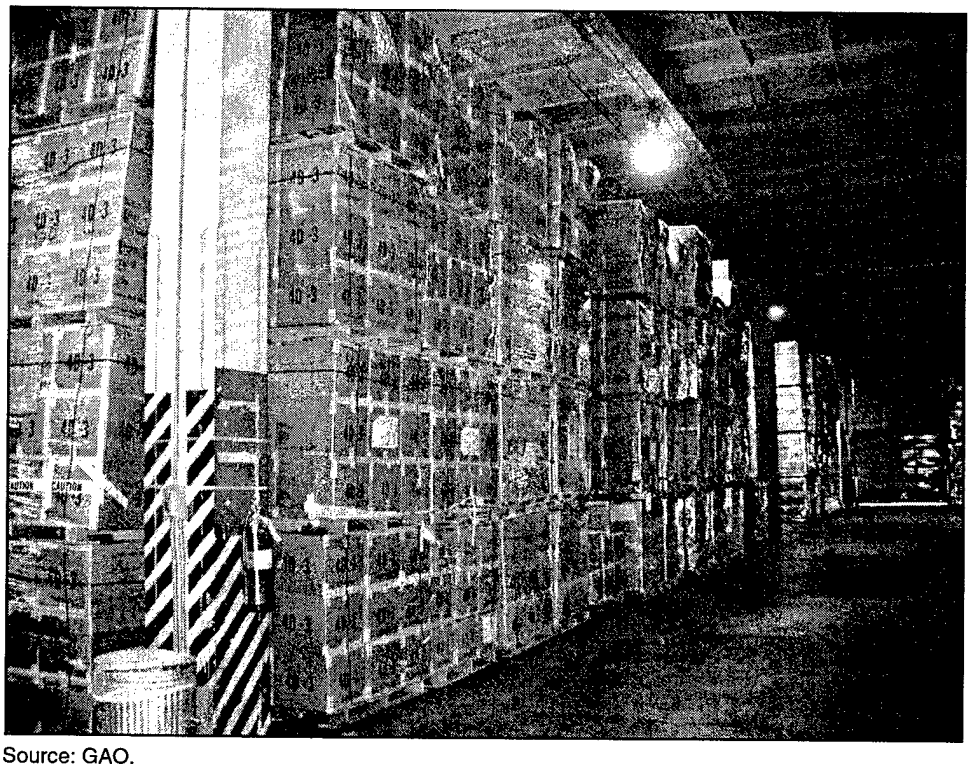
The Air Force and Marine Corps use different inventory management systems that include contract, lot, and expiration information. Consequently, these two services can estimate suit expiration rates to manage their inventories effectively. Nonetheless, neither system is compatible with the other DOD systems.

DOD Cannot Locate Defective Suits That May Be in the Inventory

The majority of DOD's and the services' inventory systems cannot be used to identify, track, and locate defective suits that may be in current inventories because contract and lot numbers needed for the purpose are not always included in the inventory records. In September 1999, officials from one manufacturer pleaded guilty to selling 778,924 defective suits to the government. Since these defective suits were distributed to DOD war reserve and various other inventories, it was imperative that the suits be found. In May 2000, DOD directed units and depots to locate the defective suits and issue them for training use only. At the conclusion of our review, DOD had not found about 250,000 of these suits and did not know whether they had been used, were still in supply, or were sent for disposal.

Finding the suits was difficult even when the storage depot was known. For example, the Defense Logistics Agency inventory system does not link the contract and lot number with the box or pallet number to allow ease in locating specific items. Consequently, during our review, the Agency resorted to using 19 reservists for up to 34 days to physically inspect all pallets and boxes containing about 1.3 million protective suits at its depot in Albany, GA. The reservists found about 347,000 defective suits. Figure 2 displays some of the boxes of these suits.

Figure 2: Boxes of Defective Suits at the Defense Logistics Agency Depot in Albany, GA



Source: GAO.

Despite the problem in finding defective suits, the Defense Logistics Agency's supply system remained unchanged at the time of our review. Agency officials acknowledged that they would have to physically reinspect depot stocks if specific lots of other suits need to be removed from the inventory before the end of their normal 14-year shelf life.

