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

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ARMY INVENTORY

Army Annually Spends Millions to Keep Retention-Level Stocks

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GAO **United States**
General Accounting Office
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National Security and
International Affairs Division

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The Honorable Earl Hutto
Chairman, Subcommittee on
Readiness
Committee on Armed Services
House of Representatives

Dear Mr. Chairman:

This report responds to your concerns about the large amount of inventory the Army is retaining in excess of current operating and war reserve needs. In this regard, you asked us to determine

- the Army's policy for keeping stocks in excess of operating and war reserve needs,
- the Army's method of determining what items and what quantities to retain, and
- the effect of retaining this inventory on warehousing space.

We are sending copies of this report to the Director, Office of Management and Budget; the Chairmen, House Committee on Government Operations, Senate Committee on Governmental Affairs, House and Senate Committees on Appropriations, and Senate Committee on Armed Services; and the Secretaries of Defense and the Army. Copies will also be made available to other parties on request.

Please contact me at (202) 275-4141 if you or your staff have any questions. Other major contributors are listed in appendix II.

Sincerely yours,

Richard Davis

Richard Davis
Director, Army Issues

Executive Summary

Purpose

The Army's secondary items inventory, valued at $18.5 billion, includes $4.3 billion of inventory that exceeds current operating and war reserve needs. Concerned that the Army was retaining such inventory, the Chairman of the Subcommittee on Readiness, House Committee on Armed Services, requested GAO to evaluate (1) the Army's policy for keeping stocks in excess of operating and war reserve needs, (2) the Army's method of determining what items and what quantities to retain, (3) the effect of retaining this inventory on warehousing space.

Background

The Army Materiel Command and its six National Inventory Control Points manage the Army's $18.5 billion wholesale-level inventory, which includes secondary items such as spare and repair parts. GAO's review was performed at the Aviation Systems Command, one of the six National Inventory Control Points.

Part of the inventory is needed to meet current operating and war reserve requirements. The remainder is categorized as either "potential excess" or "retention-level" inventories. Potential excess inventory is comprised of stock that the Army has determined is not needed and can be processed for disposal. Retention-level inventory is categorized as:

- Economic retention: items with a reasonably predictable demand rate that are more economical to retain than to replace by future procurement.
- Contingency retention: items with no predictable demand rate but are being retained for possible contingencies.
- Numeric retention: items that are infeasible or uneconomical to dispose of or a management decision has been made to retain them in the supply system. An example of the latter category would be all inventory related to active weapon systems.

Results in Brief

The Army's retention inventory policy and practices result in keeping virtually all inventory applicable to active weapon systems regardless of its quantity, its material condition, or the number of end items to be supported. At the Aviation Systems Command, about $1 billion of its $5.5 billion inventory was retention-level inventory. For many line items, the Command's retention inventory exceeded that needed to support weapon systems until they are phased out of the Army.

Maintaining this inventory is expensive. The Army incurs annual costs of about $130 million to hold the Aviation Systems Command's

retention-level inventory. On an Army-wide basis, the annual cost to hold retention-level inventory is about $481 million. Continuing to retain this inventory also contributes to the overcrowding of storage facilities and adversely affects inventory management of needed items.

There are systemic problems with the computer programs that the Army uses to make decisions regarding retention-level inventory. These problems included (1) the lack of program documentation describing how the systems work and the computer logic being used, (2) the computation of retention levels for items whose phase-out dates had passed, and (3) the use of inaccurate and incomplete data to determine retention levels, storage space needs, and the number of end items being supported.

Principal Findings

Retained Inventory Exceeds Needs

To determine inventory retention levels, the Army uses a computer program that stratifies all inventory that exceeds current operating and war reserve requirements into one or more of the three retention levels.

As of March 31, 1989, the Aviation Systems Command had retention-level inventory valued at about $1 billion. Of this total, about $853 million involved line items with operating and war reserve requirements, and over 50 percent of these items had retention inventories at least twice as large as what was needed to support the current operating and war reserve requirements. In addition, the Command had retention inventories valued at about $147 million for line items that did not have current operating or war reserve requirements.

Need for Contingency and Numeric Retention Inventories Was Not Documented

Item managers are not required to review computer-generated suggestions concerning the inventory to retain in the economic retention category. For the computer-generated suggestions concerning inventory in the contingency and numeric categories, item managers are required to review and document the continued need for these items. Item managers routinely accepted the computer-generated suggestions and did not document their decisions to retain contingency and numeric inventory.

Item managers told GAO that they were generally unaware of the requirement to document their reasons for retaining the inventory and

that even if they had been aware of the requirement, they did not have the time to manage retention stocks.

Maintaining Retention-Level Inventory Is Costly

GAO estimated that the Army incurs annual costs of about $130 million to hold the Aviation Systems Command's retention-level inventory. Additionally, this inventory contributes to warehouse overcrowding and reduces the effectiveness of supply management.

The majority of this inventory is at storage depots that are filled to 97 percent of capacity. According to the Army, when a storage facility is filled to more than 85 percent of its capacity, efficiency suffers because inventory must frequently be relocated to make room for other incoming inventory. Frequent relocation, in turn, increases the potential for losing or misplacing inventory and being unable to fill customer requisitions because the needed inventory cannot be found.

Other Systemic Problems Affecting Decisions to Retain Retention-Level Inventory

Systemic problems such as computer programming, logic, and data errors also affect the determination of what and how much inventory should be retained. GAO found that the computer programs were poorly documented regarding the system's working procedures or the computer logic used to make decisions on retention inventory. For example, the computer program is not supposed to compute retention levels for end items or major components whose phase-out dates have passed. However, the Command was retaining $29.6 million of retention-level inventory for line items whose phase-out dates had passed as long as 9 years before.

