

# Reported Inventory Accuracy Is Overstated

The Navy's reported inventory accuracy rates do not reflect the full extent of inventory inaccuracies. Our review showed that (1) the Norfolk NSC has not complied with existing Navy policies regarding inventory accuracy measurement and the timeliness of research to determine the reasons for inventory variances, and (2) other Navy policies, which the Norfolk NSC has complied with, cause inventory accuracy rates to be overstated or understated. Therefore, while the Navy has reported to DOD in its reports on Inventory Control Effectiveness that accuracy goals are being achieved, these reports are inaccurate.

According to a NAVSUP official, some of the current indicators (such as GMAR, location surveys, and warehouse denials) do not provide an adequate basis for measuring inventory accuracy. Therefore, NAVSUP is improving its computations of inventory accuracy. A significant improvement is that it is introducing statistical sampling as a means to better measure inventory accuracy.

## Norfolk NSC's Noncompliance With Existing Navy Policies

The Norfolk NSC is not complying with existing Navy policy in developing inventory accuracy rates. Noncompliance areas involve (1) how the Norfolk NSC adjusts its records when physical inventory counts reveal a difference between the inventory on hand and the recorded inventory, (2) how it selects items for physical inventory to determine inventory accuracy, and (3) the timeliness of its causative research. The procedures followed by officials at the Norfolk NSC resulted in overstatements of inventory accuracy. Further, these practices have caused Norfolk NSC's records to be inaccurate for long periods of time, thus impairing the accuracy of information available to Navy decisionmakers.

## Improper Reversals Are Made

Under current DOD and Navy policy, variances identified during physical inventories between on-hand balances and recorded balances should initially be resolved by adjusting the inventory record to match the on-hand count (a record adjustment). However, if subsequent research can establish that the variance was caused by a previous erroneous transaction, the inventory adjustment is reversed (an adjustment reversal).

To test reversal practices at the Norfolk NSC, we reviewed the results of a semiannual physical inventory initiated in January 1986 of 578 high-dollar value items, which represented 298 different national stock numbers (NSN). We found imbalances in 37 of these items. We reviewed all 37 NSNs by analyzing all transactions that affected them from mid-1985 through mid-1986.

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## Deadlines for Processing Inventory Adjustments Are Not Being Met

When a physical inventory reveals a variance between the records and items on hand, supply managers should change their records to agree with the quantities on hand. This adjustment permits managers to make decisions based on the most currently available data. Navy regulations require that record adjustments, based on a physical inventory, be made “without delay” by the completion of the inventory period—within 30 days of the beginning of the inventory period for scheduled inventories and within 15 days for unscheduled inventories. However, some adjustments at the Norfolk NSC were not made by the time of the completion of inventories but were deferred and passed on for further investigation. While these adjustments were being deferred, the imbalances in the records remained, and accuracy measures were inaccurate. In fiscal year 1985, a Navy review group found that the Norfolk NSC was deferring adjustments valued at over \$20,000 each until the completion of causative research—a process that typically takes several weeks.<sup>2</sup> According to the Navy’s analysis, Norfolk was delaying such adjustments for an average of 100 days, causing the records to be in error “an excessive period of time.”

Our review confirmed that this practice was continuing at the Norfolk NSC. Of the 37 NSNs in the January 1986 physical inventory that had been referred for further investigation, inventory adjustments for 16 (43 percent) had been deferred beyond Navy deadlines. Deferrals ranged from 14 to 169 days past the deadline, averaging 78 days.<sup>3</sup> According to the Norfolk NSC’s inventory accuracy officer, the practice of deferring adjustments beyond the NAVSUP deadline has continued because this procedure reduces the record turbulence caused by inventory adjustments that are later reversed.

In analyzing these 37 NSNs back to mid-1985, we found that 12 were unresolved at the end of the fiscal year and consequently omitted from the annual calculation of the GMAR for that year. Because those 12 NSNs all had unit prices exceeding \$100,000 and a total value of \$15,128,190, omitting these adjustments had a measurable impact on the reported GMAR. We estimate that, had these 12 deferrals alone been processed as required, the GMAR for fiscal year 1985 would have increased 0.5 percent (from 2.9 percent to 3.4 percent). In commenting on this report, DOD

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<sup>2</sup>Material Accountability Training and Assistance Team, “Visit to Naval Supply Center, Norfolk, 29 October through 9 November 1984,” and cover memorandum (Dec. 24, 1984) from Commanding Officer, Navy Fleet Material Support Office, to Commanding Officer, Norfolk NSC.

<sup>3</sup>Norfolk NSC customarily extends NAVSUP’s inventory deadlines by 10 days. Our figures for deferral durations do not include this extra 10 days.

DOD officials stated that reversals of 5-year-old documents are improper. Furthermore, a DOD official stated that, even if receipt and issue transactions do not appear to be specified in the regulations, the Norfolk NSC's practice would be prohibited by the 1-year limitation on the causative research period.

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## Incorrect Inventory Values Reported

The Norfolk NSC's annual GMAR has been based on inflated inventory values because some high-dollar value items are repeatedly included in inventory statistics. NAVSUP has noted that "to meet the 3% goal, there is a tendency [for Navy stock-points] to inventory more high dollar line items and/or those records least likely to generate adjustments."<sup>4</sup> The effect of such selection is to reduce the reported GMAR and thereby improve reported accuracy.

A good example of this practice occurred at the Norfolk NSC. The accuracy statistics the Norfolk NSC has reported for the last 2 fiscal years have included as physical inventories the value of aircraft engines subjected to multiple maintenance checks—high-dollar items that have substantially increased the value of items inventoried and that, because of their large size and highly controlled state, are likely to have accurate inventory records. NSCs are required to physically inventory these items annually. However, Norfolk NSC officials inappropriately also included the maintenance checks and therefore the value of these engines in their annual count of inventoried items for fiscal years 1985 and 1986. (While maintenance checks are appropriately done for other reasons, they should not be included in physical inventories.) By including quarterly maintenance checks in the value of physical inventories, Norfolk NSC has overstated the amount of inventoried items and significantly understated the GMAR.

In fiscal year 1985, for example, these maintenance checks accounted for \$313 million, or 10 percent, of the total value of items the Norfolk NSC inventoried, and in fiscal year 1986, the maintenance checks accounted for \$1.06 billion, or 27 percent, of the total value. We estimate that if the value of items included in the maintenance checks had been excluded from Norfolk NSC's inventory statistics, its reported annual GMAR would have been 3.2 percent in fiscal year 1985 (rather than the 2.9 percent it reported) and 4.4 percent in fiscal year 1986 (rather than the 3.2 percent it reported).

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<sup>4</sup>"Statistical Accuracy Techniques and Measurements Analysis (STATMAN) Test Plan," enclosure to NAVSUP letter #4440 (Ser 064J/340, Mar. 18, 1986).

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## DOD and Navy Policies Do Not Ensure Reliable Inventory Accuracy Information

Compounding the problem of the Norfolk NSC's noncompliance with some Navy inventory requirements are DOD and Navy policies that allow for the exclusion of substantial numbers and values of inventory adjustments from inventory accuracy reports. As a result, the reported GMAR and record accuracy rates are not reliable indicators of the true status of the inventory system. These policies affect both reported monetary and record accuracy rates. Specifically, DOD and Navy inventory policy provides for the exclusion of the monetary value of inventory adjustments from the GMAR if research determines the causes for the errors and the adjustment is therefore reversed. Also, DOD policy allows for the elimination of all record adjustments valued at less than \$800 each from the record accuracy measure in the ICE report. These adjustments, however, are not excluded from accuracy reports submitted to NAVSUP. These policies result in the reporting of higher inventory accuracy rates in the ICE report.

Another aspect of current inventory accuracy reporting that leads to an inaccurate picture of inventory accuracy is the inclusion in reported inventory accuracy information of the results of both scheduled and unscheduled inventories. Scheduled inventories occur periodically for selected items without any advance knowledge of whether an inventory problem is to be expected. Unscheduled inventories, on the other hand, occur when known or suspected problems, such as an unexpected inability to fill an order, have been brought to management attention. Including the results of unscheduled inventories with scheduled inventories in reported inventory accuracy measures results in understated inventory accuracy.

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## Inventory Transactions Routinely Reversed

Although allowed by DOD and Navy policy, the reversal of monetary adjustments understates actual inventory adjustment rates. Under current Navy procedures, when research into an inventory imbalance discloses that a prior erroneous transaction could have caused an adjustment, the previous adjustment can be reversed. These reversals are subtracted from total inventory adjustments when computing and reporting the GMAR. In fiscal year 1986, the Navy offset inventory adjustments of \$2.6 billion with reversals of \$2.2 billion. This practice, which reversed 84 percent of the total dollar value of inventory adjustments, enabled the Navy to report inventory adjustments of only \$423 million (2.7 percent) and thereby meet its 3-percent goal for monetary adjustments. If these reversals had not been excluded from the GMAR, we calculate that the rate would have been about 16.6 percent.

less than \$800; therefore, adjustments for 326,189 line items were excluded. Consequently, the record accuracy rate reported by the Navy on the ICE report, based on adjustments for only 73,636 items, was a much higher 95 percent.

Inventory imbalances between the recorded quantity and the items physically counted represent inventory record inaccuracies, regardless of the value or quantity involved in the error. Consequently, DOD has proposed that the services and the Defense Logistics Agency implement new procedures stipulating that all variances will be considered in calculating record accuracy rates. These procedures would provide a more comprehensive assessment of accuracy by recognizing all record inaccuracies.

**Unscheduled Inventories Not Representative of Inventory Accuracy**

Physical inventory reports include the results of both scheduled and unscheduled inventories. Most of the Norfolk NSC's physical inventories are unscheduled; that is, they are conducted when there is a known or suspected inventory record discrepancy. As shown in table 2.1, in fiscal years 1985 and 1986, three-fourths of the line items the Norfolk NSC inventoried were counted during unscheduled inventories.

**Table 2.1: Number of Line Items in Scheduled and Unscheduled Inventories**

Fiscal year	Total number of line items inventoried	Scheduled inventories		Unscheduled inventories	
		Number	Percent of total	Number	Percent of total
1984	56,513	21,108	37	35,405	63
1985	81,471	20,142	25	61,329	75
1986	112,344	27,824	25	84,520	75

The relatively greater inventory effort spent on unscheduled inventories is, in itself, an indication of significant systemic problems at the Norfolk NSC. However, record accuracy rates calculated under these conditions do not provide a fair representation of the entire system; that is, starting with known or suspected problems increases the probability that the resulting record accuracy rate will be lower than an overall representative rate. This effect is reflected in the increase in the number of errors found in fiscal years 1985 and 1986, as shown in table 2.2.

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## Initiatives to Improve Inventory Accuracy Measures

By March 1987, the Navy had implemented over 70 initiatives, as well as further efforts developed after fiscal year 1982. Some of the most significant of the initiatives concerned measuring and validating inventory accuracy. Specifically, the Navy began a transition to a program that incorporated statistical techniques and more meaningful measures of inventory accuracy. The result was the Statistical Package (STATPAC) program for inventory accuracy, a three-part effort that includes random sampling.