Other Questionable Inventory Management Practices Affect Risk Assessment Accuracy

Several questionable inventory management practices and related actions have further contributed to the generation of the inaccurate inventory data, which in turn affects the accuracy of DOD's risk assessment process. These include miscalculating suit requirements, failing to count parts of the suit inventory, and counting suits as part of the inventory long before they are actually delivered from manufacturers. Some specifics regarding these counts are as follows:

- The Air Force double-counted a portion of its suit requirement by reporting a requirement for both 801,167 of the older suits and the same number of replacement JSLIST suits.
- The Army asked units that store suits to report the numbers being stored, but it did not tell them to include desert pattern suits, which are generally reserved for use in desert climates. As a result, units did not always include desert pattern suits in their reported inventories, and the Army believes it consequently underreported its desert pattern suit inventory by 10 percent of the total, or 231,050 suits.
- In the fiscal year 2001 Logistics Support Plan and draft Annual Report to Congress, the services reported they had 1,229,935 JSLIST suits on hand on September 30, 2000, but that included 782,232 suits not yet delivered. DOD procedures for compiling inventory data for these reports allow reporting suits expected to be delivered during the year as on hand. In March 2001, the Marine Corps Systems Command, which manages JSLIST suit distribution, acknowledged that DOD did not have 1,229,935 JSLIST suits on hand on September 30, 2000 but might reach that quantity a year later on September 30, 2001. Moreover, in the same two reports, DOD projected that it would reach 1.5 million suits by September 30, 2001, again overestimating JSLIST production.

DOD's inventory management practices tend to affect the suit inventory count. This count in turn can significantly affect the results of the risk assessment process, which is a comparison of requirements against the inventory on hand.

Conclusion

Because the Department of Defense's risk assessment process is flawed and unreliable, DOD inaccurately assessed the risk to servicemembers' lives and military operations from potential wartime shortages of protective equipment as low. The Department underestimated the risk by analyzing requirements based on individual equipment items and not ensembles. Furthermore, DOD combined this service data into a consolidated DOD inventory position, which obscured service-specific shortages. As we discovered, the risk is currently higher than reported by DOD. Inadequate inventory management has contributed to increased risk. Because the Department has no integrated inventory system for managing protective equipment, it has no effective way to (1) gather the data needed for the annual report to Congress and Logistics Support plan, (2) determine the expiration dates of protective equipment, and (3) ensure that its data is correct. To further compound the problem, the services have counted equipment as on hand before it has been delivered, adding to the overcounting of equipment that they had in the inventory. Inaccurate

risk assessment and inadequate inventory management could adversely affect readiness and prevent informed acquisition decisions that could undermine risk mitigation.

Recommendations

To improve the Department of Defense's ability to accurately assess the level of risk and readiness for operations in a contaminated environment, we recommend that the Secretary of Defense direct the Under Secretary of Defense for Acquisition, Technology, and Logistics to

- issue and implement guidance requiring each service to evaluate its risk on the basis of current inventory numbers of complete ensembles against wartime requirements;
- implement a fully integrated inventory management system to manage chemical and biological defense equipment and use it to prepare (1) the required annual report to Congress and (2) the annual Logistics Support Plan on chemical and biological defense;
- establish data fields in the inventory management system to show the contract, lot number, and expiration date of shelf life items; and
- cease counting equipment as on hand before delivery from the contractor.

Agency Comments and Our Evaluation

DOD provided written comments on a draft of our report and generally concurred with our recommendations. DOD partially concurred with our recommendation to conduct risk assessments on the basis of ensembles required in wartime and not just components of the ensemble and stated that the department will issue implementing guidance. DOD concurred with comment with our recommendations to (1) establish an integrated inventory management system; (2) include item contract, lot number, and expiration date information in the new inventory system; and (3) cease counting equipment as on hand before it is delivered and explained its plan to implement the recommendations. In addition, DOD provided technical comments, which we incorporated into our report as appropriate.

DOD's comments are printed in their entirety in appendix II along with our evaluation of their comments.

Scope and Methodology

We discuss our scope and methodology in detail in appendix I.

We conducted our review from August 2000 to April 2001 in accordance with generally accepted government auditing standards.