Information needed to determine retention levels, storage space needs, the number of end items being supported, and weapon system phase-out dates was often inaccurate, incomplete, or out-of-date. For example, the computer is programmed to set the phase-out dates for an item at 15 years in the future whenever the actual phase-out date has not been entered into the database. GAO found that computer-generated phase-out dates for 5,392 line items had been set at 15 years in the future, and the Command was retaining $474.3 million of retention inventory for these items.

Actions to Alleviate Problems With the Retention Inventory

The Army is aware of many of the problems associated with its retention-level inventories. The Department of Defense is amending its retention-level inventory policy to include consideration of such factors as shelf life, item essentiality, storage space requirements, and number of weapon systems being supported.

Recommendations

Revising the Department of Defense's policy regarding retention-level inventory is a step in the right direction. However, for the revision to bring about the desired improvements, the policy must be strictly implemented, and systemic problems must be corrected. In this regard, GAO recommends that the Secretary of the Army direct the Commander of the Army Materiel Command to:

- Develop specific implementation guidance for item managers to use in determining what and how much inventory to retain in accordance with the revised retention-level inventory policy.
- Ensure that when computer programs used in making retention decisions are changed, the changes are adequately documented so that when systemic problems arise, fixes can be incorporated, and a historical trail is created for future reference.
- Modify the computer programs to classify inventory in excess of the economic retention level as potential excess stock unless the item manager can justify and document that the item is needed for some other purpose. As part of this process, item managers should (1) ensure that the database is accurate and complete and (2) determine whether the item should be retained or processed for disposal in accordance with the implementation guidance issued as part of the revised retention policy.

Agency Comments

The Department of Defense agreed with all of GAO's findings and recommendations and provided information on how and when the recommendations would be implemented. The Department acknowledged that reviews of contingency and numeric retention stocks had not been actively pursued in recent years because of the strict limitation on disposals. In the future, item managers will have to manually move stock into numeric or contingency categories, with appropriate justification. The Department's detailed comments appear as appendix I.

Contents

Abbreviations

AFAO	Approved Force Acquisition Objective
AVSCOM	Aviation Systems Command
CCSS	Commodity Command Standard System
DOD	Department of Defense
GAO	General Accounting Office
IRO	Inventory Research Office
NICP	National Inventory Control Point
SIMA	Systems Integration Management Activity

Chapter 1

Introduction

The Army's wholesale secondary items inventory,[1] valued at about $18.5 billion, is managed by the Army Materiel Command and its six National Inventory Control Points (NICP). The Army Materiel Command establishes inventory management policy, and the NICPs have responsibility for determining inventory requirements and procuring, storing, and distributing the inventory to the Army's field activities. Within the Army's inventory management system, there are three depots that are designated as "Area Oriented Depots" and that serve as the Army's major distribution depots. About 92 percent of all secondary inventory is distributed through these depots.

The wholesale inventory of secondary items consists of "applicable" and "inapplicable" inventories. "Applicable inventory" is that portion of the inventory needed to meet current operating and war reserve requirements—the "Approved Force Acquisition Objective" (AFAO). The difference between the AFAO and the total inventory is referred to as "inapplicable inventory." Inapplicable inventory is categorized as "potential excess stock" and "retention-level stock." Potential excess inventory is that portion of the inventory that the Army has determined is not needed and can be processed for disposal. Retention-level inventory is subdivided into the following categories:

- Economic retention: that portion of the inventory determined to be more economical to retain for future peacetime issue than to replace by future procurement. To warrant economic retention, the item must have a reasonably predictable demand rate.
- Contingency retention: that portion of the inventory for which there is no predictable demand or requirement and that would normally be categorized as potential excess, except that a determination has been made to retain the item for possible contingencies.
- Numeric retention: that portion of the inventory for which disposal is currently infeasible or uneconomical or for which a management decision has been made to retain it in the supply system. An example of the latter category would be where management has decided to retain all inventory applicable to an active weapon system.

A significant portion of the Army's wholesale inventory is comprised of retention-level inventory. As of March 31, 1989, the Army had about $3.7 billion of economic, contingency, and numeric inventory. These

[1]Secondary items include spare and repair parts, subsystems, and assemblies, as opposed to end items such as aircraft, tanks, and trucks. Examples of secondary items are engines, transmissions, and rotary-wing blades.

stocks represented about 20 percent of the Army's $18.5 billion wholesale inventory of secondary items. At the Aviation Systems Command (AVSCOM), where we performed our review, retention-level inventory amounted to $1 billion, or about 18 percent, of the Command's $5.5 billion inventory. Table 1.1 illustrates the status of this inventory.

Table 1.1: Status of the Army's and AVSCOM's Wholesale Secondary Items Inventory by Category (as of March 31, 1989)

Dollars in billions

	Army		AVSCOM	
Inventory category	**Amount**	**Percent**	**Amount**	**Percent**
AFAO	$14.2	76.8	$4.4	80.0
Economic retention stock	1.4	7.6	0.3	5.5
Contingency retention stock	1.7	9.2	0.5	9.1
Numeric retention stock	0.6	3.2	0.2	3.6
Potential excess	0.6	3.2	0.1	1.8
Total	**$18.5[a]**	**100.0**	**$5.5[a]**	**100.0**

[a]Includes on-hand and on-order inventory.

As stated in our March 1990 report, Army Inventory: Growth in Inventories That Exceed Requirements (GAO/NSIAD-90-68), there were many reasons that inventory migrates to the retention-level categories such as:

- Inventory was being retained to support end items that were being phased out of the Army's system.
- Forecasted demands did not materialize.
- The database used in computing requirements contained erroneous information.

