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Report to Congressional Requesters

June 1996

DEFENSE AMMUNITION

Significant Problems Left Unattended Will Get Worse

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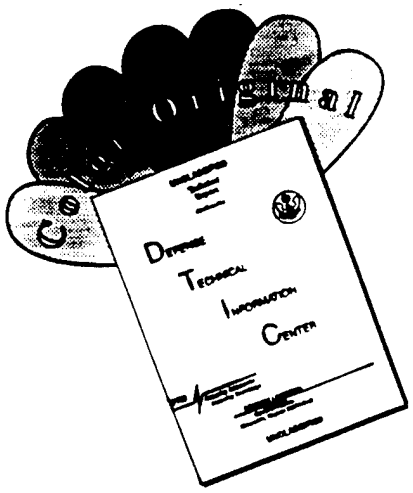

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United States
General Accounting Office
Washington, D.C. 20548

National Security and
International Affairs Division

Defense Ammunition;
Significant Problems Left
Unattended Will Get Worse

B-260167

June 21, 1996

The Honorable Herbert H. Bateman
Chairman, Subcommittee on Military Readiness
The Honorable Duncan Hunter
Chairman, Subcommittee on Military Procurement
Committee on National Security
House of Representatives

In March 1995, you asked us to review the status of the Department of Defense's ammunition stockpile and production facilities available to support the military's ammunition requirements. This report addresses your concerns about the ammunition stockpile, including conventional ammunition, explosives, and missiles. Our review focused on the amount of ammunition excess to established requirements and problems with the ammunition stockpile management, which threaten readiness. We issued a separate report addressing your concerns about the production facilities available to support the military's ammunition requirements (Ammunition Industrial Base: Information on DOD's Assessment of Requirements, GAO/NSIAD-96-133, May 31, 1996).

We are sending copies of this report to the Secretaries of Defense and each of the military services; the Commanding General, Army Materiel Command; the Commanding General, Army Industrial Operations Command; and other interested parties. We will also make copies available to others upon request.

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

Mark E. Gebicke

Mark E. Gebicke
Director, Military Operations
and Capabilities Issues

Executive Summary

The military services have over 5 million tons of conventional ammunition, explosives, and missiles (hereafter referred to as ammunition) valued at about $80 billion as of September 30, 1994. This ammunition, if loaded onto railroad cars, would stretch over 800 miles—the distance from Washington, D.C., to Orlando, Florida. Because of concerns about the condition and readiness of this ammunition, the Chairmen, Subcommittee on Military Readiness and Subcommittee on Military Procurement, House Committee on National Security, asked GAO to determine (1) whether the ammunition stockpile meets wartime and peacetime requirements and (2) what problems the Army single manager has in managing much of the military services' ammunition stockpile.

Background

Under the national military strategy, the military services are required to maintain enough ammunition for two nearly simultaneous major regional conflicts and for peacetime needs, such as training. The Defense Planning Guidance lays out general guidelines for the services to determine how much ammunition they need to conduct operations under the strategy. Ammunition that exceeds these requirements is to be shared among the services or disposed of through sale to other nations, recycling, or destruction. In 1977, the Army assumed single manager responsibility for storing, managing, inspecting, testing, and disposing of most of the services' ammunition. In this role, as of September 30, 1995, the single manager was responsible for managing 3 million tons of ammunition owned by the services. The individual services also manage additional stocks of ammunition in their own facilities.

Results in Brief

The services have to do a better job of managing their ammunition needs. As of September 30, 1994, the total stockpile of usable and unusable ammunition was worth about $80 billion. GAO estimates that about $31 billion of this total ammunition stockpile was excess. This excess amount includes about $22 billion worth of ammunition that was still usable.

This situation has occurred primarily as a result of the collapse of the Soviet Union in the early 1990s and the change in the primary threat to the United States. As a consequence, the services' ammunition requirements were drastically reduced, and more of the ammunition stockpile became excess. The Army's war reserve requirements, for example, were reduced by 74 percent.

Of the various types of ammunition in the stockpile, GAO found that almost half have amounts that exceed the services' needs in varying quantities. For some types of ammunition, the services have over 50 times their stated needs. While there are shortages of some specific ammunition types, overall the services generally have enough ammunition to meet their wartime and peacetime requirements.

Increases in the single manager's ammunition stockpile due to the return of massive amounts of ammunition from Europe and Operation Desert Storm, combined with a decrease in the single manager's budget, workforce, and storage space, have created a situation that could, if allowed to continue, degrade the forces' readiness to meet wartime and peacetime needs. The single manager's ability to manage ammunition has been severely taxed. As a result, ammunition inspections and tests have fallen so far behind that the single manager cannot ensure the usability and readiness of the ammunition stockpile. Moreover, the single manager does not know how much of the ammunition is excess to stated requirements, in part, because the single manager does not know the services' requirements or what ammunition they also own and store in their own facilities. In addition, the services have not identified what ammunition the single manager stores for them is required and what is above stated requirements. Because the services' total ammunition needs and the extent of ammunition above stated requirements are both unknown, ammunition that exceeds one service's needs is not always used to fill another service's requirements, and services have bought ammunition that could have been redistributed from other services' excess ammunition.

Finally, the single manager faces two problems in disposing of the increasing amount of excess ammunition. First, the single manager must continue to store excess ammunition until the services identify and relinquish ownership of it. Currently, the services have no incentives to identify their excess ammunition, in part, because the single manager is responsible for and pays for its care; that is, storage, inventories, surveillance, and disposal. Second, although the Congress has recently provided more funds for ammunition disposal, the single manager cannot meet existing demands for disposal. As a result, the stockpile continues to grow.

Principal Findings

Much of the Ammunition Is Excess or Old

When the Cold War ended, the Department of Defense's (DOD) ammunition requirements decreased substantially. Army war reserve requirements alone decreased from 2.5 million tons to 650,000 tons. When GAO compared the amount of usable ammunition on hand to each service's requirements to support two major regional conflicts and training and testing needs for 7 years (6 years of testing for the Army), it found that almost 50 percent of the different types of ammunition include amounts that exceed the services' needs. For example, the Air Force and the Army have enough .30-caliber carbine ball ammunition to meet their stated requirements 58 and 517 times, respectively.

Of the $80 billion in usable and unusable ammunition, GAO estimates the total value of excess ammunition to be about $31 billion. This includes about $22 billion of usable ammunition that exceeded stated needs and about $9.4 billion in unusable assets excess to stated needs. In addition, over $2.9 billion of excess assets that were on the single manager's inventory records did not appear on the services' inventory records. Also, over $2 billion in ammunition was identified for disposal.

Moreover, the services spent about $125 million for ammunition in fiscal years 1993 and 1994 that exceeded their fiscal year 1995 stated requirements. In addition, ammunition is being stored and managed for weapon systems that either have been purged or are no longer in the active inventory. For example, the Marine Corps had about 3 million .50-caliber cartridges for the M85 machine gun, even though the Marine Corps has removed the M85 gun from its inventory and no other weapon system uses this type of .50-caliber ammunition.

The age of over half of the ammunition stockpile managed by the single manager is not in the single manager's database. Of the ammunition for which the age is known, almost 25 percent is over 25 years old. Even when this old ammunition is usable, it is not always easily accessible in storage facilities, and commanders prefer not to use it. During Operation Desert Storm, battlefield commanders opted to use more modern ammunition. Moreover, commanders want to train with ammunition they will use on the battlefield, not the "old stuff." As a result, old ammunition continues to age and takes up storage space.

Of the services' 2,781 types of ammunition, 752 types have shortages when compared to the services' requirements databases. However, the services generally believe that the ammunition shortages are manageable because they have substitute items and procurements planned to fill these shortages.

Stockpile Management Problems Threaten Readiness, and Planned Improvements Have Been Delayed

Much of the huge amount of ammunition returned after Operation Desert Storm and from bases closed in Europe came to the single manager's depots in small, broken lots. Also, the single manager's budget and workforce have been greatly reduced. These factors have combined to make management of the stockpile difficult. A 1993 Joint Ordnance Commanders Group's report noted major deficiencies in the maintenance of the ammunition managed and maintained by the single manager that could affect readiness. The single manager's main concern has been the receipt of ammunition and quick delivery to customers at the expense of efficient storage, disposal, inspection, and maintenance. Many problems affect the ammunition stockpile. For example:

- The condition of some ammunition is unknown because of delays in inspections and testing, which are important to ensure that war reserve items are usable, properly classified as to condition, and safe. In addition, the single manager's database shows ammunition as usable, even though defect codes show it is overdue for inspection. Although the single manager's database shows that only about 6,600 lots were past due for inspection, other records the single manager considers more accurate show that about 68,000 lots—10 times as many—were actually past due for inspection. Also, 25 percent of the war reserve items were overdue for tests. Both these backlogs are expected to double over the next 3 to 5 years.
- About 29 percent of the services' top priority wartime ammunition items, such as motors for the MK66 2.75-inch rocket, could not be issued as of March 1995 because they needed to be repaired or inspected or could not be fixed. Eighteen percent of the top priority items needed repairs costing an estimated $99 million.

The single manager has made little progress in implementing its 1994 Integrated Ammunition Stockpile Management Plan, which is intended to streamline the stockpile. Part of the problem is that the services have not yet identified which of their ammunition is required and which is excess to stated requirements. Without this information, the single manager cannot give priority to the storage and care of required ammunition to ensure

readiness. In addition, ammunition that exceeds one service's needs is not always used to fill another service's requirements, and a service may make unnecessary purchases of ammunition that is excess in another service. GAO's analysis of requirements and ammunition on hand identified opportunities for cross-sharing among the services. GAO found that (1) the services spent about $185 million for ammunition items during fiscal years 1993-95, even though amounts in excess of stated requirements were available in another service; (2) $1.2 billion in ammunition in excess of stated requirements could be shared among the services to alleviate shortages; and (3) $19 million in costs could also be avoided if usable ammunition in excess of stated requirements was shared with a service that planned maintenance on the same type of ammunition.

In addition, the single manager historically has not received the funding requested or needed to manage the stockpile adequately and to dispose of excess ammunition, in part, because of competition with other Army funding needs. In recognition of this problem, the Congress statutorily established a funding minimum for the care and maintenance of ammunition in 1995. In addition, the conferees on the DOD appropriations act directed that a minimum for fiscal year 1996 be expended for the same purpose. This has helped, and in fiscal year 1995, the single manager was able to do a complete ammunition inventory to restore the accuracy of ammunition inventory records.

Options for Handling Ammunition Storage and Disposal Problems

GAO believes that the single manager will face difficulties for years in managing the ammunition stockpile. The single manager has tremendous backlogs of ammunition to dispose of, and these backlogs will increase for the foreseeable future, especially if the services begin to identify ammunition that is excess to requirements. One problem is that the services are not inclined to declare ammunition excess as they do not have to pay the single manager to store it. Also, once ammunition is declared excess, the owning service is not reimbursed for its cost if another service wants it. An option for persuading the services to relinquish ownership of excess, old, and obsolete ammunition, as pointed out in the Joint Ordnance Commanders Group's 1993 report, would be for the single manager to charge the services a storage fee. The report also suggested that additional storage space could be made available if excess ammunition were used in training, included in foreign military sales or grant aid programs, or was destroyed. In addition, as GAO recommended in 1979,[1] the single manager could own, manage, and control the ammunition

[1]Centralized Ammunition Management—A Goal Not Yet Achieved (LCD-80-1, Nov. 26, 1979).

stockpile and thus know what ammunition is excess to stated requirements and distribute it to other services that need the ammunition or dispose of it, if unneeded.

Disposing of excess ammunition is a time-consuming, expensive process. For example, at the installation with the largest disposal capacity, 1,300 tons of ammunition were destroyed at a cost of about $1 million during 1 week GAO visited. With over 375,000 tons of ammunition awaiting disposal at the end of fiscal year 1995 and additional ammunition identified for disposal each year, it will take years to dispose of the ammunition. And because of the expense associated with disposing of this much ammunition, finding the funds to facilitate disposal is difficult. One option would be to require the services to include the cost to dispose of ammunition being replaced in budgets for new ammunition. While this option would not eliminate the significant quantities of ammunition that already exist, it would focus earlier attention on the ammunition disposal problem, provide additional funds for disposal, and over time significantly reduce the quantities awaiting disposal.

Matter for Congressional Consideration

To impress upon the services the need to address the problem of excess ammunition, the Congress may wish to consider requiring the Secretary of Defense to report annually the amount of ammunition on hand and the amount that exceeds established requirements. This report could also cite progress made in addressing specific ammunition stockpile management problems, including identifying ammunition in excess of established requirements, cross-sharing of ammunition in excess of established requirements among services that have shortages, inspecting and testing ammunition, and disposing of excess ammunition that it no longer makes sense to retain. With this information, the Congress could make more informed annual budget decisions related to the ammunition stockpile.

Recommendation

To facilitate implementation of the single manager's plan for storing, maintaining, and disposing of ammunition, GAO recommends that the Secretary of Defense develop incentives to encourage the military services to categorize their ammunition as required or as excess to established requirements, to update this information annually, and to relinquish control of their excess ammunition to the Army single manager for distribution to other services that have shortages of ammunition or for disposal when it no longer makes sense to retain it. Possible changes in ammunition management, among others, include (1) requiring the services

to pay the single manager a fee for storing their ammunition; (2) authorizing the single manager to own, manage, and control the stockpile and/or be aware of the services' total requirements and ammunition in their own storage facilities, so the manager can identify ammunition excess to requirements and coordinate redistribution of it to services that need the ammunition or dispose of it when appropriate; and (3) including the services' cost to dispose of excess ammunition in their budgets for new ammunition.

Agency Comments

DOD partially concurred with the findings in this report and the matter for congressional consideration. DOD disagreed with the recommendation and the options for handling ammunition storage and disposal problems.

DOD stated that it took exception to the criteria that GAO used in determining excess inventory and that GAO infers that stocks above established requirements are excess and should therefore be disposed of. GAO agrees that not all the ammunition in excess of stated requirements should be disposed of, and this report does not state that all excess ammunition should be disposed of. However, GAO believes that the usable assets in excess of stated requirements (about $22 billion) should be made available for cross-sharing with other services to avoid one service purchasing assets that another service has in excess of its requirements. In addition, GAO believes there are many items being stored that will never be used and should be identified for disposal. Other items may not need to have dollars expended on them to convert them from unusable to usable ammunition. Without some sort of prioritization or identification of ammunition required to meet wartime and peacetime requirements, only the $2 billion of ammunition identified for disposal would be treated differently by the single manager.

DOD stated that it recognizes that improvements to ammunition management are needed. It stated that its Integrated Ammunition Stockpile Management Plan has resulted in significant progress in many areas, such as demilitarization. GAO agrees that the 1994 management plan is a step in the right direction but is concerned about the plan receiving the services' full support in such areas as identifying required and nonrequired ammunition, which is a critical component of the plan.

DOD partially concurred with the matter for congressional consideration. DOD said it already provides the Congress with ammunition inventory data in the Supply System Inventory Report and demilitarization information in

the procurement budget justifications. GAO is aware of this report and the information contained in it. However, as currently prepared, the Supply System Inventory Report does not provide any information on the amount of ammunition that exceeds established requirements or stockpile management problems.

DOD disagreed with the recommendation and options given for potential changes in ammunition management. DOD stated that it considers the present arrangement for managing much of the services stockpile to be satisfactory. GAO does not agree that the present arrangement for managing the stockpile is working well and believes that existing DOD practices will not solve the problems. GAO continues to believe its recommendation is valid.

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Abbreviations

ATACMS	Army Tactical Missile System
DOD	Department of Defense
GAO	General Accounting Office
HARM	High-Speed Anti-Radiation Missile
IG	Inspector General
O&M	operation and maintenance
RDAISA	Research Development Acquisition Information System Agency
WARS	Worldwide Ammunition Reporting System

Introduction

The four military services stockpile in their retail and wholesale inventories conventional ammunition, explosives, and missiles (hereafter referred to as ammunition) valued at about $80 billion as of September 30, 1994. About $58 billion of this ammunition is classified as usable or serviceable.[1] Serviceable ammunition valued at about $34 billion is owned, stored, and managed by the services (retail stocks). The remaining serviceable ammunition, valued at $24 billion, is owned by the services but stored under Army management to ensure that a sufficient supply is available to meet needs for peacetime training and for war (wholesale stocks). Including the retail stocks, the amount of ammunition stored is over 5 million tons, which if loaded into railway cars would stretch over 800 miles, about the distance from Washington, D.C., to Orlando, Florida. Under current guidance, the services must maintain enough ammunition to support forces fighting in two nearly simultaneous major regional conflicts. This requirement represents a change in national strategy dictated by international developments and a major reduction in U.S. forces. A 1993 study directed by the Joint Ordnance Commanders Group[2] found that the changes had seriously affected stockpile operations and readiness.

Military Services Determine Ammunition Requirements

Each service determines the types and quantities of ammunition it needs to meet requirements for war reserves and training. The requirements are based on the national military strategy, which requires the services to be capable of fighting two major regional conflicts. The Defense Planning Guidance gives general direction to the services and planning factors for the conduct of military operations under the strategy. Each service is to use the Department of Defense's (DOD) capabilities-based munitions requirements process to establish its munitions requirements. Under this intricate process, the services determine their requirements based on the operational objectives of the combatant commander in chiefs against potential threats. The requirements determination process also considers the services' logistics capabilities and the need for sufficient ammunition to remain after an operation or conflict for future contingencies. Each service must maintain enough ammunition to meet all those requirements. The services assess the combination of inventories at both wholesale and retail levels and in the procurement pipeline to determine whether they

[1]Ammunition is coded so that its physical condition can be identified and reported. It is coded into three categories: serviceable or ready for issue, unserviceable or not suitable for issue or use, and suspended or not suitable for issue or use pending final classification.

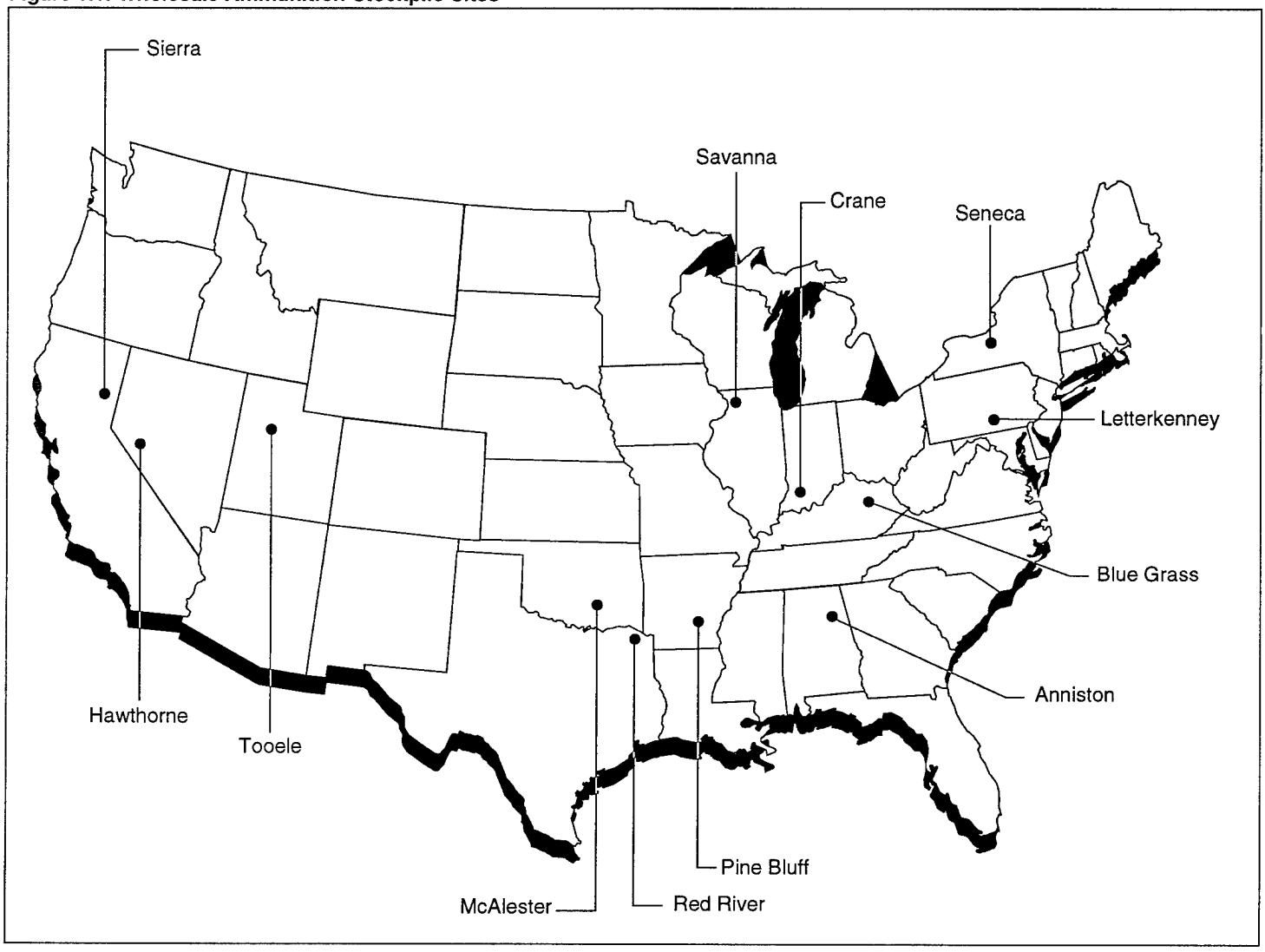
[2]The Group includes flag-rank officers from each military service and is chaired by the Commander, Industrial Operations Command, formerly called the U.S. Army Armament, Munitions, and Chemical Command.

have sufficient ammunition to meet requirements for combat, strategic readiness, residual readiness, training, and testing.

