United States General Accounting Office

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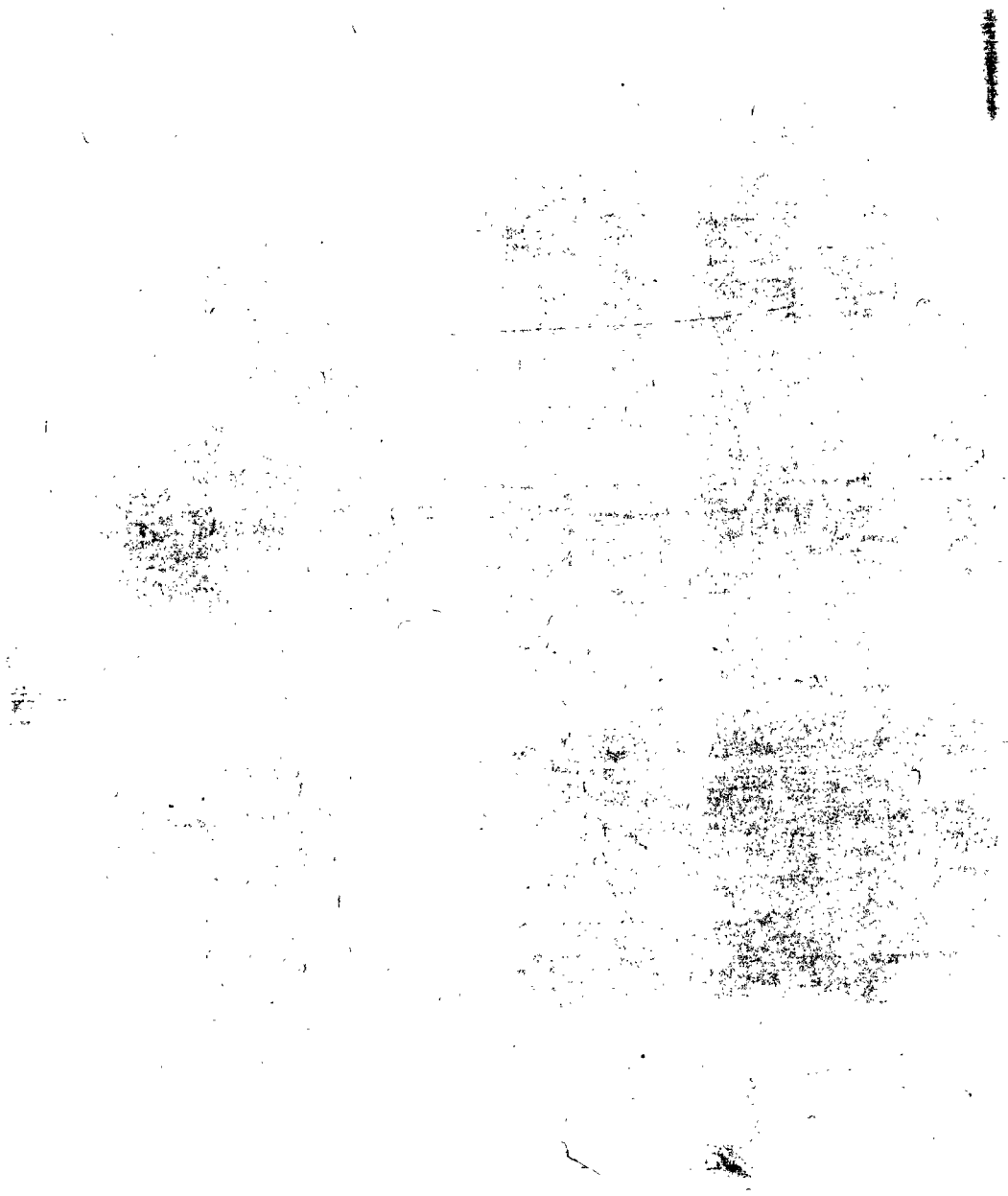
Report to the Secretary of Defense

January 1988

DOD INVENTORY MANAGEMENT

Revised Policies Needed

GAO/NSIAD-88-75



GAO

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

National Security and
International Affairs Division

B-222859

January 14, 1988

The Honorable Frank C. Carlucci
The Secretary of Defense

Dear Mr. Secretary:

On October 27, 1987, we testified on Department of Defense (DOD) inventory management before the Senate Committee on Governmental Affairs. Our testimony focused on three areas: (1) the accuracy of inventory records, (2) the effectiveness of research to identify the causes of inventory discrepancies, and (3) the physical protection of DOD assets. We discussed these issues within the framework of the increased growth in the value of DOD's inventory of secondary items. A copy of our testimony is included as appendix I.

Last year, we reported to the Chairman, Senate Armed Services Committee's Task Force on DOD Inventory Management, that DOD had a wide range of inventory management problems throughout the supply system.[1] As a result of our work, the Task Force and the Senate Governmental Affairs Committee asked us to examine several specific aspects of DOD inventory management in more detail. We have issued, or will be issuing separate reports on inventory accuracy within the military services and Defense Logistics Agency (DLA). Our recent testimony provided an overview of the problems DOD has had in assessing how well its inventories are managed.

Based on our evaluations in each service and DLA, we concluded that DOD needs to place emphasis on identifying the systemic causes of inventory accuracy problems; however, DOD does not have the data it needs to assess where the basic problems are. Too much emphasis has been placed on making inventory accuracy rates look better, rather than identifying and addressing the causes of inventory accuracy problems. Additionally, the services sometimes do not correct their inventory records when discrepancies are discovered. The records should be corrected to reflect what inventories are actually on hand because item managers need such information to make day-to-day supply management decisions.

[1] Inventory Management: Problems in Accountability and Security of DOD Supply Inventories (GAO/NSIAD-86-106BR, May 23, 1986).

Our individual reports contain recommendations to the services and DLA. In addition, our most recent assessments and the longstanding nature of the problems the services and DLA have in managing their inventories, indicate that DOD needs to take some overall actions. We are therefore, recommending that you:

- Require adjustments to inventory records as soon as they are identified through physical inventories or other methods.
- Develop a comprehensive policy on inventory management and measuring inventory accuracy, addressing such areas as (1) the adequacy of the Inventory Control Effectiveness Report for management oversight, and (2) eliminating the practice of reversing prior inventory adjustments.
- Reemphasize the need for effective causative research that identifies inventory variances and analyzes them to identify systemic problems. Variances currently under the monetary criteria for causative research should be sampled as further input to identifying systemic problems.

These recommendations were in our recent testimony which we discussed with several DOD officials, who generally agreed and said that they would consider them when revising current policies.

As you know, 31 U.S.C. 720 requires the head of a federal agency to submit a written statement on actions taken on our recommendations to the House Committee on Government Operations and the Senate Committee on Governmental Affairs not later than 60 days after the date of the report and to the House and Senate Committees on Appropriations with the agency's first request for appropriations made more than 60 days after the date of the report.