According to the Navy, the primary objective of the STATPAC program is to continuously improve inventory accuracy by collecting and presenting the most meaningful information in the most efficient, timely manner possible. STATPAC, by providing information that accurately describes the supply situation, should enable the Navy to promptly direct its resources to the most needy areas. Moreover, STATPAC reports of inventory accuracy, by presenting data indicative of the supply situation, will serve not only as performance indicators but as tools for identifying and resolving problems in specific areas.

STATPAC is in various stages of implementation throughout the Navy. At present, it consists of three components: the Statistical Location Survey, the Statistical Accuracy Techniques and Measurements Analysis (STATMAN), and Statistical Measures.

As a component of the STATPAC program, STATMAN is a statistical sampling and analysis tool that can provide inventory accuracy statistics for Navy stock points. A user identifies specific populations to be inventoried. STATMAN then uses a random-sampling technique to select line items and produce reports that reflect a stock point's inventory accuracy in the specified populations of items.

The Navy believes that STATMAN will enable stock points to establish a basis for continuously improving inventory accuracy. For example, it can be used for trend analysis, for identifying problem areas, and for special projects that require the identification of specific types of items to be inventoried.

We were unable to determine whether and to what extent STATPAC addresses the inventory accuracy problems described in this report because the Navy was in the process of implementing the systems during our review. The Navy regards STATPAC as a very successful program that enables its managers to allocate resources and to resolve the problems most critical to its mission. The Navy credits STATMAN with enabling

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**Chapter 2**  
**Reported Inventory Accuracy Is Overstated**

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Puget Sound NSC is good evidence that the Navy's initiatives to improve inventory management could resolve many of the problems we have seen in our past and current work.

## Initial Record Accuracy

In fiscal year 1986, the Norfolk NSC had an initial record accuracy rate of only 37 percent; in other words, records for 63 percent of the items inventoried were in error and required adjustment. This accuracy rate reflects the negative effect of the fact that the majority of the Norfolk NSC's inventories are unscheduled (precipitated by known or suspected record problems). Our sample inventory showed a significantly higher estimated initial accuracy rate of 69 percent (100 percent minus the overall inaccuracy rate of 30.7 percent) when weighted and projected to all inventory items. Our results for individual categories of NSNs distinguished by unit price and type of item give a more precise description of inventory record accuracy (see tables 3.1 and 3.2). For example, inventory records for items of high value (more than \$100,000) were generally correct, but these items account for less than 0.1 percent of Norfolk's total NSN records. Similarly, loss rates, particularly for controlled and pilferable items, indicate that these items are relatively well protected. However, the relatively high gain rates for these and other types of items may indicate that the accountable records are not updated correctly.

**Table 3.1: Item Inaccuracy Rates by Unit Price Category**

Rates shown in percent				
Unit price	Number of NSNs	Gain rate	Loss rate	Total rate <sup>a</sup>
Under \$10	220,130	33.9	12.2	46.0
\$10.01 to \$100	178,740	2.2	22.6	24.8
\$100.01 to \$1,000	139,967	12.4	6.0	18.4
\$1,000.01 to \$10,000	86,413	18.9	8.0	26.9
\$10,000.01 to \$100,000	15,716	11.4	3.1	14.5
\$100,000.01 to \$200,000	532	0.3	0.0	0.3
\$200,000.01 to \$300,000	163	0.0	0.0	0.0
\$300,000.01 to \$400,000	72	0.0	0.0	0.0
\$400,000.01 to \$500,000	46	0.0	0.0	0.0
More than \$500,000	93	2.4	2.4	4.8
All cases <sup>b</sup>	641,872	17.8	12.9	30.7

Notes: All the rates presented are based on a sample and are, therefore, subject to some imprecision. While sample results are more accurately thought of as ranges, rates are shown as single numbers to simplify presentation. The ranges associated with these rates are found in appendix I.

<sup>a</sup>Rates may not add due to rounding.

<sup>b</sup>The rates presented are weighted to make them representative of the population of NSNs. The summary rate is not a simple average of the rates for the categories.



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the Norfolk NSC reported a GMAR of 3.2 percent, with gross adjustments totaling \$345 million. However, this rate is a misleading index of inventory accuracy since it is based on an inflated value of line items inventoried and omits many adjustments (\$215 million in 1986) through reversals.

Based on our statistical sample, we estimate the total value of the Norfolk NSC's inventory adjustments, or dollar variance, to be \$1.04 billion. This figure yields a considerably greater GMAR than Norfolk reported in fiscal year 1986—17.9 percent rather than 3.2 percent. Our rate is based on the Norfolk NSC's total inventory value of \$5.8 billion, as of March 1987.<sup>1</sup>

At Norfolk, most of the inventory's cumulative dollar value (88 percent) is in the five categories valued at \$100,000 or less. Our inventory of sampled items revealed that, in those five value categories, the rate of dollar variance ranged from 9.7 percent to 27.6 percent, with the lowest cost category having the largest variance. Norfolk is doing a substantially better job managing the 12 percent of inventory in the five high-dollar-value categories. (See table 3.3.) The Norfolk NSC places a higher degree of management emphasis on items costing \$100,000 or more: these items are inventoried semiannually, while other items are inventoried annually or as required by regulation. Losses of controlled, pilferable, and fast retail items also seem to be well controlled. (See table 3.2.)

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<sup>1</sup>This total inventory value represents, with one major exception, all the line items that are in the Master Stock Item Record computerized data banks. For security reasons, the Norfolk NSC did not include any nuclear items in the copy furnished to us. Approximately \$465 million in inventory does not appear in the system and, therefore, is not included in our sample.

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**Table 3.4: Dollar Inaccuracy Rates by Type of Item**

Dollars in thousands/Rates shown in percent				
Type of item	Inventory value	Gain rate	Loss rate	Total rate <sup>a</sup>
Controlled <sup>b</sup>	\$139,598	2.1	2.1	4.2
Pilferable <sup>c</sup>	124,716	2.9	0.3	3.3
Depot-level reparable <sup>d</sup>	3,347,440	4.0	11.1	15.1
Wholesale <sup>e</sup>	1,210,129	0.3	9.3	9.6
Fast retail <sup>f</sup>	46,307	37.9	0.4	38.3
Other retail <sup>g</sup>	219,622	9.6	9.0	18.6
Other <sup>h</sup>	725,569	7.2	5.3	12.6
All cases <sup>i</sup>	\$5,813,381	10.4	7.5	17.9

Notes: All the rates presented are based on a sample and are, therefore, subject to some imprecision. While sample results are more accurately thought of as ranges, rates are presented as single numbers to simplify presentation. The ranges associated with these rates are found in appendix I.

<sup>a</sup>Rates may not add due to rounding.

<sup>b</sup>Controlled items are national security items (classified material) and items that are very closely watched, e.g., with signature accountability.

<sup>c</sup>Pilferable items are materials that tend to have high utility in a non-Navy setting to people in general, e.g., hand tools and over-the-counter medical supplies.

<sup>d</sup>Depot-level reparables are items that are replaced as units by the end-user, e.g., vehicle transmissions.

<sup>e</sup>Wholesale items are owned by the SPCC or the Aviation Supply Office and are treated as consumable; the Norfolk NSC acts as a distributor.

<sup>f</sup>Fast retail items are small, generally low-cost, and fast-moving hardware store items owned by the Norfolk NSC, e.g., nuts, bolts, and nails.

<sup>g</sup>Other retail items are items owned by the Norfolk NSC; they are similar to fast retail items but tend to be more expensive and have a lower turnover rate, e.g., small electronic repair items.

<sup>h</sup>Other items are those that do not fall into one of the first six categories, e.g., sonobuoys and small items not owned by the Navy.

<sup>i</sup>The rates presented are weighted to make them representative of the population of NSNs. The summary rate is not a simple average of the rates in the categories.

## Results of Unit Variance

Unit variance compares the recorded number of individual items to the actual count of items inventoried. Like dollar variance, unit variance could provide management with an index of inventory accuracy. The recorded inventory quantity is used in making such important supply decisions as what items should be replenished, when, and in what quantities.

Since the Navy is not required to report unit variance, and does not do so, we could not compare our unit-variance computation (derived from the physical inventory of our statistical sample) with any reported figures for Norfolk. Our computation, when projected to the population

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**Table 3.6: Unit Inaccuracy Rates by Type of Item**

Rates shown in percent

Type of item	Inventory unit count	Gain rate	Loss rate	Total rate <sup>a</sup>
Controlled <sup>b</sup>	274,029	1.7	1.2	2.9
Pilferable <sup>c</sup>	2,077,706	3.4	0.7	4.1
Depot level reparable <sup>d</sup>	710,962	5.0	8.2	13.2
Wholesale <sup>e</sup>	10,472,098	0.2	5.5	5.7
Fast retail <sup>f</sup>	20,890,042	38.9	0.4	39.3
Other retail <sup>g</sup>	28,402,994	6.4	9.3	15.7
Other <sup>h</sup>	22,307,070	9.6	5.8	15.4
All cases <sup>i</sup>	85,134,901	9.5	6.4	16.0

Notes: All the rates presented are based on a sample and are, therefore, subject to some imprecision. While sample results are more accurately thought of as ranges, rates are presented as single numbers to simplify presentation. The ranges associated with these rates are found in appendix I.

<sup>a</sup>Rates may not add due to rounding.

<sup>b</sup>Controlled items are national security items (classified material) and items that are very closely watched, e.g., with signature accountability.

<sup>c</sup>Pilferable items are materials that tend to have high utility in a non-Navy setting to people in general, e.g., hand tools and over-the-counter medical supplies.

<sup>d</sup>Depot-level reparable items are items that are replaced as units by the end-user, e.g., vehicle transmissions.

<sup>e</sup>Wholesale items are owned by the SPCC or the Aviation Supply Office and are treated as consumable; the Norfolk NSC acts as a distributor.

<sup>f</sup>Fast retail items are small, generally low-cost, and fast-moving hardware store items owned by the Norfolk NSC, e.g., nuts, bolts, and nails.

<sup>g</sup>Other retail items are items owned by the Norfolk NSC; they are similar to fast retail items but tend to be more expensive and have a lower turnover rate, e.g., small electronic repair items.

<sup>h</sup>Other items are those that do not fall into one of the first six categories, e.g., sonobouys and small items not owned by the Navy.

<sup>i</sup>The rates presented are weighted to make them representative of the population of NSNs. The summary rate is not a simple average of the rates in the categories.

By the end of January 1986, with many of its major contractors reporting, SPCC established a baseline of \$285 million in reparable items at contractor facilities—\$242 million less than the \$527 million recorded at that time on SPCC's financial records. At that time, the Navy wrote off the \$242 million based on the data reported by 97 contractors.<sup>1</sup> Over the next year, the Navy reduced its financial record balance for these items by another \$222 million based on reports from eight more contractors and additional information from some interservice repair facilities. Our work disclosed that the Navy had accepted the contractors' balances without any investigation of the reasons for the differences between its financial records and the balances reported by the contractors. Also, since the Navy did not maintain inventory records for these items and had only financial records for them, it had no inventory records to adjust.