The Army Manages the Wholesale Stockpile of Conventional Ammunition for All the Services

In 1977, the Army became the single manager for conventional ammunition, assuming responsibility for the storage, management, and disposal of wholesale inventories of ammunition and explosives for all the services. As of September 30, 1995, this stockpile consisted of 3 million tons of ammunition stored at nine depots, two plants, and one arsenal (see fig. 1.1), comprising in all 37.8 million square feet of storage space.

Figure 1.1: Wholesale Ammunition Stockpile Sites



The services own 80 percent[3] of the total tonnage of ammunition stored by the single manager. The Army owns the largest amount, 43 percent, followed by the Air Force with 17 percent, the Navy with 13 percent, and the Marine Corps with 7 percent.

[3]The remaining 20 percent of the wholesale stockpile is ammunition designated for disposal (12 percent) and industrial and interservice support agreement stocks (8 percent).

As the manager of the wholesale ammunition stockpile, the Army undertakes all the management functions—distribution, storage, inventorying, surveillance, maintenance, and disposal (see table 1.1). The Army's effectiveness in performing these functions determines the stockpile's readiness.

Table 1.1: Stockpile Management Functions

Category	Description
Distribution	Expeditious receipt and issue of items.
Storage	Safe and secure storage of items; quick response to customer requests; efficient use of storage space.
Inventorying	Checking of stock location, quantity, and condition against master records to provide inventory accuracy and quick response.
Surveillance	Determination of the condition and serviceability of stockpiled items through inspections and testing.
Maintenance	Repair of defective stockpile items to restore to usable state.
Disposal	Demilitarization and disposal of excess, obsolete, and unsafe items from active inventory through destruction or recovery of resources for other uses.

Changing World Conditions Have Affected the Ammunition Stockpile

During the 1980s, ammunition storage was generally stable. In 1985, with 55 to 60 percent of the storage space occupied, the stockpile held about 2 million tons of ammunition. Most of the stockpile consisted of large lots, which optimized space and facilitated economical surveillance and inventories. However, in 1990 and 1991, world politics changed significantly as the Soviet Union collapsed. As a result of this event and other worldwide changes, the United States shifted from preparing for a global war to preparing for regional conflicts and crises, and a general reshaping of military resources and budgets began. First, four major Army storage installations were closed or realigned,[4] which reduced the ammunition stockpile's storage capacity from 36 million to 30 million square feet. Second, because of overall reductions in the budget, the single manager decided to significantly decrease its inventorying of the wholesale stockpile. Third, massive amounts of ammunition were returned from overseas: (1) prepositioned ammunition from Europe, as U.S. forces stationed there were withdrawn and (2) stock from Operation Desert Storm, of which only 10 percent was used during the war. The continental U.S. stockpile installations received twice as much stock—1 million

[4]The four major Army storage installations that were closed or realigned were Fort Wingate Depot Activity, New Mexico; Navajo Depot Activity, Arizona; Pueblo Depot Activity, Colorado; and Umatilla Army Depot Activity, Oregon.

tons—as they had shipped out. This ammunition arrived in small, broken-up lots, which required more storage space and inventory work.

The stockpile has also been affected by (1) increases in retail stock stored within its facilities, which increased the cost of storage installation operations and reduced storage space and (2) lower usage rates, as customer demand declined.

Joint Service-Sponsored Study Addressed Stockpile Operations

In 1993, the Joint Ordnance Commanders Group, concerned that the wholesale conventional ammunition stockpile's readiness and quality had been degraded, initiated a comprehensive study to assess the wholesale ammunition stockpile. The resulting report,[5] issued in October 1993, identified several conditions adversely affecting the readiness and reliability of the ammunition stored in the stockpile. The report identified problems in all the major functions that related to stockpile operations and management. Some degraded functional areas, such as inventory and surveillance, directly affect the readiness and reliability of the stockpile; others, such as receipts, issues, and storage of ammunition, affect the efficiency and effectiveness of operations. The report predicted that conditions would worsen over the next 4 years because of continued funding problems and identified several initiatives to effect improvements to the readiness and operations of the stockpile.

The report's findings led to a charter for an ammunition functional area analysis and the development of the Integrated Ammunition Stockpile Management Plan to address funding and storage management concerns.

Objectives, Scope, and Methodology

Concerned about the condition and readiness of the wholesale ammunition stockpile, given changes in world and stockpile conditions, the Chairmen, Subcommittee on Military Readiness and Subcommittee on Military Procurement, House Committee on National Security, asked us to determine (1) the availability of ammunition to meet wartime and peacetime requirements and (2) what problems the Army single manager has in managing the military services' wholesale ammunition stockpile.

To determine whether DOD has sufficient ammunition to meet demands for training and war reserves, we compared serviceable ammunition, from both wholesale and retail inventories, on hand for each service as of September 30, 1994, with the amount needed to meet requirements for

[5]Wholesale Ammunition Stockpile Program (WASP) Review and Assessment, October 1993.

wartime and peacetime operations. In making this determination, we used the automated data systems that each service maintains for its ammunition items. Specifically, the requirements were obtained from the Army Worldwide Ammunition Reporting System (WARS),[6] Navy Non-Nuclear Ordnance Requirements System, Air Force Theater Allocation Buy/Budget System, and the Marine Corps Ammunition Requirements Management System. We did not independently verify the military's method of determining ammunition requirements.

To determine whether the services have excess amounts of ammunition, we analyzed computerized files of the services' inventories as of September 30, 1994 (the end of the fiscal year). First, we compared the total on-hand serviceable inventory, item by item, to that needed to satisfy wartime requirements, testing and training requirements for 7 years (6 years of testing for the Army), and other requirements. We used testing and training requirements for 7 years (1) to be conservative in calculating on-hand quantities exceeding requirements, (2) because DOD's retention policy authorizes this level of supply to meet Defense Planning Guidance, and (3) because 7 years coincides with the future years' planning of the services. As requested by the Army, we used operational project, wholesale, and basic load requirements in addition to 6 years of testing requirements and 7 years of training. Second, we determined the amount of unserviceable ammunition by type of ammunition for which there was excess serviceable inventory. Third, we compared the single manager's inventory database showing ammunition stored for the services with the services' databases that we had used in our comparison. We then determined the amount of additional ammunition excess to requirements that was not on the services' records. Finally, we identified the amount of ammunition DOD has designated for disposal. To determine the services' rationale for excesses, we selected and discussed with item managers 145 types of ammunition (126 randomly selected and 19 judgmentally selected because they had large quantities of excess items) for which on-hand quantities exceeded service-determined requirements.

[6]We based our analyses on ammunition requirements contained in the WARS database. Although Army representatives suggested in March 1996 that we use the Army's Research Development Acquisition Information System Agency (RDAISA) database for greater accuracy, we determined that this alternative database does not contain requirements for all Army ammunition items but requirements for ammunition items for which procurement actions are in process or planned. We further determined that the RDAISA database was not any more complete than the WARS database. For example, 46 percent of the types of ammunition for which the WARS database showed a requirement did not have a requirement in the RDAISA database. Therefore, we did not recalculate our detailed analysis of ammunition requirements and the amount of ammunition excess to requirements based on the RDAISA database.

To determine whether the services have shortages of ammunition, we compared the same universe to the amount needed to meet wartime requirements plus that needed for 1 year of training and testing. We used only 1 year of training and testing requirements to be conservative in calculating ammunition shortages. To determine the services' rationale for types of ammunition with shortages, we selected and discussed with item managers 154 types of ammunition (152 randomly selected and 2 judgmentally selected because they represented large dollar values) for which on-hand quantities were less than service-determined requirements. Additionally, we selected and discussed with service officials the 42 highest unit cost items (representing $32 billion of the $60 billion shortage) to determine the rationale for shortages.

We used the Standard Depot System database for our analyses of the wholesale stockpile. This database includes information from 11 of the 12 storage installations (Pine Bluff Arsenal is not included in the system). We used data as of March 1995 for old ammunition in the wholesale stockpile, serviceability of ammunition in the stockpile as classified by condition codes, and backlogs of periodic inspections and data as of September 1995 on the net storage space of installations. We also used data from an Army disposal study dated September 1995 on items designated for disposal and estimates of disposals anticipated in the future.

In relation to the management of the stockpile, we interviewed ammunition management officials and reviewed policies, procedures, and documents related to the management of conventional ammunition at the following sites:

- Headquarters locations
  - Departments of the Army, the Navy, and the Air Force, Washington, D.C.
- Technical commands
  - U.S. Army Materiel Command, Alexandria, Virginia
  - U.S. Industrial Operations Command, Rock Island, Illinois
  - U.S. Army Defense Ammunition Center and School, Savanna, Illinois
- Inventory commands
  - Air Force Air Logistics Center, Ogden, Utah
  - Naval Ordnance Center, Indian Head, Maryland
  - Marine Corps Systems Command, Clarendon, Virginia
- Storage installations
  - Hawthorne Army Depot, Hawthorne, Nevada
  - Letterkenny Army Depot, Chambersburg, Pennsylvania

- Red River Army Depot, Texarkana, Texas
- Sierra Army Depot, Herlong, California
- McAlester Army Ammunition Plant, McAlester, Oklahoma
- Crane Army Ammunition Activity, Crane, Indiana

We did this review from April 1994 to April 1996 in accordance with generally accepted government auditing standards.

Agency Comments and Our Evaluation

DOD expressed concern about the requirements database we used, particularly for the Army. We used the WARS database, which was the most complete automated database we found for the Army. At our exit conference, Army officials suggested that we use the Army's RDAISA database for greater accuracy. However, we determined that this database does not contain requirements for all Army ammunition items; it only contains requirements for ammunition items for which procurement actions are in process or planned. We remain unconvinced that the Army has a more complete automated database that we could have used. Also, DOD notes in its comments on this report that it started using a capabilities-based munitions requirements process beginning with the fiscal year 1996 budget. Our requirements data were the latest available as of September 1994, which was after the beginning of the development of the fiscal year 1996 budget and included capabilities-based principles.

Much of the Services' Ammunition Is Excess to Requirements and Is Aging

The services have to do a better job of managing their ammunition needs. As of September 30, 1994, the total stockpile of usable and unusable ammunition was worth about $80 billion. We estimate that about $31 billion of this total ammunition stockpile was excess.[1] This excess amount includes about $22 billion worth of ammunition that was still usable.

This situation has occurred primarily as a result of the collapse of the Soviet Union in the early 1990s and the change in the primary threat to the United States. As a consequence, the services' ammunition requirements were drastically reduced, and more of the ammunition stockpile became excess. The Army's war reserve requirements, for example, were reduced by 74 percent.

Of the various types of ammunition in the stockpile, we found that almost half have amounts that exceed the services' needs in varying quantities. For some types of ammunition, the services have over 50 times their stated needs. While there are shortages of some specific ammunition types, overall, the services generally have enough ammunition to meet their wartime and peacetime requirements.

DOD management practices perpetuate the buildup of excess and aging ammunition, even though the ammunition stockpile is supposed to comprise only ammunition and explosives essential for peacetime and wartime needs. In many instances, the services keep it available just in case they or other organizations, such as state agencies or foreign allies, have a need for it. However, DOD often does not determine what would be a reasonable amount to keep to meet these needs. For all these reasons, storage facilities are reaching capacity levels, and the excess ammunition is stressing the ability of installation personnel to manage required ammunition since all ammunition not identified for disposal, including the $31 billion excess mentioned above and $2.9 billion in excess that appears on the single manager's inventory records but not the services' inventory records, receives the same amount of single manager attention (see ch. 3 for a discussion of stockpile management). Moreover, in fiscal years 1993 and 1994, the services spent about $125 million for ammunition that exceeded fiscal year 1995 stated requirements. No service purchased

[1]We define excess as ammunition quantities above the military services' stated war reserve and peacetime requirements. DOD's definition of excess ammunition differs from our definition. DOD does not define ammunition as excess until the quantity of an item exceeds all authorized retention levels (such as economic and contingency retention levels) and the item is processed for reutilization or disposal.

ammunition items in fiscal year 1995 for which it had quantities on hand in excess of stated requirements at the end of fiscal year 1994.

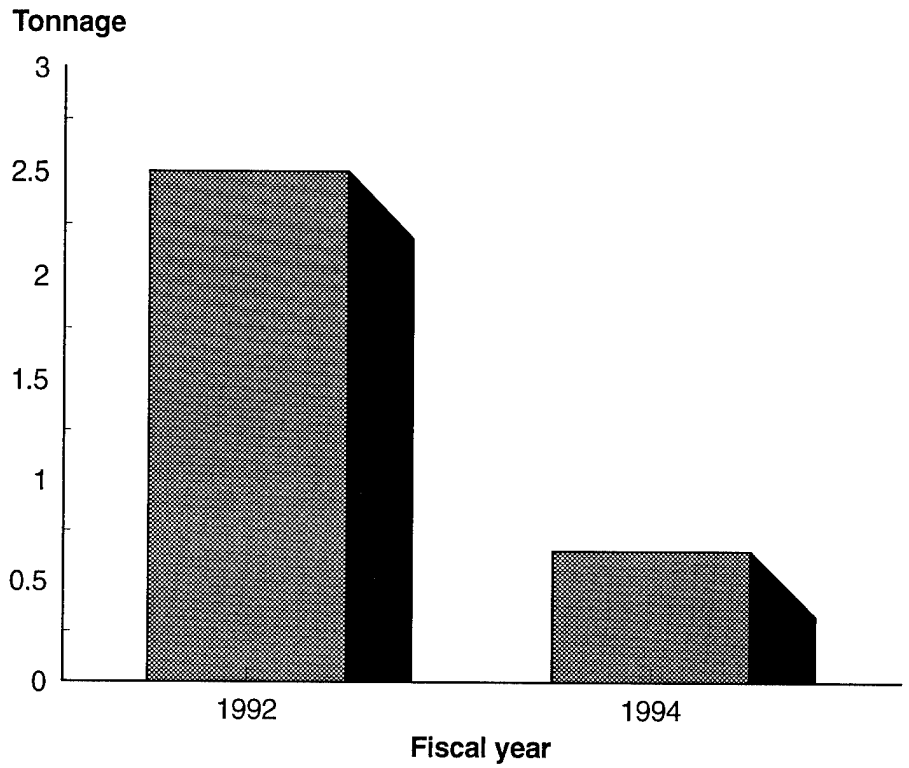
In addition to its ammunition in excess of stated requirements, DOD has shortages of some types of ammunition. However, the services generally believe that these shortages are manageable because they have substitute items and planned procurements to make up for shortages.

We believe that the shortages of some items could be satisfied by better sharing of amounts in excess of stated requirements among the services. While the Army has shared some excess ammunition among the other services, the single manager is unaware of all ammunition in excess of stated requirements because the services have not identified which of their ammunition is required and which is not required. Without this information, the single manager cannot adequately identify and coordinate redistribution of excess ammunition. During our review, we identified $1.2 billion of items in excess of stated requirements that could be shared to meet service shortages of required ammunition, reduce potential future procurements, and avoid maintenance.

War Reserve Requirements Have Been Significantly Reduced

Because the threat the United States faces has changed from a global war to a much smaller one involving two major regional conflicts, all the services' war requirements have been reduced. Army war reserve requirements in total tonnage declined 74 percent—from 2.5 million tons in fiscal year 1992 to 650,000 tons in fiscal year 1994 (see fig. 2.1). For example, the requirement for multiple launch rocket system pods decreased by 82 percent. Likewise, the requirement for the 155-millimeter dual purpose improved conventional munitions decreased by 61 percent. The reduced threat has led to reduced requirements, and reduced requirements have contributed significantly to large quantities of various ammunition types becoming excess to the services' stated needs.

Figure 2.1: Reduction in Army War Reserve Requirement (tonnage in millions)



Source: Conventional Ammunition Functional Area Analysis.

Almost 50 Percent of the Types of Ammunition Have Quantities Exceeding Requirements

All the services have serviceable ammunition in the stockpile that exceeds their needs as defined in the Defense Planning Guidance; that is, to support U.S. forces during two nearly simultaneous major regional conflicts, for training and testing during peacetime, and for other needs. In total, about 50 percent of the ammunition types in the services' inventories include quantities exceeding requirements. The 50 percent includes ammunition types in their inventories for which the services have no stated requirements.

Although ammunition managers agreed that some items were excess, they believed that ammunition should be kept for other uses, such as training and foreign military sales. However, they have set no limits on how much should be kept for other purposes. The retention of excess ammunition adds unnecessarily to workload and costs and requires the use of increasingly valuable storage space.

Excess Serviceable Ammunition

The services own and store in the wholesale and retail stockpiles excess ammunition valued at about $22 billion, or 40 percent of the value of the total serviceable stockpile (see table 2.1). To determine the adequacy of the stockpile, we compared the amount of serviceable ammunition on hand in both wholesale and retail level storage facilities as of September 30, 1994, to the services' stated requirements. At that time, the services owned and stored 2,781 different types of serviceable conventional ammunition worth $58 billion. Before considering stocks excess, we accounted for the quantity of ammunition needed for two major regional conflicts and for 7 years of training and testing (6 years of testing for the Army). For all services, we allowed 1-1/2 times the stated requirements before determining excess quantities.

Table 2.1: Excess Serviceable Ammunition Owned by the Services

Dollars in billions

Service	Value of serviceable ammunition	Value of excess serviceable ammunition	Excess as percentage of total serviceable ammunition
Army	$26.4	$15.0	57
Navy[a]	14.9	3.8	26
Marine Corps	5.4	2.1	39
Air Force	7.0	.7	10
Subtotal	**$53.7**	**$21.6**	**40**
Excluded Navy items[a]	4.5		
Total	**$58.2**		

[a]We excluded items valued at $4.5 billion with a requirement of zero because the Navy could not identify components versus end items for several types of ammunition.

Of the excess ammunition owned by the services, 30 percent exceeded requirements by 1-1/2 to more than 30 times. For another 18 percent, the services did not identify a requirement. The total value of these items is $21.6 billion. (See table 2.2.)

Table 2.2: Serviceable Ammunition That Exceeds Requirements Multiple Times (as of Sept. 30, 1994)

Dollars in billions

Number of times type of ammunition exceeds requirement[a]	Number of ammunition types	Percentage of total ammunition types	Value of excess items
More than 30	121	4.3	$3.7
15.01 to 30.0	83	3.0	0.3
1.51 to 15.0	637	22.9	14.6
Subtotal	**841**	**30.2**	**18.6**
No requirement	500	18.0	3.0
Total	**1,341**	**48.2**	**$21.6**

[a]Amounts exceeding 1 indicate that more than enough ammunition is on hand to meet the wartime and peacetime requirements through fiscal year 2001.

One example of excess ammunition types is the .30-caliber carbine ball cartridge. The Air Force has enough of this type of ammunition to meet its stated requirement 58 times, and the Army has 517 times the amount needed. Similarly, the Navy has 276 times the amount of the .50-caliber ball cartridges needed, and the Marine Corps has 92 times the number of offensive hand grenades needed to meet its requirements.

Also, as table 2.2 shows, 500 types of ammunition worth $3 billion have no stated requirements. For example, the Air Force has no requirement in its database for its 4.8 million of 20-millimeter cartridges worth over $21 million. According to Air Force officials, this ammunition is needed for the M39 gun and the F-5 aircraft and can be used in the M61 gun, when separated. In addition, the Marine Corps does not show a requirement in its database for its 4,307 105-millimeter cartridges valued at over $2.5 million and 2.9 million .50-caliber cartridges valued at about $2.7 million. Marine Corps officials stated that they do not need these types of ammunition. The other services similarly have ammunition on hand for which there is no stated requirement. Although Air Force officials said that they have specific uses for the ammunition, they nevertheless do not show that they need it by including it in their requirements database.

Additional Excess Inventory

We calculated the total amount of excess ammunition—serviceable and unserviceable—at about $31 billion. In addition to the $22 billion of serviceable ammunition in excess of stated needs, we calculated that as of September 30, 1994, DOD had about $9.4 billion in unserviceable assets that exceeded stated needs (see table 2.3), for a total excess of $31 billion, or

about 39 percent of the $80 billion ammunition stockpile. In addition, there was over $2.9 billion of excess assets on the single manager's inventory records that did not appear on the services' inventory records, and over $2 billion of ammunition that was identified for disposal.[2]

Table 2.3: Excess Unserviceable Ammunition Owned by the Services

Dollars in billions

Service	Value of unserviceable ammunition	Value of excess unserviceable ammunition[a]	Excess as percentage of total unserviceable ammunition[a]
Army	$8.6	$5.5	64
Navy[b]	6.7	3.4	51
Marine Corps	1.5	.4	27
Air Force	.9	.1	11
Subtotal	**$17.7**	**$ 9.4**	**53**
Excluded Navy items[b]	3.8		
Total	**$21.5**		

[a]This represents only unserviceable ammunition by type of ammunition for which there was excess serviceable inventory.

[b]We excluded items valued at over $3.8 billion with a requirement equal to zero because the Navy cannot identify components versus end items for several types of ammunition.

Without some identification of ammunition not needed to meet wartime and peacetime requirements or some other prioritization, all ammunition other than that identified for disposal receives the same level of attention by the single manager. As discussed in chapter 3, the large amount of ammunition being stored by the single manager is stressing the ability of installation personnel to manage required ammunition.

Item Managers' Views on Excess Ammunition

We queried ammunition item managers about the reasons that DOD had excess ammunition for 145 selected (126 randomly and 19 judgmentally) types of ammunition. These managers agreed that they had excess items for 59 (41 percent) of the 145 types we selected. They disagreed that the rest were excess for varying reasons. All cited training as a reason for keeping excess ammunition. However, we had already computed training and testing needs in our analysis, and the ammunition they cited as needed for training was excess to stated requirements. Other reasons cited for

[2]We were only able to determine a dollar value for 43 percent of the ammunition identified for disposal as of September 30, 1994, and this amounted to $2.1 billion.

keeping the ammunition were for foreign military sales, research and development, trade purposes, military competitions, and ceremonies, such as military funerals. However, the services had not determined what would be a reasonable amount to meet these needs; rather, they seemed to keep all of any item they thought might be needed.