We are sending copies of this report to the Chairmen, House and Senate Committees on Appropriations and Armed Services, House Committee on Government Operations, and Senate Committee on Governmental Affairs; the Director, Office of Management and Budget; and other interested parties.

Sincerely yours,

Frank C. Conahan
Assistant Comptroller General

GAO Testimony on Department of Defense Inventory Management Problems

The following testimony, "Department of Defense Inventory Management Problems Continue," was given by Charles A. Bowsher, Comptroller General of the United States, on October 27, 1987, before the Committee on Governmental Affairs, United States Senate.

Mr. Chairman and Members of the Committee:

We are pleased to be here today to discuss inventory management in the Department of Defense. Today, effective management is more important than ever because of the growth in DOD inventories.

In this overview today, and in a series of more detailed reports, we address the problems DOD has in assessing how well its inventories are managed.

Results in Brief

In the last several years, we and DOD audit agencies have issued numerous reports addressing serious inventory management deficiencies, such as inaccurate inventory records, poor physical inventory controls, and inadequate controls and accountability over government property furnished to contractors.

Last year, DOD revised its 1982 5-year improvement plan to address many specific inventory-management problems. Also, after we issued our overview report on supply system problems in May 1986, DOD identified, for the first time, inventory controls as a DOD-wide concern in its annual Federal Managers Financial Integrity Act report to the President and the Congress. However, our current work shows that DOD does not have accurate data on which to base management decisions. Therefore, DOD needs to place increased emphasis on inventory management, particularly because of inventory growth over the past few years, which has added to previous problems.

The value of DOD's inventory of secondary items, such as repair parts and supplies, is estimated at over $90 billion, almost twice as large as it was just 5 years ago. This inventory may be more than DOD needs or can efficiently manage. For example:

1. There has been a significant increase in the amount of secondary-item inventories excess to requirements. At the beginning of fiscal year 1987, these excesses were valued at $29.5 billion, up from $10.2 billion in 1981.

2. DOD has bought large amounts of repair parts, in support of newly fielded systems, that are not needed to support the systems in the first few years of their operations.

3. DOD warehouses are being filled to capacity, resulting in DOD relaxing its policy of not disposing of any item supporting a weapon system still being used.

We are completing reviews on a number of inventory management issues, which we will be reporting on over the next few months. This overview statement concentrates on three areas: (1) the accuracy of inventory records, (2) the effectiveness of research to identify the causes of inventory discrepancies, and (3) the physical protection of DOD assets.

Concerning the accuracy of inventory records, we found several problems with DOD's current reporting system, including DOD policies that allow some data to be incomplete, and examples where the services' practices merely make the accuracy indicators look better without contributing to improved management. Overall, we found that inventory accuracy is much less than DOD's reported accuracy indicates. We also found a growing trend for DOD to do more unscheduled inventory counts directed at investigating known inventory discrepancies. In itself, this is an indicator of a growing management problem.

Because of the problems we found, management cannot rely on reported inventory accuracy as a basis for identifying potential problems and taking corrective actions. To get a representative view of inventory accuracy, we conducted our own statistically-valid inventory counts. Our results show that inventory accuracy can range much lower than the accuracy reported by DOD. Also, we developed data on quantity accuracy—something DOD does not currently do, but should.

Turning to the issue of research—which is supposed to identify the causes of inventory discrepancies so management can take corrective action, we found that the services' and DLA's research is not effective because it (1) sometimes is done just to make inventory accuracy reports look better, and (2) generally does not identify the causes of inventory variances. Some DOD officials are now questioning whether such research should be done at all, especially in light of continuing reports by us and others that much of the research that is performed is ineffective.

Finally, turning to the area of good physical security—a prerequisite of good inventory management—we testified last year that we had made undetected entries into Army and Air Force supply warehouses in Europe. In our current work, we again found inadequate security at some of the areas we visited. In all cases, the services and DLA are taking corrective actions in response to the security shortcomings we noted.

Background

Last year, we reported to the Chairman of the Senate Armed Services Committee's Task Force on DOD Inventory Management that there was a wide range of DOD inventory management problems.[1] At that time, the scope of our work was to look at the entire supply system. Our report and later testimony before the Task Force provided a snapshot of supply system problems. Because we found problems at all 30 locations we visited, we considered our findings representative of DOD inventory management problems. What we could not do within the scope of that effort was to identify the magnitude of the problems, the causes, and the corrective actions needed. As a result, the Task Force and this Committee asked us to take a more detailed look at several aspects of DOD inventory management. Today, we are providing an overview of our assessment of DOD inventory accuracy. We recently issued our report on the Army's inventory accuracy, and we will issue reports on the Defense Logistics Agency (DLA), the Navy, and the Air Force shortly. In the next few months, we will also be reporting on the other areas we are reviewing, such as contractor access to DOD's supply system and the management of government material furnished to them.

Inventory management in DOD is an extremely large, complex task in which one can never expect 100-percent accuracy. It is an area with a long history of problems, and DOD is taking many corrective actions. It is an area where financial management reform could produce significant improvement.

Mr. Chairman, in my recent testimony on your proposed legislation—the Federal Financial Management Reform Act of 1987 (S.1529)—I reiterated my strong belief that a legislative underpinning is crucial for success of the reform efforts. The act would provide many of the essential elements for successful financial management reform, including centralized leadership to plan and direct the improvement efforts and corresponding leadership in executive departments and agencies to

[1] Inventory Management: Problems in Accountability and Security of DOD Supply Inventories (GAO/NSIAD-86-106BR, May 23, 1986).

implement the plan. Your proposed legislation may be the impetus needed to correct the management and accountability problems, such as those we will discuss today and others that are being increasingly highlighted in a wide range of areas throughout the government.

Magnitude of DOD Supply System

To support its weapon systems, base operations, and other activities, DOD's supply system contains an estimated 4.5 million different items. There is no comparable supply system anywhere. While the sheer magnitude makes it a challenge to manage, the magnitude also makes it imperative to have good management to promote efficient and effective operations, support military missions, and protect the inventories from fraud, waste, and abuse.

Long-Standing Problems Persist

When we started our work last year, we identified and reviewed 347 reports, issued between 1981 and 1985 by us and DOD audit agencies, which reported on various DOD supply system problems. Over the years, such reports have led to congressional concern and DOD actions. For example:

- In 1981, the Congress investigated large increases in the value of inventory adjustments at naval supply centers—from $67 million in fiscal year 1978 to $504 million in fiscal year 1981. The investigation and later hearings in February 1982 established that the large increases were symptomatic of serious inventory management deficiencies, e.g., lack of management concern and accountability and ineffective physical inventory controls.[2]
- In April 1983, follow-up hearings were held on the military supply systems inventory-control problems.[3] At that time, we reported that the Navy had 73 initiatives, completed or ongoing, designed to improve physical inventory controls and records accuracy. However, we also

[2]House Armed Services Committee, Subcommittee on Readiness (1) Staff Report on Investigation of Losses at Naval Supply Centers. (Feb. 10, 1982), and (2) hearing on Inventory Management Control Policies and Practices: Resource Accountability and Losses at the Norfolk Naval Supply Center (Feb. 19, 1982).