We will send copies of this report to interested congressional committees; the Secretaries of Defense, the Army, the Navy, and the Air Force; the Commandant of the Marine Corps; and the Director of the Office of Management and Budget.

If you or your staff have any questions about this report, please contact me at (202) 512-6020. Additional contact and staff acknowledgments are listed in appendix III.

Sincerely yours,

Raymond J. Decker
Director, Defense Capabilities
and Management

Appendix I: Scope and Methodology

We determined (1) whether DOD's process for assessing the risk to military operations on the basis of wartime equipment requirements is reliable and (2) how DOD's inventory management of chemical and biological protective gear has affected the risk level. We included in our scope chemical and biological protective suits, masks and breathing filters, gloves, boots, and hoods.

To understand the process DOD uses to assess the risk, we determined how DOD performs risk assessments. We examined DOD's fiscal years 1999, 2000, and 2001 *Chemical and Biological Defense: Annual Report to Congress* and *Joint Service Nuclear, Biological, and Chemical Defense Logistics Support Plan: Readiness and Sustainment Status* and service input to these reports. To understand equipment requirements, we interviewed an official from the Office of the Deputy Assistant to the Secretary of Defense, Chemical and Biological Defense; the Joint Nuclear, Biological, and Chemical Defense Board; the Joint Staff; and other organizations and obtained documents showing how many suits, masks, breathing filters, gloves, boots, and hoods are needed to support operations. We also obtained the Center for Army Analysis' Joint Service Chemical Defense Equipment Consumption Rates IV, Volume II; briefing slides; guidance; directives; memorandums; cables; and other documents that specify requirements. We also used service guidance to determine the number of servicemembers scheduled for deployment who need protection. We did not evaluate the validity of the requirements. To calculate on-hand stocks, we obtained inventory records from war reserve or other depots in the United States, Japan, the Republic of Korea, the Netherlands, elsewhere in Europe, and aboard prepositioned ships in Guam to determine the size of the stockpile. As a result of the national security reviews under way at the time of our review, requirements for chemical defense equipment could change. If so, current risk assessments would need revision.

To determine how DOD's inventory management practices affected risk, we tried to verify the accuracy of inventory data reported by the services. We did this by (1) interviewing officials and obtaining documents showing how the inventory data were collected and verified, (2) obtaining Navy documents showing the number of suits still in the inventory that had not expired and comparing that number to the reported inventory, and (3) obtaining JSLIST suit production data. We also tried to determine how many of the older chemical protective suits DOD had bought and when, but the Defense Logistics Agency could not find most of its records documenting suit procurement. To determine the compatibility of the nine major supply systems, we interviewed the responsible DOD officials,

compared system inventory procedures, checked records against physical inventories, and obtained relevant documents. To determine how long shelf life items can be used and to estimate equipment expiration rates, we interviewed officials from the Army's Soldier Biological and Chemical Command in Maryland; Natick Soldier Center in Massachusetts; and Rock Island Arsenal in Illinois; the Naval Sea Systems Command in Virginia; the Air Force Headquarters Directorate of Supply in Washington, D.C.; and the Marine Corps' Combat Development Command in Virginia and Materiel Command in Georgia. We also interviewed officials and obtained documents from the Defense Logistics Agency offices in Pennsylvania showing planned or actual procurement of JSLIST suits and other equipment. To determine how the services and depots identify which items will expire and need replacement, we inspected or inventoried chemical protective suits stored at the Bluegrass Army Depot in Richmond, KY; the Defense Logistics Agency's war reserve depot in Albany, GA; the Air Force's Mobility Bag Center in Avon Park and MacDill Air Force Base, FL; and aboard ships at the Norfolk Navy Base, Norfolk, VA. At these locations, we met with officials and obtained supply records and suit and other equipment expiration data.

Appendix II: Comments From the Department of Defense

Note: GAO comments supplementing those in the report text appear at the end of this appendix.