Service Inventories Contain Many Old and Aging Ammunition Items

Historically, the age of ammunition in the stockpile has been a concern and the object of study since before fiscal year 1979. In fiscal year 1979, the single manager initiated a purification program to eliminate old, obsolete, or otherwise unneeded ammunition items. This particular effort built on the results of past studies. In September 1985, the single manager issued an ammunition stockpile rotation study that assessed the effectiveness of stockpile rotation policies and regulations. This study analyzed ammunition stocks in the United States and Europe and found that 30 percent of the Army's stocks in the United States and 26 percent of the overseas stocks were 20 years old or older.

Little change, if any, has occurred since 1985. Despite an awareness of age and the need to rotate ammunition stocks, we found that as of March 1995, a considerable portion of the wholesale ammunition stockpile was over 25 years old. The age of over 56 percent of the lots in the wholesale ammunition stockpile is unknown because the date of manufacture is either not recorded in the database or recorded incorrectly. Of the remaining 44 percent, 14 percent was over 30 years old, 34 percent was over 20 years old, and more than 55 percent was over 10 years old. Table 2.4 shows the ages of the ammunition lots[3] in the wholesale stockpile.

[3]Ammunition is manufactured and controlled by lots. An ammunition lot identifies specific characteristics associated with a certain quantity of ammunition (e.g., complete rounds, components, propellants) that is manufactured or assembled by one producer under uniform conditions and is expected to function in a uniform manner. Beginning around the mid-1970s, the month and year of manufacture were incorporated among the characteristics of each ammunition lot number.

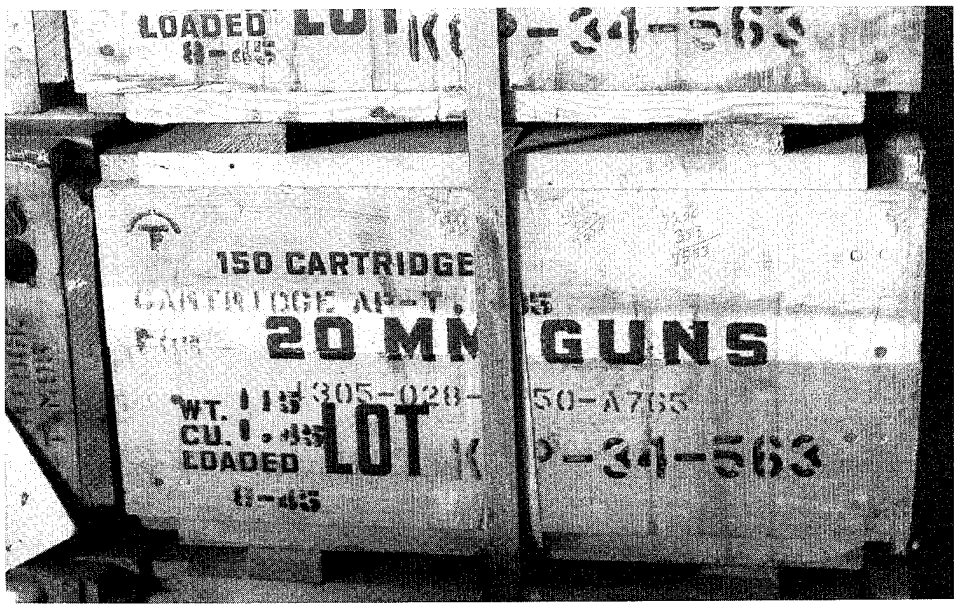
Table 2.4: Age of Ammunition in the Wholesale Stockpile (as of Mar. 1995)

Age in years	Number of lots	Percentage of total[a]
0 to 5	40,688	26
5.01 - 10	30,150	19
10.01 - 15	18,474	12
15.01 - 20	14,986	9
20.01 - 25	15,130	10
25.01 - 30	16,587	10
30+	22,453	14
Total	**158,468**	**100**

[a]Does not include 202,691 lots for which the age was unknown or incorrectly entered into the database.

We observed ammunition dating to the 1940s (see fig. 2.2). Service officials generally said that unless ammunition has a shelf life, its age does not alter its serviceability. They noted that if ammunition is stored properly, it is as good as the day it was manufactured.

Figure 2.2: Ammunition Dating From the 1940s



While old ammunition may still be serviceable, it is less likely to be used if a new item is available. The 1985 rotation study noted that soldiers in the field demanded the newest and best lots of ammunition available, thus older lots remained in storage. More recently, during Operation Desert Storm, battlefield commanders opted to use newer, more modern items. Ammunition that was shipped to Southwest Asia for Operation Desert Storm, partly from Europe, but was not used now occupies over 2 million square feet of space in the U.S. depot system, awaiting potential use and continuing to age. Also, according to single manager officials, commanders insist on training the way they are expected to fight a war. Consequently, they also do not want to train with the "old stuff." Rather, they want to use the more modern and the most current ammunition, if available.

Management Practices Perpetuate the Buildup of Excess and Aging Ammunition

The Joint Ordnance Commanders Group's 1993 study and resulting report on the wholesale stockpile found that the excess ammunition in the stockpile contributes to the stockpile's annual operational costs. The report suggested that the services reduce the amount of excess ammunition stored. The report also suggested that training, foreign military sales, grant aid programs, and destruction are among the ways of eliminating excess. However, the services have made little progress in eliminating excess and aging ammunition because they are reluctant to classify ammunition as excess; have no incentive to declare ammunition excess, since the Army pays for its storage; are storing ammunition for weapon systems no longer in their inventories; and have purchased ammunition that, according to their records, was not needed to meet required levels. In addition, the services keep ammunition over and above requirements, or in "long supply," to meet various retention needs. Moreover, single manager personnel do not always issue the older stock, leaving it to continue to age.

Services Are Reluctant to Classify Ammunition as Excess

According to the 1993 report on the wholesale stockpile, the services have known for some time that they have excess quantities of ammunition items. We were told that the services do not like to declare ammunition excess because they then lose ownership of stocks. Also, if items in long supply are transferred to another service, the transferring service is reimbursed for the items. However, if an item is identified as excess and then given to another service, the issuing service is not paid for the item. Also, theater commanders may exercise their judgment to retain ammunition items even if requirements no longer exist. Air Force

inventory control point officials agreed in October 1994 that they could no longer provide effective and efficient management of vast quantities of older, obsolete weapon systems. They listed 138 potential items for disposal because they had no operational requirement, were no longer reliable, were environmentally unacceptable, or their shelf life had expired. Although headquarters officials approved some of these items for disposal, they directed that others be retained until suitable substitutes became available or more data were provided about the items.

Services Have No Incentives to Reduce Excess Ammunition

Currently, the services have no incentive to reduce excess ammunition in the wholesale stockpile because the single manager is responsible for its care; that is, storage, inventories, surveillance, and disposal of the ammunition. The 1993 report on the wholesale stockpile notes that an incentive for inducing the services to reduce excess ammunition would be to charge a storage fee or charge each service for the cost to maintain its stock in the wholesale system. However, single manager officials we talked to did not support charging the services a storage fee. In their opinion, the real issue is the need for the services to identify nonrequired items and turn them over to the single manager for disposal or identify them for possible redistribution where they exceed stated requirements. However, the services have only partially provided this information.

Services Store Ammunition for Weapon Systems No Longer in Their Inventories

Ammunition is being stored and managed for weapon systems that either have been purged or are no longer in the active inventory. Although we did not determine the total amount of ammunition stored for weapon systems no longer in the inventory, we found specific examples of such ammunition.

The M60A2 tank and the M42 self-propelled gun are obsolete weapon systems to the Army. However, the Army continues to store 147,300 152-millimeter cartridges valued at $43.6 million for the M60A2 tank and 269,000 40-millimeter cartridges valued at $2.5 million for the M42 self-propelled gun. Although Army officials acknowledged that the 152-millimeter cartridges were at one time used for the M60A2 tank, in commenting on this report, DOD said the Army is maintaining these 152-millimeter cartridges for the M551 Sheridan tank. However, DOD noted that there will be a reevaluation of the need to retain these cartridges. Also, the Army is storing 97 million rounds of various small arms ammunition valued at $146 million for weapons no longer in the Army's

inventory. According to Army officials, this ammunition cannot be used for other weapons currently in the inventory.

The Air Force continues to store motors for the Nike Hercules rocket. According to the Air Force's database, there is no requirement for these rocket motors, and the Air Force owns only 39 of them. However, the Standard Depot System database, which accounts for wholesale ammunition assets, shows that the Air Force owns 469 of the Nike rocket motors—430 more than the Air Force's system shows. The Navy continues to store in the wholesale inventory about 4,000 16-inch projectiles for its battleships, which are no longer in the active fleet. These projectiles are in the single manager's wholesale inventory database as belonging to the Navy. However, they are not in the inventory database used by the Navy. Also, the Navy stores 3-inch, .50-caliber ammunition and MK25 mines in the wholesale system. At one depot we visited, we were told it had little or no issues of the 3-inch, .50-caliber ammunition in 15 years, and according to an official at another installation, there had been no activity at all for the MK25 mines in over 10 years. Like the 16-inch projectiles, over 5,000 MK25 mines in the single manager's wholesale inventory listed as belonging to the Navy are not in the Navy's inventory database.

The Marine Corps continues to store about 3 million .50-caliber cartridges for the M85 machine gun, even though the Marine Corps has removed the M85 gun from its inventory and no other weapon system uses this type of .50-caliber ammunition. Likewise, the Marine Corps continues to store over 4,000 105-millimeter projectiles that were used for the M60A1 tank. The M60A1 tank, however, is also no longer in the Marine Corps' inventory. In commenting on this report, DOD noted phasing out of the M60A1 tanks from the Marine Corps' inventory began in 1991 and was completed in 1994. DOD stated that the purging of ammunition for the M85 and M68 weapons began in October 1991 and is scheduled for completion in fiscal year 1997.

Services Have Bought Ammunition When Existing Inventory Was Sufficient

We compared the services' ammunition purchases during fiscal years 1993 through 1995 to ammunition items in excess quantities as of September 30, 1994. For fiscal years 1993 and 1994, we found that the Army and the Navy bought 17 types of ammunition at a cost of about $124.4 million and $0.3 million, respectively, that according to their records they did not need to meet stated requirements. We did not find that similar purchases were made for fiscal year 1995.

As can be seen in table 2.5, in fiscal year 1993, the Army purchased six types of ammunition at a cost of over $114 million. According to Army records, all of these items were excess to their fiscal year 1995 stated requirements, and after deducting the quantities purchased in fiscal years 1993 and 1994, inventory quantities remaining still exceeded service-defined requirements. For example, the Army bought 118,893 155-mm projectiles (D864) at a cost of $78.9 million. After deducting this quantity from the excess quantity as of September 30, 1994, 86,307 of these projectiles remained in inventory.

Table 2.5: Army Items Purchased That Were Excess to Requirements

		Fiscal year					
Item	Description	1993 quantity	1993 cost	1994 quantity	1994 cost	Excess quantity on 9/30/94	Excess quantity remaining after deducting purchases[a]
D513	155-mm projectile			40,903	$9,999,965	119,200	78,297
D532	155-mm propelling charge	49,104	$27,508,061			616,500	567,396
D864	155-mm projectile	118,893	78,946,141			205,200	86,307
M995	Demolition charge	1,751	96,393	580	24,865	2,362	31
M997	Demolition charge	341	9,265	487	10,319	940	112
ML05	High explosive cutter	4,380	888,658			10,580	6,200
ML10	Demolition charge			4,578	79,978	6,083	1,505
ML11	Demolition charge			3,893	68,984	7,494	3,601
ML18	Demolition charge			439	11,976	6,136	5,697
ML19	Demolition charge			4,968	139,005	6,874	1,906
N523	Percussion primer	1,714,432	6,651,966			2,780,000	1,065,568
	Total cost		**$114,100,484**		**$10,335,092**		

[a]This is the excess quantity remaining after subtracting the 1993 and 1994 purchases from the excess on hand on September 30, 1994.

An Army official told us that these purchases may have been made because (1) the Congress directed the purchase, (2) it was more economical to purchase a large quantity rather than a small quantity to meet the requirement, or (3) the requirements decreased after the item was placed in the budget request cycle. Another Army official commented that the purchases could have been made before the requirements changed.[4]

[4]In commenting on this report, DOD expressed concern with the data in table 2.4. However, we could not address its concerns because the data provided by DOD was not compatible.

Smaller, but similar purchases were made by the Navy (see table 2.6). In fiscal years 1993 and 1994, the Navy bought six types of ammunition at a cost of $320,000. According to Navy records, all of these items were excess to their fiscal year 1995 stated requirements and after deducting the quantities purchased in fiscal years 1993 and 1994, inventory quantities remaining still exceeded service-defined requirements.

Table 2.6: Navy Items Purchased That Were Excess to Requirements

		Fiscal year					
Item	Description	1993 quantity	1993 cost	1994 quantity	1994 cost	Excess quantity on 9/30/94	Excess quantity remaining after deducting purchases[a]
A064	5.56-mm cartridge	6,400	$2,816	179,200	$62,720	1,588,906	1,403,306
A071	5.56-mm cartridge	30,240	7,862	13,440	2,957	32,198,092	32,154,412
B634	60-mm cartridge	2,724	203,864			10,854	8,130
G811	Practice hand grenade			4,950	24,849	11,394	6,444
G878	Hand grenade fuze	2,520	4,284	3,240	4,504	265,038	259,278
M458	Detonating cord	152,000	6,080			164,700	12,700
	Total cost		**$224,906**		**$95,030**		

[a]This is the excess quantity remaining after subtracting the 1993 and 1994 purchases from the excess on hand on September 30, 1994.

Assuming ammunition requirements are accurate and in accordance with Defense Planning Guidance, we believe the readiness posture of the Army and the Navy could have been enhanced if fiscal year 1993 and 1994 procurements had been focused on items with shortages rather than on items that either met and/or exceeded requirements.

Practices for Rotating Stock Lead to Aging and Obsolescence of Ammunition

It is the single manager's policy for installations to first issue ammunition from small lots and use older stocks for training. However, this policy is not always followed. All the installations we visited noted that, as a practical matter, this policy is often too difficult to follow. Not all items in a storage facility are easily accessible, and if the facility is at or near capacity, single manager personnel have little choice but to issue the more accessible stock to maximize efficiency and to ensure that the customer's required delivery date is met.

We agree that additional work would be required to consistently issue first-in stock and that this could increase labor costs and delay deliveries. We recognize, however, that the longer first-in stock remains in storage

facilities, the older it becomes and the more likely it is to become obsolete and destined for destruction. As we noted previously, over 55 percent of ammunition in the wholesale system for which the age of the ammunition is recorded is over 10 years old.

Despite Some Shortages of Ammunition, Services' Managers Generally Believe They Can Meet Requirements

As of September 30, 1994, the services had shortages of items in 752 ammunition types valued at about $60 billion. According to the Deputy Chief of Staff for Ammunition, U.S. Army Materiel Command, however, "sufficient munitions are currently in the stockpile to support any projected military operation." Inventory control point officials from all the services agree that they have no major problems with shortages because they consider inventory quantities sufficient, they have substitutable items, and/or they have plans to purchase the items. During our review, Marine Corps officials stated that the Marine Corps did not have enough ammunition to support requirements. However, in commenting on this report, DOD said a Marine Corps ammunition study conducted after our review was completed validated a lower level of war reserve requirements than was previously identified. Therefore, DOD commented that all the services have sufficient ammunition to support their requirements, although the mix of ammunition is not optimum.

Shortages

Thirty percent of the items with shortages were on hand in quantities ranging from over 50 percent of the requirement to almost the entire requirement; 41 percent were on hand in quantities ranging from 1 percent to 50 percent of the requirement; and 29 percent had none on hand to meet the requirement. Some of the items are expensive, which accounts for the large amount of money ($60 billion) needed to eliminate these shortages. Also, we used service-defined requirements in our analysis, and these requirements did not always take into account the availability of substitute items and the planned phaseout of ammunition. In six classified DOD/Inspector General (IG) reports issued from June 1994 through June 1995 on quantitative requirements for antiarmor munitions, DOD/IG concluded that the services had overstated requirements by $15.5 billion.

Forty-two of the items identified as in a shortage condition in our analysis accounted for over 50 percent ($32 billion) of the total dollar value of the shortages. Fifteen items have a unit cost that exceeds $1 million, which accounts for over $18 billion in shortages. Stated requirements for many of these items may not reflect the true need for the item. For example, according to the Navy's database, the Navy has a shortage of

1,587 AIM-54C Phoenix missiles, but the Navy does not consider the missile to be in a shortage status. In fact, after considering several other substitute items, the Navy's inventory has about 191 percent of the requirement for the Phoenix. The replacement cost of each missile would be over $2 million; the shortage amount accounts for over $3.2 billion of the total shortage.

Similarly, the Air Force is short about 18,000 AGM-88B High-Speed Anti-Radiation Missiles (HARM), which account for over $6 billion of the shortage amount. However, according to Air Force officials, HARMs are no longer being procured and their database only shows a lesser shortage amount. Likewise, the Army is short 616 Army Tactical Missile System (ATACMS), which accounts for over $390 million, but according to Army officials, the ATACMS is not recognized as being in a shortage position.

Various versions of the Patriot missile are also shown in the database as being in short supply. The value of these missiles is about $760 million. According to an Army official, no procurements had been requested since about 1993, and there had been no procurements since about 1993 or 1994. A more sophisticated version of the Patriot missile will be the next missile purchased for the inventory. The official commented that the requirement in the database may be the number that was needed at an earlier date.

Service officials generally disagreed with the service-defined requirements, which when compared to ammunition on hand indicated that 42 high dollar value items were actually in a shortage position. To the contrary, we were told that inventories are generally sufficient to meet requirements, particularly when quantities of substitute items are considered. With budget constraints, the services do not have the money to purchase some items in a shortage position. And with the exception of the Marine Corps, service officials generally believed that they had sufficient quantities of substitute ammunition and that future procurements would be adequate to meet wartime and peacetime requirements under the Defense Planning Guidance. Army officials noted, however, that in the future they anticipate problems in filling training requirements.

We randomly selected 152 ammunition items showing shortages. Managers said that 67 of the items had shortages, and they planned future purchases for some of these items. However, despite the records, which showed that these items lacked sufficient quantities to meet established requirements, the item managers contended that most of the items (85) were not considered to have shortages because of available substitutes and planned

buys. Our sample showed a serious shortage of top-priority items for the Marine Corps but no major problem for the other services.

The Marine Corps asserted that it had an insufficient amount of some ammunition to support two nearly simultaneous major regional conflicts. According to the Marine Corps' program manager for ammunition, the Marine Corps "is prepared and capable of executing one MRC [major regional conflict] and doing significantly more than that . . . [but] does not have the ammunition to support [two MRCs]." The program manager noted that the Marine Corps is short of ammunition valued at about $1.5 billion, including $500 million in ammunition for current training needs. We were told that shortages are mainly long-range artillery and war reserve items such as .50-caliber SLAP 4 and 1-linked cartridges, 9-millimeter ball cartridges, and 7.62-millimeter ball linked cartridges. DOD's comments on this report noted that a Marine Corps ammunition study conducted after this review was completed has validated a lower level of war reserve requirements than was previously identified. Therefore, DOD said all services, including the Marine Corps, have sufficient ammunition to support their requirements.

More Cross-Sharing of Excess Ammunition Can Be Done

Although the Army has shared some excess ammunition across the services, we found that (1) purchases of about $185 million in fiscal years 1993 and 1995 could have been avoided if ammunition in excess of stated requirements had been shared among the services, (2) $1.2 billion in ammunition in excess of stated requirements could be shared to alleviate shortages, and (3) $19 million in costs could be avoided by providing ammunition in excess of stated requirements in good condition to services that planned maintenance for the same ammunition. The Senate Committee on Appropriations has also recognized the need for the services to be more aggressive in sharing excess ammunition. For fiscal year 1995, on the basis of our identification of potential ammunition budget reductions,[5] it directed the Army to transfer at least 17,000 excess M203A1 155-millimeter red bag charges, at no cost, to the Marine Corps and denied the Marine Corps $12 million for new charges.

Ammunition officials stated that one reason that more ammunition in excess of stated requirements has not been shared is that the single manager does not know the other services' requirements or the total holdings of ammunition. Even if the single manager did have this

[5]1995 Defense Budget: Potential Reductions and Rescissions in RDT&E and Procurement Programs (GAO/NSIAD-94-255BR, Sept. 8, 1994), p. 91.

knowledge, it is not authorized to redistribute ammunition. It, therefore, cannot initiate the distribution of ammunition in excess of stated requirements and purge the wholesale system of unnecessary items for which there is no reason to retain.

Cross-Sharing to Avoid Unnecessary Purchases

Cross-sharing of existing ammunition that exceeds one or more service's stated requirements can preclude unnecessary purchases and redirect resources to fill or partially fill shortages. During fiscal years 1993 through 1995, the military services purchased $184.5 million of ammunition items that were not needed to meet stated requirements (see table 2.7). The ammunition purchased, according to service-defined requirements and inventory records, was already available or partially available in DOD inventories in quantities that exceeded fiscal year 1995 service requirements. For example, in fiscal year 1995, the most current year after the September 30, 1994, excess analysis, the military services bought 18 types of ammunition at a total cost of $102.2 million. However, enough of the same types of ammunition were already in the inventory system to completely satisfy or partially satisfy 58 percent, or $59.4 million, of the total fiscal year 1995 purchase quantity. Similar conditions existed in fiscal years 1993 and 1994.