[3]House Armed Services Committee, Subcommittee on Readiness, Progress Made by the Navy in Improving Physical Inventory Controls and the Magnitude, Causes, and Impact of Physical Inventory Adjustments in the Army, Air Force, and Defense Logistics Agency (Apr. 27, 1983).

reported that the magnitude and impact of the inventory accuracy problems in the Army, Air Force, and DLA were much greater than DOD previously recognized.[4] DOD, at that time, was developing a physical inventory improvement plan that called for a series of actions through fiscal year 1985 intended to identify improvements needed in policies, procedures, and standards for upgrading inventory record accuracy.

- During the period from August 1983 through September 1984, the DOD Inspector General and the service audit groups performed a defense-wide audit to respond to supply system problems identified by the Congress. In August 1985, the DOD Inspector General reported that DOD and its components were responding to the congressional criticism; however, some procedures needed to be refined or revised, and the execution of others was still seriously deficient. For example, methods used to select items to be inventoried did not meet DOD policy, and causative research was not identifying and correcting causes of inventory discrepancies.[5]

In January 1986, DOD revised its 1982 5-year improvement plan to address specific inventory-management problems. After we issued our report in May 1986, DOD identified, for the first time, inventory controls as a DOD-wide concern in its annual Federal Managers Financial Integrity Act report to the President and the Congress.[6]

As we will discuss today, we believe that continued improvements in DOD's inventory management require high-level management emphasis and exploration of new ways to address the long-standing problems.

Inventory Growth Has Increased Problems

DOD's supply-system problems and congressional concerns are not unique to the 1980s—rather, their roots go back to the 1960s and 1970s. The recent large-scale military build-up, however, has added to previous problems. For example, DOD's inventory of secondary items—such as repair parts, supplies, and clothing—have grown substantially—from $48 billion in fiscal year 1981 to over $90 billion today. According to DOD, this growth primarily resulted from increased costs and the need to support its large weapon systems modernization program. However, the growth can also be attributed in part to other reasons. For example, the

[4]Navy's Progress In Improving Physical Inventory Controls and the Magnitude, Causes, and Impact of Inventory Record Inaccuracies in the Army, Air Force, and Defense Logistics Agency (GAO/NSIAD-84-9, Nov. 4, 1983).

[5]Defense-wide Audit of Physical Inventory Adjustments, Office of the Inspector General, Department of Defense (Aug. 16, 1985).

[6]Department of Defense Annual Statement of Assurance for Fiscal Year 1986 (Dec. 30, 1986).

lead times necessary to procure inventories have lengthened for several reasons. Administrative lead time has increased to compensate for DOD initiatives and congressional legislation to expand competition. Longer lead times result in larger inventory investment to support systems during this time. DOD estimates that each day of lead time may add up to $40 million to the budget.

While DOD's readiness and sustainability missions and goals require it to maintain a certain level of inventory, there are indicators that DOD's inventory growth may be resulting in substantial investment beyond that needed to meet its missions. These indicators are

- a significant increase in the amount of inventory items excess to requirements;
- DOD may be buying too much too early to support the newer, more sophisticated weapon systems; and
- DOD's admission that its warehouses are filled to capacity, resulting in its relaxing its policy of not disposing of any item supporting a system still being used.

It is important to note that these are only indicators of over-investment. We have not yet compiled sufficient data on which to reach a firm conclusion.

Excess Items

In January 1987, we reported that excess inventory levels in the Air Force were growing.[7] For the 1-year period ending March 31, 1986, the Air Force's on-hand and on-order excess aircraft spare parts had increased from $3.4 billion to $9.4 billion. As a percentage of total inventory, the excesses grew from 9.6 percent to 25.1 percent.

In our current analysis, we found that for all of DOD the amount of secondary items identified as excess has grown almost 200 percent between fiscal years 1981 and 1987.[8] In dollar figures, these excesses are valued at $29.5 billion, up from $10.2 billion in 1981.

While excesses can develop as items become obsolete because new weapon systems are fielded, there are indications that too much was

[7]Air Force Budget: Potential for Reducing Requirements and Funding for Aircraft Spares (GAO/NSIAD-87-48BR, Jan. 13, 1987).

[8]Excesses are identified when analysis shows that they are in "long-supply," i.e., that they exceed known requirements. Dollar figures are as of the beginning of the fiscal year.

bought to support new weapon systems. This is a difficult area to manage and needs continuing attention.

Support of New Systems

There is uncertainty about what is needed to support the newer, more sophisticated weapon systems being fielded today. As a result, DOD may be buying too much too early, which contributes to inventory growth. Initially, the amount of repair parts needed are estimated and usually provided with the systems when they are fielded. Last year, we reported that repair parts inventories in Europe became too large for Army units to manage effectively—most parts were not needed to support the weapon systems in their first 2 years of fielding. Army units in Europe later returned 70 to 80 percent of these repair parts as excess to Army depots in the United States. Army officials told us that they bought too much because they did not have the engineers needed to adequately assess what the contractors said was needed to support the systems.

We also found early buys of large quantities of parts for the B-1B aircraft. The cost of spares purchased through fiscal year 1986 for the B-1B totaled about $2.3 billion. The Air Force acquired the spares under a concept called "expanded advance buy," which involves procuring combined initial and replenishment spares in quantities anticipated to be needed to support the aircraft for 4 years. The Air Force expected cost savings of about $150 million by enabling contractors to reduce production and administrative costs.

However, because of the high degree of concurrent development and production on the B-1B, an increased risk of unstable systems and obsolete parts existed. The B-1B defensive avionics system is unstable and will require extensive modification over the next several years. As a result, some portion of the spare parts procured for this system (over $800 million as of July 1987) will likely become obsolete and require either modification or disposal. The extensive system development planned over the next several years precludes a current determination as to the cost of such modifications or the extent of disposals.

For those items that the services ask DLA to stock in support of new weapon systems, DLA data shows that on average there is no demand for 56 percent of these items during the first 2 years after a system is fielded and no demand for 44 percent during the first 3 years. In the 4- to 6-year range, there is still no demand for about 35 percent of the items.

Warehouses Filled to Capacity

In December 1986, DOD notified the services and DLA that warehouses were almost filled to capacity. Data showed that DOD warehouses were filled at the 88-percent level, with several large depots filled much higher. According to DOD, when warehouses are filled above 85 percent, depot efficiency and productivity suffer. As a result, DOD relaxed its requirement to retain all items held to support weapon systems currently in the inventory. This would allow some of these inventories to be disposed of. The original retention policy was required because DOD found that it was disposing of spare parts for some systems and then buying them later, often at much higher prices.