Objectives, Scope, and Methodology

Concerned that the Army was retaining retention-level inventory that exceeded requirements, the Chairman of the Subcommittee on Readiness, House Committee on Armed Services, asked us to evaluate (1) the Army's policy for keeping stocks in excess of operating and war reserve needs, (2) the Army's method of determining what items and what quantities to retain, and (3) the effect of retaining this inventory on warehousing space. We reviewed Department of Defense (DOD) and Army policy, procedures, and related documents pertaining to the retention, transfer, and disposal of assets. We also interviewed DOD and Army personnel responsible for the formulation and implementation of the policy. The information we obtained provided us with the rationale for the policy and a working knowledge of the establishment of retention levels.

We initiated our review based on information available from the September 30, 1988,[2] budget stratification reports for the Army's six NICPs. These reports showed the dollar value of the wholesale inventory of secondary items and the portions of the inventory categorized as "applicable" and "inapplicable" (the "inapplicable" inventory includes the retention-level and potential excess inventories). On the basis of this information, we selected AVSCOM for a detailed review because it had the largest wholesale inventory of secondary items inventory and the largest retention-level inventory.

At AVSCOM, we determined the numbers and dollar values of retention-level inventory items for which (1) no peacetime and war reserve requirements existed and (2) phase-out dates had passed.

On a judgmental basis, we selected 33 line items for our detailed review. Our criteria included total inventory value, the amount of storage space required, and the ratio of retention-level inventory to the item's AFAO. The inventory value of the 33 items was $642 million, or 11.7 percent, of AVSCOM's total $5.5 billion secondary items inventory. The retention-level inventory for these items was about $343.5 million, or about 34 percent, of AVSCOM's total retention-level inventory.

For each of the selected items, we reviewed the item's case file and held discussions with appropriate AVSCOM item managers and officials to determine why the items were being retained and whether their retention was justified.

As part of our review, we discussed the automated processes for establishing retention-level stocks with representatives of the Systems Integration Management Activity (SIMA), located in St. Louis, Missouri, and the Inventory Research Office (IRO), located in Philadelphia, Pennsylvania.

Information was not available in the database on the cubic feet of storage space required for each item. Therefore, we estimated these amounts using the "unit cube" and "unit pack" data contained in the item's master data record. The "unit cube" is the cubic feet required to store the unit pack. According to AVSCOM's transportation officials, the unit cube is generally 1 inch larger in all dimensions (length, width, and

[2]The information in the September 30, 1988, budget stratification reports was updated when the March 31, 1989, reports were issued. This later information became the basis for the statistics cited in this report.

depth) than the actual size of the item. The "unit pack" is the number of items in a standard package. We estimated the cubic feet of space required by dividing the unit cube by the unit pack and multiplying the result by the number of units involved.

To ascertain whether AVSCOM was retaining more assets than were needed to support the weapon system or end item, we calculated the quantity of assets needed to support the item up to its phase-out date. Our process included the following steps:

- We first determined the length of time until the item was due to be phased out.
- We next determined how many months of supply were on hand by dividing the total quantity of assets on hand by the demand rate shown in the supply control study.
- To ascertain whether AVSCOM had inventory on hand beyond the phase-out dates, we compared the total months of supply on hand to the months of supply required up to the phase-out dates.
- We translated the months of supply past the phase-out dates into years by dividing by 12. We based all calculations on 30-day months.

We conducted our work primarily at AVSCOM and at the Army Materiel Command from May 1989 to May 1990 in accordance with generally accepted government auditing standards.

Army's Policy Results in Large Retention-Level Inventories

The Army's inventory retention policy,[1] and its implementation, results in the retention of virtually all inventory that exceeds AFAO requirements regardless of the need for the items. As a result, the amount of retention inventory retained is many times the amount of retention-level inventory that is reasonably required to support end items. Maintaining this inventory is costly and contributes to supply system inefficiencies.

The Army recognizes many of the problems caused by the retention of these inventories and is attempting to dispose of some of its retention-level inventory. However, until the policy for determining what and how much inventory to retain is revised and specific guidance is provided to managers on how to implement the policy, significant reductions in the retention-level inventory are not likely to occur.

Determination of Inventory to Be Retained

The Army's inventory retention policy provides that all inventory applicable to any active weapon system may be retained regardless of its quantity, the condition of the material, or the number of end items being supported.

The Army uses a computer program to categorize the retention-level inventories into economic, contingency, or numeric retention levels. The program first computes the economic retention-level quantity based on the cost of holding the inventory versus the cost of procuring the inventory item at a later date. It then determines the contingency-level requirement by adding the number of serviceable assets on hand in excess of the economic retention level to the existing contingency requirement in the database. Then it stratifies the serviceable and unserviceable assets against that requirement. Any remaining inventory assets are then categorized as numeric retention inventory.

As of March 31, 1989, AVSCOM had about $1 billion of retention-level inventory for 26,704 line items. As shown in table 2.1, many of the line items had retention-level inventories in more than one of the retention-level categories.

[1]The Army's policy closely resembles DOD's policy for establishing inventory retention levels.

Table 2.1: Inventory Line Items in One or More Retention Levels (as of March 31, 1989)

Dollars in millions

Number of items having one or more retention levels	Number of line items	Amount
One	19,995	$451.4
Two	6,588	437.4
Three	121	110.9
Total	**26,704**	**$999.7**

Retention-Level Inventory Exceeds Expected Needs

In many cases, the quantity of retention-level inventory exceeds what would reasonably be expected to be needed. As of March 31, 1989, AVSCOM had 18,359 line items with AFAO requirements and on-hand retention-level inventories. Of this total, over 50 percent of the line items had retention-level inventories at least twice the amounts needed to support AFAO requirements. In other words, not only was there sufficient inventory to meet the current operating and war reserve requirements, but additional inventories of twice those amounts were being retained for other reasons. Table 2.2 shows the amounts of retention-level inventory as percentages of AFAO requirements.