Table 2.7: DOD Ammunition Purchases That Could Have Been Filled With Existing Inventory (fiscal years 1993-95)

	Fiscal year			
Ammunition cost and avoidance	**1993**	**1994**	**1995**	**Total**
Purchase cost	$131,039,722	$48,529,950	$102,200,702	**$281,770,374**
Purchase cost totally avoided	100,306,079	17,520,692	38,634,122	**156,460,893**
Purchase cost partially avoided	2,191,111	5,108,352	20,757,027	**28,056,490**
Total cost avoided	**$102,497,190**	**$22,629,044**	**$59,391,149**	**$184,517,383**
Percent of purchase cost avoided for these specific item types	78.2	46.6	58.1	65.5

Examples of excess ammunition that could have filled services' shortages include the Marine Corps' 22 million 5.56-millimeter tracer rounds. As of September 30, 1994, the Marine Corps had a quantity of this ammunition sufficient to meet the quantities bought by the Air Force, the Army, and the Navy and still had about 12 million rounds more than needed. Redistribution of the Marine Corps' assets in these instances could have saved and/or redistributed over $5 million spent by the other services for the same ammunition. In another example, the Army had over 1.9 million 25-millimeter APDS-T cartridges, which exceeded its stated requirements. The Navy bought this same item in fiscal years 1993 and 1995 at a cost of

over $5 million, and the Marine Corps bought the item in fiscal years 1994 and 1995 at a cost of over $6 million. Redistribution of these assets could have saved or redirected over $11 million for ammunition with shortages or for other purposes, and the Army would still have had 1.4 million rounds more than its stated requirement. We believe that centralized oversight and management of DOD ammunition requirements and assets would enable better use of ammunition through redistribution and free up funds to purchase items determined to have shortages.

Cross-Sharing to Reduce Shortages

We identified $1.2 billion of ammunition in excess of stated requirements that could be shared among the services to meet service shortages. Some cross-sharing of ammunition has been done. For example, in fiscal year 1993, the Army transferred over 1.8 million excess .50-caliber blank linked cartridges and 61,500 60-millimeter cartridges to the Navy and the Marine Corps, respectively. And in fiscal year 1994, the Army again transferred additional excess ammunition—about 3,800 .45-caliber blank cartridges and about 68,000 .50-caliber blank cartridges to the Navy, about 484,000 5.56-millimeter dummy cartridges and about 118,000 7.62-millimeter dummy cartridges to the Marine Corps, and 347,000 5.56-millimeter dummy cartridges and 16.5 million 5.56-millimeter cartridges to the Air Force. While this is a step in the right direction, the services must make a concerted effort to identify ammunition in excess of requirements that can be shared to reduce shortages.

DOD directives currently require each service to report to the single manager its total assets against requirements to help identify excesses and corresponding needs among the services. However, the single manager has not regularly received this data from all the services. Despite the Army's transfers of excess ammunition, our analysis of ammunition requirements and assets showed 139 instances where excess on-hand quantities of $1.2 billion could be shared among the services to meet shortages. For example, 30 ammunition items with shortages in the Navy could be partially or totally filled by excess quantities in the Army, the Air Force, and the Marine Corps; shortfalls of 8 items in the Army could be relieved by excess items from the Marine Corps; and 15 Air Force items with shortages could be partially or wholly filled by excess items from the Army. As shown in table 2.8, for some ammunition types, two of the four services have excess quantities that could be shared to fill a deficit in another service, and even when shortages are relieved by excess ammunition, excess quantities still remain.

Table 2.8: Selected Ammunition Shortages and Offsetting Excess Ammunition Among the Services

Item	Description	Army	Air Force	Navy	Marine Corps	Quantity remaining after cross-sharing
B506	Cartridge, 40-mm, red smoke	745,200	(9,387)	(32,780)	21,079	724,112
G900	Hand grenade, incendiary	(17,300)	0	43,232	19,992	45,924
G937	Hand/rifle grenade	0	(124)	22,138	91,067	113,081
A130	Cartridge, 7.62-mm ball	12,427,900	0	(3,273,179)	7,990,929	17,145,650
B508	Cartridge, 40-mm, green smoke	766,700	0	(5,977)	73,764	834,487
L323	Signal smoke, red, hand held	13,300	0	(4,684)	74,496	83,112
L324	Signal smoke, green, hand held	5,900	0	(9,904)	44,630	40,626
M028	Demolition kit, Bangalore torpedo	10,100	0	(942)	19,369	28,527
N464	Fuze, proximity	2,149,500	(33,043)	0	556,131	2,672,588
ML14	Demolition charge, linear shaped	6,919	9,833	(9,091)	0	7,661

Note: Figures in parentheses indicate shortages.

Cross-Sharing to Avoid Maintenance

In addition to filling some of the services' shortages, the cross-sharing of excess ammunition during fiscal years 1996 through 2000 could result in the avoidance of more than $19 million in planned maintenance costs (see table 2.9). For example, about $11.5 million in planned maintenance could be avoided by sharing a portion of the 839,694 excess 155-millimeter projectiles with services that plan maintenance on 370,000 projectiles. In addition, the $3.4 million cost to repair 40-millimeter cartridges could be avoided because, in this case, the Air Force has more than 1 million excess cartridges that could partially fill the Army's requirement to repair 1.7 million rounds of this item.

Table 2.9: Costs of Planned Ammunition Maintenance That Could Be Avoided by Using Excess Ammunition (fiscal years 1996-2000)

Item	Description	Ammunition requiring maintenance	Excess quantity on hand	Maintenance cost avoided
A063	5.56-mm cartridge	288,096	22,301,824	$86,429
A071	5.56-mm cartridge	1,505,991	32,198,092	240,959
B542	40-mm cartridge	252,638	727,687	568,435
B546	40-mm cartridge	2,129,544	1,048,969	3,352,085
D502	155-mm projectile	9,000	23,078	1,305,000
D563	155-mm projectile	370,000	839,694	11,484,000
N285	Fuze	245,010	3,773,600	2,290,844
Total				**$19,327,752**

Single Manager Does Not Have Information or Authority to Direct Cross-Sharing

In 1979,[6] we recommended that the Secretary of Defense assign responsibility to the single manager for operating a single national inventory control point to provide DOD-wide integrated inventory management, designate the single manager as owner of the ammunition in the wholesale inventory, and require the single manager to apply the principles of vertical stock management for inventory. DOD disagreed with these recommendations, stating that the single manager organization's objective would be to permit the cross-sharing of stocks between services and to avoid procurements by one service for needs that could be satisfied with another service's excess ammunition. DOD stated that the single manager would be provided information on location and condition of retail stocks and service stratification of stocks. This information would allow the single manager to perform, with service approval, cross-sharing to gain efficiencies in procurement, inventory, and transportation management. However, we found that the single manager does not have information on location and condition of retail stocks or information on service stratification of stocks.

Concerning our 1979 recommendation that the single manager be the owner of the ammunition in the wholesale inventory, DOD disagreed. DOD said the services have an obligation to control the assets they acquire through congressional appropriations and the custodial responsibility of the single manager does not conflict with cross-sharing economies of common items or inhibit effective depot-level management.

In our 1979 report, we noted that several problems with the existing organization of the single manager preclude achieving further centralized ammunition management. The single manager organization lacks visibility over the services' retail stocks, has limited communication channels, and must compete for resources with other Army programs. It is principally staffed by Army personnel and is viewed by the other services as parochial. In addition, the single manager is unable to fully implement the concept within the single manager's own service—the Army.

As we noted in our 1979 report, the services are reluctant to give the single manager the degree of control the manager needs to provide efficient and economic inventory management in peacetime and the intensive inventory management needed during war.

Ammunition at U.S. storage and production facilities is designated wholesale and the remainder retail. The services retain total responsibility

[6]Centralized Ammunition Management—A Goal Not Yet Achieved (LCD-80-01, Nov. 26, 1979).

for the retail inventory. In our 1979 report, we noted that single manager officials claim they could achieve more savings if they had retail asset visibility for all services through transportation savings and matching long supply and excess ammunition items against projected procurements. The wholesale and retail designations, coupled with the services' responsibilities, preclude the single manager from managing a substantial segment of the inventory.

Agency Comments and Our Evaluation

DOD partially concurred with our findings. DOD agreed that there were excesses, but took exception to the criteria that we used in determining excess inventory. It said we inferred that stocks above established requirements were excess and should therefore be disposed of. Our report states that DOD has about $22 billion of serviceable ammunition that exceeds established needs and about $31 billion in excess serviceable and unserviceable ammunition.

We agree that not all the ammunition in excess of stated requirements should be disposed of and do not state that it should be. However, we believe that the assets in excess of stated requirements should be made available for cross-sharing to avoid one service purchasing assets that another service has in excess of its wartime and peacetime requirements. In addition, we believe there are many items being stored that will never be used and should be identified for disposal. Furthermore, items in excess of stated needs that should be retained should be identified as not required, but to be retained for potential future use. This could greatly help the single manager to better apply limited resources to storing and maintaining ammunition.

DOD agreed that cross-sharing of ammunition at the wholesale level would allow for better use of ammunition through redistribution. DOD stated the planned Joint Defense Total Asset Visibility Program will provide all the services the capability to review all assets and will further expand cross-sharing of assets at the wholesale level. DOD did not agree with our analysis of ammunition requirements and assets that showed excess on-hand quantities of $1.2 billion that could be shared among the services to meet shortages. DOD provided information for the Army that showed stockage retention levels rather than excesses for most of these items. DOD makes available for cross-sharing ammunition it considers excess; however, it does not consider stocks in its retention categories as available for cross-sharing. We believe all assets in excess of requirements,

including retention stocks (such as economic retention levels) should be considered for cross-sharing, which may avoid a future procurement.

Army data from its September 30, 1994, asset stratification of conventional ammunition, which excludes missiles, shows total assets of $18.7 billion and an authorized acquisition objective of $13.3 billion. It shows various retention levels totaling $4.4 billion, or 23.7 percent, and a potential excess of about $1 billion, or 5 percent. Using the stratification data for cross-sharing would only make the $1 billion of potential excess available while the $4.4 billion in various retention levels would not be identified for cross-sharing. We believe the economic retention amounts of over $1 billion should be made available for cross-sharing to avoid purchases by another service and other retention stocks should be considered for cross-sharing.

Problems With Ammunition Stockpile Management Threaten Readiness, and the Single Manager's Plan for Improvement Has Been Delayed

Increases in the wholesale ammunition stockpile due to returns of massive amounts of munitions from Europe and Operation Desert Storm, combined with a decrease in the wholesale stockpile's workforce, have created a situation that could, if allowed to continue, degrade the forces' readiness to meet wartime and peacetime needs. Because the Army has placed a lower priority on funding ammunition functions, management of the stockpile has become a difficult task, and managers have had to concentrate on the receipt and delivery of ammunition to the detriment of their inspections, tests, maintenance, storage, and disposal. During the summer of 1993, the Joint Ordnance Commanders Group's study team assessed the management of the stockpile and found major deficiencies in stockpile management. The team predicted that unless something was done about the deficiencies, conditions would worsen. Our review confirmed that the stockpile's condition and readiness have indeed been degraded. We found that

- ammunition was reported as serviceable when it might not be because the single manager's method of recording the condition of stock was misleading;
- the condition of ammunition was often unknown because required inspections and testing had not been done;
- top-priority ammunition was not serviceable because repairs had not been done;
- ammunition was inefficiently stored, taxing facilities where space is at a premium; and
- the ammunition designated for disposal is accumulating faster than it can be eliminated.

In 1994, the single manager developed the Integrated Ammunition Stockpile Management Plan to improve the poor condition of the wholesale ammunition stockpile. However, the single manager has made little progress toward improving the stockpile's operations and readiness. Two factors beyond the single manager's control hinder the success of implementing the plan: (1) the services' lack of incentives to identify required and nonrequired items in the stockpile and (2) the uncertainty of sustained funding for the care, maintenance, and disposal of ammunition. None of the services, including the Army, have provided a list of required and nonrequired ammunition, and although funding increased in fiscal years 1995 and 1996, the sustainment of increases to carry out the plan to completion is not ensured.

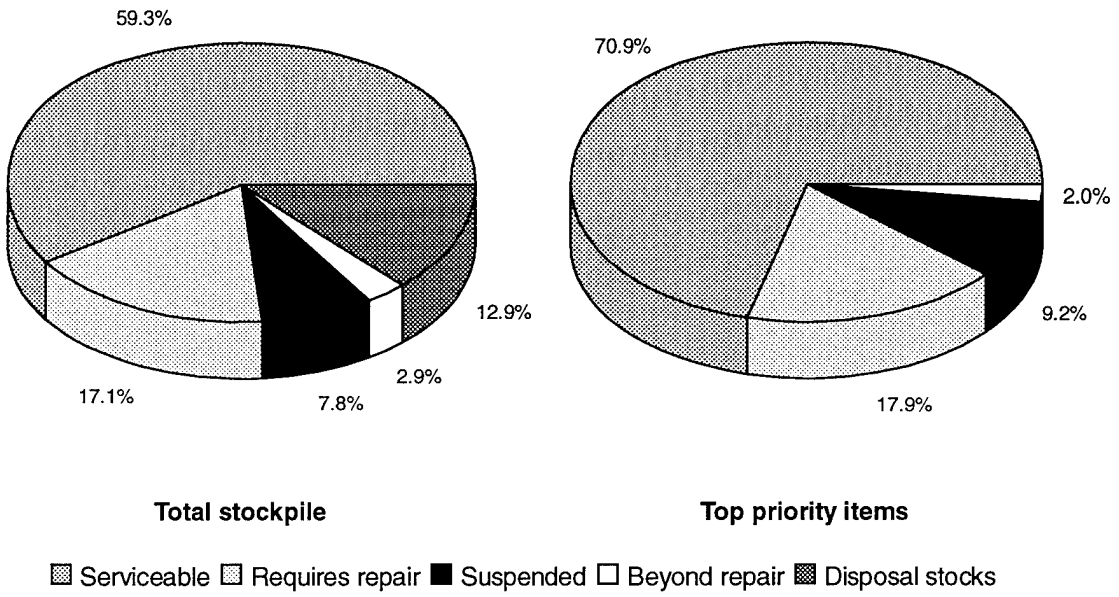
Condition of the Stockpile Is Significantly Impaired

Because of the vast influx of ammunition from overseas in recent years and decreases in storage space, funding, and staff, the ability of the single manager to manage the stockpile has been taxed. As discussed in chapter 2, much of this ammunition is excess, old, and deteriorating but has not been removed from the inventory and is taking up valuable space. The single manager has concentrated on receiving and issuing ammunition and because of resource constraints has neglected the surveillance, maintenance, and disposal of ammunition. As a result, the condition of the stockpile is unknown. This situation degrades the overall readiness of the ammunition stockpile and could, if allowed to continue, degrade the forces' readiness.

Army's Method of Classifying Ammunition as Serviceable Leads to Uncertainty

As of March 1995, 59 percent of the ammunition tonnage and 223,293 of the services' ammunition lots were classified as serviceable; the remaining 41 percent of the tonnage was unavailable for issue because it was unserviceable, suspended, or designated for disposal. Because of the lack of identification of required and nonrequired items, we could not determine serviceability statistics for required stocks. Of the services' top-priority items (which make up 25 percent of the stockpile's tonnage), about 71 percent were classified as serviceable, but 29 percent were termed unusable because they needed repair, could not be fixed, needed inspection, or were suspended from issue (see fig. 3.1). For example, motors for the MK66 2.75-inch rocket could not be issued as of March 1995 because 100 percent of them needed inspection.

Figure 3.1: Condition of Items in the Wholesale Ammunition Stockpile



Source: GAO analysis of the wholesale ammunition stockpile Standard Depot System database as of March 1995.

The condition of ammunition lots is identified by codes signifying that the ammunition is serviceable, unserviceable, or suspended. Lots in all conditions may also have defect codes indicating, for example, rust, paint needed, replacement of unserviceable components required, or nonhazardous/unserviceable/nonreparable. Of the lots classified as serviceable, 24 percent had at least one defect, and 1,752 lots (about 1 percent) were identified as nonhazardous/unserviceable/nonreparable. Of the services' top-priority serviceable items, 19 percent had at least one defect. When the lots with defect codes are deducted from the serviceable tonnage, the portion of the stockpile classified as serviceable without defect is about 46 percent, and the portion of top-priority items classified as serviceable is about 58 percent.

One defect code indicates that an ammunition lot is overdue for periodic inspection by at least 6 months. Before 1990, overdue inspections were clearly indicated by changing the lot's condition code, but the other services objected to this procedure, and the Army dropped it. Now, the condition code remains unchanged, and the defect code is added. According to one official, under this system, the lot's condition does not look as bad as it really is, since the condition code is not changed.

Even though the defect code is indicated on ammunition lots, inventory records that item managers routinely use do not include defect codes. Item managers must look up the lot number in an ammunition lot report to determine whether it has a defect. Because of personnel shortages, only a small percentage of overdue inspection codes is entered into the inventory database. Although stockpile officials' statistics show that about 68,000 lots were past due for periodic inspections as of June 30, 1995, our analysis of stockpile data shows that only 6,609 lots had been coded as past due. Therefore, lots that appear to item managers as available for issue may, in fact, not be available. This situation creates a false impression of readiness, and issuance of ammunition could be delayed as a result.

Condition of Ammunition Is Suspect Because of Delays in Inspections and Tests

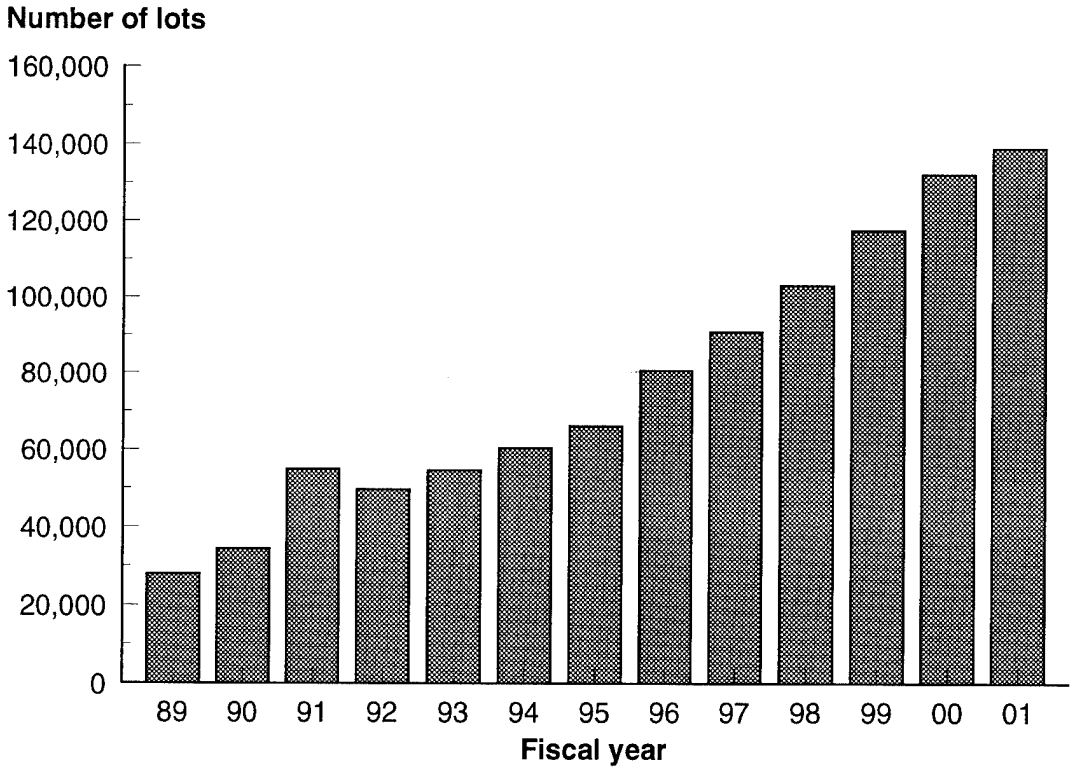
To ensure that requisitions can be speedily filled with usable ammunition, especially in wartime, the single manager must continually check the condition of ammunition items to ensure that they are ready for use and safely stored. Each stockpile installation is supposed to inspect ammunition periodically to ensure that items are serviceable, properly classified as to condition, and safe. Based on the expected rate of deterioration, ammunition is to be inspected every 2 to 10 years. For example, Army guidelines specify that blasting caps should be inspected every 2 years and small arms ammunition every 5 years. In addition, regular tests are to be done to ammunition, not only to ensure that all items are safe and reliable but also to identify those of marginal reliability or capacity and those for maintenance or disposal. However, inspections and ammunition tests have fallen so far behind in recent years due to personnel and funding cuts that the condition of many items, including the services' top-priority items, is no longer known, with the result that stockpile readiness may be impaired.

Inspection Backlogs Are Growing

According to stockpile officials, a backlog of inspections has existed since the 1980s, when the lack of personnel precluded periodic inspections of unserviceable ammunition. However, the backlog has more than doubled

since fiscal year 1989 (see fig. 3.2), largely because of the influx of material from Europe and Operation Desert Storm and the loss of inspection personnel. In fiscal year 1994, stockpile managers suspended periodic inspections for all but fast-moving items, and in fiscal year 1995, they concentrated instead on reducing the backlog of lots that were in an unknown condition. By fiscal year 2001, periodic inspections of more than 139,000 lots could be backlogged.

Figure 3.2: Increase in Periodic Inspection Backlog



Source: U. S. Army Industrial Operations Command.