The initial requirement to hold all such support items resulted in inventory disposals of excess items decreasing from a peak of almost 5 percent of inventory in fiscal years 1978 and 1979 to less than 0.5 percent in fiscal years 1985 and 1986. As a result, DLA estimates that $1 billion of its inventory growth from 1981 to 1986 was because of this requirement.

Our observations confirm that DOD warehouses are filled near capacity. While large inventories should enable the supply systems to provide military units with what they need, the question is whether this can be done more economically and efficiently. Overcrowded warehouses can make it more difficult to properly store and locate inventories.

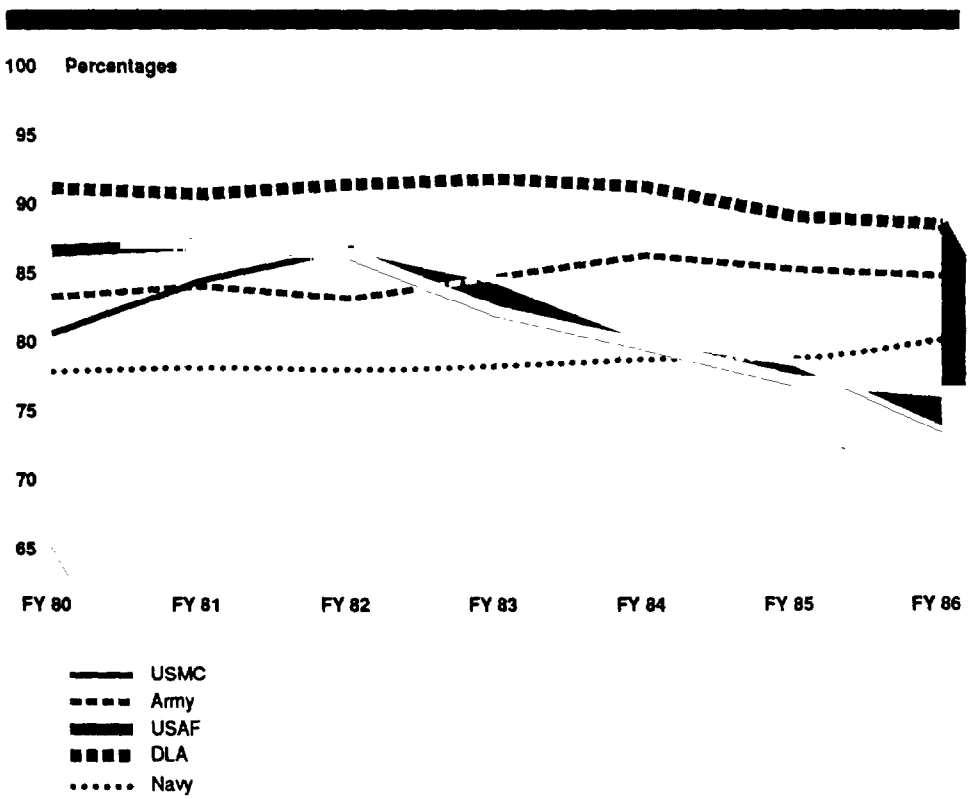
DOD statistics in the following chart show that with the large-scale inventory increases since 1981, the Army's and Navy's wholesale level stock availability (how often demands for items are filled with stock on-hand) improved somewhat, while DLA's stayed the same.

The chart also shows that stock availability in the Air Force and Marines decreased. According to DOD, this was because (1) the Air Force has moved a lot of items to the user level and (2) the Marines have transferred most consumable items to DLA and now manage mostly reparables.

Importance of Good Criteria for Measuring and Reporting Inventory Accuracy

Because of the large volume of transactions—such as receipts and issues and other adjustments to inventory records—DOD inventory records are constantly changed, and the inventories also experience significant "gains" and "losses." If you have more inventory than you think you have, improper management decisions are made because new stocks are ordered before they are needed. If you have less inventory on

Figure I.1: DOD Stock Availability (FY 80 - FY 86)



hand than your records show, you may not be able to adequately accomplish your mission. In addition, inventories are susceptible to waste or fraud without detection when records do not accurately reflect what is in the warehouse. Therefore, management needs an effective way of identifying inventory accuracy problems, measuring their severity, and determining reasons for the inventory inaccuracies and the corrective actions needed.

Reported Inventory Accuracy Data Is Inaccurate

Reported inventory accuracy data does not reflect actual inventory accuracy for several reasons.

1. DOD policies allow some inaccuracies to not be reported and/or not included in calculating inventory accuracy.

2. The services sometime take actions which just make reported inventory accuracy look better without contributing to improved management.

3. On the other hand, the basis for DOD inventory accuracy reporting tends to make accuracy look worse than it actually is because of a trend for DOD to do more inventories directed at investigating a known problem, rather than the inventories being representative of overall inventory condition.

To get an independent, representative assessment of inventory accuracy, we conducted our own statistically-valid sample inventories and calculated three indexes of accuracy. Because we used a projectable sample, we were also able to analyze our sample results by categories, such as dollar-value or item type.

Reported Inventory Accuracy Data

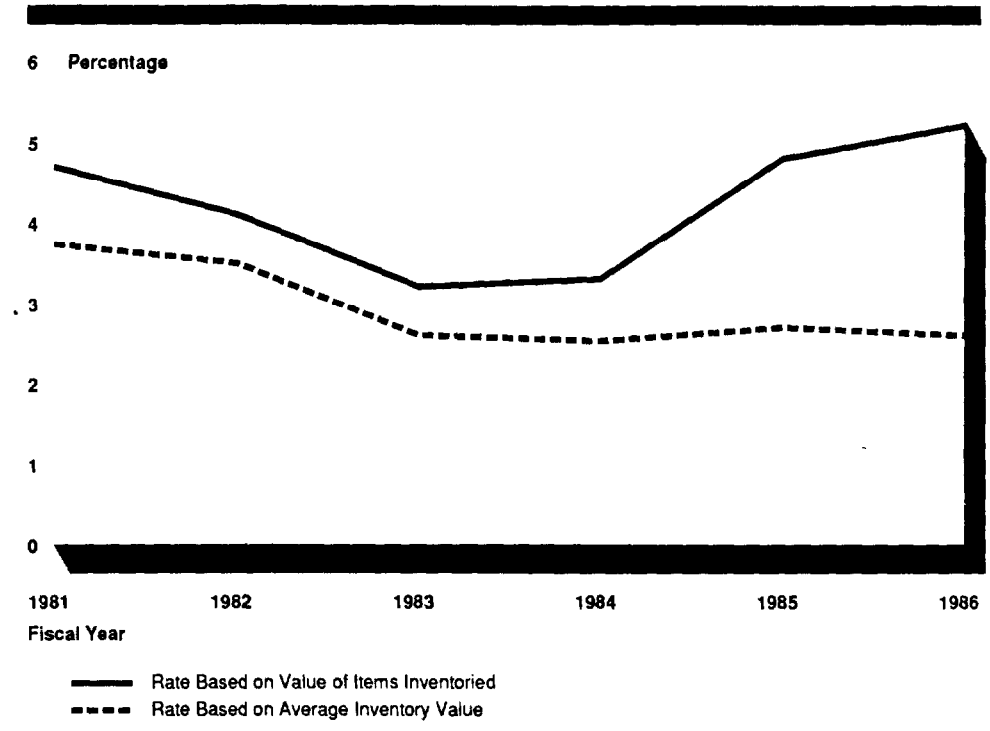
DOD's Inventory Control Effectiveness (ICE) Report is prepared quarterly and annually and contains data on the services' and DLA's inventories, including inventory value and measures of inventory accuracy. One measure, the "gross monetary adjustment rate," shows the relationship of the value of gross inventory adjustments (gains and losses) to both average inventory value and the value of material inventoried. In fiscal year 1986, DOD's overall inventory accuracy was reported as 97.4 percent based on total average inventory value and 94.8 percent based on the value of items inventoried. (In fiscal year 1986, DOD inventoried 50 percent of its inventory value, down slightly from 57 percent in fiscal year 1985.)