In all, the Navy wrote off from its financial records items valued at \$464 million and recorded a gain adjustment of \$157 million for items contractors reported they had that were not on SPCC's records. The total adjustment to the financial records was \$621 million.

We have found that, since this \$621 million adjustment, SPCC has again lost track of reparable items valued at \$208 million. This imbalance has accumulated because SPCC has not been performing the required reconciliations with contractors. SPCC officials blamed the situation on funding constraints and told us that the Navy plans once again to balance its records, before the next phase of CAV, by relying on contractor reports of reparables on hand. With the full implementation of CAV, the Navy expects no further irreconcilable imbalances to occur.

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## Congressional Concern About Reparable Write-Offs

On June 17, 1987, the Chairman of the Senate Committee on Governmental Affairs requested that the Secretary of the Navy advise him on any Navy investigation to determine the reasons for the loss adjustments and asked whether this situation was indicative of systemic inventory problems. Also, the Chairman questioned the Navy concerning corrective actions taken, or to be taken, to correct these problems.

In his reply, the Secretary of the Navy stated that the Navy had made adjustments to correct erroneous financial transactions that had accumulated over 15 years. The Secretary also stated that the Navy has initiated an automatic accounting system that will ultimately improve

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<sup>1</sup>These contractors accounted for about 60 percent of the monetary value of the reparable items.

# Conclusions and Recommendations

## Conclusions

The Navy's reports of supply system accuracy are not reliable, since they are based on rates computed from questionable and inaccurate data. While the Navy recognizes its problems and is implementing some corrective actions, the effect of these actions cannot yet be determined. We believe that continued management emphasis will be required to realize potential benefits.

The Navy's record accuracy rate and GMAR do not provide reliable measures of inventory accuracy because (1) the Norfolk NSC has not complied with existing Navy policies that affect inventory accuracy measurement and (2) other Navy policies, with which the Norfolk NSC has complied, result in the overstatement and understatement of inventory accuracy.

The Norfolk NSC has not complied with the intent of existing DOD and Navy policies by reversing ineligible adjustments, suspending adjustments beyond required deadlines, weighting inventory samples with maintenance checks (which include expensive and historically accurate items), interchanging dissimilar assets to reverse inventory adjustments, and routinely exceeding the Navy's criteria for causative research timeliness.

DOD's policy of omitting record adjustments valued at less than \$800 from computations of record accuracy rates and the DOD and Navy policy of reversing inventory adjustments result in overstated record accuracy and GMAR rates. For example, in computing the GMAR, the Navy excludes hundreds of millions of dollars of inventory adjustments that it classifies as reversals. By omitting these adjustments, the Navy understates the GMAR and inflates its reported monetary inventory accuracy. On the other hand, current inventory accuracy measures also tend to understate true inventory accuracy because the measures include data from both scheduled and unscheduled inventories. Since unscheduled inventories occur primarily when known or suspected problems are identified, the likelihood is higher that record inaccuracies will be found, thus understating the accuracy rates.

We believe that the practice of reversing inventory adjustments does not ensure complete inventory accuracy reporting. Reversals are necessary to maintain integrity in documentation and accountable inventory records. However, they should not be used to adjust an activity's accuracy measures. The procedures for reversing physical inventory adjustments need to be clarified so that the Norfolk NSC and other DOD components no longer offset losses of one asset with gains of another asset or research old supply transactions to try to reconcile inventory

supply decisions. This situation exists because SPCC did not establish and maintain accurate inventory records. Although the planned automated accounting system and processing facilities may improve accountability and control over reparable assets, the Navy must also perform timely reconciliations of contractor-reported balances with its own record balances to ensure compatibility of records. We believe that the Navy's failure to perform reconciliations under the current accounting system caused it to lose control over reparable assets. Therefore, it was forced to accept the contractor-reported balances without assurance that all assets were accounted for. These reparable items are supply system assets and, as such, are subject to inventory management controls established by DOD in the Military Standard Transaction Reporting and Accounting Procedures manual. The Navy therefore needs to develop reconciliation procedures to ensure that differences between its records and the contractors' records are adequately explained.

Finally, based on our review, we believe that the FIA assessments made by SPCC and the Norfolk NSC should be reevaluated. The weaknesses identified in this report should be reported in the next internal control assessment, and the Navy should describe the actions it plans to take to correct the weaknesses.

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## Recommendations

We recommend that the Secretary of Defense clarify inventory adjustment reversal procedures to preclude misinterpretation, to ensure complete financial and inventory accountability, and to ensure that inventory adjustment reversals are included in the computation of inventory accuracy rates.

To improve inventory accuracy and develop more meaningful accuracy measures, we recommend that the Secretary of the Navy

- provide the naval supply centers with specific criteria for designing physical inventory samples to eliminate inventory abuses that distort accuracy reports. (These criteria should include guidance that ensures that STATMAN—the Navy's new statistical sampling and analysis tool—enables managers to obtain a representative view of inventory accuracy based on such indicators as initial record accuracy and dollar and unit variances.);
- require the Commanding Officer of the Norfolk NSC to properly apply and enforce inventory regulations, to make adjustments within the established time frames for completing inventories, and to complete causative research as rapidly as is feasible;

The policy of reversing inventory adjustments seems to provide an incentive to manage the GMAR. For example, some of NSC Norfolk's reversals were based on receipt and issue transactions that occurred as long as 4 years ago, even though the original adjustments were validated as accurate by one or more subsequent inventories.

DOD's policy of excluding adjustments of \$800 or under in computing records accuracy allows higher than actual rates to be reported, because most of the adjustments are in that category. For example, during fiscal year 1986, 80 percent of DOD's inventory adjustments were \$800 or under, as were 82 percent of the Navy's. By excluding these adjustments, the Navy was able to report record accuracy rates of 93.6 percent and 95.2 percent, respectively; when the actual rates, considering all adjustments, were 67.7 percent and 73.9 percent, respectively. Since adjustments of \$800 or less constitute most of the inventory variances, we believe that DOD's policy of excluding them results in inflated inventory records accuracy rates.

DOD recognizes that reversal procedures need to be clarified and plans to do so in proposed changes to existing guidance. DOD also plans to change its record accuracy policy to require the inclusion of adjustments under \$800 in computing the record accuracy rate.

DOD also disagreed with our finding that the Norfolk NSC's inventory results did not adequately depict the accuracy of its overall supply records. Subsequent to our review, the Navy provided data on the results of the STATMAN inventory for the second quarter of fiscal year 1987 conducted at NSC Norfolk. The data showed an overall accuracy rate of 69 percent, similar to what we reported from our sample results. We agree that STATMAN, when fully implemented throughout the Navy, should provide a better basis for examining Navy inventory accuracy; however, as we stated in the report, we did not evaluate it because, at the time of our review, NSC Norfolk was in the process of implementing it.

In addition, DOD stated that the dollar, unit, and record accuracy measures we developed in our sample were not comparable to its measures. We disagree. DOD does not now compute a quantity accuracy rate, but it does compute dollar accuracy and record accuracy rates that are comparable to the two measures we used in analyzing our sample results.

DOD concurred in four of our five recommendations. It partially concurred in our recommendation that the Commanding Officer of Norfolk

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locations. NSNs that were already under inventory at the time of our count were considered to be in the population but randomly unavailable. In all, 674 NSNs were included in the sample, which is projectable to a population of about 642,000 NSNs.

For each item in the sample, we conducted a physical inventory, accompanied by Norfolk NSC inventory or quality control personnel. These personnel agreed with the results of our physical counts. Upon completion of the inventory of each item, we compared the results with inventory records maintained by the Norfolk NSC and SPOC. For each NSN, we determined whether the inventory matched the inventory record or showed a gain or loss. We also determined the quantity variance of the gain or loss and calculated the dollar value of the variance.

For each of the measures of inventory accuracy, we calculated sample results for each sample cell (by dollar value and type of item) and for the total sample. Weighting was used to calculate estimates for sample categories (e.g., dollar categories) and the entire sample. Sample results for individual cells were not sufficiently precise to allow us to draw meaningful conclusions concerning the population cell.

To simplify the presentation of results in chapter 3, inaccuracy rates for gains and losses and total variances are presented as single estimates. However, such estimates are more meaningfully considered as ranges. Tables I.1 through I.3 show the results of our estimates, including the upper and lower bounds of each estimate, at the 95-percent confidence level.

**Appendix I  
GAO Sample Methodology**

**Table I.2: Estimates of Gain, Loss, and Total Dollar Inaccuracy Rates With Lower and Upper 95-Percent Confidence Limits**

Rates shown in percent

Dollar Value	Gain			Loss			Total		
	Lower bound	Rate	Upper bound	Lower bound	Rate	Upper bound	Lower bound	Rate	Upper bound
\$0.01 to \$10	17.0	22.7	28.3	2.0	5.0	8.0	22.0	27.6	33.3
\$10.01 to \$100	0.0	0.2	0.5	10.1	13.5	16.8	10.4	13.7	17.1
\$100.01 to \$1,000	0.9	9.1	17.3	0.0	0.6	1.3	1.4	9.7	18.0
\$1,000.01 to \$10,000	0.0	2.8	8.3	0.0	13.9	35.4	0.0	16.7	36.9
\$10,000.01 to \$100,000	0.5	8.2	16.0	0.0	1.8	4.7	1.8	10.1	18.3
\$100,000.01 to \$200,000	0.1	0.1	0.2	0.0	0.0	0.0	0.1	0.1	0.2
\$200,000.01 to \$300,000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
\$300,000.01 to \$400,000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
\$400,000.01 to \$500,000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
More than \$500,000	1.0	1.8	2.5	0.7	1.2	1.8	2.1	3.0	4.0
<b>Type of Item</b>									
Controlled	0.0	2.1	5.6	0.6	2.1	3.5	0.6	4.2	7.7
Pilferable	0.0	2.9	6.8	0.0	0.3	0.9	0.0	3.3	7.2
Depot-level reparable	0.0	4.0	10.1	0.0	11.1	35.4	0.0	15.1	37.9
Wholesale	0.2	0.3	0.4	7.2	9.3	11.3	7.5	9.6	11.6
Fast retail	26.6	37.9	49.1	0.2	0.4	0.6	27.0	38.3	49.5
Other retail	4.4	9.6	14.9	5.9	9.0	12.0	13.0	18.6	24.4
Other	3.5	7.2	11.0	0.0	5.3	14.8	3.0	12.6	22.1
<b>Total</b>	<b>7.7</b>	<b>10.4</b>	<b>13.1</b>	<b>4.3</b>	<b>7.5</b>	<b>10.7</b>	<b>14.1</b>	<b>17.9</b>	<b>21.8</b>

# Letter to Contractors From the Navy's Ships Parts Control Center



DEPARTMENT OF THE NAVY  
NAVY SHIPS PARTS CONTROL CENTER  
5450 CARLISLE PIKE  
P.O. BOX 8020  
MECHANICSBURG, PA. 17058

AREA CODE 717  
780  
AUTOMATIC 430 & 827  
FTE 884 & 107  
IN REPLY, REFER TO:  
4 June 1985

Space Microwave Lab, Inc.  
1255 N. Dutton Ave.  
Santa Rose, CA 95401  
Attn: Bill Konvalinka

Dear Sir:

I am asking for your personal attention and assistance in resolving a major problem that we have at Navy Ships Parts Control Center (SPCC). Our records indicate that you have a Repair Basic Ordering Agreement (BOA) with SPCC. Your volume of repair action may or may not be large; but, in either case, we have a problem in that our computer files have no visibility of our repairable components in your 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.