Our analysis shows that the services' priority items had not been treated any differently from lesser priority items when periodic inspections were done. As of March 1995, the periodic inspections of 15 percent (4,444) of the services' top-priority lots were past due, meaning the serviceability,

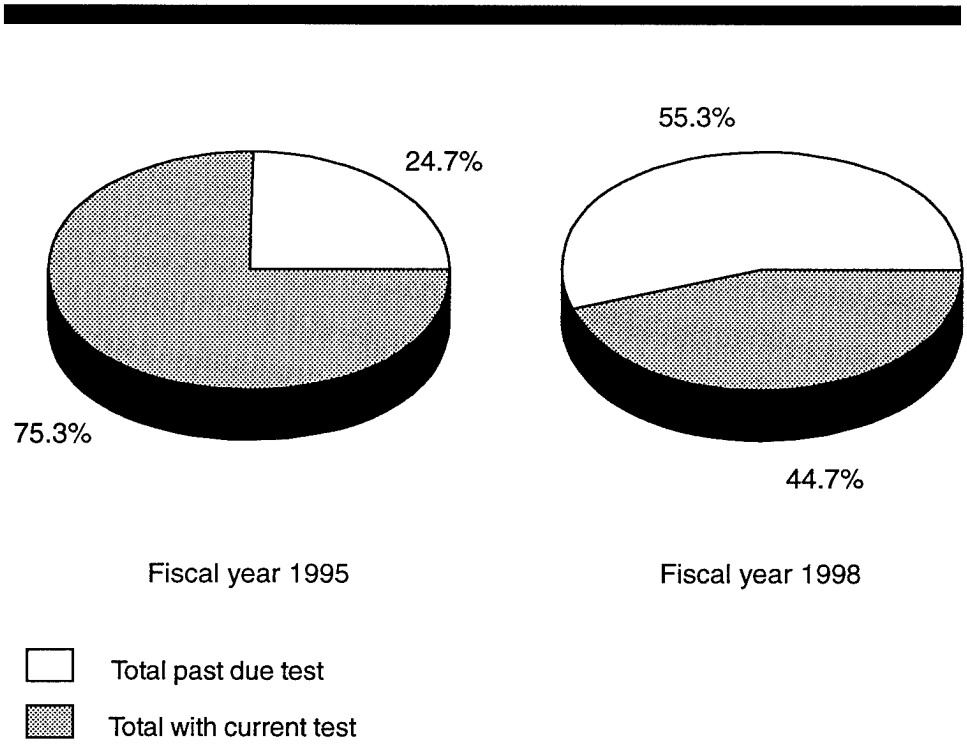
condition, and safety of these priority items were questionable. This number is likely to be larger because the date for the next inspection for 22 percent (8,396) of these lots was not in the inspection database. Periodic inspections of top-priority items are important because these are the items the services need to be available (without defect) and ready for war.

Test Program Is Behind Schedule

Because inspections cannot detect all deterioration of ammunition, lot samples are regularly taken for test-firing or examination at test facilities or laboratories. This effort includes several testing programs, including programs for small-caliber and large-caliber ammunition.[1] According to stockpile officials, of all the testing programs, only the large-caliber program is backlogged. Stockpile management has concentrated its limited testing funds on such programs as small arms at the expense of the large-caliber program, which is a much more costly effort. The large-caliber program covers 129 items having a 5-year test cycle, 85 of which are war reserve stock; the remaining 44 are classed as substitutes and do not have a war requirement. As of September 1995, testing for 25 percent of the war reserve items and 59 percent of the substitutes was overdue. Officials predicted that, by fiscal year 1998, these backlogs could increase to 55 percent for war reserve items and to 84 percent for the substitutes. (See fig. 3.3.)

[1]For testing purposes, large-caliber items comprise all ammunition in sizes ranging from 40 millimeters to 8 inches.

Figure 3.3: Current and Projected Backlogs of Tests for Large-Caliber War Reserve Ammunition in the Wholesale Stockpile



Source: U.S. Army Industrial Operations Command.

Uncertainty of Extent of Unserviceable Critical Items Threatens Readiness

In the 1993 report on the wholesale stockpile, the single manager stated that 27 percent of the services' critical items for war, including the M830 120-millimeter cartridge and the M864 155-millimeter projectile, were unserviceable; that is, the items needed maintenance before they could be used, were missing components, or were earmarked for reclamation. As of March 1995, 18 percent of the services' top-priority ammunition for war and training needed repair, and 2 percent was beyond repair. Because of the backlog in inspections and tests of ammunition, however, the full extent of unserviceable items in the stockpile today is uncertain. As long as managers lack accurate information on the condition of stored items, effective planning and performance of maintenance are problematic. More important, the failure to maintain ammunition in good condition could affect the services' ability to meet wartime requirements.

Repairs and maintenance of ammunition in storage are important not only to sustain readiness but also to save funds, since an unserviceable item can be repaired, on average, for 10 to 12 percent of the cost of a new item.

The single manager estimates that the average cost to repair a ton of ammunition is $800. Using that estimate, about $99 million would be needed to repair the 18 percent of top-priority ammunition currently known to need repair. The estimated cost to purchase new items could be as much as $826 million.

Inefficient Use of Storage Space Impedes Efficiency of Stockpile Operations

Several factors contribute to the inefficient use of storage space. These factors include the loss of storage space due to downsizing, the addition of ammunition from Europe and Operation Desert Storm, the retention of ammunition that is unusable or awaiting disposal, and the proliferation of fragmented (broken up) lots of ammunition. As a result of these factors, some usable ammunition is stored outside when it should be stored inside.

Since 1988, the storage space for ammunition has been drastically reduced. Storage space was reduced by 6 million gross square feet when four installations were closed based on the recommendations of the 1988 Base Realignment and Closure Commission. As of September 1995, over 80 percent of the stockpile installations' net storage space[2] of 26.1 million square feet[3] was full, and that space will be reduced by about 16 percent when the Sierra, Seneca, and Savanna storage areas are closed, as recommended by the 1995 Base Realignment and Closure Commission.

In addition to dealing with less space, storage facilities had to accommodate a vast amount of ammunition returned from abroad after Operation Desert Storm and from bases closing in Europe. Ammunition storage space will soon become even more cramped as ammunition use declines through force reductions and the stockpile receives another 113,000 tons of ammunition from Europe in fiscal year 1996.

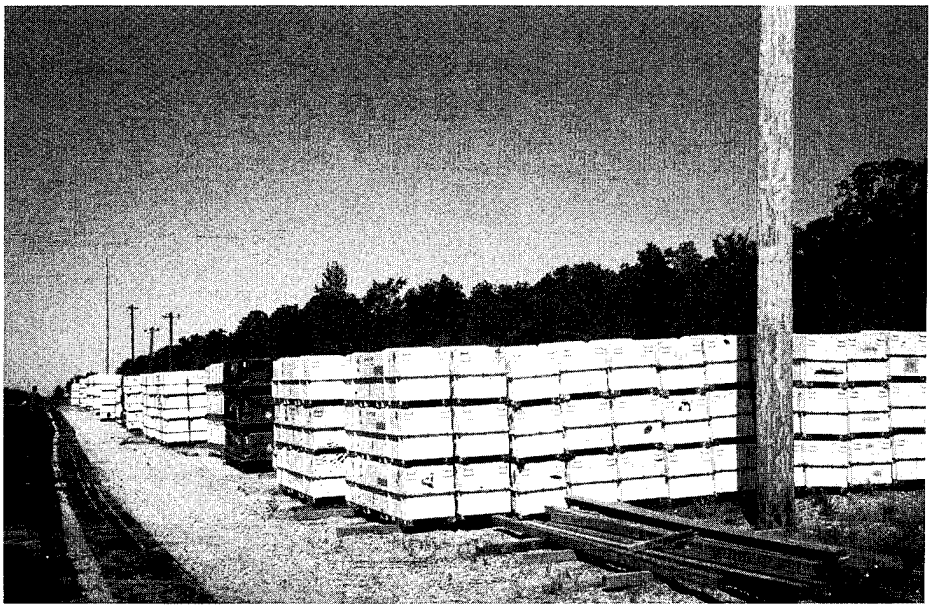
Due to the inefficient storage of ammunition, some serviceable items that should be stored inside were stored outside, while material with less demanding storage requirements occupied high-explosive storage areas. For example, serviceable high-explosive items were stored outside, while inert material was stored in about 600,000 square feet of structures designed to house high-explosive and small arms items. Also, serviceable Maverick, Patriot, and Hawk missiles, which should be stored inside, were

[2]To determine an installation's net storage space, the single manager reduces its total storage space by the amount of unusable space and aisle space it contains, and then subtracts 10 percent from that difference to account for losses due to multiple lots and other abnormalities.

[3]Our analysis did not include Pine Bluff Arsenal because it is not included in the Standard Depot System database.

stored outside at one depot. (Fig. 3.4 shows Maverick missiles stored outside.)

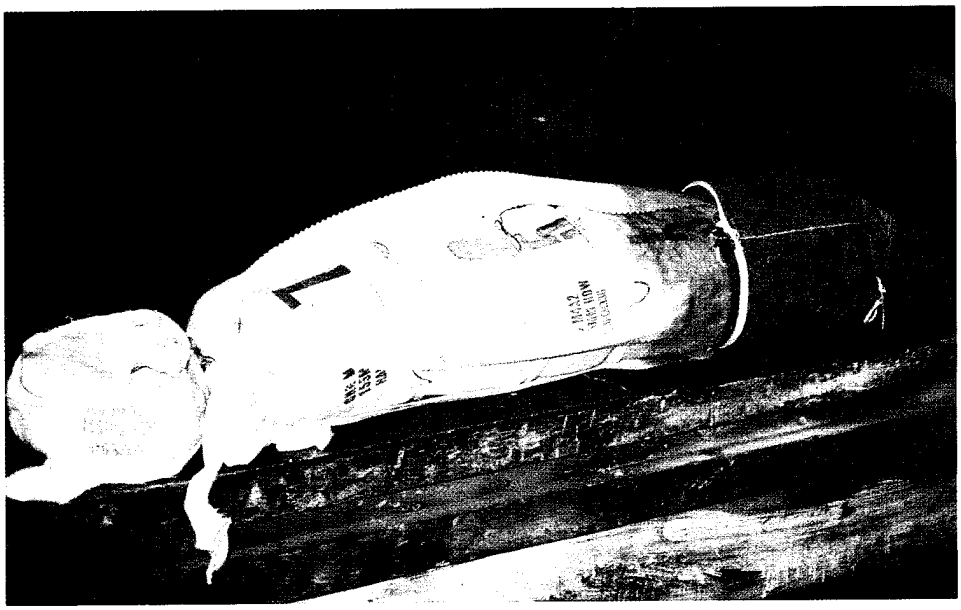
Figure 3.4: Maverick Missiles Stored Outside



Among the serviceable ammunition stored at installations were items that were beyond repair and designated for disposal and occupying considerable space. As of September 1995, 12 percent, or 3.2 million square feet, of the stockpile's storage capacity was occupied by stocks designated as beyond repair or for disposal. For example, about 300,000 tons of items designated for disposal were stored inside at an annual cost of about $8 million and occupied nearly 2.8 million square feet. Aggregated, these stocks would fill at least two storage installations that could be used to store serviceable stocks. We found the following examples of individual types of ammunition with questionable needs.

In one case, 251,000 propelling charges (for 155-millimeter guns) that had been condemned but not designated for disposal were taking up 36,031 square feet (see fig. 3.5).

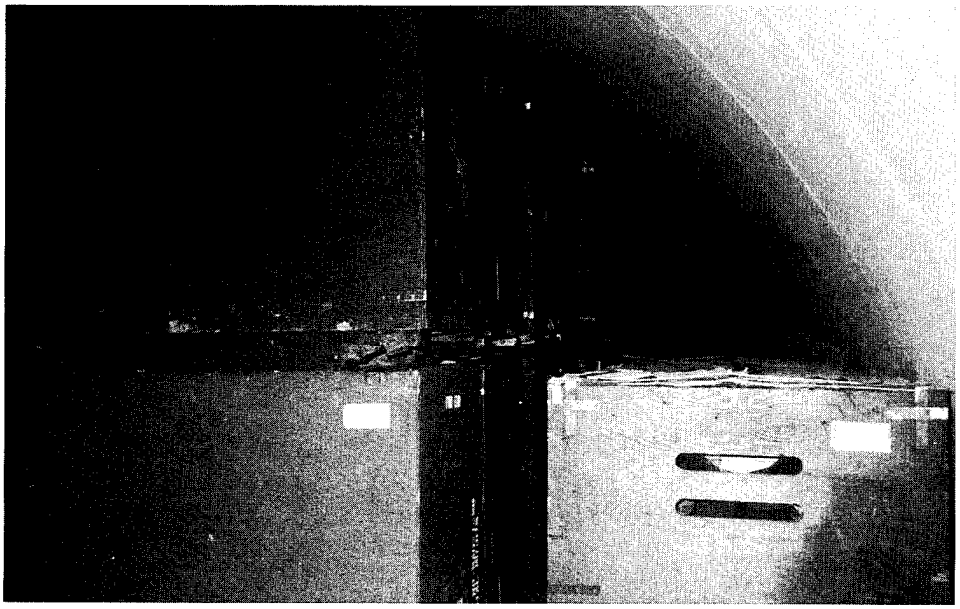
Figure 3.5: Old Propelling Charge for 155-millimeter Gun



Note: Propelling charge should be all white.

In another case, 715 unserviceable Nike Hercules rocket motors with no requirements occupied 31,212 square feet. One depot was storing 458 of these items, some of which were manufactured in 1959. According to an official there, these rocket motors occupied 16 to 20 storage sites at that depot (see fig. 3.6).

Figure 3.6: Nike Hercules Rocket Motors With No Requirement



Two types of 3-inch, 50-caliber gun ammunition occupied about 15,000 square feet, even though the Navy no longer has any weapon in active inventory that uses this ammunition. According to an official at one installation, this ammunition has had few or no issues in 15 years.

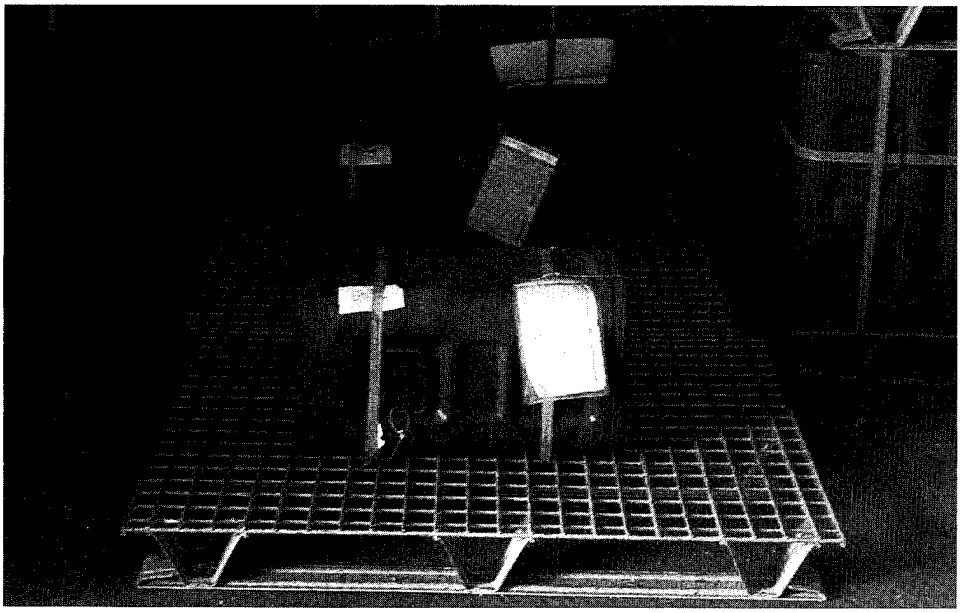
In yet another case, 5,382 Navy MK25 mines that appeared in the Army's wholesale inventory database as belonging to the Navy did not appear in the Navy's inventory database, and was occupying 49,552 square feet. About 2,200 (40 percent) of these mines had been suspended because their condition was unknown. We noted that some of these mines at one installation were manufactured in 1954, and at another installation, none of these mines had moved in over 10 years (see fig. 3.7).

Figure 3.7: Navy MK25 Mines Manufactured in 1954

The proliferation of small, fragmented lots of ammunition also impedes the efficient management and use of ammunition storage space. According to the 1993 report on the wholesale stockpile, about 32,000 fragmented lots were stored largely because of base closures and the return of ammunition from Europe and Operation Desert Storm. Installations were forced to store the returned ammunition without knowing whether additional quantities of the same lots would be received. These lots were often stored in more than one location. To optimize storage space and reduce inventories and surveillance, ammunition from the same lot in the same condition should be located in one storage structure when possible. If personnel have to fill requisitions from several locations, response time is delayed and issue costs increase.

Our analysis shows that since October 1993, the number of fragmented lots in the stockpile has increased 14 percent. These lots—some of which were stored in more than three structures—occupy 24 percent (5.9 million square feet) of the total storage space (see fig. 3.8). Fragmented lots can be reduced by selecting them first when filling requisitions, either by using an automated lot selection process or a manual selection process.

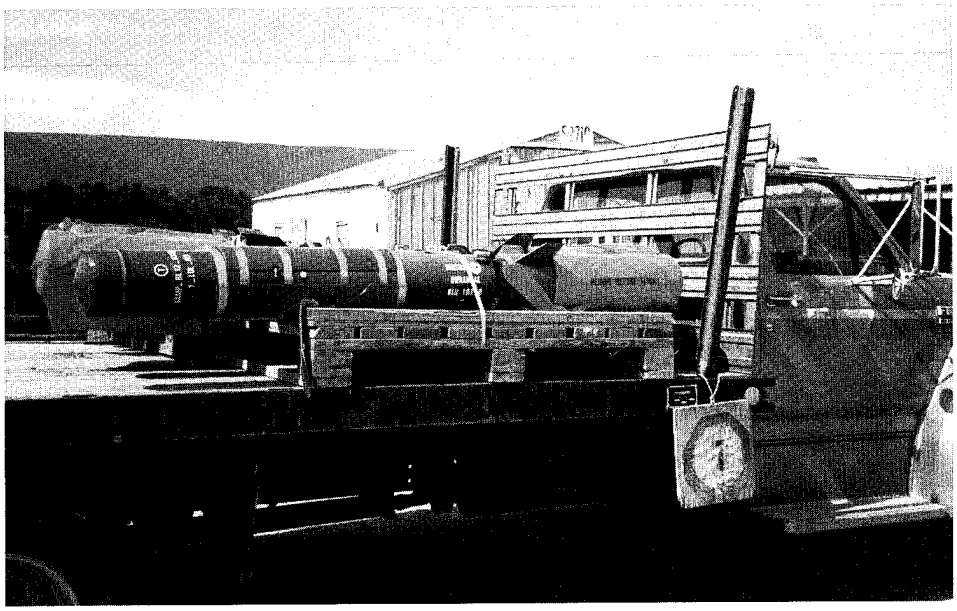
Figure 3.8: Example of Wasted Space With Fragmented Lot



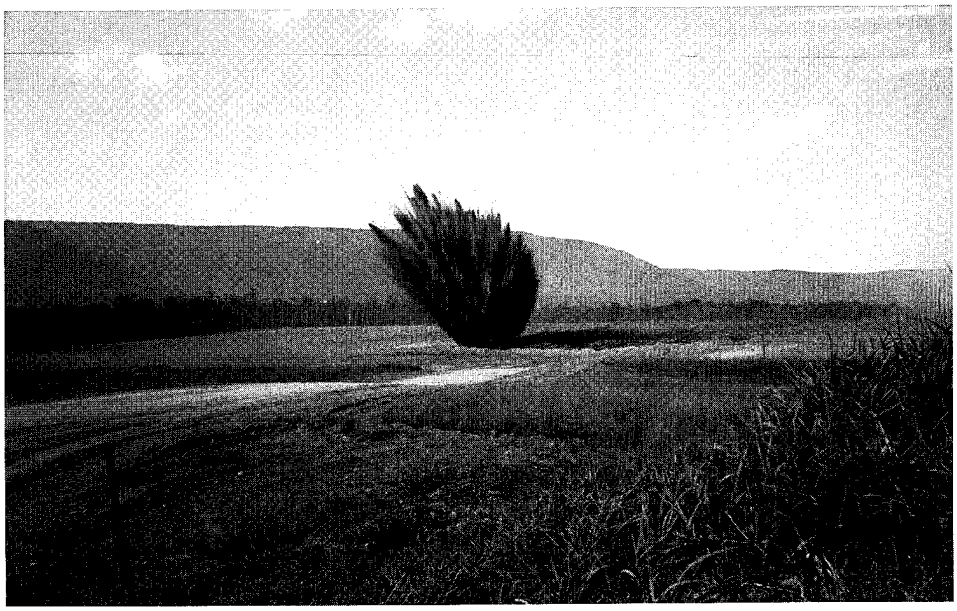
Items Marked for Disposal Accumulate Faster Than They Can Be Eliminated

As storage space has been significantly reduced and ammunition has been added, the disposal of excess, obsolete, and unusable ammunition has become crucial. (See fig. 3.9 for ammunition disposal operations.)