NUCLEAR AND CHEMICAL
AND BIOLOGICAL DEFENSE
PROGRAMS

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

18 SEP 2001

Mr. Raymond Decker
Director, Defense Capabilities and Management
U.S. General Accounting Office
Washington, D.C. 20548

Dear Mr. Decker:

This is the Department of Defense (DoD) response to the General Accounting Office (GAO) draft report, "CHEMICAL AND BIOLOGICAL DEFENSE: Improved Risk Assessment and Inventory Management Are Needed," dated August 7, 2001 (GAO Code 702089/ OSD Case 01-667).

The DoD partially concurs with comment on the first recommendation and concurs with comment on the remaining recommendations in the draft report. Regarding the first recommendation, DoD recognizes the added value of assessing risk based on complete ensembles for each Service. The data to perform such assessments are already presented in the Joint Service NBC Defense Logistics Support Plan (Appendices A and D) and the Joint Service Chemical and Biological Defense Annual Report to Congress (Annex E). However, due to fiscal constraints and the realities of deployment scenarios, the Services also manage risk by using the industrial base to surge and produce quantities for individual component. This mitigates the risk implied from limited resources. DoD will apply risk against complete ensembles in future analysis, but will also mitigate risk by this method. The data regarding industrial surge capability to support this methodology will be included, as it currently is, in future Chemical and Biological Defense Program Logistics Support Plans.

Concerning the second recommendation, DoD is actively involved in pursuing a fully integrated management system to manage the chemical and biological defense equipment. This system will address the third recommendation in the draft report to include contract, lot number, and expiration date of shelf-life items in the inventory management system.

Finally, DoD fully agrees with the final recommendation and has already modified the FY 2002 Logistic Support Plan to cease counting equipment as on hand before delivery from the contractor and vendor. Detailed comments in response to the recommendations are enclosed.

The Department appreciates the opportunity to comment on the draft report.

Sincerely,

Anna Johnson-Winegar

Anna Johnson-Winegar, Ph.D.
Deputy for Chemical/Biological Defense

Enclosures:
As stated

GAO DRAFT REPORT 01-667, "CHEMICAL AND BIOLOGICAL DEFENSE: Improved Risk Assessment and Inventory Management Are Needed,"
Dated August 7, 2001 (Code 702089/Case 01-667)

DEPARTMENT OF DEFENSE COMMENTS

To improve the Department of Defense's ability to accurately assess the level of risk and readiness for operations in a contaminated environment, the GAO recommended that the Secretary of Defense direct the Under Secretary of Defense for Acquisition, Technology, and Logistics to:

RECOMMENDATION 1: Issue and implement guidance requiring each Service to evaluate its risk on the basis of current inventory numbers of complete ensembles against wartime requirements. (p. 14/GAO Draft Report)

See comment 1.

DoD Response: Partially Concur. The DoD recognizes the added value of assessing risk based on complete ensembles for each Service. The data to perform such assessments are already presented in the Joint Service NBC Defense Logistics Support Plan (Appendices A and D) and the Joint Service CB Defense Annual Report to Congress (Annex E). The GAO correctly observes that the components of an ensemble vary among the Services. The mix of old and new technologies within each Service's inventories complicates the definition of a complete ensemble and also affects interoperability among the Services. We will rely on the Services' understanding of their Basis of Issue (BOI) to provide risk assessments for complete ensembles and will provide appropriate guidance to the Services to conduct a detailed evaluation of risk of complete ensembles against wartime requirements in preparation of the next Annual Report to Congress and Logistics Support Plan.

However, due to fiscal constraints and the realities of deployment scenarios the Services also manage risk by using the industrial base to surge and produce quantities for individual component. This mitigates the risk implied from limited resources. DoD will, as stated above, apply risk against complete ensembles in future analysis, but will also mitigate risk by this method. The data regarding industrial surge capability to support this methodology will be included, as it currently is, in future Chemical and Biological Defense Program (CBDP) Logistics Support Plans.

RECOMMENDATION 2: Implement a fully integrated inventory management system to manage chemical and biological defense equipment and use it to prepare (1) the required annual report to Congress and (2) the annual Logistics Support Plan on chemical and biological defense. (p. 14/GAO Draft Report)

DoD Response: Concur with Comment. Consumable NBC defense items are managed by the Services and the Defense Logistics Agency (DLA) in accordance with their respective responsibilities, including management of their own operations and maintenance funds. The DoD agrees that this has resulted in numerous inventory management systems among the Services and DLA, which have a limited ability to share information.