I am proposing a very simple solution to this problem. I have established a group of people who will call your company on a weekly/monthly basis and ask for information concerning movement of our repairable components. Your people are required to keep records on this anyway. Our operators will simply enter this information into the computer. The attached reporting requirements statement provides an outline of the information we at SPCC require from you.

What I would like for you to do is to direct the appropriate person/persons in your organization to contact the following people for additional directions/information: Mr. Jan Heberlig, (717) 790-7598; Mrs. Nan Boger, (717) 790-7657.

Your cooperation in this matter is greatly appreciated.

Sincerely,

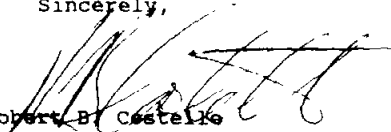
*M. L. Jenkins*  
M. L. JENKINS  
Director,  
Repairables Policy  
and Systems Office

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this emphasis and the related flag officer billet have been in place since 1982. The Department is also disappointed that the substantial DoD (including Navy) progress and numerous on-going initiatives on a broad array of inventory accuracy issues receive only limited acknowledgment in the draft report and are completely ignored in the Executive Summary. This and other aspects of the DoD and Navy programs have been provided to the GAO staff in numerous briefings and field visits. The DoD would like to see additional recognition of these actions by the GAO.

Additional comments on the findings and recommendations are contained in the enclosure. Other technical corrections and clarifications have been separately provided to members of your staff.

Sincerely,



Robert B. Costello  
Assistant Secretary of Defense  
(Production & Logistics)

Enclosure

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process is appropriate regardless of the age of the improperly posted document or the age of the corresponding adjustment; however, there must be a clear audit trail, i.e., the improperly posted document or documents must be directly responsible for the original adjustment.

As currently written, paragraph 7-5 of DoD 4140.22-M can be interpreted to limit reversal transactions to adjustments that have occurred within the last twelve months. This interpretation was not intended, but can easily be made from the current wording. Chapter 7 of DoD 4140.22-M is currently in the final stages of staffing for reissuance. The lack of clarity of the reversal procedure will be corrected.

The Department concurs that, in some cases observed during the GAO audit, the NSC Norfolk improperly processed reversals of inventory transactions. The DoD also agrees that, to the extent that this occurred, this practice resulted in an understatement of the value of the NSC Norfolk inventory adjustments, and thus an overly optimistic portrayal of inventory accuracy as measured by the Gross Monetary Adjustment Rate (GMAR).

The Department does not, however, concur that this resulted in the NSC Norfolk "...overstating its inventory accuracy..." since the GMAR measure affected by Norfolk was only one of several measures used to assess inventory accuracy at the NSC Norfolk. These include location accuracy, warehouse refusal rates and, since October 1985, random sample inventories. None of these measures were affected by the practice cited by the GAO. Additionally, the DoD does not concur that this practice "...caused the NSC records to be inaccurate for long periods of time." The initial inventory adjustment brought the physical inventory record into agreement with the on hand quantity; therefore, the inventory record was not inaccurate for long periods of time. The DoD acknowledges that the result of improper handling of the initial transactions (receipt, returns, issues, etc.) several years earlier had reduced the accuracy of these specific transactions, but once the condition was noted, these transactions were corrected and the original adjustment appropriately reversed. As indicated in the DoD response to RECOMMENDATION 4, the Commanding Officer of the NSC Norfolk has reemphasized the basic requirement to comply with physical inventory control regulations, including proper use of inventory adjustment reversal transactions.

**FINDING B: Improper Substitution of Line Items.** The GAO found instances where the Norfolk NSC used an inventory transaction in one account to offset a transaction in another account. As an example, the GAO cited an instance where the Norfolk NSC identified the loss of a compressor and adjusted its records accordingly. The GAO reported that, subsequently, the Norfolk NSC offset this loss with a gain of an unrelated item--a rotor-and-stator assembly--and reversed the compressor adjustment. The GAO concluded that this is an improper practice,

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reversals of five year old documents is improper. The GAO concluded, however, that such practices perpetuate record inaccuracies and cause the gross monetary adjustment rate (GMAR) to be understated. (P.iii, pp.17/GAO Draft Report)

**DOD RESPONSE:** Concur. The Department concurs that the NSC Norfolk was not meeting the deadlines for processing inventory adjustments. The NSC Norfolk policy was to delay record adjustments when they occurred on the 0.6 percent of the items that were classified or high value (unit price exceeding \$100,000). This local policy/procedure, while not in accordance with established DoD or Navy policy, was only employed on high value items warranting the tightest possible management. It is from this universe of high value items that the GAO sample was drawn. The NSC Norfolk local practice of deferring inventory adjustments has been discontinued. The statements of DoD/Navy officials regarding reversal of aged transactions were either incorrect or misinterpreted, which is understandable based on the current wording of the procedure, (as discussed in the DoD RESPONSE to FINDING A).

More significantly, the DoD emphasizes that, in the long run, the NSC Norfolk efforts to resolve apparent discrepancies, while not as timely as required by regulations (and thus occasionally extending the time-frame), ultimately improved overall record accuracy. The process of reconciling balances between multiple records within an enormously complex computerized system is extremely difficult and time consuming. While the causative research process frequently exceeds the time allocated, it is highly successful as a management tool to correct transactional errors and provide feedback of system/procedural deficiencies. In that regard, the NSC Norfolk audit of its causative research results indicated the accuracy rate for its causative research process exceeded 98 percent. Complete causative research also provides valuable input into the redesign of computer systems, physical facilities and training programs to allow permanent, long term system fixes to be realized and institutionalized.

**FINDING D: Incorrect Inventory Values Reported.** The GAO reported the annual Navy GMAR has been based on inflated inventory values, since some high dollar value items are repeatedly included in inventory statistics. The GAO pointed out that, according to a Navy document, in order to meet the 3 percent goal, there is a tendency for Navy stock points to inventory more high dollar line items and/or those records least likely to generate adjustments. As an example, the GAO cited physical inventories and multiple maintenance checks of aircraft engines reported by the Norfolk NSC for the last two fiscal years. The GAO found that, although annual physical inventories of these items are required, the Norfolk NSC inappropriately included maintenance checks in the annual count of inventoried items for FY 1985 and FY 1986. According to the GAO, the effect of this action was to overstate the amount of inventoried items

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**DOD RESPONSE:** Concur. The Department agrees that the NSC Norfolk causative research process was not sufficiently timely to meet the 45 day processing standard. The NSC Norfolk made prudent decisions with respect to resource allocation to ensure that the most significant discrepancies were thoroughly researched and processed as rapidly as possible. They are continuing to do so, as noted in the DoD response to RECOMMENDATION 5. It should also be noted that the DoD criteria did not change. The Navy adjusted its internal criteria from \$5,000 to \$16,000, which was the DoD criteria. Prior to that change the Navy required more causative research than the minimum required by the DoD.

**FINDING F: Problem With DoD And Navy Inventory Policies.**

According to the GAO, several DoD and Navy policies allow for the exclusion of substantial numbers and values of inventory adjustments from inventory accuracy reports. The GAO reported, for example, that DoD and Navy policy provides for excluding the monetary value of inventory adjustments from the GMAR if research determines the causes for the errors and the adjustment is, therefore, reversed. According to the GAO, this policy resulted in the Navy reversing 84 percent of its adjustments in FY 1986, and enabled it to report adjustments amounting to only 2.7 percent. The GAO estimated that had these reversals not been considered, the adjustment rate would have, instead, been 16.6 percent. In addition, the GAO reported that DoD policy allows for eliminating from the record accuracy measure included in the Inventory Control Effectiveness (ICE) reports, all record adjustments valued at less than \$800. The GAO concluded that these policies result in a higher accuracy rate in the ICE report. The GAO reported that another policy problem is the inclusion in reported accuracy information for both scheduled and unscheduled inventories. The GAO concluded that including the results of both types of inventories in reported accuracy measures causes those measures to understate inventory accuracy. Overall, the GAO concluded that these DoD and Navy policy problems cause the reported accuracy rates to not be valid indicators of the true status of the inventory system. (p. iv, pp. 21-26/GAO Draft Report)

**DOD RESPONSE:** Nonconcur. First, as stated in the DoD response to FINDING A, it is the goal of the Department that all its records be as accurate as possible. Reversal transactions are required in order to properly post receipt and issue documents. The value of the reversals offset a corresponding value of adjustments. This is as it should be. Properly posted reversals are a measure of the effectiveness of causative research in making DoD records as accurate as possible, and are a positive, rather than negative action. The fact that Navy reversed 84 percent of the dollar value of its previously posted physical inventory adjustments says two things: (1) the Navy took action to make the accountable record agree with the physical inventory count by posting an inventory adjustment, and (2) the Navy causative research was highly successful in identifying and

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Additionally, the Department is formally requiring annual random sample inventories, thus institutionalizing a procedure that has been in use in the Navy since October 1985, and in other portions of the DoD, prior to the GAO audit. The use of random sample inventories will provide a baseline measure devoid of any bias injected by mixing the results of scheduled/unscheduled inventories in quarterly/annual reports.

The accuracy rates reviewed by the GAO are only two of many measures used by the DoD, and neither have ever been intended to be measures of the overall DoD inventory accuracy. The deficiencies noted by the GAO did not affect the location accuracy rate, denial rate, receipt processing time frames, and results of the Navy random samples (taken since October 1985), all of which are used in combination to assess inventory accuracy and program performance.

**FINDING G: Navy Efforts To Improve The Supply System.** The GAO reported that, in FY 1982, the Navy developed an extensive program to overcome problems in its supply system. The GAO reported that, by March 1987, the Navy had implemented over 70 initiatives, some of the most significant of which focused on efforts to improve inventory accuracy. In this regard, the GAO reported that the Navy began an effort to incorporate statistical techniques and more meaningful measures of inventory accuracy, resulting in the Statistical Package (STATPAC) program. The GAO noted that one aspect of the program is the Statistical Accuracy Techniques and Measurement Analysis (STATMAN), a statistical sampling and analysis tool that can provide inventory accuracy statistics for Navy stock points. The GAO reported that it was unable to determine whether, and to what extent, the STATPAC addresses the identified inventory accuracy problems, since the Navy is still in the process of implementing the systems. The GAO noted, however, that the Navy regards the STATPAC as a very successful program and credits the STATMAN with enabling the NSCs to establish a basis for continuously improving inventory accuracy. The GAO reported that, during its review, it visited the Puget Sound NSC and found that progress has been made to improve its security and material accountability. The GAO noted that the Puget Sound NSC is relatively small, and achieving improvements there is easier than at a larger NSC, such as Norfolk. The GAO concluded, however, that the progress at the Puget Sound NSC is good evidence that the Navy inventory management improvement initiatives could resolve many of the problems the GAO identified. (pp. 26-31/GAO Draft Report)

**DOD RESPONSE:** Concur. The Department is pleased with the Navy long-standing aggressive program to enhance its supply system, in general, and inventory accuracy, in particular. The Department is glad that the GAO was impressed with the status of material accountability and security at the NSC Puget Sound. The Department suggests, however, that this point be reflected in the report Executive Summary, so that top management readers of that summary will be properly apprised that Navy has made significant

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Thus, the DoD has chosen to use a number of measures, rather than just the two used by the GAO. The Navy, for example, through its STATMAN process, is doing random samples of both basic absolute accuracy and of accuracy within sound economic/readiness oriented error tolerance rates. Thus, a low dollar item with a high readiness impact will, in some cases, be required to be more accurate than a moderately priced fast moving item of limited military essentiality.