As shown in the next chart, the reported inaccuracy rate based on the value of items inventoried has gotten worse over the last 2 years, going from 3.3 percent in fiscal year 1984 to 5.2 percent in fiscal year 1986.

The increasing adjustment rate reflects the growing numbers of unscheduled inventories—inventories done to investigate known problems. While a large number of unscheduled inventories are, by themselves, indicators of inventory problems, such inventories would tend to show lower accuracy rates.

The monetary adjustment rates can be inaccurate indicators of inventory accuracy for several other reasons. In addition to normal updates for receipts and issues, inventory records also experience a lot of changes as the services and DLA adjust them on the basis of physical inventories. In addition, DOD allows adjustments to inventory records to be "reversed" when prior adjustments can be used to explain the variances. Although the dollar value of reversals is reported to DOD, it is excluded in the computation of gross monetary adjustment rates and,

Figure I.2: Comparison of Gross Monetary Adjustment Rate Based on the Average Value of the Inventory With the Rate Based on Value of Items Inventoried



therefore, management is not using all available data to identify potential inventory management problems. Including reported reversals in total inventory adjustments lowers the overall DOD monetary accuracy rate from 94.8 to 86.9 percent based on value of items inventoried. Further, as I will discuss later, reversals are often made to make the accuracy rate look better rather than to identify real errors so they can be corrected.

Another measure of inventory accuracy required to be reported in the ICE report is "inventory records accuracy." The accuracy of inventory records—how often a record and a physical count agree--are reported by the services and DLA to be in the 80- to 95-percent range.

Although records accuracy rates are an important measure of inventory accuracy, they do not by themselves show the extent to which the records are inaccurate. For example, although a record showing 100 units in stock is inaccurate if the actual stock on hand is anything less than 100 units, it is important to know whether the on-hand stock is 1 unit or 99 units. To get this type of evaluative information, quantity

accuracy has to be measured. DOD does not currently measure quantity accuracy but it is moving in that direction.

In addition, DOD requires that only records with major adjustments (those with a dollar value over $800) be reported and, therefore, considered in computing record accuracy rates. Since record accuracy rates provide a preliminary management indicator on which decisions are being made, we believe all adjustments should be considered as a basis for management action.

For example, in its fiscal year 1986 ICE report, the Air Force reported that 56,510 of the items inventoried had major inventory adjustments and, therefore, that its inventory accuracy rate was 82.5 percent. However, the Air Force also had an additional 137,977 minor adjustments that were not reported. Considering all adjustments reduces the Air Force's record accuracy rate to only 40 percent. While it is appropriate for DOD to concentrate first on the higher-value items, it should also be concerned about the significant amount of inventory adjustments on the lesser-valued items. In the Defense supply system, even a low-value item may be critical to weapon system operations. We think that a positive first step addressing the need to measure and evaluate all inventory variances is that DOD is now changing its regulations to require its components to include both major and minor adjustments in computing record accuracy rates.

This change should be especially helpful to DLA management because DLA is in the business of managing low-value, consumable items common to all of DOD. For example, during fiscal years 1985 and 1986, 87 percent of DLA depots' inventory adjustments were under the $800 criterion and, therefore, were not considered in computing record accuracy rates. Included in these minor adjustments would be sensitive and pilferable items—such as medical supplies—and a wide range of consumer items—such as clothing, film, and garden hoses.

Reported Accuracy Data Is Questionable

In addition to the above concerns on reported inventory accuracy data, we found several service practices that are further inhibiting the reporting of correct inventory accuracy data.

At the Army's Tank Automotive Command, some inventory adjustments are not being reported. Army personnel sometimes conclude that a current inventory adjustment is not a problem, and therefore not reportable, by going back several years in the inventory records to "reverse"

prior transactions or adjustments. This is contrary to DOD policy and to good management practice. For example, our review of 15 adjustments, each valued at over $20,000, that the Command processed in October 1986 showed that 8 were improperly resolved by reversing old transactions. As an example, an October 1986 physical inventory at the Army's New Cumberland depot revealed a shortage of 11 truck axle assemblies, each costing $11,066. Rather than recording this as an inventory loss of $121,726, the Command ostensibly resolved the loss by partially reversing a June 1980 gain of 25 axles. This action assumed that the 1980 gain transaction and later inventories were erroneous, even though such a gain would not have been posted to the records unless it had been verified by three counts. Such resolutions were not even reported by the Command as "reversals." Rather, they were treated as "accounting errors" and were never considered in assessing inventory accuracy. More importantly, no emphasis was given to determining why the inventory was short 11 axle assemblies.

At the Norfolk Naval Supply Center, in addition to using old transactions to resolve current discrepancies, the Center also overstated the value of items physically inventoried, which made its inventory accuracy look better than it was. Specifically, Supply Center officials included the results of quarterly routine maintenance checks on a small number of high-value items—F-14 engines—as though they were physical inventories. Since such items are closely controlled, their inventory records are highly accurate. However, by counting these engines four times in a single year in the value of the items inventoried (the denominator of the inventory accuracy statistic), the inventory accuracy rate was artificially increased during the reporting period. For example, in fiscal year 1986, engine maintenance checks accounted for $1.06 billion, or 27 percent of the total value of items inventoried. Not including these in calculating inventory accuracy would have raised the reported adjustment rate from 3.2 percent to 4.4 percent, a significant increase.

Scheduled Versus Unscheduled Inventories

Scheduled inventories are routinely done as an internal control. In addition, unscheduled inventories are done to investigate a suspected or known problem. A growing trend of unscheduled inventories is, in itself, an indication of inventory accuracy problems. For example, at the Army's New Cumberland Depot unscheduled inventories have grown from 60 percent of all inventories in fiscal year 1984 to over 90 percent in fiscal year 1986. At the Norfolk Naval Supply Center they grew from 63 percent to 75 percent during this same period.