Table 2.2: Retention-Level Inventories as Percentages of AFAO Requirements (as of March 31, 1989)

Dollars in millions

Number of line items	Value of inventory		Retention inventory as a percentage of AFAO
	AFAO	Retention	
6,439	$843.7	$138.3	16.4
2,691	67.2	96.2	143.2
2,606	39.1	109.6	280.3
1,398	13.4	63.9	476.9
907	5.0	35.7	714.0
623	30.8	266.3	864.6
1,675	4.6	64.3	1,397.8
1,210	2.1	62.8	2,990.5
437	0.1	5.7	5,700.0
373	0.1	9.8	9,800.0
Total 18,359	**$1,006.1**	**$852.6**	

In addition, AVSCOM had retention inventories valued at about $147 million for 8,345 line items that did not have AFAO requirements. In other words, even though the items did not have current operating or war reserve requirements, AVSCOM was retaining inventory for them.

In the following three examples, the amounts of inventory retained exceeded expected needs:

- As of November 1989, AVSCOM reported that it had 5,298 rotor blade containers (with a unit price of $625) on hand to support an AFAO requirement of 3,234. On the basis of the November 1989 supply control study demand rate for the containers, we estimate that AVSCOM has 64 years of supply for this item.
- As of November 1989, AVSCOM had 243 shipping and storage containers (with a unit price of $735) for the transmission used on the UH-1M and UH-1H aircraft. The item had an operating and war reserve requirement of 45. The Army was keeping twice this amount (123) as retention stocks. On the basis of the November 1989 supply control study demand rate, we estimate that AVSCOM has a 17-year supply of these containers.
- As of November 1989, AVSCOM had $209 million of retention-level inventory on hand for three different types of transmissions used on the CH-47C helicopter, which is to be phased out in September 1992. For these three items, the on-hand inventory ranged from 11 to 18 times more than what was needed to support AFAO requirements. Furthermore, these retention inventories have been maintained for at least 2 years for two of the items. Two months after we brought this matter to AVSCOM's attention, it approved disposal actions for $155.9 million of the retention-level inventory.

Justifications for Contingency and Numeric Retention Stocks Not Documented

Item managers are not required to review computer decisions to retain economic retention stocks. However, they are required to review and validate computer decisions to retain contingency and numeric retention assets. We found that item managers were not documenting the reasons for retaining contingency and numeric inventories. Instead, item managers, for the most part, accepted the retention levels determined by the computer program. As a result, inventory accumulated in the retention-level categories and stocks that could have been classified as potential excess were not so classified.

As of March 31, 1989, AVSCOM had $665.5 million of contingency and numeric retention inventory. Our sample of 33 line items contained 21 line items with $266.8 million of contingency and numeric retention inventory. Our analysis of the case folders and our discussions with item management officials disclosed that in only one case had the reason been documented for retaining the inventory. Item managers told us that they were generally unaware that they were required to document the reasons for retaining the stocks.

Maintaining Retention-Level Inventories Is Costly and Reduces Supply Efficiency

The large retention-level inventories maintained by the Army contribute to the overcrowded storage conditions already existing at the Army's major depots. These overcrowded conditions impair warehousing and supply efficiency. Furthermore, it is costly to maintain these inventories.

According to the Army, when storage facilities are filled to more than 85 percent of their storage capacity, efficiency suffers because inventory must frequently be relocated to make room for incoming inventory. Frequent relocations, in turn, result in the loss or misplacement of inventory and the failure to fill customer requisitions because the needed items cannot be found.

According to the Army's Inventory Control Effectiveness report for the first quarter of fiscal year 1989, Army depot storage facilities were filled to an average of 87 percent of their capacities. At the three Area Oriented Depots, which process and distribute over 92 percent of the Army's wholesale inventory, the problem is even worse. These depots are filled to 97 percent of their capacities.

AVSCOM's retention inventory contributes to this overcrowding. AVSCOM's total inventory occupies 7.7 million cubic feet of space, of which 1.4 million cubic feet are taken up by retention-level inventories. To put this in perspective, retention-level inventory would cover an area equal to the size of a football field stacked 28 feet high.

The retention of this inventory not only impairs supply efficiency, but it is also costly. According to the Army, the annual cost associated with holding retention-level inventory is equal to 13 percent of the inventory's value. On this basis, we estimate that it costs the Army about $130 million, annually, to hold AVSCOM's retention inventory. On an Army-wide basis, the annual cost to hold retention-level inventory would be about $481 million.

Army's Actions to Reduce Its Retention-Level Inventory

The Army is aware of many of the problems associated with overcrowded warehouses and is taking action to alleviate this condition. In January 1990, as part of a Defense Management Review initiative, the Army requested that DOD change its retention policy by eliminating the numeric retention stock category. This change would have allowed the Army to dispose of its numeric retention stock and retain economic and contingency retention stocks.

Although DOD did not agree to the Army's request because it was concerned that items might be disposed of that were needed, DOD agreed that if a case-by-case review showed the items were not needed, then the items could be processed for disposal. Furthermore, DOD is amending its policy guidance to the services on the retention of assets supporting active weapon systems by including a consideration of shelf life, item essentiality, storage space requirements, number of weapon systems, and projected life.

In our opinion, DOD's policy revisions are a first step toward reducing the retention-level inventories currently being maintained. Equally important, however, is the need for specific Army guidance on how the policy is to be implemented so that inventory managers will know not only what, but how much, to retain.

The Quality and Accuracy of Information Must Be Improved to Ensure an Effective Retention Program

Along with DOD's revision to its policy on retention-level inventory, the Army needs to improve the accuracy of the information system it uses to determine how much and what inventory to retain. Otherwise, the overall quality of its retention decisions will not improve.