**FINDING I: GAO Assessment Of Dollar And Unit Variances.** The GAO reported that the Norfolk NSC measures the dollar variance of items inventoried compared with the total value of items inventoried to obtain the GMAR--a rate of 3.2 percent for FY 1986. The GAO pointed out, however, that, as discussed in FINDING D and F, the NSC rate is misleading, since it is based on an inflated value of inventoried items and omits many adjustments. According to the GAO, its sample was based on the total NSC inventory, including both low and high dollar value items. The GAO estimated the total value of the Norfolk NSC inventory adjustments for FY 1986 was \$1.04 billion, yielding a GMAR of 17.9 percent, rather than the 3.2 percent reported by the NSC. The GAO pointed out that most of the Norfolk NSC inventory value (88 percent) is comprised of items valued at \$100,000 or less. For these items, the GAO found the dollar variance ranged from 9.7 percent to 27.6 percent, but is substantially lower for items over \$100,000 in value. The GAO found a similar pattern in assessing unit variance, with the greatest incidence of efforts occurring in the lower value items. The GAO concluded that the Norfolk NSC is doing a much better job managing the high dollar value items than the larger number of low dollar value items. (pp. 37-43/GAO Draft Report)

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**DOD RESPONSE:** Partially concur. The Department agrees that the NSC Norfolk was doing a better job of managing high dollar items, and is pleased that it has tailored its resource-constrained program to emphasize effective controls over these assets. The DoD does not agree, however, with the GAO estimation of a \$1.04 billion adjustment, nor of a 17.9 percent GMAR, based on the GAO random sample. First, since the GAO calculation of these adjustment figures was apparently based on weighting factor of various sample cells by the number of line items, rather than by the dollar value of the inventories in these cells, the GAO miscalculated the adjustment/GMAR by overemphasizing the results in the high unit (but low dollar) cells. The DoD estimates the appropriate comparable dollar-weighted pre-research sample GMAR figures to be approximately a \$650 million adjustment and an 11.6 percent GMAR. This is quite similar to the dollar-weighted pre-research 10.8 percent GMAR observed by the Navy in STATMAN random samples at the NSC Norfolk.

In turn, this revised "GAO version of GMAR" of 11.6 percent cannot, and should not, be directly compared to the NSC Norfolk reported 3.2 percent rate (nor even to its 4.4 percent rate after adjusting for overly-frequent inclusion of aircraft engine

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million, which is less than four percent of commercial contractor repair throughput value for the equivalent fifteen year period.)

The SPCC letter was initiated as part of a long-term program to modernize the SPCC control procedures. The Department acknowledges this was a cumbersome manual process that was neither integrated with its financial files nor maintained through automated processes. The Navy had recognized the need to improve these processes, and the SPCC Commercial Asset Visibility (CAV) system is part of a phased program to do so, culminating, in 1990, integrated inventory/financial files via the resystemization of the Inventory Control Point data processing systems (including the SPCC). A September 18, 1987, letter from the Naval Supply Systems Command Assistant Commander for Inventory and Systems Integrity to the Counsel of the Senate Committee on Governmental Affairs covers the complete background on this program. A copy of the letter is attached. The CAV portion of this program has required financial adjustments to the SPCC ledgers, but has not resulted in inventory losses.

The financial reconciliation process that the SPCC undertook did result in a net financial adjustment of \$464 million. As discussed further in the enclosed letter, these financial adjustments were needed to realign the outdated, archaic paperwork process at key transaction points. The adjustment occurred during a period in which the number of commercial depots more than doubled to over 400, and represented less than 4 percent of the \$12 billion of repair transactions that occurred over the preceding 15 year period. The CAV I process, now in place, was the first step in providing much needed automation in this area.

With regard to the GAO conclusion concerning reconciliation procedures, the DoD agrees that the Navy must develop appropriate procedures for resolving any future differences in its files and official records maintained by the contractors in accordance with Federal Acquisition Regulations (FAR). The \$208 million financial adjustment highlighted in moving to the CAV II, however, is an unvalidated speculative estimate, developed well prior to completion of the SPCC ongoing analysis of the financial/material transaction files. It represents potential financial adjustments, not inventory losses. The key point, overall, is that materiel visibility is much improved, the primary objective of the CAV I. Physical accountability is not at issue, as verified by the Naval Audit Service and the Defense Logistics Agency in independent audits. Contractor control and materiel records were nearly flawless, reinforcing that actual materiel losses were not an issue. The improved CAV II system will further enhance visibility of assets in contractor plants and minimize future inconsistencies between the SPCC materiel and financial files.

**FINDING K: Assessment of Internal Controls: Inventory Management.** The GAO observed that internal controls are an

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throughout the 1980s, including extensive management direction and review. The Naval Supply Systems Command established an intensive 73-item improvement program, now virtually completed. In 1982, a flag officer billet was established to be directly responsible for inventory and systems integrity. Inventory accuracy at the primary storage sites is reviewed and additional efforts mandated via semiannual flag-level meetings of Headquarters managers and the Commanding Officers of these activities. As a result, the numerous indicators tracked to assess inventory accuracy performance have shown major improvements in the 1980s. For example, the GMAR at the NSCs, has declined from 14.3 percent in FY 1981 to 2.2 percent in FY 1987 (through August). The materiel denial rate is down proportionately by 12 percent since FY 1985, and is now only 0.7 percent, well below the DoD ceiling of 1.0 percent. Location accuracy is up from 96.1 percent in FY 1984, to 97.6 percent through August of FY 1987 (exceeding the DoD 97.0 percent goal), and 90.1 percent of receipts are processed on time (exceeding the DoD 90.0 percent goal). The Navy materiel denial rate has consistently met the DoD goal, while the location accuracy and receipt processing rates have improved since the early 1980s and have met the DoD goal in the last two fiscal years. The Navy STATMAN random sample ("pre-research") inventories have shown a 4 percent improvement in overall line item accuracy from the first quarter FY 1986 to the fourth quarter FY 1987. In that regard, the GAO sample inventory at the NSC Norfolk represents the status for the largest and most challenging supply center in the Navy. Although the Norfolk performance has improved throughout the 1980s, the other supply centers generally have a better track record for inventory accuracy, and are also continuing to improve. For example, a similar random sample inventory to the one which produced a 69 percent line item accuracy rate at Norfolk would result in rates as high as 90 percent at other supply centers, with many averaging in the 80-85 percent range.

Although the Navy has neglected to document its exceptional management commitment to this subject in Internal Control Program terms, there is ample written evidence of these inventory accuracy improvement efforts. These include implementation of bar-coding techniques, increased staffing and funding for improved physical inventory, improved quality control and statistical sampling techniques, supporting ADP enhancements to improve the efficiency and controls for receipt processing, shipment coordination and other functions impacting on inventory accuracy, and a comprehensive "Engineering the Workplace" project, which is assessing and redesigning various physical distribution processes. There is no doubt of the Navy firm resolve to improve inventory accuracy.

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interface with 99 of the highest volume repair contractors (25 percent of total contractors), representing 75 percent of the value of the repair inventory. In 1986, an additional automated interface was established that assists carcass tracking to the contractor sites through transshipment hubs. Located at Norfolk and San Diego, the hubs serve as central collection centers, where the carcass receipt and subsequent shipment to the commercial contractor is electronically transmitted to the SPCC to update the inventory control point files.

As a further improvement to the CAV system, the CAV II will be implemented in early FY 1988, providing document number control of assets at the contractor site, tracking the component through the entire repair process--including each change in status (induction, being repaired, repair completed). In addition, the CAV II will expand the contractor network (99 to 116) and inventory base (75 to 85 percent).

Substantial progress has been made toward better financial controls and materiel accountability. In the interim, physical accountability of materiel at commercial contractor facilities has recently been reviewed by both the Naval Audit Service and the DLA. Initial indications confirm that there is not a physical accountability problem. Final resolution of any financial adjustments will, however, only be achieved with the planned implementation of an integrated financial/inventory data base via resystemization of the ICP ADP systems in 1990. The CAV system has been a key interim step in improving the management of the SPCC commercial repair process.

**RECOMMENDATION 3:** The GAO recommended that the Secretary of the Navy direct the Naval Supply Systems Command to require that the next annual Financial Integrity Act assessment include a review of the internal control weaknesses discussed in this report, such as inventory accuracy and causative research. (p. v, p. 53/GAO Draft Report)

**DOD RESPONSE:** Concur. The Navy will include an assessment in the Fiscal Year 1988 Internal Control Program. As indicated in the DoD response to FINDING K, the Navy has had a long-standing commitment to improving its inventory accuracy programs. It should also be noted that DoD Instruction 4140.35, dated June 30, 1987, requires that Heads of DoD Components, "Establish physical inventory control as an element to be addressed in annual Internal Management Control assessments required by DoD Directive 5010.38."

**RECOMMENDATION 4:** The GAO recommended that the Commanding Officer of the Norfolk Naval Supply Center require that inventory regulations be properly applied and enforced to avoid, for example, reversing receipt documents over a year old. (p. v, p. 53/GAO Draft Report)

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low on pp. 41.

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**DOD RESPONSE:** Partially concur. The DoD agrees that the Commanding Officer of the NSC Norfolk should require that inventory regulations be properly applied and enforced, and that action has been taken. As discussed in the DoD response to FINDING A, however, there are occasions when reversal of adjustment transactions is appropriate to restore complete financial accountability. The DoD response to FINDING A also points out that the current DoD procedure for the proper handling of reversals is unclear, subject to misinterpretation and requires revision. The DoD could concur with the recommendation if it stated as follows, "The Commanding Officer of the Norfolk Naval Supply Center require that inventory regulations be properly applied and enforced". In this regard the Commanding Officer of the NSC Norfolk has reemphasized the basic requirement to comply with physical inventory control regulations, including proper use of inventory adjustment reversal transactions. An additional appropriate recommendation is, "The Office of the Secretary of Defense should take action to clarify inventory adjustment reversal procedures to preclude misinterpretation, ensure complete financial and inventory accountability and to preclude potential abuse..." and actions are underway to do so.