GAO Statistical Samples of Inventory Accuracy

Because of reporting and accuracy problems and the growing trend for the services and DLA to do more unscheduled inventories directed at examining a problem, the reported inventory accuracy data is not representative of actual conditions. Therefore, to get an independent assessment of inventory accuracy, we physically inventoried statistically sampled items at one major depot or supply center in the Army, Navy, and DLA. Since the Air Force, to their credit, already performs an annual sample inventory at each of its Air Logistics Centers, we did not duplicate its effort. We do, however, have some concerns on its methodology and subsequent reported results. The Navy has also begun implementing a statistical-sample methodology, but it is too soon to evaluate its results. Also, in response to our reports, the Army and DLA will now require an inventory sample to provide management a more representative view of inventory accuracy.

Results of GAO Sample

We used the results of our sample to calculate three measures of inventory accuracy: (1) records accuracy—how often the inventory records and a physical count agree, (2) quantity accuracy—the quantity of units counted as a percent of the quantity shown on the record, and (3) dollar value accuracy—the dollar values counted as a percent of the dollar values shown on the records.[9] No one measure alone is adequate for evaluating inventory accuracy. Rather, they need to be considered together. The following chart shows records, quantity, and dollar accuracy rates for the services and DLA.

Table I.1: Indicators of Inventory Accuracy

	Accuracy As A Percentage Of				
		Recorded Quantity		Dollar Value	
Activity	Records overall	From	To	From	To
Army Tank and Automotive Command	44	64	99	60	99
Navy Supply Center, Norfolk	69	80	100	72	100
Air Force Logistics Command	68	37	93	76	93
Defense Logistics Agency	63	85	99	82	98

Note: The "records overall" column demonstrates the percentage of times the inventory records showed the number of items on hand that were actually on hand. The ranges shown for quantity and dollar percentages for the Army and Navy were determined by grouping items by dollar value, determining their average accuracy by groups, and arraying them from lowest to highest accuracy. Ranges for DLA were computed and arrayed by commodity types, such as medical or construction items. Ranges for the Air Force were based on what they computed by Air Logistics Center.

[9]Our sample results are projectable to Tank-Automotive Command managed items at the Army's New Cumberland Depot, items stored at the Navy's Norfolk Supply Center most of which were managed by the Ships Parts Control Center, and DLA managed items at DLA's Mechanicsburg Depot.

We found that inventory record accuracy, that is, how many individual item records agree with a physical count of the assets was between 44 percent and 69 percent. Air Force sample data, when corrected for what we believe are methodological flaws, showed records accuracy results consistent with the range of our sample results. Overall, our records accuracy rate was higher than what DOD's inventories initially find because many of its inventories are unscheduled.

The lower end of our sample range for dollar value accuracy is below the services' and DLA's reported monetary accuracy rates because of the reporting issues and service practices previously discussed, which make the reported rates inaccurate. Only the Air Force currently calculates a quantity-accuracy rate; therefore, there are no other DOD comparisons to our sample results.

Because our samples were stratified by value of items, or by types of commodities for DLA, we identified areas of specific concern that would not be visible in DOD's inventory accuracy reporting. We were surprised by some of our sample results—especially on the lower accuracy rates for controlled items at DLA and for high-dollar value items at the Tank Automotive Command.

In our sample inventory of DLA items, record accuracy rates for controlled items stored in vault and caged areas were about the same as the 63-percent records accuracy rate for all items in our DLA sample. While records were inaccurate for vault-stored items, the monetary and quantity accuracies—of 98.8 percent and 98.6 percent, respectively—were near the 100-percent accuracy one would expect for this type of controlled storage. The caged items, however, had much lower accuracy levels—90.9 percent for dollar value and only 69.5 percent for quantity accuracy. Medical items accounted for 11 of the 14 losses that occurred in vault storage and 18 of 25 losses in caged storage.

Record accuracy variances for our Army-sampled items were fairly well distributed among the various price ranges. However, when we analyzed gross adjustments and inventory values by unit price and looked at their relationship, we found that inventory accuracy was lower for high-dollar value items—over $50,000 unit price. Subsequently, the Army is investigating this situation and initially told us that part of the problem is that some items were incorrectly shown as being at the Army depot where we did our analysis when, in fact, they had been sent to contractors for repair.

Since no one indicator is the best measure of inventory management effectiveness, several indicators should be evaluated to get a good picture of inventory accuracy. In fact, measuring inventory effectiveness in terms of the relationship of variances to inventory values identifies only the dollar magnitude of inventory management problems. Management must then take effective action to research the cause of the variance and correct the problems that gave rise to the variances in the first place.

Causative Research Does Not Effectively Identify and Help to Correct Recurring Causes of Inventory Error

Causative research within the services and DLA is not effective because it (1) sometimes is done just to make inventory accuracy reports look better, and (2) generally does not identify the causes of inventory variances. Some DOD officials are now questioning whether such research should be done at all, especially in light of continuous reports by us and others that much of the research that is performed is ineffective.

While eliminating causative research may be an outcome of such questioning, there is currently no substitute for it as a tool to improving inventory management. What is needed is for DOD to direct its research efforts at identifying the causes of inventory problems. Currently, some of the research done is directed at eliminating a physical inventory variance that would have to be reported, rather than at determining the cause of the inventory discrepancy in the first place. We identified numerous instances of this during our field work.

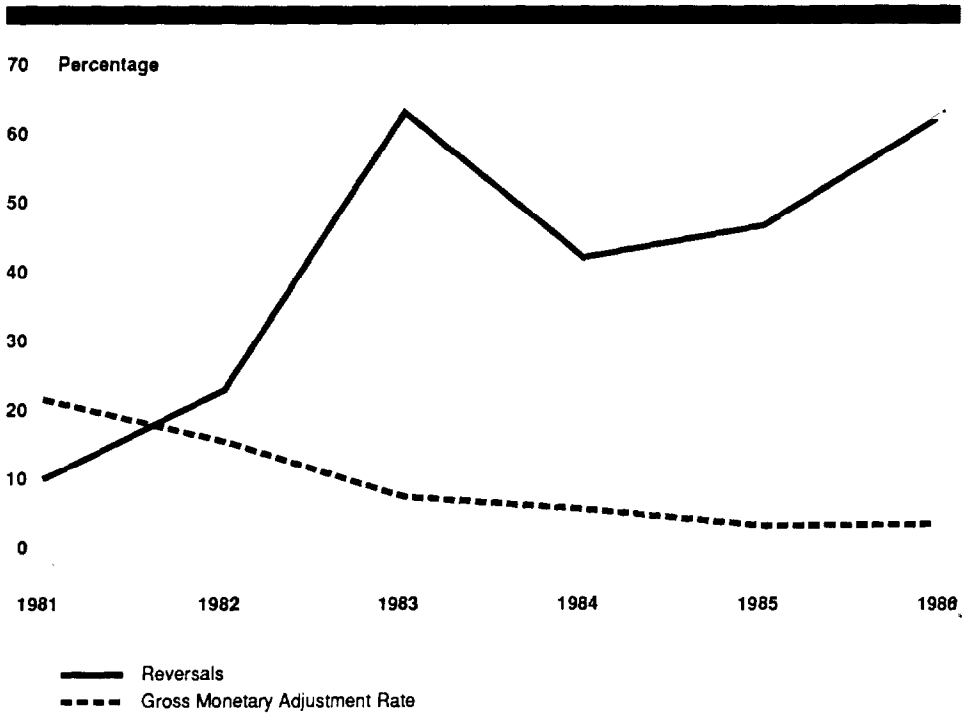
For example, during fiscal year 1986, the Army's New Cumberland Depot reported that it resolved inventory variances for 82 of the 114 causative research requests that the Tank Automotive Command asked it to do. However, the depot considers resolved to mean that it was able to reconcile the inventory variance, not to identify the cause for the variance. Actually, the depot identified causes for only 16 of the 114, or about 14 percent of the inventory variances examined. The causes for the remaining 98 variances were not determined.