The Commodity Command Standard System (CCSS)[1] is the principal information system used by inventory managers to make inventory decisions on what and how much to buy and retain. However, many of the CCSS components do not produce the desired results because much of the data in the automated system is inaccurate. Contributing to the problem is the fact that the computer programs are poorly documented.

IRO, which designed the system, identified systemic problems that affect the retention-level inventory decisions being made. After reviewing selected aspects of the CCSS, IRO identified problems with the economic retention module. A review was initiated in response to questions from some of the NICPs concerning the computer-generated outputs from the economic retention programs. IRO found errors in the computer programming methodology for determining economic retention levels.

IRO officials told us that they had not been able to quantify the effect of the errors on the retention levels. They said that the effects depended on the input and the relationships of the various factors considered in the computer programs.

In addition, we identified other systemic problems, such as the following, that affected the accuracy and quality of decisions concerning the amount of retention-level inventory being maintained by AVSCOM:

- Program documentation describing how the systems work and what computer logic is being used is lacking.
- Data used to determine retention limits, storage space needs, number of end items being supported, and phase-out dates are inaccurate or out-of-date.

Furthermore, decisions on retention-level inventory have a low priority, and little time and effort are spent by inventory management officials on these matters.

[1]The CCSS programs are written and maintained by SIMA. The development of the methodology, models, and logic used in the Army's system is the responsibility of IRO.

Lack of System Documentation

The subsystem of the CCSS that computes requirements and retention levels is about 20 years old. Over the years, this subsystem has undergone three major revisions, and five different programmers have maintained it. Documentation for the programs for this subsystem were written long before the present DOD documentation standards were set. As a result, the documentation for many of the changes and revisions contains no flowcharts, subsystem descriptions, or explanation of what the current programs do or what computer logic is used. The limited documentation that does exist consists of comments at the end of the lines of code in the programs and some remarks at the beginning of each program module.

The lack of system documentation contributes to the difficulty in fixing systemic problems and determining what effect systemic problems have on the resulting computations of retention-level inventory.

Retention Levels Are Computed for Items With Past Phase-Out Dates

According to SIMA officials, the computer program is not supposed to compute retention levels for items whose phase-out dates have passed. Our analysis showed that as of March 31, 1989, AVSCOM had 238 line items, with retention level inventory valued at $29.6 million, whose phase-out dates had passed. However, SIMA officials could not explain why retention levels had been calculated for these 238 items. Table 3.1 shows the phase-out dates, quantities, and inventory value of items being retained to support these items.

Table 3.1: Retention Inventory for Items Whose Phase-Out Dates Had Passed (as of March 31, 1989)

Dollars in thousands

	Line item		
Year of phase-out	**Number**	**Quantity**	**Amount**
1980	8	119	$9.3
1984	26	653	92.2
1985	47	18,586	1,001.8
1986	13	190	10.7
1987	140	23,484	28,501.2
1988	4	1,155	21.6
Total	**238**	**44,187**	**$29,636.8**

Database Contains Incomplete and Inaccurate Information

The database that item managers need to make retention decisions contains inaccurate data, or the necessary data are missing from the system. As a result, decisions on what and how much inventory should be retained are also inaccurate.

Retention Limit Data File Not Up-to-Date

The CCSS includes a program to analyze the cost of retention versus disposal. It uses the cost to dispose of an item and revenue from the sale of disposed items as data entered into other modules in the requirements determination system. If data for disposal costs and income are not entered into the retention limit file and kept current, the resulting computations are erroneous. These data affect retention decisions and other requirements computations.

According to SIMA and IRO officials, the NICPs are not updating their retention limit files as required. AVSCOM has not updated its retention limit file for about 2 years.

Number of End Items Being Supported Is Not Always Known

An important factor to consider in determining how much stock to retain is the number of end items for which support is required. Without this information, item managers have no way of knowing whether or not the retention-level inventory is sufficient. End items to be supported include those operated not only by the Army but by the other military services. We found that this information was not readily available. In some cases, AVSCOM did not know the number of aircraft it had the responsibility to support.

Phase-Out Dates Are Generally Inaccurate

Item managers need to know not only the quantity of end items requiring support but also the length of time that they will have to support the end items (the time until the item is phased out). Project management offices are responsible for entering item phase-out dates into AVSCOM's item database. If a date is not entered, the system is programmed to establish a projected phase-out date 15 years in the future.

Of AVSCOM's inventory of 47,004 line items, we identified 5,392 line items, with retention inventories of $474.3 million, whose phase-out dates had been arbitrarily established at 15 years in the future. Our analysis of the 33 sample items we selected on a judgmental basis

showed that the phase-out dates for 25 of the items had been established by the computer at 15 years. The value of retention-level inventory for these items was $295.3 million. Material management officials had information showing that the planned phase-out dates were less than 15 years in the future for 17 of the items and were more than 15 years in the future for 7 of the items. For only one of the items was the phase-out date correct.

By using 15-year computer-generated phase-out dates for the 17 items, the computer calculated and stratified more assets to be maintained in economic retention than it should have. Although it was not possible to determine how much less the economic retention levels should have been for 12 of the items, there should not have been any economic retention levels for the other 5 items because their phase-out dates had passed.

Storage Space Needs Are Often Not Known

Army Regulation 710-1 states that retention-level inventory decisions are subject to storage space limitations. We found, however, that information needed to determine storage space requirements was not always available in the system. As a result, the impact on storage space by retaining inventory is not considered in making retention decisions.

Our analysis showed that the AVSCOM database contained no information on the cubic feet of storage needed for about 27 percent of the 47,004 items in AVSCOM's March 31, 1989, budget stratification report. Our analysis also showed that the bulk of the storage space was required for relatively few items. For example, 1,021 of the 47,004 items managed by AVSCOM accounted for 90 percent of the Command's total storage space requirements. About 99 of the items accounted for about 68 percent of the total space.