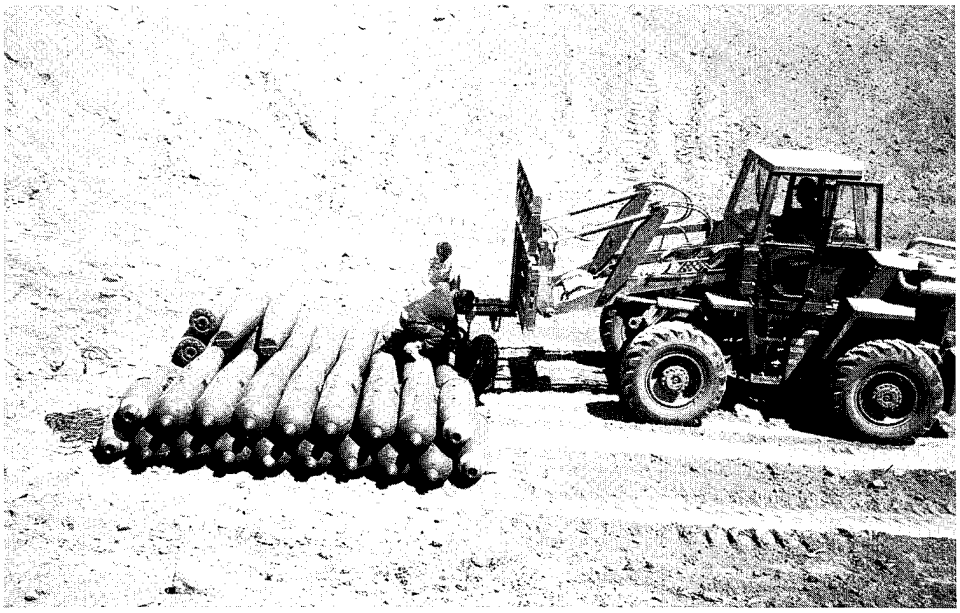
Figure 3.9: Ammunition Disposal Operations



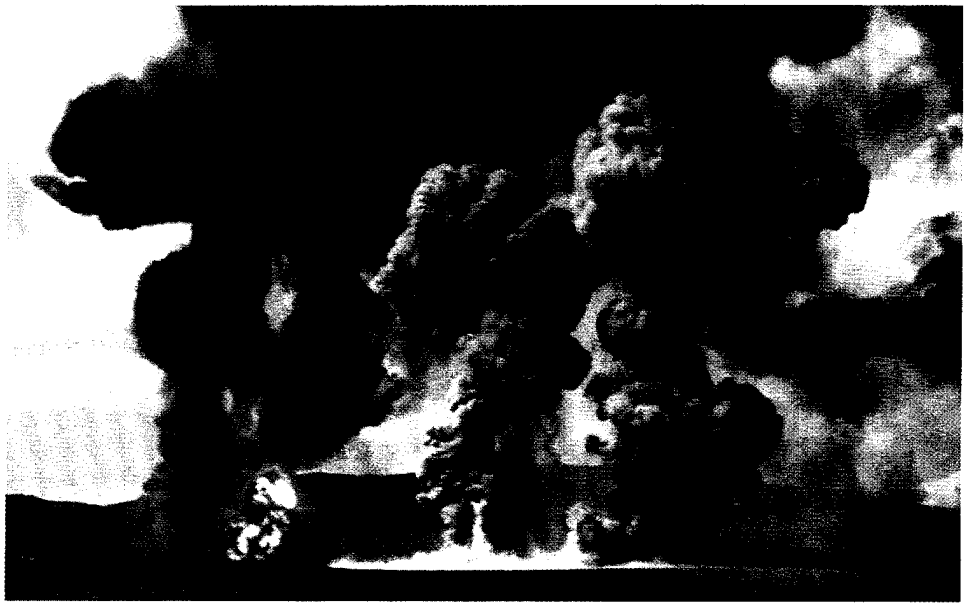
Truck carrying Ammunition (Navy bombs) to Disposal Site



Blast on Destruction of Navy Bombs



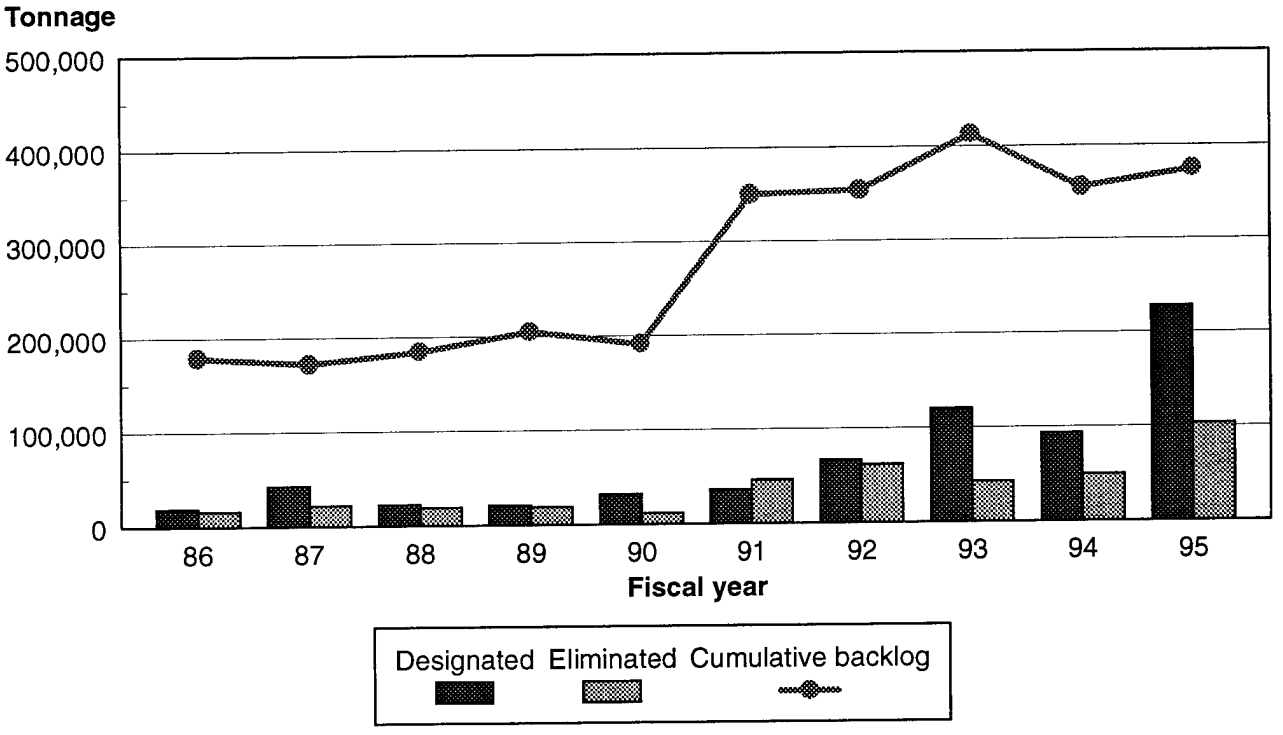
Air Force Bombs Awaiting Destruction



Blast on Destruction of Air Force Bombs

As of September 1995, nearly 375,000 tons of ammunition items designated for disposal remained stored in the stockpile. According to single manager officials, the ammunition designated for disposal has increased and is likely to increase further. Also, in recent years, the identification of ammunition for disposal has greatly exceeded the amount disposed of. Ammunition designated for disposal from fiscal years 1986 through 1995 amounted to 681,000 tons, while the amount eliminated was 390,000 tons (see fig. 3.10).

Figure 3.10: Increase in Ammunition Disposal Backlog



Source: U.S. Army Industrial Operations Command.

Storage installations and contractors execute the ammunition disposal program. Before an item is earmarked for disposal, other options—sales,

transfers, and reuse—are explored. According to single manager officials, foreign military sales have not proved a successful means of disposing of excess ammunition because foreign countries buy new, rather than obsolete, items if they have the means to do so. Currently, the primary means of disposing of ammunition is by open burning or detonation. Greater emphasis, however, is being placed on the resource recovery and recycling method of ammunition disposal, even though this will increase costs.

Despite 1994 Plan for Improvements, Little Progress Has Been Made

In 1994, the single manager developed the Integrated Ammunition Stockpile Management Plan to improve the poor conditions found in the wholesale ammunition stockpile. The plan proposes specific actions to achieve, by 2001,[4] a smaller, safer ammunition stockpile by changing operations and optimizing space with fewer installations and staff. However, except in its inventorying of ammunition, the single manager has not substantially improved the operations and readiness of the wholesale ammunition stockpile. The single manager cannot ensure success in implementing the plan and managing the stockpile until the Army and other services identify their ammunition as required and nonrequired, but the services have no incentives to do so. Successful implementation of the plan also is dependent on sufficient funding being provided for the care, maintenance, and disposal of stockpile items. The Congress established a minimum funding level in fiscal year 1995, and the conferees on the DOD appropriations act established a funding minimum for fiscal year 1996 for the care and maintenance of ammunition. Also, the House Committee on Appropriations, in its report on DOD's fiscal year 1995 appropriations, said it expects DOD to fund disposal activities at a level that will decrease the disposal backlog to a sustainable level of about 100,000 tons early in the next century.

The Single Manager Has Begun to Implement Parts of the Stockpile Plan

The single manager has greatly improved its inventory records, a critical function previously identified as seriously degraded. In 1995, the single manager inventoried the entire wholesale stockpile at a cost of $14 million. This inventory restored the stock records' accuracy of item locations and quantities. It also introduced major changes in the inventory process to focus on the accuracy of quantities within storage sites. It did not, however, assess condition. Once a site is physically inventoried, it is sealed and no longer subject to a yearly inventory unless activity affects its

[4]Although fiscal year 2001 is the goal for implementing the plan, the single manager also set a goal of reducing the disposal stockpile to 100,000 tons by fiscal year 2004.

stock balance. To ensure that stock balances are correct, 10 percent of all sealed locations will be sampled annually. This new process is intended to reduce the inventory workload, freeing staff for other duties.

The single manager has also taken steps to improve the stockpile's operations, as planned. For example, it has consolidated some small, fragmented lots of material and redistributed them within warehouses and has removed some items from inappropriate storage. Storage installations in fiscal years 1994 and 1995 freed about 800,000 square feet of space. In addition, the single manager has adopted a priority system to ensure that required war reserve and training items receive maintenance first. Quarterly reviews will focus on the most urgent maintenance needs.

The Services Have Not Yet Identified Required and Nonrequired Ammunition

At all six storage installations we visited, officials either were unaware of any progress made or had not detected any change in operations resulting from the single manager's "tiering" concept, which relies on each service's categorization of its ammunition as required and nonrequired. The problem is that neither the Army nor the other services have identified stock in those categories. The single manager's three-tier concept is designed to ensure that the more critical ammunition is stored in depots capable of providing the quickest response to mobilization. Four tier I depots would contain mostly required items needed in the first 30 days of mobilization, items needed for training, and items needed beyond 30 days to augment tier II and III depots' war reserve stocks. Tier I depots would receive all support necessary for storage, surveillance, inventories, maintenance, and disposal. Tier II depots would normally store war reserves needed more than 30 days after mobilization, production offset items, and some nonrequired stocks awaiting disposal. Tier III depots would be caretakers for items awaiting disposal or relocation.

The single manager has not aggressively pursued the services' efforts to identify stock as required and nonrequired, and the single manager does not know the priority the services place on each type of ammunition. As a result, surveillance,[5] maintenance, storage, and inventories may not be focused on priority stock to ensure it is ready for shipment when needed, and scarce resources may be spent on items with low or no priority. During our review, we found that the Army had not fully complied with the single manager's plan to identify ammunition, and the other services may not fully understand the stockpile's definition of required and nonrequired

[5]The serviceability of ammunition is determined through surveillance inspections and tests by sampling ammunition lots.

ammunition. Some attempts were made to generate the necessary data, but the services did not provide sufficient detail.

- In 1993, the Air Force classified serviceable high-priority items as tier I, unserviceable items as tier III, and all others as tier II, but it did not know whether the items in tiers I and II were required and the items in tier III were nonrequired. Officials said that the single manager did not ask for the information by required and nonrequired categories.
- In 1994, the Navy provided tonnage data to the single manager by types of ammunition, which in a general sense categorizes items into tiers. Navy officials could not recall being requested to categorize ammunition as required or nonrequired, and they noted that the wholesale stockpile manages only 13 percent of the Navy's ammunition inventory. Most of the Navy assets are stored aboard ships and at naval weapon stations, which they consider to be tier I and II locations.
- Marine Corps officials said they had not been required by the single manager to categorize items as required or nonrequired.

During our review, we found that for inspection purposes, the Army had assigned a priority to each type of ammunition that can be used to identify required and nonrequired ammunition. The priorities range from ammunition needed for training and war reserve to ammunition for which there is no formal requirement. The single manager requested that the other services concur with these priority definitions. The Marine Corps responded; however, the Navy and the Air Force have not responded to this request, and the single manager cannot require the services to provide this information.

The Single Manager May Not Have Sufficient Funds to Carry Out the Plan

The single manager is concerned that it will not consistently have sufficient funds through 2001 to implement its $2.7 billion plan to restore the stockpile to a usable condition and dispose of unneeded ammunition. The single manager uses operation and maintenance (O&M) funds for receipts and issuance, inventories, and surveillance of ammunition and procurement appropriations for disposal of excess, obsolete, and unsafe ammunition.[6]

The O&M funding allocated by the Army for inventories, storage, and surveillance has historically been less than needed by the single manager and has not yet been provided to implement the single manager's plan. Therefore, the single manager has made little progress in correcting

[6]The services provide funds for maintenance and repairs on items they own.

stockpile problems. Moreover, the progress made in correcting inventory records in 1995 may be jeopardized because funding allocated by the Army is insufficient to maintain the accuracy of the records.

According to the single manager, to successfully carry out its plan and restore stockpile readiness, it must have consistent full funding over several years for stockpile activities. The plan was based on near-term funding levels, beginning in fiscal year 1996, and it projected full implementation by fiscal year 2001. However, actual funding for fiscal years 1996 and 1997 was less than required, which, according to the single manager, postponed implementation of the plan by 2 years—from 2001 to 2003. Moreover, because of limited staff at stockpile installations, large funding levels in any given year will not enable the single manager to catch up—a lost year will add an additional year to fully implement the plan.

For fiscal year 1995, the Congress statutorily required that a minimum of $388.6 million of the Army's 1995 O&M account be spent specifically for the safety and security, receipt and issue, efficient storage and inventory, surveillance, and other activities associated with conventional ammunition.[7] For fiscal year 1996, the conferees on the DOD appropriations act directed that a minimum of $300.9 million be spent for the same purpose. According to single manager officials, setting a minimum is a good approach because funding levels are consistent and better planning and management decisions can be made. The House Committee on Appropriations report on the 1995 DOD appropriations stated that it expects the Army to fully fund ammunition activities in future budget submissions. It also commended DOD for increasing its budget for disposal activities to $95 million for fiscal year 1995, and it recommended funding of $110 million and stated the expectation that DOD would continue this level of funding in future budgets.

In its 1994 plan to improve stockpile management, the single manager set a goal to reduce the 423,000 tons of ammunition awaiting disposal to 100,000 by fiscal year 2004. The three interrelated factors to accomplish this goal are anticipated disposal quantities between fiscal years 1996 and 2004, the actual disposal funding, and the average cost to destroy a ton of ammunition. In March 1996, the Army estimated that 685,900 tons—more than triple the 1994 single manager's estimate of 225,000 tons—will be generated between fiscal years 1996 and 2004. This estimate does not

[7]The Chemical and Biological Defense Command split from the U.S. Army Armament, Munitions, and Chemical Command/Industrial Operations Command in fiscal year 1995, taking $59.8 million of this amount, leaving $328.8 million for the stockpile. In total, $396.95 million was obligated for this activity in fiscal year 1995.

include 98,834 tons (85,733 tons of industrial stocks and 13,101 tons of tactical missile and large rocket motor assets) that will be generated which have other sources of disposal funding. If the single manager receives $100 million a year through fiscal year 2004 for disposal, and the disposal cost per ton is no more than $909 a ton, the single manager will meet its goal of eliminating the 100,000-ton backlog. The single manager recognizes that it will be difficult to meet this goal because it relies on a significant level of funding and the cost to dispose of ammunition may increase. Therefore, the goal will not be met if the single manager does not receive $100 million a year or if the disposal cost per ton increases. For example, if the average cost per ton is $1,100, the disposal backlog will be over 239,000 tons at the end of fiscal year 2004. Likewise, if the cost is $1,300 a ton, the backlog will be over 365,000 tons. The disposal stockpile most likely will grow even more as ammunition quantities excess to service requirements are identified (see ch. 2).

Moreover, the single manager is concerned that the disposal program will suffer from funding cuts, personnel shortages, and low priority. If the past is any indication, the single manager may be correct. During fiscal years 1986-94, funding for disposal totaled $266 million, considerably less than the $695 million the single manager estimated was needed to operate at maximum capacity.

The disposal of obsolete and deteriorated ammunition is a time-consuming and expensive process. At the installation with the largest disposal capacity, 1,300 tons of ammunition were destroyed at a cost of about $1 million during 1 week we visited. Additionally, the lack of Army funding has affected the single manager's ability to operate disposal facilities at full capacity. Although the estimated disposal capacity is over 100,000 tons of ammunition per year, the single manager has not been able to fully fund this function. Prior to 1995, the greatest amount disposed of was 61,500 tons in 1992; only 11,700 tons were disposed of in 1990. For example, one installation that can process 27,800 tons of ammunition annually had been allocated only 19,200 tons for disposal in fiscal year 1995. Another installation with a capacity to dispose of about 35,900 tons had been allocated only about 3,800 tons in fiscal year 1994.

The single manager plans to gradually decrease its reliance on open burning/detonation of ammunition because environmental regulations have made these methods difficult and undesirable. Currently, however, open burning/detonation is the only cost-effective method of disposal for some items, such as cluster bombs and large rocket motors. Nonetheless,

the single manager plans to increase disposal through resource recovery and recycling methods. These methods are more costly—over $2,000 per ton or over twice as much as for open burning/open detonation. Should the cost per ton to dispose of ammunition approach this higher level, the backlog would increase significantly.

Agency Comments and Our Evaluation

DOD concurred that problems with the ammunition stockpile management threaten readiness. DOD noted that funding levels in fiscal years 1993 and 1994 were so low as to force concentration on shipments and receipts at depots. DOD said that during this period surveillance, stockpile reliability testing, and priority maintenance projects were severely limited. DOD agreed that defect codes had not been entered for all items with overdue inspections but said inspections are performed prior to issuance of any item. DOD also said that during the first quarter of fiscal year 1996, significant progress was made toward prioritizing ammunition items and identifying those that satisfy power projection and training requirements. Based on the new priorities, periodic inspection backlogs were adjusted and reduced from approximately 60,000 lots to approximately 30,000 lots with the identification of the required part of the stockpile. We strongly support identifying what is needed for power projection and training and concentrating limited resources on these ammunition items. We believe that DOD's observation that periodic inspection needs were reduced from 60,000 to 30,000 lots and is indicative of potential reductions that can be made in the care and maintenance functions of the single manager.

DOD partially concurred that the single manager's plan for improvement has been delayed. DOD said that while funding has been problematic, DOD does not believe that the implementation of the improvements in ammunition management will be delayed. DOD said the overall goal of the Integrated Ammunition Stockpile Management Plan is to accomplish (1) depot tiering by 2001 and (2) the other changes in stockpile management as soon as possible. With the closure of three depots, DOD expects to accomplish the tiering goal on schedule. DOD notes that the two major requirements to implement the management plan are adequate funding and segregation of the stockpile. We agree that these are important. We are particularly concerned that the identification of required ammunition, such as for power projection and training, be done as quickly as possible so that the single manager can better use limited resources. We are also particularly concerned that unless funding levels and ammunition disposal are closely monitored, the single managers will not meet its 2004 disposal goal.

Conclusions and Recommendation

Unquestionably, the single manager faces difficulties in resolving problems that developed with the wholesale stockpile as the Cold War ended. These difficulties stem from DOD's downsizing of its force and facilities in response to the much reduced threat. Reductions in ammunition storage space and the workforce, coupled with the return of massive amounts of ammunition from closed bases in Europe and from Operation Desert Storm, have degraded the single manager's ability to manage the stockpile. In addition, this ammunition was returned in small, broken lots that were stored haphazardly as they came from overseas.

Partly as a result of this situation, half of the ammunition types in the stockpile contain items in excess of stated requirements, which we estimated to be valued at about $31 billion. This $31 billion of usable and unusable ammunition, as well as $2.9 billion of excess ammunition that was on the single manager's inventory records but not the services' inventory records, was being treated by the single manager as necessary to meet requirements. Because the single manager has concentrated on responding to requests for usable ammunition, inspections and tests of ammunition have been delayed. The single manager does not know how much ammunition in excess of stated requirements is in the stockpile and is therefore unaware of what ammunition could be shared among the services to alleviate shortages and what unusable ammunition does not need attention beyond that for safety reasons. In addition, there are tremendous backlogs of ammunition to dispose of. For the foreseeable future, this disposable ammunition will increase and take up limited storage space.

These problems are not insurmountable, but they will take time to overcome. The Integrated Ammunition Stockpile Management Plan is a step in the right direction. In addition, the minimum levels set for the care and maintenance of ammunition established by the Congress for fiscal year 1995 and the House Committee on Appropriations for fiscal year 1996 have helped the single manager in meeting its responsibilities.

The single manager's success in implementing the management plan is limited by the services' lack of incentives to identify excess ammunition. The services are not inclined to determine which of their ammunition is required and declare the remainder excess because once ammunition is declared excess, a service is not reimbursed for its cost if another service wants it. Also, the services have no incentive to mark ammunition for disposal because they do not have to pay the single manager to store it. As the Joint Commanders Ordnance Group's 1993 report points out, the single

manager could charge the services a storage fee as an incentive for the services to relinquish ownership of excess, old, and obsolete ammunition. The report also suggested that additional storage space could be made available if excess ammunition was used in training, included in foreign military sales or grant aid programs, or destroyed. In addition, as we recommended in 1979, the single manager could own, manage, and control the entire ammunition stockpile. If this was the case, the manager would have visibility over ammunition in excess of established requirements and could distribute it to other services that need it or, if unneeded, dispose of it when there was no longer a reason to retain it.

Another troublesome problem is the disposal of excess ammunition, which is a time-consuming, expensive process. For example, at the installation with the largest disposal capacity, 1,300 tons of ammunition were destroyed at a cost of about $1 million during 1 week we visited. With over 375,000 tons of ammunition awaiting disposal at the end of fiscal year 1995 and additional ammunition identified for disposal each year, it will take years to dispose of the ammunition. And because of the expense associated with disposing of this much ammunition, finding the funds to facilitate disposal is difficult. One option would be to require the services to include the cost to dispose of ammunition being replaced in budgets for new ammunition. While this option would not eliminate the significant quantities of ammunition already awaiting disposal, it would focus earlier attention on the ammunition disposal problem, provide additional funds for disposal, and over time significantly reduce the quantities for disposal.

Matter for Congressional Consideration

To impress upon the services the need to address the problem of excess ammunition, the Congress may wish to consider requiring the Secretary of Defense to report annually the amount of ammunition on hand and the amount that exceeds established requirements. This report could also cite progress made in addressing specific ammunition stockpile management problems, including identifying ammunition in excess of established requirements, cross-sharing of ammunition in excess of established requirements among services that have shortages, inspecting and testing ammunition, and disposing of excess ammunition when it no longer makes sense to retain it. With this information, the Congress could make more informed annual budget decisions related to the ammunition stockpile.