**RECOMMENDATION 5:** The GAO recommended that the Commanding Officer of the Norfolk Naval Supply Center require that adjustments be made within the established time frames for completing inventories and that causative research is completed as rapidly as is feasible. (p. v, p. 53/GAO Draft Report)

**DOD RESPONSE:** Concur. As discussed in the DoD response to FINDING C, adjustments were only deferred on a limited universe of classified or high value items. This practice was intended to ensure maximum accuracy in the research process for these critical items. The Commanding Officer of the NSC Norfolk has discontinued deferral of adjustments, and will ensure the timeliest possible completion of causative research within the limits of available resources to conduct the associated actions.

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## RECOMMENDATIONS

**RECOMMENDATION 1:** The GAO recommended that the Secretary of the Navy direct the Naval Supply Systems Command to provide the Naval Supply Centers specific criteria for designing physical inventory samples to eliminate the inventory abuses described in this report that distort accuracy reports. The GAO further recommended that these criteria should include guidance that ensures that the use of STATMAN, the Navy's new statistical sampling and analysis tool, enables managers to obtain a representative view of inventory accuracy based on such indicators as initial record accuracy, and dollar and unit variances (p. v, p. 52/GAO Draft Report)

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**DOD RESPONSE:** Concur. Based on action underway prior to the audit, the Navy is already carrying out all but one limited aspect of this recommendation. DoD Instruction 4140.35, dated June 30, 1987, requires each Service to conduct an annual random sample inventory. The Navy has been conducting such inventories, employing its STATMAN analysis programs, and reflects this requirement and associated design criteria for sampling in its updated program guidance (NAVSUPINST 4440.115G of September 22, 1987). In addition, as part of the latest update to the five year program for improving DoD physical inventory management, the DoD Joint Physical Inventory Working Group is assessing the feasibility and value of measuring dollar and unit variances as part of the sample process throughout the DoD.

**RECOMMENDATION 2:** The GAO recommended that the Secretary of the Navy direct the Naval Supply Systems Command to require that the Ships Parts Control Center stock records be established and kept current with regard to those items sent to non-Navy facilities for repair. (p. v, p. 53/GAO Draft Report)

Now on p 42.

**DOD RESPONSE:** Concur. The Ships Parts Control Center (SPCC) is already required to establish and maintain stock records for items sent to non-Navy facilities for repair. The physical accountability function is, however, the responsibility of the commercial contractors, in accordance with the FAR, with Government oversight being provided by the Defense Contract Administration Service (DCAS) activities of Defense Logistics Agency (DLA). Although the official stock records are maintained by the contractor, the growing commercial repair program in the early 1980s necessitated increased manual monitoring by the SPCC.

Accordingly, in 1985, the SPCC designed and brought on line the CAV I system, to provide better tools to maintain visibility on its stock records of those items repaired and accounted for at commercial facilities. The CAV I system provides an electronic



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essential element of effective inventory management. The GAO further observed that, when properly implemented, effective internal controls provide reasonable assurance that:

- resources are protected from waste, fraud and abuse;
- resources are used in accordance with applicable laws, regulations and policies; and
- reliable data are obtained, maintained and fairly reported.

The GAO noted that, the Federal Managers' Financial Integrity Act (FMFIA) requires Government activities to evaluate their internal controls to make sure these objectives are met. The GAO found that at the Norfolk NSC, the assessment of internal controls for supply accountability did not disclose any inventory accuracy or causative research deficiencies for FY 1985 and FY 1986. The GAO further found that at the Norfolk NSC, the vulnerability assessment of internal controls for FY 1985 and FY 1986 identified no material weaknesses in supply accountability. The GAO concluded, however, based on its review, that inventory accuracy is an area of vulnerability and thus should have been included in these FMFIA assessments. (p. ii, pp. 6-7/GAO Draft Report)

Now on p. 13.

**DOD RESPONSE:** Concur. Although the DoD and the Navy have strong programs to assess and improve inventory accuracy, the Department agrees that more explicit recognition of "inventory accuracy" under the FMFIA process would have been appropriate. DoD Instruction 4140.35, dated June 30, 1987, requires that Heads of DoD Components, "Establish physical inventory control as an element to be addressed in annual Internal Management Control assessments required by DoD Directive 5010.38". The applicable DoD guidance (DoDD 5010.38) requires a risk assessment of each "assessable unit" at least once every five years. The governing Navy instruction did not specifically list it as one of the assessable areas subject to review. Thus, while it has been explicitly reviewed at several NSC and implicitly considered in reviewing related functional areas (e.g., "supply" at the Navy Supply Centers (NSCs) such as Norfolk, and data quality under "ADP" at the Navy Ships Control Center) or narrower scope components (e.g., location validity at several NSC), "inventory accuracy" per se has not been consistently reviewed as a specific area of vulnerability at Navy supply activities. As indicated in the DoD response to Recommendation 3, the Navy plans to place emphasis on an assessment of inventory accuracy (including causative research) at major supply activities as part of its FY 1988 Internal Control Program.

It is vital to distinguish, however, between formal compliance with the administrative components of the Internal Control Program, and the consistently strong emphasis placed on inventory accuracy throughout the Navy. In that regard, the Navy has devoted significant resources to inventory accuracy

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inventories). For example, the GAO states that reversals should not be taken against erroneous posting of gains and losses, whereas the DoD and the Navy view such reversals as a legitimate means of ensuring that the DoD records are not only accurate with respect to balance, but also with respect to transactions. In order to compare the DoD recalculated sample GAO variance rate of 11.6 percent to the reported 3.2 (or 4.4) percent, the value of reversals must first be deducted from the GAO variance. Based on recent Navy reversal rates (63 percent of total adjustments in FY 1986), \$410 million would have to be deducted from the \$650 million projected adjustment, leaving \$240 million of unresolved gains and losses. This equates to a GMAR of around 4.3 percent. The resulting difference between the GAO and NSC rates is certainly not nearly as significant as the GAO states in the report.

**FUNDING J: Control Problems Over Repairable Items.** The GAO found that the Ship Parts Control Center (SPCC) has not maintained stock records for items sent to contractors or to interservice maintenance facilities for repair. The GAO also found that the SPCC financial records for these items are inaccurate. The GAO reported that, as a result, the SPCC lost visibility and accountability over these materials, valued at nearly \$700 million in October 1985. Since 1985, the GAO reported that the SPCC has been trying to reconcile its records to show the dollar value of repairable items at contractor and interservice locations. In this regard, the GAO reported that, in January 1986, based on information provided by contractors and interservice facilities, the SPCC adjusted its financial records by \$621 million, including a net write off of \$464 million. The GAO found, however, that since then, the SPCC has again lost track of repairable items valued at \$208 million, primarily because it has not been performing required reconciliations. The GAO concluded that the SPCC has not adequately controlled repairable items. The GAO further concluded that the Navy needs to develop reconciliation procedures to ensure that differences between its records and the contractor records are adequately explained. (p. iv, pp. 44-47, p. 52/GAO Draft Report)

Now on pp. 36 - 38.

**DOD RESPONSE:** Nonconcur. The DoD does not concur with the conclusion that "...the SPCC lost visibility and accountability over these materials, which were reportedly valued at nearly \$700 million in October 1985." The awkward wording of the SPCC letter could lead to an initial conclusion that the Navy had lost control of these assets. This impression, however, is the result of overstated wording employed by an SPCC employee to elicit the cooperation of nearly 100 SPCC commercial repair contractors in a special effort to support Navy-unique reporting procedures. (The Department could concur if the report were revised to indicate that: (1) the SPCC visibility and accountability over these materials has not been adequate; (2) the SPCC recognized the need to update financial records that had not been properly maintained for fifteen years; (3) the SPCC corrective action resulted in a cumulative net financial adjustment of \$464

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progress and has sound programs underway for further progress. This is particularly vital and appropriate given that, while the Executive Summary exclusively focuses on the NSC Norfolk (with the exception of one item regarding the SPCC), the report title is "NAVY INVENTORY MANAGEMENT: Inventory Accuracy Problems."

**FINDING H: GAO Assessment Of Record Accuracy.** The GAO reported that, as discussed in Finding F, the Norfolk NSC includes both scheduled and unscheduled inventories in determining inventory accuracy. The GAO found, however, that the NSC did not select the line items for its physical inventories on a statistical basis, as part of scheduled inventories. The GAO concluded, therefore, that the Norfolk NSC cannot rely on the results of its inventories to depict the accuracy of its overall supply records. To obtain a valid representative assessment of the Norfolk NSC inventory accuracy, the GAO selected a stratified statistical sample of Norfolk NSCs and conducted a physical inventory. Based on this sample, the GAO estimated an initial accuracy rate of 69 percent in FY 1986, substantially higher than the 37 percent rate reported by the Norfolk NSC. The GAO also pointed out that the adjusted record accuracy rate of 80 percent for FY 1986 reported by the NSC is based only on major adjustments. The GAO concluded that an inventory record is inaccurate regardless of the dollar amount involved, and should be included. (p. iv, pp. 32-37/GAO Draft Report)

Now on pp. 28 - 30.

**DOD RESPONSE:** Nonconcur. The GAO has developed its own definitions and measures and compared them to measures used by the DoD. The GAO and DoD measures are, in most cases, not comparable.

The DoD also takes exception with several additional points noted in this finding. First, contrary to the claim that the NSC Norfolk does not know the status of its inventory accuracy, The GAO 69 percent figure, based on a statistical sample of the entire population of line items carried, is identical to the 2nd quarter FY 1987 STATMAN inventory conducted by the NSC Norfolk during the same time-frame and referenced in the NAVSUP Command Inspection Report of the NSC Norfolk conducted March 9-20, 1987. In fact, the NSC Norfolk has been conducting random sample inventories since late 1985, and reporting the results to the Naval Supply Systems Command.

Secondly, the DoD disagrees with the implication that initial inventory record accuracy rate is a meaningful measure of inventory accuracy. As GAO correctly noted, the NSC Norfolk reported initial record accuracy rate for the ICE report of 37 percent included both scheduled and unscheduled inventories. Accordingly, the DoD and the Navy have given this measure limited emphasis. Any sample inventory record accuracy rate that does not take into account the significance of the discrepancies is subject to misinterpretation (e.g., an error of one out of 1,000 on a low dollar value item has a significantly different impact than an error of one of two on a high dollar value item).

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correcting improperly posted documentation. The GAO approach would result in double counting errors. This is inappropriate and would be counterproductive to the goal of making all records as accurate as possible. The double counting of errors would serve as a disincentive to the DoD goal of correct documentation. The GMAR is but one of many measures used to assess inventory accuracy. The GMAR is, by definition, calculated by using the value of the gross inventory adjustments, less the value of the gross reversals, not their sum. The DoD does, however, track and report gross adjustments and gross reversals separately.