In view of the overcrowded conditions that currently exist at Army storage facilities, item managers need to consider space requirements in their retention-level decision process. At present, managers are not considering these conditions. Rather, they are accepting the computer's decisions about what to retain in the inventory.

Management of Retention-Level Inventory Has a Low Priority

Item managers told us that they generally accepted the computer's determinations without changing or questioning the recommended amounts. AVSCOM officials stated that the Command did not have sufficient resources to carry out its primary mission, let alone manage retention inventory. According to AVSCOM's Director of Logistics, the Command's mission is to ensure the operational readiness of and parts availability for the aircraft fleet it supports. Consequently, supply control studies recommending procurement actions receive top priority, and those recommending cutbacks or cancellations are reviewed and acted on if time permits.

Conclusions, Recommendations, and Agency Comments

Conclusions

The Army's policy and practices for determining what and how much retention-level inventory to retain results in the retention of inventory in excess of what is needed to support current operating and war reserve requirements regardless of the quantity of inventory, its condition, or the number of weapon systems to be supported.

Retaining these inventories can adversely affect the efficiency of the supply system and result in overcrowded storage facilities. This overcrowding necessitates moving inventory to make room for incoming inventory, thereby increasing the possibility that inventory will be lost or misplaced and that requisitions will go unfilled.

Maintaining inventory in excess of current needs is also costly. Using Army estimates that the annual cost to hold such inventory is about 13 percent of the inventory value, it costs about $130 million annually to hold AVSCOM-managed items that exceed requirements. On an Army-wide basis, the annual cost is about $481 million.

Decisions concerning what and how much retention-level inventory to retain depend not only on sound policies, but also on having complete and accurate information. At AVSCOM, the data needed to make these decisions are often incomplete and inaccurate. In the absence of either one of these important elements, the resulting decisions will be less than optimal.

Additionally, explanation of how the automated system works and what computer logic is being employed is poorly documented. Compounding these problems is the fact that inventory management officials spend little time and effort on managing retention-level inventory.

Recommendations

After we initiated our review, DOD began to revise its inventory retention policy guidance to the services to take into consideration such factors as the number of end items being supported, the remaining time before the item is phased out of the Army's system, and the essentiality of the item. Therefore, we are not making any recommendations for policy revision.

However, revising the policy will not, in and of itself, resolve the issues identified in our review. The key to successful guidance lies in how the policy is implemented and whether it is implemented using accurate and complete information.

To address these issues, we recommend that the Secretary of the Army direct the Commander of the Army Materiel Command to take the following actions:

- Develop specific implementation guidance for item managers to use in determining what and how much inventory to retain, in accordance with the revised retention-level inventory policy.
- Ensure that when computer programs used in making retention decisions are changed, the changes are better documented so that when systemic problems arise, fixes can be incorporated, and a historical trail is created for future reference.
- Modify the computer programs to classify inventory in excess of the economic retention level as potential excess stock unless the item manager can justify and document that the item is needed for some other purpose. As part of this process, item managers should (1) ensure that the database is accurate and complete and (2) determine whether the item should be retained or processed for disposal, in accordance with the implementation guidance issued as part of the revised retention policy.

Agency Comments

DOD agreed with all of our findings and recommendations and provided information on how the recommendations would be implemented.

According to DOD, the Department's policy until recently required the Army to retain all items related to the support of an active weapon system even through the phase-out period. DOD acknowledged that this has contributed to the growth in retention level inventories.

DOD acknowledged that reviews of contingency and numeric retention stocks had not been actively pursued in recent years. A causative factor was the strict limitation on disposals. DOD indicated that the Army is reviewing economic retention and contingency levels to reduce them in proportion to the number of end items still being supported. NICPs have been instructed to initiate a methodical disposal of material for which no need exists, particularly unserviceable material.

DOD commented that the construction and application of the relevant data input file for the computerized system were not well documented and the information the system was intended to portray was inaccurate. DOD said the problems of documentation and appropriate historical data are being addressed by a coordinating group.

With regard to our specific recommendations DOD stated that:

- The Army will initiate action to change appropriate regulations and policies by September 1990 to comply with DOD's revised retention policy.
- Action is being taken to ensure that computer programs for the retention model are documented and that audit trails are created for future reference. These actions are expected to be completed by the end of December 1990.
- Effective August 1990, inventory will no longer be automatically stratified to "contingency retention" or "numeric retention." All material that does not stratify as economic retention must be justified for retention. Otherwise, it will be stratified as "potential excess."

Comments From the Department of Defense

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

ASSISTANT SECRETARY OF DEFENSE
WASHINGTON, D.C 20301-8000

PRODUCTION AND LOGISTICS

August 3, 1990

(L/SD)

Mr. Frank C. Conahan
Assistant Comptroller General
National Security and International
Affairs Division
U.S. General Accounting Office
Washington, DC 20548

Dear Mr. Conahan:

This is the Department of Defense (DoD) response to the General Accounting Office (GAO) Draft Report, "ARMY INVENTORY: Army Annually Spends Millions to Keep Retention-Level Stocks," dated June 25, 1990 (GAO Code 393349) OSD Case 8393. The Department concurs with the findings and recommendations.

The detailed DoD comments are provided in the enclosure. The DoD appreciates the opportunity to comment on the draft report.

Sincerely,

David J. Berteau

David J. Berteau
Principal Deputy

Enclosure

GAO DRAFT REPORT - DATED JUNE 25, 1990
GAO CODE 393349 - OSD CASE 8393

"ARMY INVENTORY: ARMY ANNUALLY SPENDS MILLIONS TO KEEP RETENTION-LEVEL STOCKS"

DEPARTMENT OF DEFENSE COMMENTS

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FINDINGS

- FINDING A: Background: Levels of Army Wholesale Inventory. The GAO observed that the Army Materiel Command and its six National Inventory Control Points manage the Army's wholesale-level inventory, which includes secondary items such as spare and repair parts.