Recommendation

To facilitate implementation of the single manager's plan for storing, maintaining, and disposing of ammunition, we recommend that the

Secretary of Defense develop incentives to encourage the military services to categorize their ammunition as required or as excess to stated requirements, to update this information annually, and to relinquish control of their excess ammunition to the Army single manager for distribution to other services that have shortages of ammunition or for disposal when it no longer makes sense to retain it. Possible changes in ammunition management, include requiring the services to pay the single manager a fee for storing their ammunition; using excess ammunition in training; authorizing the single manager to own, manage, and control the wholesale stockpile and/or have visibility of the services' retail stocks and total requirements so the manager can identify ammunition excess to stated requirements and coordinate redistribution of it to services that need the ammunition or dispose of it; and requiring the services to include the cost to dispose of excess ammunition in their budgets for new ammunition.

Agency Comments and Our Evaluation

DOD partially concurred with the matter for congressional consideration. DOD said it already provides the Congress with ammunition inventory data in the Supply System Inventory Report and demilitarization information in the procurement budget justifications. We are aware of this report and the information contained in it. However, as currently prepared, the inventory report does not provide any information on the amount of ammunition that exceeds established requirements. Also, information on stockpile management problems and progress in solving these problems is not provided.

DOD disagreed with the recommendation and options given for potential changes in ammunition management. DOD stated that it considers the present arrangement for managing much of the services' stockpile to be satisfactory. DOD stated it believes stockpile stratification and cross-sharing could be enhanced but does not consider incentives to be necessary to encourage compliance by the military services. Problems with cross-sharing among the services noted in our 1979 report continue. In addition, due to large quantities of ammunition in storage and a reduced work force to manage this ammunition, problems with ammunition management threaten readiness. Therefore, we do not believe that existing DOD practices will solve the serious problems. The Integrated Stockpile Management Plan is a step in the right direction, yet all the services still have not identified required and nonrequired ammunition as called for in the 1994 plan. This is a very important part of this plan's implementation. DOD disagreed with the options to require a storage charge or increase the

single manager's responsibilities. We agree other options are possible; those in our report are some potential options. However, we do not agree the present arrangement for managing the stockpile is working well and believe that existing DOD practices will not solve the problems. We are not advocating erosion of the centralized management of ammunition but are providing options to further strengthen ammunition management and provide incentives to the services to help the single manager operate more effectively. We continue to believe our recommendation is valid.

Comments From the Department of Defense

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ACQUISITION AND TECHNOLOGY

May 21, 1996

(L/MDM)

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

Dear Mr. Gebicke:

This is the Department of Defense (DoD) response to the General Accounting Office (GAO) draft report, "DEFENSE AMMUNITION: Significant Problems Left Unattended Will Get Worse" dated April 16, 1996 (GAO Code 703064/OSD Case 1126). The DoD partially concurs with the findings of this report; however, the Department nonconcurs with the recommended changes in ammunition management.

This audit was conducted during a time of turbulence. The GAO did recognize that changing world conditions had affected the ammunition stockpile. The force structure was being reduced, inventory was returning to the wholesale level for management, and the requirements process was significantly changing.

The report is based on certain assumptions and definitions made by the GAO in determining the requirements and excess of the ammunition stockpile. The DoD takes exception to the criteria the GAO used in determining excess inventory. One of the central issues in the draft report is how much of the ammunition stockpile should the Department retain. The GAO infers that stocks above the Authorized Acquisition Objective are excess, and therefore, should be disposed. Stock retention decisions should be recognized as authorized stockage levels, not excess assets. There are many valid reasons for retaining assets, such as international agreements.

See pp. 8 and 42.

See comment 1.

See comment 2.

Some of the statements made by the GAO were difficult to address because data provided in the findings were not consistent. Some of the data co-mingled Single Manager for Conventional Ammunition responsibility assets with missiles, while other data addressed only conventional ammunition. The confusion was further exacerbated by the DoD's inability to identify the sources of data used by the GAO.

The DoD recognizes that improvements to ammunition stockpile management are needed. Even before the GAO audit began, the DoD had identified this need and developed the Integrated Ammunition Stockpile Management Plan. As a result, there has been significant progress in many of the areas, such as demilitarization.

The DoD comments to the draft report findings and recommendations are provided in the enclosure.

Sincerely,

John Maenner for

James B. Emahiser
Assistant Deputy Under Secretary
(Materiel and Distribution
Management)

Enclosure

**GAO DRAFT REPORT, DATED APRIL 16, 1996
(GAO CODE 703064) OSD CASE 1126**

"DEFENSE AMMUNITION: SIGNIFICANT PROBLEMS LEFT UNATTENDED WILL GET WORSE"

DEPARTMENT OF DEFENSE COMMENTS

* * * * *

FINDINGS

FINDING A: Overview of DoD Ammunition Management and Requirements Determination. The GAO reported that as of September 1994, the four Military Services had retail and wholesale inventories of conventional ammunition, explosives, and missiles valued at about $80 billion, about $58 billion of which was classified as usable or serviceable. Each Service determines the types and quantities of ammunition it needs for war reserves and training based on the national military strategy, which requires that the Services be capable of fighting two major regional conflicts. The GAO explained that the Defense Planning Guidance gives general direction for the conduct of military operations under the strategy and each Service is to use the DoD Capabilities-Based Munitions Requirements Process to establish its munitions requirements. Under this intricate process, the Services determine their requirements based on operational objectives of the combatant Commander-in-Chiefs against potential threats.

The GAO reported that in 1977, the Army became the single manager for conventional ammunition, assuming responsibility for the storage, management and disposal of wholesale inventories of ammunition and explosives for all the Services. As of September 1995, the stockpile consisted of 3 million tons of ammunition stored at nine depots, two plants, and one arsenal. The Services own 80 percent of the total ammunition tonnage stored by the single manager, with the Army owning the largest amount, at 43 percent. As the manager of the wholesale ammunition stockpile, the Army undertakes all the management functions such as distribution, storage, inventorying, etc. and its effectiveness in performing those functions determines the stockpile's readiness.

The GAO pointed out that changing world conditions have affected the ammunition stockpile. During the 1980s, ammunition storage was generally stable; however with the collapse of the Soviet Union and other changes in the 1990s, the U.S. shifted from

ENCLOSURE

preparing for a global war to preparing for regional conflicts and crises, and began a general reshaping of military resources and budgets. The GAO noted for example, that (1) four major Army storage installations were closed or realigned, (2) the single manager decided to significantly decrease inventorying the wholesale stockpile because of overall budget reductions, and (3) massive amounts of ammunition were returned from overseas. (pp. 2-3, pp. 15-21/GAO Draft Report)

Now on pp. 2 and 14-21.

DOD RESPONSE: Partially Concur. The GAO emphasized the impacts of geopolitical changes on the ammunition stockpile. These impacts were also recognized by the Department. An extensive study was conducted on the management of the ammunition stockpile which resulted in the development of The Integrated Ammunition Stockpile Management Plan published in May 1994. This plan includes fundamental changes in ammunition stockpile management and has resulted in revolutionary philosophical, procedural and policy changes in how this business is to be conducted.

The Department of Defense has also developed a new requirements determination methodology, the Capabilities Based Munitions Requirements (CBMR) process, which requires military planners to base munitions requirements on two concepts: a given force structure, armed to its designed military capability, and the estimated quantity of munitions to defeat a specified threat with that force structure. The total munitions requirements are the aggregate of war reserve munitions requirements (combat requirement, strategic readiness requirement, and residual readiness requirement) plus training and testing requirements. The actual reshaping of our force structure to meet two major regional conflicts has taken time. It was only for the FY96 President's Budget that the still evolving CBMR process was sufficiently mature to use for baselining our ammunition needs.

See p. 21.

As for the value of the ammunition stockpile and what portions are "usable" assets, the Department had difficulty identifying the baseline used by the GAO. There appears to have been some miscommunication between Service representatives and the GAO auditors which resulted in the use of the wrong data sources. For example, the Worldwide Ammunition Reporting System used by the Army is primarily for distribution information and positioning decisions. Some of the requirements identified there are stockage objectives and do not reflect total requirements. There is also a disagreement on the definition of excess inventory between the Department and the GAO. This will be further discussed in the response to Finding B. For clarification, the Single Manager for Conventional Ammunition (SMCA) does not have total management responsibility for all commodity items reflected in this report. The SMCA provides storage as required for conventional munitions managed by the

See p. 21.

Services in addition, to the full range of management responsibility for SMCA assigned conventional ammunition, as delineated in DoD Directive 5160.65 and DoD Instruction 5160.68.

Finally, the Department considers the ammunition demilitarization program a success story. The SMCA is executing this program on schedule and in a manner which will enable the closure of three depots, allowing us to meet mandates established by the Base Realignment and Closure laws. All of these efforts are contributing to the ultimate goal of the Integrated Ammunition Stockpile Management Plan: a smaller, safer stockpile requiring less resources and infrastructure.

FINDING B: Much of the Services' Ammunition Is Excess to Requirements and Is Aging. The GAO found that the end of the Cold War and U.S. force reductions have significantly decreased ammunition requirements, which has caused large amounts of ammunition to become excess to the Services' stated needs. When it compared the amount of usable ammunition on hand to each Service's requirements to support two major regional conflicts, as well as training and testing needs for 7 years, the GAO found almost 50 percent of the different types of ammunition include amounts that exceed the Services' needs. As an example, the GAO noted that the Air Force and the Army have enough 30 caliber carbine ball ammunition to meet their stated requirements 58 and 517 times, respectively. Further, the Services spent about $125 million for ammunition in FY 1993 and 1994 that exceeded stated requirements as of April 1994.

The GAO further found that ammunition is being stored and managed for weapon systems that either have been purged or are no longer in the active inventory. For example, the M60A2 tank and M42 self-propelled gun are obsolete weapon systems in the Army; however, the Army continues to store about 147,00 projectiles, valued at $43.6 million, for the M60A2 and about 269,000 cartridges, valued at $2.5 million, for the M42.

The GAO also found that the age of over one-half of the ammunition stockpile managed by the single manager is not in the single manager's database, while of the ammunition for which the age is known, almost 25 percent is over 25 years old. The GAO noted that even when this ammunition is usable, it is not always easily accessible in storage facilities and commanders prefer not to use it. As a recent example, the GAO pointed out that during Operation Desert Storm, battlefield commanders opted to use more modern ammunition. In addition, commanders want to train with ammunition they will use on the battlefield. As a result, old ammunition continues to age and takes up storage space.
(pp. 5-6, pp. 27-38/GAO Draft Report)

Now on pp. 4 and 22-30.

See comment 1.

See pp. 8 and 42.

DOD RESPONSE: Partially Concur. While the Department of Defense agrees that there are excesses in the ammunition stockpile, we do not agree with GAO's definition of excess, nor do we agree with the methodology used in determining the excess. The GAO implies that inventory that exceeds current operating and war reserve requirements is excess, which is incorrect and misleading. The criteria selected by the GAO are appropriate for determining how much inventory the Department should buy, but not how much inventory should be retained once the DoD owns the stock. The determination of stock retention decisions are entirely different from buy decisions. While the Department would not immediately order inventory above the criteria selected by the GAO, much of the inventory will be needed and ordered in the future. It would not be logical for DoD to send these stocks to disposal only to repurchase them later.

Retention levels are authorized stockage levels and are not considered excess by the Department of Defense. Economic retention levels consider cost to hold vs. cost to procure. Contingency retention levels allow managers to stratify assets for a number of reasons: 1) an industrial base problem occurs which warrants a life of type buy; 2) an international agreement exists to hold certain assets in a particular country; 3) assets are retained to support Congressionally mandated civilian marksmanship and avalanche control programs; or, 4) a determination is made to retain a quantity for specific contingencies, etc.

The GAO recognized the need to retain these assets in a May 1995 report on general supplies entitled, "Defense Inventory: Opportunities to Reduce Warehouse Space," GAO/NSIAD-95-64. On page 32 of this report, the GAO stated "2. By using the criteria we selected for assessing DoD use of warehouse space, we do not believe that all the material we identified as exceeding current war reserve and operating requirements needs to be disposed of. As we stated in our report, many of these items may have potential future use and should be retained."

See comment 3.

In their analysis of "excesses", the GAO provided some examples. The Navy is cited in one example for retention of three types of munitions: 16-inch gun ammunition; 3-inch, 50-caliber gun ammunition; and the MK25 mines. Two of these items have been retained for "mothballed" ships which have been retained as mobilization assets: the 16 inch gun ammunition, and the 3-inch gun ammunition. This retention has occurred to retain an economical capability to rearm those ships in the event of their reactivation. In fact, some of these mothballed ships were returned to service to support the Korean War, the Vietnam Conflict, and even participated in Operation Desert Storm. These ships could not have been rearmed without the 16 inch gun

ammunition. The Navy requirement for explosive loaded MK25 mines has been terminated, and they are no longer planned for utilization in fulfillment of Unified CINC warfighting requirements. The Navy initiated action in August 1994 to transfer some of these mines to disposal accounts for eventual disposal. The excess mines must remain in storage however, until they are disposed. Some of the Navy's MK25 mine inventory is being retained for aircrew training and certification.

When found to be excess to CBMR requirements and not appropriate for economic or contingency retention, assets are made available to other services, offered to foreign countries, sold as surplus, or turned over to the SMCA Resource Recovery Disposal Account. The Joint Defense Total Asset Visibility Program, currently being developed by DoD, will provide the visibility of assets to further support the cross-leveling of ammunition assets.

See comment 4.

The GAO commented that the Army continues to store and manage weapon systems that are no longer in active inventory, and that the Army continues to store 269,000 40mm cartridges valued at $2.5 million for its M42 self propelled gun. The M42A1 40mm ammunition has been declared excess for several years. A quantity of 17,000 remain to be furnished to Turkey (FMS case TK-UWK) and are pending shipment. The remainder had been placed in the demilitarization account.

Since the initiation of the audit in 1994, the Department of Defense implemented a new methodology, the Capabilities Based Munitions Requirements process, used by each of the Services to determine its total munitions requirements. This requirement is the aggregate of war reserve munitions requirements (combat requirement, strategic readiness requirement, and residual readiness requirement) plus training and testing requirements.

FINDING C: Management Practices Perpetuate the Buildup of Excess and Aging Ammunition. The GAO reported that in October 1993, the Joint Ordnance Commanders Group issued a report on the wholesale ammunition stockpile which found that the excess in the stockpile contributes to the stockpile's annual operational costs and suggested that the Services reduce the amount of excess ammunition stored. The report also suggested that training, foreign military sales, grant aid programs, and destruction are among the ways of eliminating excess.

The GAO found, however, that the Services have made little progress in eliminating excess and aging ammunition. The GAO stated that little progress has been made because the Services (1) are reluctant to classify ammunition as excess, (2) have no incentive to declare ammunition excess, since the Army pays for its storage, (3) are storing ammunition for weapon systems no

longer in their inventories, and (4) have purchased ammunition that according to their records was not needed to meet required levels. In addition, the GAO determined that the Services keep ammunition over and above requirements in "long supply" to meet various contingencies. The GAO discussed examples illustrating each of these reasons.

Finally, the GAO pointed out that it is the single manager's policy for installations to first issue ammunition from small lots and use older stocks for training. The GAO found, however, that the policy is not always followed, leaving the older stock to continue to age. The GAO acknowledged that consistently issuing first-in stock could increase labor costs and delay deliveries, but pointed out that the longer first-in stock remains in storage facilities the older it becomes and the more likely it is to become obsolete and destined for destruction. (pp. 38-46/GAO Draft Report)

Now on pp. 30-35.

DOD RESPONSE: Partially Concur. As stated previously, the GAO and the Department use different definitions to describe excess. There are many valid reasons for retaining assets. The Department does not feel that incentives are necessary to encourage the Services to conduct ammunition requirements analysis. The Services have active annual processes for identifying excess, screening excess with other Services and foreign military customers, and for transferring any remaining excess to the Resource Recovery Disposal Account.

See comment 5.

One point that the GAO continues to refer to is the aging of ammunition stockpile. The age of an item is not necessarily related to its combat usefulness. While it is one of the factors used in assessing ammunition performance; it must be tempered with hard results obtained from stockpile reliability ballistic and laboratory testing, statistical analysis and sampling, failure analysis, environmental exposure assessment, and review of overall performance and logistical history. This is part of the continuing, active process performed by each of the Services. The Air Force reported that some of the most sought after air munitions during the Gulf War, bombs for which we had to establish an air bridge to meet the demand, were the very old M117 general purpose and SUU-30 cluster bombs.

See comment 6.

The GAO states that the 1985 rotation study noted that soldiers in the field demanded the newest and best lots of ammunition available. However, the warfighters do not order by lot number, nor does the National Inventory Control Point direct shipments by lot number. The depots normally ship the older lots first. Commanders requested many older rounds during Operation Desert Storm.

See p. 31.

In this finding, the GAO also cited a number of examples to demonstrate how the Services were creating excesses. One of the examples concerned the Army's storage of 147,300 152mm projectiles valued at $43.6 million for the M60A2 tank. The Army currently has in depot storage a total of 125,800 152mm rounds in serviceable condition for the M551 Sheridan Tank. The total FY96 training authorization for 152mm rounds is 13,700. The remainder are being held to support the Sheridan Tank system as an interim substitute for the Armored Gun System (AGS). If the AGS program is terminated, the need to retain the 152mm assets will be determined by the need to retain the M551 Sheridan as a light armored, air droppable system. A quantity of 51,500 unserviceable assets were declared excess and offered to DoD and International Logistics in March 1994. No DoD or Foreign Military Sales interest was received. The assets have been approved for demilitarization and the item manager is in the process of completing transfer to the demilitarization account.

The following table, which corresponds to the one in the GAO draft report on page 44, provides updated requirements and assets as of September 30, 1995. Only the ML18 has assets beyond the Authorized Acquisition Objective. These items are retained as Economic Retention Stocks and will be used to support test and training requirements. The FY93 procurement quantities for the D513, D532, and D864 were Congressionally directed.

See p. 33.

	In thousands				
DEPARTMENT OF DEFENSE IDENTIFICATION CODE	AUTHORIZED ACQUISITION OBJECTIVE	ASSET	ECONOMIC RETENTION STOCKS	CONTINGENCY RETENTION STOCKS	EXCESS
D513	287	123.9	0	0	0
D532	995.6	977.3	0	0	0
D864	508	345.9	0	0	0
M995	4,640	1,832	0	0	0
M997	9,616	1,439	0	0	0
ML05	11	10	0	0	0
ML10	10	8	0	0	0
ML11	9	9	0	0	0
ML18	5	5	1	0	0
ML19	15	9	0	0	0
N523	10,128	9,698	0	0	0

See comment 7.

In reference to the hand grenades, the GAO stated that Marine Corps had 92 times the number of hand grenades needed to meet requirements. This is true in the aggregate; however, the functional requirements of all hand grenades are not supported. The following table stratifies the Marine Corps grenades.

GRENADE TYPE	AUTHORIZED ACQUISITION OBJECTIVE	ASSET	ECONOMIC RETENTION STOCKS	CONTINGENCY RETENTION STOCK	EXCESS
G881	617,330	1,090,869	473,539		0
G900	15,196	49,348	34,152		0
G911	667	275,847	275,180		0
G930	45,026	138,495			93,469
G937	8,320	102,416	94,096		0
G940	58,449	188,251			129,802
G945	58,072	204,422			146,350
G950	24,675	117,688			93,013
G955	62,755	21,857			-40,898

The Marine Corps has a large inventory of concussion hand grenades that have not been purged from the inventory, but the concussion hand grenades have a different functional requirement than that of fragmentation hand grenade. In previous years, the Marine Corps and the other Services have experienced functional problems with fragmentation hand grenades, which forced the reclassification of the large inventory to a non-serviceable condition causing an unforecasted influx in procurement. These fragmentation hand grenades were later reworked and reclassified to a serviceable condition subsequently increasing the available inventory above requirements. Smoke hand grenades make up another large portion of the aggregate for Marine Corps hand grenades. The Marine Corps has experienced a decline in usage of smoke grenades over the past five years, which contribute to the available inventory.

In another example, the GAO stated that the Marine Corps continued to store 3 million rounds of 50-caliber cartridges for the M85 machine gun, even though the Marine Corps removed the M85 gun from its inventory in the 1950s and no other weapon system uses this type of 50-caliber ammunition. Likewise, the Corps continues to store over 4,000 rounds of the 105mm projectiles that were used for the M60A1 tank. The 50 caliber and 105mm ammunition were retained to support the M85 and M68 guns mounted on the M60A1 tanks which began phasing out of the Marine Corps' inventory in 1991 and completed phase out in 1994 vice 1950. In 1994, there were still M60A1 tanks in the inventory of the Marine Corps Reserves. The purging of ammunition for the M85 and M68 weapons began in October 1991, and is scheduled for completion in FY97.

See p. 32.

On the positive side, many initiatives in demilitarization are underway to meet the growing challenges of environmentally acceptable resource recovery and disposition in the face of a growing backlog of material requiring disposal. The Services have developed a Joint Demilitarization Study that outlines the

Department's long term plan for disposal of rocket motors, ammunition and other energetics. As an example, the Air Force declared entire classes of weapons (PAVEWAY I guided bombs) and numerous components excess, while also reducing holdings of required weapons types by over 320,000 bombs.

FINDING D: Despite Some Shortages of Ammunition, Services' Managers Generally Believe They Can Meet Requirements. The GAO found that as of September 1994, the Services had shortages of items in 752 ammunition types, valued at about $60 billion. The GAO noted that some of the shortage items are expensive to procure, accounting for a large amount of the money needed to eliminate the shortages. In addition, the GAO stated it used Service-defined requirements in its analysis, which do not always take into account the availability of substitute items and the planned phaseout of ammunition.