Secondly, with regard to record accuracy, the DoD measure was never intended or portrayed to be representative of the total inventory record accuracy. In order to fulfill the DoD goal to maximize physical inventory and transaction accuracy, the DoD program requires that unscheduled inventories be given priority over scheduled inventories, except in the case of controlled items. Unscheduled inventories are conducted due to a known or suspected problem. Approximately 75 percent of the physical inventories conducted are unscheduled. The record accuracy figure that the GAO is addressing is intended to tell DoD management what proportion of the total inventories conducted resulted in significant dollar value adjustments (gains or loss adjustments over \$800.00) to inventory records. That is how it is defined, that is how it is calculated, and that is what it tells management. The statistical sample the GAO conducted of the Army serves as a good example. In the GAO sample taken in the Army, 76.4 percent of the records in error had dollar variances of under \$800, but their cumulative dollar variance accounted for two-tenths of one percent of the sample total gross dollar variance. Clearly, the 23.6 percent of the records in error with variances over \$800 should be of importance to the DoD, since they accounted for over 99.9 percent of the total dollar variance. Again this is what this measure has historically measured, and it was never intended to be a representative measure of the total DoD inventory.

It should be noted that the revision to DoD 4140.22-M, which was formally staffed for comment in March 1987, and has been in various draft forms since early 1986, calls for the reporting of all records with a variance, regardless of the value of the variance. This change, however, is also not intended to be representative of overall accuracy. Rather, it is intended to document how many discrepancies identified during the physical inventory process resulted in inventory adjustments. Furthermore, as part of the DoD Physical Inventory Control Program, the DoD Joint Physical Inventory Work Group has been developing policy revisions to improve the collection and utilization of data related to inventory accuracy measurement. (It must be emphasized that the "under \$800 adjustments" were excluded only from one of the several measures used to assess inventory accuracy.)

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and significantly understate the reported GMAR. The GAO concluded that this practice is another factor impacting the overall accuracy of the Norfolk NSC inventory and adjustment rate. (p. iii, pp. 17-19/GAO Draft Report)

**DOD RESPONSE:** Partially concur. The DoD does not agree that "Navy GMAR has been based on inflated inventory values," since the Norfolk inclusion of "extra" engine counts in FY 1986 impacted the overall NSC GMAR rate by only 0.3 percent. (The Department could concur if the GAO finding stated that NSC Norfolk GMAR was understated due to inflated inventory values.) In addition contrary to the conclusions in a Navy field activity staff study cited by the GAO, the DoD and the Navy believe the NSC Norfolk additional reviews of inventory balances on high value aircraft engines during quarterly maintenance checks was a prudent management action designed to ensure the tightest possible controls over these critical and costly components. The DoD does agree, however, that this practice resulted in an understatement of the NSC Norfolk GMAR, which is only one of the measures of the activity's inventory accuracy. The practice of including these quarterly inventory counts in the computation of the GMAR was a local NSC Norfolk practice, and it has been discontinued. It should be noted, however, that even if the additional engine checks are excluded from the Norfolk GMAR calculation, the overall improvement in this measure is still dramatic- from 21.4 percent in FY 1981 to 4.4 percent in FY 1986.

**FINDING E: Causative Research Is Untimely.** The GAO reported that DoD regulations require that variances between recorded inventory balances and the balance on hand be researched to identify the reason for such variance. The GAO also reported that Navy regulations require that causative research be completed no later than 45 days after an adjustment to inventory records. The GAO found, however, according to available information and Navy officials, that the Norfolk NSC is exceeding the research deadline for nearly half of the adjustments it investigates, and a sizeable backlog of research cases is continuing. According to the GAO, a Navy official attributed the research untimeliness to a research backlog that accumulated several years ago, when Navy criteria required causative research to be conducted for adjustments of \$5,000 or more, and research personnel were few and poorly trained. The GAO noted that, by late FY 1986, after the DoD criteria was raised to \$16,000 or more, and more better trained researchers were available, the backlog had been reduced. The GAO found that by March 1987, however, the causative research process had deteriorated, in terms of both timeliness and case backlog. According to the GAO, a NSC official attributed this situation to a loss of several researchers. The GAO concluded that delays in researching the cause of inventory imbalances reduces the likelihood of determining why the variance occurred. (p. iii, pp. 19-20/GAO Draft Report)

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especially since the two items involved were not interchangeable. In addition, the GAO concluded that this was another factor that contributed to the Norfolk NSC overstating its inventory accuracy. (p.111, p. 13/GAO Draft Report)

**DOD RESPONSE:** Concur. The Department agrees that offsetting transactions, such as those cited in the audit, are not normally appropriate if the items involved are not directly linked through stock number assignment or other characteristics, such as a complete interchangeability relationship. The DoD also agrees that such actions should not be routinely undertaken when it may be more appropriate to correct the various records potentially affected at the NSC, and/or at customer or shipper activities, by preparing new inventory adjustments rather than reversing older ones. Nonetheless, there are occasions when discrepancies result from the transposition of portions of a stock number, or from other situations wherein it may be appropriate for overall DoD/Navy financial management purposes to reverse the incorrect inventory transactions and process the necessary documentation to reflect properly the associated receipts/issues on both the NSC and customer/shipper records, even though the two items involved are not directly "interchangeable." This decision requires an assessment of a variety of factors reflected in transaction history files, freight manifests, et al. In addition, as discussed in the DoD Response to FINDING A, any such overly liberal utilization of techniques, which caused a marginal reduction in the true Gross Monetary Adjustment Rate (GMAR), were impacting only one of several measures used to assess inventory accuracy at the NSC Norfolk.

**FINDING C: Deadlines For Processing Inventory Adjustments Not Being Met.** According to the GAO, when a physical inventory reveals a variance between the records and items on hand, supply managers should change their records to agree with quantities on hand. The GAO reported that Navy regulations require that record adjustments based on a physical inventory be made, "without delay," by the completion of the inventory period. The GAO found, however, that some adjustments at the Norfolk NSC were not made at the completion of inventories, but were deferred and passed on for further investigation. The GAO noted that, in FY 1985, a Navy review group found that the Norfolk NSC was deferring adjustments until completion of causative research, resulting in an average delay of 100 days. The GAO found that this practice is continuing at the Norfolk NSC. According to the GAO, of the 37 FY 1986 National Stock Numbers referred for further investigation, inventory adjustments for 16 had been deferred beyond Navy deadlines, averaging 78 days. The GAO also found that the Norfolk NSC was improperly resolving deferred adjustments. As an example, the GAO cited an instance where the NSC deferred an adjustment on a lost item while awaiting causative research results. The GAO reported that, subsequently, based on the researcher's recommendation, the receipt for one item delivered five years earlier was reversed and no record adjustment made. The GAO noted that DoD officials claimed

GAO DRAFT REPORT - DATED OCTOBER 8, 1987  
(GAO CODE 391565/OSD CASE 7402-A)

"NAVY INVENTORY MANAGEMENT: INVENTORY ACCURACY  
PROBLEMS"

DEPARTMENT OF DEFENSE COMMENTS

\*\*\*\*\*

FINDINGS

**FINDING A: Improper Reversals By The Norfolk Naval Supply Center.** The GAO reported, that under current DoD and Navy policy, inventory transactions can be reversed only if the cause is found within the transactions of the past year or if they occurred after the last physical inventory. The GAO reported that, in January 1986, to test the reversal practices at the Norfolk Naval Supply Center (NSC), it reviewed the results of a semiannual physical inventory of 578 high dollar value items and assessed the transactions that affected the imbalance in 37 National Stock Number (NSN) items. The GAO found that 7 of the 37 NSNs had at least one variance resolved by reversing transactions that occurred from months-to-years before the last inventory date. According to the GAO, this practice violates Navy policy. The GAO pointed out that, as a result of this practice, the Norfolk NSC inventory adjustments were understated by \$3.1 million. The GAO concluded that this procedure was one factor that resulted in the Norfolk NSC overstating its inventory accuracy and caused the NSC Norfolk records to be inaccurate for long periods of time. (p. iii, pp. 10-12/GAO Draft Report)

Now on pp. 15 - 16.

**DOD RESPONSE:** Partially concur. The DoD acknowledges that the DoD procedure for reversals contained in DoD 4140.22-M is subject to misinterpretation and requires clarification. It is the goal of the Department that all its records be as accurate as possible. The physical inventory control program does not stand alone, i.e., while it is important that the accountable inventory record be accurate, it is equally important that receipts from procurement, customer returns, issue transactions, etc. be properly documented. These transactions affect the accountable inventory record, but they also affect contractor payment, customer credit and billings as well as demand forecasts. Therefore, if an improperly posted transaction is discovered during research, it is imperative that it be properly posted. If an inventory adjustment was previously posted to the accountable record due to the improper posting of the document, the document must be posted and a reversal of the original adjustment must be made in order to effect correct documentation and to keep the accountable record and on hand quantity in agreement. This

*Enclosure*

# Comments From the Assistant Secretary of Defense (Production and Logistics)



PRODUCTION AND  
LOGISTICS  
(L/SD)

ASSISTANT SECRETARY OF DEFENSE  
WASHINGTON, D C 20301-8000

NOV 30 1987

Mr. Frank C. Conahan  
Assistant Comptroller General  
National Security and International  
Affairs Division  
U.S. General Accounting Office  
Washington, DC 20584

Dear Mr. Conahan:

This is the Department of Defense (DoD) response to the General Accounting Office (GAO) draft report, "NAVY INVENTORY MANAGEMENT: Inventory Accuracy Problems" (GAO Code 391565/OSD Case 7402-A).

The Department generally agrees with the draft report findings and recommendations. The Department does not, however, agree with the basic conclusions. The DoD particularly objects to the GAO claim that the Naval Supply Center (NSC) Norfolk does not know how accurate its records are and that the Ships Parts Control Center (SPCC) has lost visibility over items sent to commercial contractors. In both cases, the report exaggerates the significance of observed incidents and does not recognize the existence of effective management programs.

The GAO's assessment of the Navy was not a systemic review. It was based almost exclusively on one NSC, NSC Norfolk, the largest Navy supply activity and its most difficult inventory management challenge. If the GAO had done a system-wide review of Navy NSCs, the line item accuracy rate would have been near 80 percent, as opposed to the 69 percent at Norfolk. For example, the line item accuracy rate at the NSC Puget Sound, which the GAO visited during the course of the audit, is 90 percent.

The portion of the report concerning the SPCC is largely based on SPCC awkwardly worded 1985 correspondence, designed to initiate resolution of a 15 year old problem concerning the efficiency of its process for tracking assets at commercial sites. The DoD is confident that the ensuing financial adjustments involved no physical loss of material.