An example of what the depot considers a "resolved" variance illustrates the ineffectiveness of its causative research. On January 29, 1986, the depot reported that research showed that the loss of two TOW missile vehicle support assemblies (valued at $15,730) was due to an erroneous gain of four assemblies on April 15, 1985. However, in previously explaining the April 15, 1985, transaction, the depot said that the gain was partially due to an erroneous loss of three assemblies on August 18, 1984. In both cases, the research process was terminated without further investigation to determine the reasons for the gain or

loss. The inventory turbulence for this item will likely continue unless the cause can be determined.

At the Norfolk Naval Supply Center, we found that research often merely resulted in an adjustment or reversal. It is interesting to compare the Supply Center's reported inventory accuracy rate with the growing trend of reversals since 1981 when the Congress severely criticized the Supply Center for its accuracy problems. As shown in the following chart, in 1981 the Supply Center reported a gross inventory adjustment rate of 21.3 percent and a reversal rate of 9.7 percent. In 1986, the Supply Center reported its gross inventory adjustment rate at 3.2 percent—just over the Navy's 3.0 percent goal. However, at the same time reversals, which improve the reported inventory accuracy rates, had increased from 9.7 to 62.5 percent. Although not conclusive, this pattern suggests that a primary purpose of causative research and reversals is to make inventory accuracy look better.

Figure I.3: Comparison of Changes of Reversals and Gross Adjustment Rates FY 1981 To FY 1986



Our concern over the routine use of reversals is demonstrated by what happened at the Supply Center on a trainer aircraft radar set valued at

over $1.2 million. A physical inventory in July 1985 found the Supply Center one radar set short. After causative research failed to determine why the Center was short, the researcher concluded that the radar set was probably never received and that a receipt for one set delivered 5 years earlier should be reversed. This is not adequate accountability for an item valued at over $1 million.

In another case, different items with gains and losses were treated as though they were identical, thereby offsetting the gains with the losses and resolving the variances. In the January 1986 physical inventory, a loss of one compressor worth $244,920 was recorded and an adjustment posted to the records. Later, the Supply Center offset this loss with a gain of another unrelated compressor worth $104,360 and reversed the earlier adjustment. Technical experts with the Navy state that these two line items are not interchangeable. In this example, the Navy created two problems by trying to solve one.

Paralleling good causative research should be the ability to identify and analyze trends. For example, overall inventory accuracy data DLA reported to DOD showed a $23.5 million net gain during fiscal year 1986. However, our analysis showed that this net gain included DLA items stored at other service facilities. When we analyzed only the DLA-managed items stored at its own depots, we found that it was experiencing a net loss. For two types of items highly susceptible to theft or diversion—medical and clothing and textile items—DLA had a trend of losses totalling $30 million during fiscal years 1985 and 1986.

At DLA, because it is in the business of managing low-value, consumable items, we are concerned because 87 percent of its inventory variances are under $800 and, therefore, usually not researched. DLA should evaluate whether it should be researching more of these variances to (1) provide a cop-on-the-beat atmosphere and (2) provide management more information on the causes of all inventory variances.

Starting in June 1986, the Air Force began implementing a new causative research policy that DOD had not yet approved. DOD policy is that research must be done on a sample of item variances between $800 and $16,000 and on all variances for controlled items or those over $16,000. Under the Air Force's new policy, potential variances of less than 10 percent in quantity or less than $5,000 in value will not be adjusted or researched, and only monetary variances greater than $16,000 will require complete causative research. The Air Force adopted this policy

to, in its opinion, lessen the amount of records adjustments that it considered unnecessary and to reduce the amount of research.

While it is too soon to evaluate this new policy, we believe that when a physical count shows that the number of items on hand differs from what the records show, the records should be changed. Otherwise, procurement or other decisions may be made on erroneous information.

Concerning the Air Force's new policy on causative research, the revised criteria seem high, considering that a significant amount of inventory discrepancies are under the $800 criteria. However, we can understand what may have driven the Air Force to its change—a declining efficiency of causative research. For example, for fiscal years 1984 through 1986, the San Antonio Air Logistics Center's ability to identify the causes of variances had steadily declined. Research findings were reported to be inconclusive 45 percent of the time in 1984; 61 percent in 1985; and 76 percent in 1986. In fiscal year 1986, San Antonio's experience was generally in line with the other Air Logistics Centers.

Importance of Good Physical Security

Good physical security is a prerequisite of good inventory management. When accountability over inventories is a problem, good physical security is necessary to prevent theft and diversion occurring without detection. For example, in 1986 the Air Force Inspector General reported on Air Force supply system vulnerability and concluded that Air Force physical security practices at both wholesale and retail maintenance and supply activities provided numerous opportunities for theft.[10] The Inspector General also found that weaknesses in inventory procedures and adjustment practices could have resulted in inaccurate records at wholesale and retail activities and, therefore, could have resulted in theft or diversion of property. We testified last year that we made undetected entries into Army and Air Force supply warehouses in Europe and could easily have removed items, including spare parts for F-15 and F-16 aircraft.

While the thrust of our current work was directed at inventory accuracy rather than security, we did review security at some locations and found problems. For example:

[10]Special Inspection of Supply System Vulnerability. Office of Air Force Inspector General (Feb. 26, 1986). Details of this report are not releasable without permission of the Secretary of the Air Force.