  The GAO explained that the part of an item's inventory needed to meet current operating and war reserve requirements is referred to as the Army's "Approved Force Acquisition Objective." The GAO further explained that the difference between an item's Approved Force Acquisition Objective and its total inventory is categorized as "inapplicable inventory." (The GAO noted that this category includes "potential excess" and "retention-level" inventories.) The GAO observed that potential excess inventory is inventory the Army has determined is not needed and can be processed for disposal. The GAO pointed out that retention-level inventory is categorized, as follows:

  -- Economic Retention--Inventory that has been determined to be more economical to retain than to replace by future procurement and has a reasonably predictable demand rate.

  -- Contingency Retention--Inventory that has no predictable demand rate but is being retained for possible contingencies.

  -- Numeric Retention--Inventory that is infeasible or uneconomical to dispose of or inventory for which a management decision has been made to retain it in the supply system. (The GAO noted that an example of the latter would be a decision to retain all inventory related to active weapon systems.)

ENCLOSURE

Now on pp. 2, 8-9.

The GAO found that, as of March 31, 1989, economic retention accounted for $1.4 billion of the Army's $3.7 billion of retention-level inventory, while contingency and numeric retention inventory accounted for $2.3 billion. (pp. 2-3, pp. 12-15/GAO Draft Report)

DoD Response: Concur.

- **FINDING B**: **Retained Inventory Exceeds Needs**. The GAO observed that, to determine inventory retention levels, the Army uses a computer program, which stratifies all inventory exceeding current operating and war reserve requirements into one or more of the three retention levels--economic, contingency, or numeric. The GAO found that, as of March 31, 1989, the Aviation Systems Command had 26,704 line items with retention-level inventory valued at about $1 billion. The GAO estimated that, of that total, about $853 million involved 18,359 line items with operating and war reserve requirements--and over 50 percent of the items had retention inventories at least twice as large as what was needed to support the current operating and war reserve requirements. The GAO further found the Command had retention inventories valued at about $147 million for 8,345 line items that did not have current operating or war reserve requirements.

Now on pp. 3, 12-14.

The GAO cited an example involving the CH-47C aircraft (which is to be phased out in 1992) where the amount of retention inventory exceeds expected needs . According to the GAO, as of November 1989, the Command had $194.5 million of retention-level inventory on hand for three different types of transmissions used on the CH-47C helicopter. The GAO calculated that, for these three items, the on-hand retention inventories ranged from 11 to 18 times what was needed to support the current operating and war reserve requirements--and that the vast majority of the retention stocks were in the contingency and numeric categories. The GAO found that those retention inventories have been maintained for at least 2 years. (pp. 3-5, pp. 18-21/GAO Draft Report)

DoD Response: Concur. Aviation weapon systems involve a complex and lengthy cycle of programming, budgeting, and operational support. For example, the CH-47C helicopter is expected to serve until 1992, while the CH-47D will serve until the year 2010. Until recently, the Department's policy required the Army to retain all items related to the support of an active weapon system, even through the phase-out period. This has contributed to the growth in retention level inventories.

- **FINDING C**: **Reasons That Contingency and Numeric Retention Inventories Were Not Validated and Documented**. The GAO found

that item managers are not required to review computer decisions to retain inventory in the economic retention category. The GAO further found, however, that they are required to review computer decisions and to validate and document the need to retain inventory in the contingency and numeric categories. The GAO explained that, for those items not to be retained, they are to be processed for disposal. In actuality, however, the GAO found that the item managers routinely accepted the computer's decisions and did not justify or document their decisions to retain contingency and numeric inventory. The GAO concluded that, as a result of the item managers not justifying and documenting contingency and numeric retentions, inventory accumulated in the retention categories and stocks that could have been classified as potential excess were not. The GAO reported item managers indicated that they were generally unaware of the requirement to validate and document their reasons for retaining the inventory and, further, even if they had been aware of the requirement, they did not have the time to manage retention stocks.

The GAO explained that its sample of 33 line items contained 21 items with $266.8 million of contingency and numeric retention inventory. The GAO found that in only one case had the reason for retaining the inventory been validated and documented. (pp. 5-6, pp. 21-22/GAO Draft Report)

Now on pp. 3-4, 14.

DoD Response: Concur. Item managers are required to review all computer recommendations to retain or dispose of material; documentation of these reviews is a part of the review process. The Department acknowledges that reviews of contingency and numeric retention stocks have not been actively pursued in recent years; a causative factor was the strict limitation on disposals. However, the Department issued new guidance in June 1990 that will reduce the size of the retention level inventory. The Army is complying with the policy and is initiating appropriate action. A system change request, to be implemented in August 1990, will eliminate the automatic stratification of assets into numeric and contingency retention levels. In the future, item managers will have to manually move stock into numeric or contingency categories, with appropriate justification.

- FINDING D: Maintaining Retention-Level Inventory Is Costly. The GAO estimated that the Army incurs annual costs of about $130 million to store and maintain the Aviation System Command's retention-level inventory. The GAO explained that this inventory also contributes to warehouse overcrowding and reduces the effectiveness of supply management. According to the GAO, the

Command's retention-level inventory takes up about 1.4 million cubic feet of storage space-- an area equal to the size of a football field stacked 383 feet high.

The GAO observed that the majority of that inventory is at storage depots already filled to 97 percent of capacity. The GAO referred to Army statements that, when a storage facility is filled to more than 85 percent of its capacity, efficiency suffers because inventory must frequently be relocated to make room for other incoming inventory. The GAO indicated that frequent relocation, in turn, increases the potential for losing or misplacing inventory and being unable to fill customer requisitions because the needed inventory cannot be found. (p. 6, pp. 22-23/GAO Draft Report)

Now on pp. 4 and 15.