The GAO reported that Service officials generally disagreed with Service-defined requirements and stated that ammunition inventories are generally sufficient to meet requirements, particularly when quantities of substitute items are considered. With the exception of the marine Corps, Service officials generally believe they have sufficient quantities of substitute ammunition and that future procurements will be adequate to meet wartime and peacetime requirements under the Defense Planning Guidance. The Marine Corps shortages are mainly long range artillery and war reserve items.

The GAO observed that although the Army has shared some excess ammunition across the Services, more cross sharing can be done. The GAO explained that cross sharing can preclude unnecessary purchases and redirect resources to fill or partially fill shortages, noting that during FYs 1993-1995 the Services purchased $281.8 million of ammunition, $184.5 million of which was used to buy ammunition items that were not needed to meet stated requirements and was already available or partially available in DoD inventories. Overall, the GAO identified $1.2 billion of ammunition in excess of stated requirements that could be shared among the Services to meet shortages and which could also result in the avoidance of future planned maintenance costs.

The GAO concluded that one reason more cross sharing has not been done is that the single manager does not have sufficient information or authority to direct cross sharing. The GAO noted that in response to a November 1979 GAO report (OSD Case 5262), the DoD stated that the single manager would be provided information on location and condition of ammunition to allow cross sharing to gain efficiencies in procurement, inventory, and transportation management. The GAO found, however, that the single manager does not have information on location and

Now on pp. 5, 23, and 35-42.

See p. 35.

See pp. 42-43.

condition of retail stocks or information on Service stratification of stocks, thus precluding the single manager from managing a substantial segment of the inventory. (p. 6, p. 28, pp. 47-69/GAO Draft Report)

DOD RESPONSE: Partially Concur. A Marine Corps ammunition study conducted after the audit was completed has validated a lower level of war reserve requirements than was previously identified. Thus, all the Services have sufficient ammunition to support their requirements; however, the mix of ammunition is not optimum. Because of resource constraints, substitute munitions (those used in lieu of the best and most modern available) are a fact of life in contingency planning. But these less effective substitute munitions increase operational risk and the potential for American casualties. For this reason, we do not include substitute munitions in our calculations for determining procurement requirements, which are intended for modernization or to rectify shortfalls in preferred stocks.

Technological advances accelerate munitions obsolescence and fuel the imperative to modernize. This continuous stockpile modernization generates new procurement requirements, even when there appears to be an abundance of ammunition, and contributes to the demilitarization burden. Additional information on shortfalls can be provided upon request. This information was not included in this response since much of it is classified.

Cross-leveling of assets is accomplished at the retail levels. When shortfalls are identified, asset inventory posture of other Services are reviewed for cross sharing opportunities. For example, during Bosnia Strike Operations in November 1995, the Navy coordinated with the Air Force for the transfer of approximately 100 Laser Guided Bomb Air Foil Groups.

Finally, we agree that cross-leveling at the wholesale level would allow for better use of ammunition through redistribution. The development of the Joint Defense Total Asset Visibility Program will provide all the Services the capability to review all assets. This improved visibility will further expand cross-leveling of assets at the wholesale level.

The Department does not agree with the GAO's analysis of ammunition requirements and assets (p. 54 of the draft report) which shows 139 instances where excess on-hand quantities of $1.2 billion could be shared among the Services to meet shortages. The GAO's analysis describes excesses on hand, and cites some instances of supposed excesses among the Services in Table 2.7 on page 55. Information in this chart does not accurately reflect posture information for these items. The following table provides correct data for the Army.

DEPARTMENT OF DEFENSE IDENTIFICATION CODE	In thousands AUTHORIZED ACQUISITION OBJECTIVE	ASSET	ECONOMIC RETENTION STOCKS	CONTINGENCY RETENTION STOCKS	EXCESS
B506	371.2	371.2	31.9	307.0	0
G900	194.5	194.5	32.0	104.4	0
G937	0				0
A130	8,680.0	8,680.0	18,409.0	0	0
B508	379.0	379.0	39.2	314.3	0
L323					2.4
L324	7	7	1.7	0	0
M028	32	32	0.6	0	0
N464	1,873.0	1,873.0	371.0	0	0
ML14	13.6	9.6	0	0	0

The GAO reports that the Army is short G900; however, requirements have dropped significantly and the Army has sufficient quantity to meet demands. The L323 has been declared excess since 1989. The Army has shared L323 and L324 assets with both the Navy and Marine Corps. The GAO statement of excess for N464 appears to be high. This is a primary training fuze that the Army is sharing with the Air Force. The Marine Corps data is also incorrect. Revised data can be provided upon request.

FINDING E: Problems With the Ammunition Stockpile Management Threaten Readiness. The GAO found that increases in the wholesale ammunition stockpile due to returns of massive amounts of munitions from Europe and Operation Desert Storm, combined with a decrease in the wholesale stockpile workforce, have created a situation that could, if allowed to continue, degrade the readiness of the forces to meet wartime and peacetime needs. The GAO stated that partially because the Army has placed a lower priority on funding ammunition functions, management of the stockpile has become a difficult task and managers have had to concentrate on the receipt and delivery of ammunition to the detriment of inspections, tests, maintenance, storage, and disposal.

The GAO pointed out that during the summer of 1993, the Joint Ordnance Commanders Group study team assessed the management of the stockpile and found major deficiencies in stockpile management and predicted that unless something was done about the deficiencies, conditions would worsen. According to the GAO, its review has confirmed that the condition and readiness of the stockpile has been degraded. In this regard, the GAO found that:

-- ammunition was reported as serviceable when it might not be because the single manager's method of recording the condition of stock was misleading. For example, although the single manager's database shows that only 6,600 lots were past due for inspection, other records show that 68,000 lots were actually past due for inspection;

-- the condition of ammunition was often unknown because required inspections and testing, which are important to ensure that war reserve items are usable, had not been done;

-- top priority ammunition was not serviceable because repairs had not been done. About 18 percent of the top priority items needed repairs, costing an estimated $100 million;

-- ammunition was inefficiently stored, taxing facilities where space is at a premium; and

-- the ammunition designated for disposal is accumulating faster than it can be eliminated.

The GAO discussed examples illustrating each of these situations. (pp. 6-7, pp. 60-85/GAO Draft Report)

Now on pp. 5 and 44-60.

DOD RESPONSE: Concur. The Department has made significant progress in reducing the size of the conventional ammunition stockpile which, at present, substantially meets our wartime and peacetime requirements. Requirements have been prioritized with those supporting force readiness ranked highest. Available funds have been applied against these prioritized rankings. In FY93 and FY94, funding levels were so low as to force concentration on shipments and receipts at the depots. Shipments were even restrained through extraordinary coordination with customers. It was during this period that surveillance, stockpile reliability testing, and priority maintenance projects were severely limited.

This finding also addresses ammunition that is reported as serviceable although past due for periodic inspection. However, an item does not become unusable or unserviceable because an inspection is past due. Defect codes are assigned to ammunition lots to identify lots that are overdue for inspections; they do not mean that an item is excluded from issue or use. Due to reduced resources, defect codes have not been entered for all overdue items. The Depot Surveillance Record (DSR) records the date and results of the last inspection; these are reviewed prior to the issue of any item. Army policy is to perform an inspection prior to the issue of any ammunition lot that is past the normal inspection interval, or select a substitute lot with the current inspection.

The ammunition surveillance and supply communities have been working to divide the wholesale stockpile into required and nonrequired categories. Significant progress was made in the first quarter of FY96 towards prioritizing ammunition items and identifying those that satisfy current power projection and training requirements. Periodic inspection backlogs were adjusted based on the new categories, resulting in a substantial reduction in the number of lots currently requiring inspection for serviceability.

Backlog figures for periodic inspection at the end of FY95 were approximately 60,000 lots. With the identification of the required portion of the stockpile, these figures have been adjusted to approximately 30,000 lots. Stockpile backlogs are forecasted to grow at a rate of 15,000 lots per year if periodic inspections are not funded. Funding this program is a priority within the Army's Sustainment program.

At the time of the GAO study, the test program was behind schedule. Significant progress was made in FY95 with the development of a priority model which determines and prioritizes program requirements using factors such as war requirements, test cycles, degradation trends, stockpile value, and performance data. A Large Caliber Test program was developed to focus on critical war fighter items, and to improve the quality of these assessments. This program took advantage of overseas and Marine Corps test facilities to control costs. This program has also received priority in the current funding process.

The Single Manager for Conventional Ammunition annually publishes a joint service document entitled the Integrated Conventional Ammunition Maintenance Plan that lists the five year ammunition renovation planned for all Services. The plan consolidates the maintenance requirements of all Services and generates an integrated maintenance plan. It provides economies of scale, prioritizes Service requirements, and ensures timely scheduling and execution of maintenance projects. The annual Integrated Conventional Ammunition Maintenance Plan has been very successful prioritizing ammunition maintenance for the Services. In FY95, ammunition maintenance was funded $19.8 million and to date in FY96, $17.4 million has been obligated. Further, the U.S. Army's Functional Area Assessment for ammunition indicates that $81 million will be dedicated to ammunition maintenance during the period FY97-03.

Improvement of the ammunition stockpile management will continue to be contingent upon funding.

FINDING F: The Single Manager's Plan For Improvement Has Been Delayed. The GAO reported that in 1994, the single manager developed the Integrated Ammunition Stockpile Management Plan to improve the poor condition of the wholesale ammunition stockpile. The plan proposes specific actions to achieve a smaller, safer ammunition stockpile by changing operations and optimizing space with fewer installations and staff.

The GAO found that the single manager has begun to implement parts of the stockpile plan. For example, the single manager has greatly improved its inventory records, having inventoried the entire wholesale stockpile in 1995 at a cost of $14 million. In addition, the single manager has also taken steps to improve stockpile operations, such as storage consolidation of some items and adoption of a priority system for war reserve and training item maintenance.

The GAO found, however, that except in its inventorying of ammunition, the single manager has not substantially improved the operations and readiness of the wholesale ammunition stockpile. The GAO explained that part of the problem is that the Services have not yet identified which of their ammunition is required and which is excess to stated requirements. Without this information the single manager cannot give priority to the storage and care of required ammunition and to ensure readiness.

The GAO concluded that the single manager's success is limited by the Services' lack of incentives to identify excess ammunition. The Services are not inclined to determine required and excess ammunition because once ammunition is declared excess a Service is not reimbursed for its cost if another Service wants it. Also, the Services have no incentive to mark ammunition for disposal because they do not have to pay the single manager to store it.

The GAO observed that successful implementation of the plan also is dependent on sufficient funding being provided for the care, maintenance, and disposal of stockpile items. The GAO found, however, that the single manager historically has not received the funding requested or needed to manage the stockpile, in part because of competition with other Army funding needs. In recognition of the problem, the Congress established a funding minimum in 1995 for the care and maintenance of ammunition and directed that a minimum for FY 1996 be expended for the same purpose. The GAO noted that this has helped, and in FY 1995 the single manager was able to do a complete ammunition inventory. (pp. 8-9, p. 61, pp. 85-93, pp. 95-96/GAO Draft Report)

Now on pp. 5-6, 44, and 60-65.

See p. 65.

DOD RESPONSE: Partially Concur. The Services have been actively pursuing elimination of unneeded or excess ammunition items to achieve a smaller, safer, more relevant stockpile. Underfunding of the Single Manager for Conventional Ammunition (SMCA) depot operations has hampered their ability to conduct inspections, provide maintenance, rewarehouse or move munitions between depots to implement the Integrated Ammunition Stockpile Management Plan.

While funding has been problematic, the Department does not feel that the implementation of the improvements in ammunition stockpile will be delayed. The overall goal of the Integrated Ammunition Stockpile Management Plan is to accomplish depot tiering by the year 2001, and to integrate the other changes in stockpile management as soon as possible. With the closure of three Tier III depots mandated under the Base Closure and Realignment Commission, it is expected that the tiering goal will be accomplished on schedule.

The Army and Single Manager are making progress in implementing the Integrated Ammunition Stockpile Management Plan. The two major requirements to implement the plan are adequate funding and segregation of the stockpile. Full implementation is dependent on continued funding, but identification of priority and excess items by the Services is equally critical. Historically there have been funding shortfalls; but as stated by the GAO, funding in FY95 enabled an important inventory of the entire CONUS wholesale stockpile. Priority maintenance has also been resourced; and in 1994, the SMCA developed a Demilitarization "Master Plan" which is annually updated and established 5 year program goals and serves to clearly identify program financial requirements. A funding level of approximately $100 million per year was required to reduce the demilitarized stockpile to 100 thousand short tons by 2004. The demilitarization program is adequately funded in FY96, budgeted in FY97, and programmed through 2001 at the $100 million level to support execution of the schedule.

FINDING G: Option For Handling Ammunition Storage and Disposal Problems. The GAO concluded that the single manager will face difficulties for years in managing the ammunition stockpile. The GAO explained that the single manager has tremendous backlogs of ammunition to dispose of, a problem that will increase for the foreseeable future, especially if the Services begin to identify ammunition excess to their requirements. As noted in Finding F, however, the Services lack incentives to declare excesses. An option, as pointed out in the 1993 Joint Ordnance Commanders Group study, would be for the single manager to charge the Services a storage fee. Also, additional storage space could be made available if excess ammunition were used in training, included in foreign military sales or grant aid problems, or was

destroyed. The GAO also cited its 1979 recommendation where the single manager could own, manage, and control the ammunition stockpile and thus know the excesses and distribute it to other Services.

The GAO also pointed out that disposing of excess ammunition is a time consuming, expensive process. The GAO suggested one option would be to require the Services to include the cost to dispose of ammunition being replaced in budgets for new ammunition. While this option would not eliminate the significant quantities of ammunition that already exist, the GAO observed it would focus earlier attention on the ammunition disposal problem, provide additional funds for disposal, and over time significantly reduce the quantities awaiting disposal. (pp. 9-10, pp. 95-96/GAO Draft Report)

Now on pp. 6-7 and 66-67.

DOD RESPONSE: Nonconcur. The SMCA is charged with the responsibility to budget for the costs of operating storage sites. This budget is reviewed and supported by the DoD before the President's Budget is submitted to Congress. Subdividing the ammunition storage budget down to the Service level would allow each Service to make storage decisions that would not have the same effective, centralized and rigorous review. The central oversight that exists with the Joint Ordnance Commanders Group and the budgetary process provide checks and balances to ensure that excess ammunition is managed, controlled, cross-shared or disposed appropriately. The single manager does not have to own the stocks to effect proper management.

See pp. 9 and 68-69.

The costs for demilitarization of ammunition have been included in the Service Ammunition Appropriations, specifically Army, as the Single Manager. The U.S. Army Industrial Operations Command has demilitarized over 598,000 short tons of ammunition in the last 10 years through 1995, and is scheduled to demilitarize over 115,000 short tons in FY96. By focusing and consolidating demilitarization requirements under a single organization (the Single Manager for Conventional Ammunition), the Department of Defense can best focus the needs and requirements for this vital operation. The need for adequate funding has been recognized and the Army has sufficient funds programmed for the Single Manager in the FY96-01 period. The Department believes that if each Service were required to program for demilitarization operations, funding would be diluted. Lower funds and reduced demilitarization execution would result. The Department believes that the best solution is to continue to consolidate requirements and funding needs within the Single Manager and thereby maintain efficiencies of operations, resources, and planning.

Centralized disposal within the Single Manager is a success story. The SMCA is executing this program on schedule and in a manner which will enable the closure of three depots, allowing us to meet the mandates established by the Base Realignment and Closure laws. The DoD continues its support of this centralized effort.

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MATTER FOR CONGRESSIONAL CONSIDERATION

GAO SUGGESTION: To impress upon the Services the need to address the problem of excess ammunition, the GAO suggested the Congress may wish to consider requiring the Secretary of Defense to report annually the amount of ammunition on hand and the amount that exceeds established requirements. The GAO further suggested that the report could also cite progress made in addressing specific ammunition stockpile management problems, including identifying ammunition in excess of established requirements, cross sharing of ammunition in excess of established requirements among the Services that have shortages, inspecting and testing ammunition, and disposing of excess ammunition that it no longer makes sense to retain. The GAO observed that with this information the Congress could make more informed annual budget decisions related to the ammunition stockpile. (pp. 10-11, pp. 96-97/GAO Draft Report)

Now on pp. 7 and 67.

DOD RESPONSE: Partially Concur. The Department of Defense already provides Congress the ammunition inventory data in the Supply System Inventory Report, and demilitarization information in the procurement justifications of the President's Budget. However, the Department will continue to manage the more detailed information.

See pp. 8-9 and 68.

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RECOMMENDATION

RECOMMENDATION: To facilitate implementation of the single manager's plan for storing, maintaining, and disposing of ammunition, the GAO recommended that the Secretary of Defense develop incentives to encourage the Military Services to categorize their ammunition as required or as excess to established requirements, to update this information annually,

and to relinquish control of their excess ammunition to the Army single manager for distribution to other Services that have shortages of ammunition for disposal when it no longer makes sense to retain it. The GAO suggested that possible changes in ammunition management, among others, include (1) requiring the Services to pay the single manager a fee for storing their ammunition; (2) authorizing the single manager to own, manage, and control the stockpile, and/or be aware of the Services' total requirements and ammunition in their own storage facilities, so the manager could identify ammunition excess to requirements and coordinate redistribution of it to the Services that need the ammunition or dispose of it when appropriate; and (3) including the Services' cost to dispose of excess ammunition in their budgets for new ammunition. (p. 11, p. 97/GAO Draft Report)

Now on pp. 7-8 and 67-68.

DOD RESPONSE: Nonconcur. As the GAO has correctly pointed out, we are facing challenges of unprecedented magnitude with respect to ammunition storage, inventory accuracy, surveillance, maintenance, and demilitarization. This is consistent with the Department's own studies which the GAO referenced. We consider the present arrangement for managing much of the Services stockpile to be satisfactory.

See pp. 9 and 68-69.

The Department of Defense will continue to pursue appropriate funding for stockpile management demilitarization, and Joint Defense Total Asset Visibility initiatives. We believe that stockpile stratification and cross-leveling can be enhanced; however, we do not consider incentives to be necessary to encourage compliance by the Military Services.

The Department does not agree that the Single Manager should own, manage and control all the ammunition stockpile. We do concur that when each Service formally declares ammunition excess to any future need, the ammunition should be transferred to the Single Manager for further disposition or disposal. This is already being accomplished through existing Department of Defense stratification guidance.

As stated in our response to Finding F, the Single Manager is charged with the responsibility to budget for the costs of operating storage sites. This budget is reviewed and supported by the DoD. Subdividing the ammunition storage budget down to the Service level would allow each Service to make storage decisions that would not have the same effective, centralized and rigorous review.

Centralized disposal within the Single Manager is a success story. The DoD continues its support of this centralized effort.

GAO Comments

1. The draft report we sent to the agency for comments concentrated on the $22 billion in serviceable ammunition that was excess to stated requirements. However, when DOD responded to this report and dealt with excess ammunition, it addressed the total ammunition stockpile—serviceable and unserviceable ammunition. Since the single manager treats both serviceable and unserviceable ammunition the same if it has not been declared excess by the services, we expanded our discussion of excesses to cover the entire ammunition stockpile. This increased the amount in excess of stated requirements to about $31 billion for usable and unusable ammunition. In addition, $2.9 billion in excess ammunition is on the single manager's inventory records but not the services' records. Also, over $2 billion of items are awaiting disposal.

2. The Department of Defense (DOD) stated that it had trouble identifying the sources of data we used. Our sources were discussed with DOD, and they are identified in our scope and methodology section in chapter 1. The computerized database we used to compare assets on hand to requirements was created using DOD-supplied data, and our sources have been provided to DOD. Other sources of data, such as DOD's report on the Wholesale Ammunition Stockpile Program, are identified throughout our report.

3. DOD discussed the need to retain three types of munitions—16-inch gun ammunition; 3-inch, .50-caliber gun ammunition; and the MK25 mines. DOD stated that two of these items have been retained for "mothballed" ships that have been kept as mobilization assets. DOD agreed that the MK25 mines are excess. We believe that ammunition retained for mothballed ships needs to be identified as such to the single manager so that it can best use its scarce resources. As discussed in responding to agency comments in chapter 2 of this report, we do not advocate disposing of excess ammunition for which there is a potential future need.

4. DOD stated that 40-millimeter ammunition for the M42 self-propelled gun has been declared excess for several years, with a quantity of 17,000 remaining to be supplied to Turkey. Although declaring ammunition as potentially excess initiates an inventory reduction of unneeded ammunition, a declaration "for several years" does not rid it from the inventory system. As of September 30, 1994, the Army's inventory records showed that it still owned 269,000 40-millimeter cartridges. These cartridges at that time had not been transferred to the disposal account.

5. DOD stated that the services have active annual processes for identifying excess, screening excess with other services' and foreign military customers, and for transferring any remaining excess to the resource recovery disposal account. We agree that DOD has a process for identifying and sharing excess with others. However, we believe this DOD process needs to be improved. For example, the identification of an excess asset for cross-sharing among the services is not done until a service removes all retention category holds on the asset. Therefore, for example, if one service has more of an asset than its wartime and peacetime requirements and decides that it might sometime in the future buy this asset, the service places the excess in an economic retention category. This asset then does not appear as excess, and another service could buy the item. DOD has over $1 billion in assets in this economic retention category, which we believe should be made available to other services for potential cross-sharing to prevent another service from buying these same items.

6. DOD stated that the age of an ammunition item is not necessarily related to its combat usefulness. DOD also stated that depots normally ship the older lots first. However, in our visits to ammunition depots, we were told that the older lots are not shipped first unless it is cost-effective to do so. Furthermore, we noted many ammunition items dating from the 1940s to the 1960s. Also, as found by the single manager's stock rotation study in 1985, soldiers in the field demanded the newest and best lots of ammunition available. We agree that just because ammunition is old does not mean it is unusable. However, we question whether much of the ammunition dating from the 1940s, for example, will ever be used.

7. We annotated our report to note that the Marine Corps' hand grenades referred to as being in excess are offensive hand grenades.

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