- In the Army, we found numerous instances where physical security was inadequate. The physical deficiencies we noted applied not only to repair parts but also to sensitive missiles that could be targets for theft by terrorists. The range of security deficiencies included inadequate and improper storage facilities, inoperative detection devices, poorly equipped and poorly trained guards, and poor accountability for and control over sensitive items.
- In the Navy, we reviewed security, starting at base perimeters and working towards storage and maintenance facilities. We found problems in several areas: (1) protection of restricted areas, (2) control of commercial vehicles, (3) provision for waterfront security, (4) compliance with fencing requirements, and (5) control over private boats and airplanes on Navy bases.
- At DLA, we observed inadequate storage and protection over pilferable items and noted that other security concerns were identified in security reviews but did not result in adequate management attention.

In all of the above cases, the services and DLA are already taking corrective actions in response to our findings.

Internal Controls and Accounting Systems

What is obvious from what I have discussed so far is the absence of, or a breakdown in, inventory management internal controls. What is less obvious is the role financial controls should play in good inventory management.

Congress has long recognized the importance of having adequate internal controls and accounting systems. In response to continuing disclosures of fraud, waste, and abuse across a wide spectrum of government operations, the Congress passed the Federal Managers Financial Integrity Act of 1982. The Act requires federal managers to identify internal control and accounting system weaknesses that can lead to fraud, waste, and abuse in government operations. The Act also requires federal managers to correct the weaknesses and to report annually to the President and the Congress on their progress to improve controls and accounting systems.

In his December 30, 1986, report, the Secretary of Defense said that due to the scope of reported weaknesses and the magnitude of individual problems, the inventory control and security aspect of supply operations was a DOD-wide material weakness.

While DOD is concentrating first on improving its property and physical controls over inventories, it should also be implementing good internal financial controls and accounting systems to assist management.

The need for better controls and reporting was clearly shown when the Navy lost accountability over reparable items that are with commercial contractors and other services for repair. Navy supply centers notify the Navy's Ships Parts Control Center (SPCC)—an inventory control point—when they send an item out for repair, and the contractor or service repair facility is supposed to notify SPCC of receipt of the item.

We found that subsequent to a Navy audit of the Aviation Supply Office—the Navy's other inventory control point—in 1984, SPCC reviewed its controls over reparable assets at contractors and service repair facilities. SPCC realized that it had lost visibility over these items and, in 1985, wrote a letter to contractors, explaining

"...We have a problem in that our computer files have no visibility of our repairable components in your [the contractor's] facility: Due to this lack of information, we have great difficulty in making accurate supply decisions as to when and how much to buy or repair".

SPCC told the contractors that it needed their help to identify the dollar amount of reparable items that they were working on for the Navy.

Responses from the contractors and the Navy's own internal reconciliation efforts showed that the Navy's records for these items were either overstated or understated in total by over $621 million, with a net loss of $464 million. In 1985 and 1986, the SPCC wrote this $464 million off its financial records, without attempting to research the validity of the contractor-reported data. However, the Navy did implement what it considered a solution—the Commercial Asset Visibility Program.

Our current work in the Navy has shown that recently the SPCC again lost visibility over more than $200 million in reparable items at the contractors previously queried, and intends to send another inquiry to the contractors. This situation obviously requires immediate management attention.

This example is also indicative of the larger issue of improving financial controls and establishing accurate financial statements at the agency

level. As stated in our report Managing the Cost of Government,[11] strengthened accounting and reporting are key elements in improving the shortcomings in present financial management systems. However, we stated that effective financial management must start with complete, reliable, consistent, and timely information and that government financial systems must be designed to produce reports which are timely, useful, and readily understandable.

DOD Working on Improving Its Policy for Measuring Inventory Effectiveness and Monitoring Performance

In 1982, the Defense Council on Integrity and Management Improvement designated physical inventory control as an issue that required immediate management attention and corrective action. The Council established a plan of action for improving physical inventory controls. Under this plan, the Joint Physical Inventory Working Group developed a physical inventory control improvement program plan in June 1982, which called for a series of actions from fiscal years 1982 to 1985 to identify and implement improvements for upgrading physical inventory performance and inventory records accuracy. The plan was revised in January, 1986, and proposed actions through fiscal year 1990. One of the specific provisions of the plan was to validate existing performance standards and to develop new or revised standards. Also, the Air Force and the Navy, dissatisfied with the current inventory accuracy indicators, have developed methodologies to statistically sample and analyze inventory accuracy. The Navy, at one of its smaller supply centers, has complemented its sample with a host of improved security measures. Navy management acknowledges that the success of these actions at the one supply center only demonstrates where the Navy is headed in improving inventory management and that, overall, it still has a way to go to effect systemic improvements.

DOD has continually taken some actions to improve inventory management throughout the supply system, but more needs to be done. We pointed out significant management problems in our 1986 report and congressional testimony. At the July 1986 Task Force hearings, DOD said that it was aware of the problems we reported on and that solutions to these problems remain among the highest management priorities within DOD. Subsequently, for the first time, DOD identified supply system problems as a material DOD-wide weakness in its fiscal year 1986 Federal Managers Financial Integrity Act report. DOD has major projects underway to correct control and system weaknesses. Although these projects

[11] Managing the Cost of Government (GAO/AFMD-85-35, Feb. 1985).

are planned for completion by the early 1990s, we anticipate some slippage in the estimated completion dates.

Further Actions Needed

DOD is supposed to evaluate how the services and DLA manage inventories in their custody. Yet DOD does not have accurate data on which to c this. Therefore, if DOD is to tackle the problem of inventory accuracy, w believe that it has to go beyond what it has been doing or trying to do for several years—refining current policies and procedures and attempting to monitor compliance.

DOD needs to place emphasis on identifying the systemic causes of inven tory accuracy problems. However, because of the causative research problems I have mentioned, DOD does not have the data it needs to asses where the basic problems are. We believe that there is too much emphasis on making adjustments which are then researched primarily to deter mine whether the adjustments can be reversed—the goal apparently being to report higher inventory accuracy rates. The new Air Force policy of not making adjustments if the quantity discrepancy is less than 10 percent and $5,000 recognizes, in part, the problems of adjustments and subsequent reversals. However, we are concerned that the Air Force is not, at a minimum, correcting its records to reflect what inventories are actually on hand. Item managers need such information to make day-to-day supply management decisions.

We will be recommending that the Secretary of Defense improve inventory management and inventory accuracy reporting by

1. Requiring adjustments to inventory records as soon as they are identified by physical inventories or other methods.

2. Developing a comprehensive policy on inventory management and measuring inventory accuracy which addresses such areas as (1) the adequacy of the Inventory Control Effectiveness report for management oversight and (2) eliminating the practice of reversing prior inventory adjustments.

3. Reemphasizing the need for effective causative research that identifies inventory variances and analyzes them to identify systemic problems. Variances currently under the monetary criteria for causative research should be sampled as further input to identifying systemic problems.

Further systemic and lasting improvements are possible within the framework of financial management and accounting controls—areas that we have to strive to improve throughout the federal government.

Mr. Chairman, that concludes my prepared statement. We will be happy to respond to questions.

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