DoD Response: Concur. The Army is expediting disposal of all stocks stratified as potential excess and numeric retention; it is reviewing economic retention and contingency levels to reduce them in proportion to the number of end items still supported.

- FINDING E: Other Systemic Problems Affecting Decisions to Retain Retention-Level Inventory. The GAO identified systemic problems--such as computer programming, logic, and data errors--which affect the determination of what and how much inventory should be retained. The GAO found that the computer programs were complex, interrelated, and poorly documented regarding the system's working procedures or the computer logic used to make decisions on retention inventory. The GAO concluded that, as a result of the cited deficiencies, when errors were identified, it was often not possible to determine the effects of the errors on retention decisions. The GAO noted an example where the computer program is not supposed to compute retention levels for end items or major components whose phase-out dates have passed. The GAO found, however, that the Command was retaining $29.6 million of retention-level inventory for 238 line items whose phase-out dates had passed as long as 9 years before. According to the GAO, Army officials could not explain why the computer was computing retention levels for these items.

The GAO also found that information needed to determine retention levels, storage space needs, the number of end items being supported, and weapon system phase-out dates was often inaccurate, incomplete, or out-of-date. The GAO cited another example where the computer is programmed to set the phase-out dates for an item at 15 years in the future whenever the actual phase-out date has not already been entered into the database. The GAO found that computer-generated phase-out dates for 5,392 line items had been set at 15 years in the future and the Command

was retaining $474.3 million of retention inventory for those items. The GAO reviewed 33 of the items and learned that, in 17 of the 33 cases, information in the case folders showed the phase-out dates to be nearer than 15 years in the future. The GAO concluded the effect of using the erroneous computer-generated dates is that the Command can retain additional inventory in retention-level categories.

The GAO further concluded that adding to the systemic problems is the fact that the Command places a low priority on retention-level inventory decision-making and little time and effort are spent by inventory management officials on these matters. (pp. 6-7, pp. 25-31/GAO Draft Report)

Now on pp. 4, 17-21.

Response: Concur. The construction and application of the relevant data input file for the Retention Model used in the Commodity Command Standard System was not well documented. As a result, the management information the model was intended to portray was inaccurate. The problems of documentation and appropriate historical data are being addressed by the Supply Management Functional Coordinating Group.

- **FINDING F**: **Actions To Alleviate Problems With the Retention Inventory**. The GAO observed that the Army is aware of many of the problems associated with its retention-level inventories. The GAO found that, in January 1990, as part of a Defense Management Review initiative, the Army requested that the Department of Defense change its retention policy by eliminating the numeric retention stock category.

The GAO reported the Department did not agree to the Army's request because it was concerned items might be disposed of that were needed. The GAO noted, however, the Department agreed that disposal actions could be taken if a case-by-case review showed the items were not needed. The GAO further noted that the Department is amending its retention-level inventory policy to include consideration of such factors as (1) shelf life, (2) item essentiality, (3) storage space requirements, and (4) number of weapon system being supported. (p. 8, pp. 23-24/GAO Draft Report)

Now on pp. 5, 15-16.

DoD Response: Concur. In January 1990, Headquarters, Army Materiel Command instructed the National Inventory Control Points to screen materiel stratifying to the Numeric Retention Level and to initiate a methodical disposal of materiel for which no need exists, particularly that materiel in an unserviceable condition. Shelf life, item essentiality, storage capacity and weapon system density have been factors considered by the Army for retention of materiel.

5

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RECOMMENDATIONS

- **RECOMMENDATION 1**: The GAO recommended that the Secretary of the Army direct the Commander of the Army Materiel Command to develop specific implementation guidance for item managers to use in determining what and how much inventory to retain, in accordance with the revised retention-level inventory policy. (pp. 8-9, pp. 33-34/GAO Draft Report)

  Now on pp. 5 and 23.

  DoD Response: Concur. The Secretary of the Army will initiate action to change appropriate regulations and policies by September 30, 1990, to comply with the Department's revised retention policy.

- **RECOMMENDATION 2**: The GAO recommended that the Secretary of the Army direct the Commander of the Army Materiel Command to ensure that, when computer programs used in making retention decisions are changed, the changes are better documented so when systemic problems arise, fixes can be incorporated, and a historical trail is created for future reference. (pp. 8-9, pp. 33-34/GAO Draft Report)

  Now on pp. 5 and 23.

  DoD Response: Concur. Action is underway through the Supply Management Functional Coordinating Group to ensure computer program changes are documented and audit trails are created for future reference. The Functional Coordinating Group will address data and documentation issues for the retention model, with a target date for correcting the problems set for the end of the first quarter, FY 1991.

- **RECOMMENDATION 3**: The GAO recommended that the Secretary of the Army direct the Commander of the Army Materiel Command to modify the computer programs to classify inventory in excess of the economic retention level as potential excess stock. (In connection with this recommendation the GAO asserted that, item managers then should (1) ensure the database is accurate and complete and (2) determine whether the item should be retained or processed for disposal, in accordance with the implementation guidance issued as part of the revised retention policy. The GAO further asserted that, when a decision is made to retain an item, the reasons for doing so should be documented.) (pp. 8-9, pp. 33-34/GAO Draft Report)

  Now on pp 5 and 23.

DoD Response: Concur. Effective in August 1990, no materiel will be automatically stratified to Contingency Retention or Numeric Retention. All materiel that does not qualify as Economic Retention Stock or manually loaded as Contingency Retention or Numeric Retention Stock will be stratified to Potential DoD Excess.

7

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