Enclosure 1

See comment 2.

On August 2, 2001, HQ DLA hosted a meeting that included Defense Supply Center Philadelphia (DSCP), the Services, Soldier and Biological Chemical Command (SBCCOM) and the contractor that prepares the Logistics Plan. DoD has agreed to establish a single focal point for the gathering and dissemination of data for all entities requiring information on the management of the Joint Service Lightweight Integrated Suit Technology (JSLIST). This includes the Annual Report to Congress and the Logistics Support Plan. The focal point will be the JSLIST Program Office. To implement a fully integrated inventory management system, DLA is actively involved in a Business System Modernization (BSM) Program to replace the current legacy system by FY 2005, which will interface with the Services. It will be state of the art and based on the best commercial practices. Replacement of these current legacy systems will give us the greatest opportunity to integrate with the system(s) used by each Service.

Disposition: Action is ongoing. While a single focal point was established on August 2, 2001, the integration of systems is dependent on BSM linkage with the Services. BSM is expected to be fully operational in FY 2005.

See comment 2.

RECOMMENDATION 3: Establish data fields in the inventory management systems to show the contract, lot number, and expiration date of shelf life items. (p. 14/GAO Draft Report)

DoD Response: Concur with Comment. Currently, the Distribution Standard System (DSS), which maintains the depots' records, includes lot numbers based on date of manufacture, and maintains location balances based on expiration dates. This allows the depot to alert the Inventory Control Point (ICP) when materiel is ready to expire or requires shelf life surveillance testing. However, at this time the DLA Standard Automated Materiel Management System (SAMMS) does not permit the addition of data fields to show contract, the lot number, and the expiration date of shelf life items in the inventory management records of the ICP. This requirement will be directed to DLA's BSM effort for inclusion into the DLA's new system targeted for implementation in FY 2005.

RECOMMENDATION 4: Cease counting equipment as on hand before delivery from the contractor or vendor. (p. 14/GAO Draft Report)

DoD Response: Concur with Comment. The data call for the FY 2002 Logistics Support Plan (LSP), which provides the basis for the risk analyses in both the LSP and the Annual Report to Congress, has been modified so that inventory quantities that are physically "on hand" are to be reported separately from quantities of items that are on-contract with funds committed, but not yet delivered.

Enclosure 1

The following is our response to the Department of Defense letter dated September 18, 2001.

GAO Comments

1. While DOD presents the data in the cited Annual Report to Congress and Logistics Support Plan annexes, the data is presented on an item-by-item basis and not an ensemble basis. Consequently, the information as presented does not give a fully reliable risk assessment.

DOD acknowledges that it has scarce resources and must manage risk within those resource constraints. Consequently, DOD also indicated in its comments that it will rely on industrial surge capacity to make up any shortfall in required ensemble components. Nonetheless, the Department's risk assessment is based on having 120 days of supply at the units or in war reserve. If the Department now plans to stock fewer than 120 days of supply and rely on industrial surge to make up the difference in a crisis, the risk level would be higher because the continuing shortages would be greater.

2. The Air Force has developed, and the Marine Corps is developing inventory systems, both of which include contract, lot number, and expiration date of equipment on hand. Adopting one of these systems DOD-wide could reduce or eliminate development costs associated with the Business System Modernization program, assure interoperability across the services, and meet the intent of our third recommendation.

Appendix III: GAO Contact and Staff Acknowledgments

GAO Contact

William W. Cawood, Jr. (202) 512-3959

Acknowledgments

In addition to the contact named above, Brian J. Lepore, Raymond G. Bickert, Tracy M. Brown, and Sally L. Newman made key contributions to this report.

Related Products

GAO Reports

Major Management Challenges and Program Risks: Department of Defense (GAO-01-244, Jan. 2001).

Chemical and Biological Defense: Units Better Equipped but Training and Readiness Reporting Problems Remain (GAO-01-27, Nov. 2000).

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Assuring Condition and Inventory Accountability of Chemical Protective Suits (D-2000-086, Feb. 25, 2000).

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