The DoD and the Navy continue to recognize and act upon the vital importance of a strong physical inventory program. Material accountability and security receive significant management attention at all levels. Contrary to the draft report statement that inventory management "is now" receiving top command priority and emphasis, and that the Navy "now has" a flag officer, who is responsible for inventory and systems integrity,



**Appendix I  
GAO Sample Methodology**

**Table I.3: Estimates of Gain, Loss, and Total Unit Inaccuracy Rates With Lower and Upper 95-Percent Confidence Limits**

Rates shown in percent

Dollar Value	Gain			Loss			Total			
	Lower bound	Rate	Upper bound	Lower bound	Rate	Upper bound	Lower bound	Rate	Upper bound	
\$0.01 to \$10	15.0	19.3	23.7	0.0	1.2	2.5	15.5	20.5	25.5	
\$10.01 to \$100	0.0	0.2	0.5	12.7	15.5	18.5	12.7	15.7	18.7	
\$100.01 to \$1,000	2.2	9.9	17.6	0.0	1.0	1.9	3.0	10.9	18.7	
\$1,000.01 to \$10,000	0.0	3.0	9.1	0.0	10.9	34.5	0.0	13.9	37.6	
\$10,000.01 to \$100,000	2.1	10.4	18.8	0.0	1.8	4.0	3.6	12.2	20.9	
\$100,000.01 to \$200,000	0.1	0.1	0.2	0.0	0.0	0.0	0.1	0.1	0.2	
\$200,000.01 to \$300,000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
\$300,000.01 to \$400,000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
\$400,000.01 to \$500,000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
More than \$500,000	1.5	2.6	3.7	1.1	1.7	2.4	3.0	4.0	5.7	
<b>Type of Item</b>										
Controlled	0.1	1.7	3.3	0.0	1.2	3.3	0.9	2.9	5.0	
Pilferable	0.0	3.4	6.9	0.0	0.7	1.5	0.6	4.1	7.6	
Depot-level reparable	0.0	5.0	12.1	0.0	8.2	34.8	0.0	13.2	40.0	
Wholesale	0.1	0.2	0.3	3.6	5.5	7.4	3.8	5.7	7.6	
Fast retail	34.5	38.9	43.3	0.1	0.4	0.6	34.8	39.3	43.7	
Other retail	1.8	6.4	11.0	7.0	9.3	11.7	10.4	15.7	21.0	
Other	0.0	9.6	29.5	2.6	5.8	9.0	0.0	15.4	36.9	
<b>Total</b>	<b>7.1</b>	<b>9.5</b>	<b>11.9</b>	<b>3.1</b>	<b>6.4</b>	<b>9.7</b>	<b>11.9</b>	<b>16.0</b>	<b>20.0</b>	

**Appendix I  
GAO Sample Methodology**

**Table I.1: Estimates of Gain, Loss, and Total Item Inaccuracy Rates With Lower and Upper 95-Percent Confidence Limits**

Rates shown in percent

Dollar Value	Gain			Loss			Total			
	Lower bound	Rate	Upper bound	Lower bound	Rate	Upper bound	Lower bound	Rate	Upper bound	
\$0.01 to \$10	16.0	33.9	51.7	0.0	12.2	24.4	28.1	46.0	64.0	
\$10.01 to \$100	0.0	2.2	5.7	7.1	22.6	38.1	9.1	24.8	40.5	
\$100.01 to \$1,000	5.0	12.4	19.9	0.7	6.0	11.2	10.1	18.4	26.7	
\$1,000.01 to \$10,000	5.2	18.9	32.7	0.0	8.0	17.6	11.4	26.9	42.4	
\$10,000.01 to \$100,000	0.0	11.4	26.6	0.0	3.1	6.7	0.0	14.5	30.1	
\$100,000.01 to \$200,000	0.2	0.3	0.8	0.0	0.0	0.0	0.0	0.3	0.8	
\$200,000.01 to \$300,000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
\$300,000.01 to \$400,000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
\$400,000.01 to \$500,000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
More than \$500,000	2.2	2.4	3.4	2.2	2.4	3.4	3.3	4.8	6.2	
<b>Type of Item</b>										
Controlled	1.0	4.3	7.6	0.1	1.6	3.8	2.3	5.9	9.6	
Pilferable	2.5	11.9	21.3	0.0	2.5	5.8	4.7	14.4	24.1	
Depot-level reparable	6.2	22.5	38.8	0.0	9.0	19.6	13.7	31.5	49.3	
Wholesale	0.0	3.5	8.0	2.7	10.0	17.4	5.6	13.6	21.6	
Fast retail	0.2	19.2	38.1	0.0	3.4	7.2	3.2	22.5	41.0	
Other retail	9.8	24.1	38.4	4.1	18.8	33.6	25.3	42.9	60.5	
Other	12.1	24.6	37.1	10.9	22.8	34.8	33.4	47.4	61.7	
<b>Total</b>	<b>11.1</b>	<b>17.8</b>	<b>24.4</b>	<b>6.7</b>	<b>12.9</b>	<b>19.1</b>	<b>22.7</b>	<b>30.7</b>	<b>38.6</b>	

# GAO Sample Methodology

To obtain a representative estimate of inventory accuracy at the Norfolk NSC, we selected a stratified random sample of 674 NSNs from the Master Stock Item Record (MSIR), the computerized master list of items managed at the Norfolk NSC. The MSIR we used contained inventory valued at \$5.8 billion, representing all of the inventory at the NSC except for \$465 million of stock not maintained on the MSIR and nuclear items not included on the MSIR provided to us for security reasons.

The individual unit contained in the MSIR is the line item. Line items separately identify items that may have the same NSN but differ by condition, purpose, or ownership. The Norfolk NSC conducts and reports inventories on a line item basis. At the start of our inventory work, we determined that stock from some line items with the same NSN was in the same location, even in the same bin. As a result, it was often impossible to determine which units belonged to which line items. Accordingly, we decided to conduct our sample inventory using NSNs as the sampling unit. The results of our sample can be projected to the population of all NSNs managed by the Norfolk NSC, with a 95-percent confidence level.

As the starting point for our sample, we aggregated 867,048 MSIR line item records to 769,230 NSNs. We further reduced this list to 720,510 NSNs by excluding 48,720 NSNs that had no cash value (a zero unit price).

We analyzed the population of NSNs as a whole to determine the appropriate categories to use to stratify our sample. As a result of that analysis, discussions with NSC personnel, and observations of operations, we designed our approach to select a stratified sample that would be statistically representative of unit price or NSN dollar value and categories of items that reflected item type and degree of security in item handling. (The specific sampling categories, or strata, are shown in the tables in chapter 3.)

We selected a random sample from each group of NSNs, defined by the combination of each dollar value category and type of item category, or population cell. We included all NSNs in very small cells in the sample. For larger population cells, we selected samples of NSNs randomly.

In choosing a valid sample item, we determined that the Norfolk NSC's records for the item had to show a balance-on-hand and/or a location at the time of our inventory count. An NSN that had neither a balance-on-hand nor a location was excluded from the population, and the population size was reduced accordingly. Based on the results of our sample, we estimated that about 79,000 NSNs had neither balances-on-hand nor

NSC require that inventory regulations be properly applied and enforced and suggested language to restate the recommendations. DOD noted that the reversal procedures contained in DOD manual 4140.22 are subject to misinterpretation and need clarification but contended that only physical inventory transactions are subject to the 1-year restriction cited in our report. According to DOD, receipt and issue transactions that are more than a year old can be reversed. We have considered DOD's comments and agree that its guidance on reversals needs clarification. We therefore revised our recommendation along the lines suggested by DOD and added a new recommendation for the Assistant Secretary of Defense (Production and Logistics) to clarify DOD's guidance on reversals. We believe that if reversals are to be used, this clarification should clearly define the time period during which any transaction, including issue and receipt transactions, can be reversed so that it is consistent with the 1-year limit on causative research. Not having these limits clearly defined invites the types of problems identified in our report.

- require that the Ships Parts Control Center's stock records be established and kept current with regard to items sent to non-Navy facilities for repair; and
- require that the next annual Financial Integrity Act assessment include a review of the internal control weaknesses discussed in this report, such as inventory accuracy and causative research.

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## Agency Comments and Our Evaluation

DOD generally agreed with most of our findings and recommendations and noted planned or ongoing corrective actions in the inventory management area. DOD also proposed various technical corrections and clarifications throughout the report. When appropriate, we incorporated the proposed changes.

DOD did not concur with our conclusion that its and Navy policies for measuring inventory accuracy resulted in inflated accuracy rates because the policies allow the exclusion of reversed inventory adjustments in computing the GMAR and the exclusion of adjustments of \$800 or under in computing the records accuracy rate. DOD said that our approach of including reversed inventory adjustments in GMAR computations would result in double counting errors and would serve as a disincentive to the DOD goal of correct documentation. DOD also said that the records accuracy rate was never intended or portrayed to be representative of the total record accuracy, i.e., the rate was intended to only measure significant dollar value adjustments, those over \$800.

In our opinion, DOD's policies for measuring inventory accuracy allows DLA and the services to report unrealistically high accuracy rates because most inventory adjustments (1) are reversed on the basis that they were caused by prior erroneous adjustments, and (2) are not measured because they are \$800 or under.

We agree with DOD that erroneous inventory adjustments can, and sometimes do, result in corrective adjustments during subsequent inventories and that if the latter adjustments are not reversed they are also used in computing the GMAR for the period during which the items were inventoried—double counting according to DOD. In our opinion, all inventory adjustments, regardless of their cause, should be used in computing the GMAR because both times the items were inventoried, the quantities shown on the records were wrong. Since by policy, DOD and the services do not compute a quantity accuracy rate, the GMAR is the only accuracy measure of the extent to which the inventory records were accurate.

imbalances. Time limits for transaction reversals need to be clearly defined. As long as adjustment reversals are questionably done and permitted to adjust accuracy rates, any effort to reliably gauge the accuracy of the inventory system will be fundamentally impaired. DOD agrees that reversal procedures are subject to misinterpretation and need clarification.

Another DOD policy allows the Navy to omit all record adjustments valued at less than \$800 from record accuracy rate computations for the Inventory Control Effectiveness report. The Navy's record accuracy rate is significantly understated by omitting these adjustments. DOD recognizes this shortcoming and has proposed a change that would require the inclusion of all record errors in computing the record accuracy rate.

Generally, in our tests we found that the higher value items had better accuracy. Based on our statistical sample, we estimate record accuracy to be 69 percent, which is substantially higher than the 37 percent reported by the Norfolk NSC in fiscal year 1986. We believe that the Norfolk NSC's smaller figure reflects the impact of including large numbers of unscheduled inventories in the reported accuracy rate. While we recognize that unscheduled inventories are an important management tool to resolve known or suspected problems, they are not a useful indicator of overall system accuracy.

We estimate the total value of dollar variances for the Norfolk NSC to be \$1.04 billion. This amount equates to a GMAR of 17.9 percent, compared with the 3.2 percent reported by the Norfolk NSC. At least part of that difference occurs because we did not offset variances through reversals. Finally, we estimate that unit variance at the Norfolk NSC is 16.0 percent. This measure of variance in quantities is not required in reporting Navy accuracy rates, but it provides a useful measure of the magnitude of variances.

Taken together, these various measures of inventory accuracy provide a more accurate and comprehensive picture of inventory accuracy than current accuracy measures. The Navy's initiatives to implement a statistical sampling approach through STATPAC should go a long way toward providing a more accurate perspective on inventory accuracy.

In addition to inventory accuracy problems at the Norfolk NSC, the Navy's SPCC has not maintained adequate visibility and accountability over large quantities of assets sent to non-Navy repair facilities. The lack of visibility over these assets caused the Navy difficulty in making

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**Reparable Items Not on Supply Record**

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material accountability and eliminate the disparity between financial and inventory records. Further, the Navy has established a processing facility on each coast for reparable assets entering the repair cycle.

# Reparable Items Not on Supply Record

SPCC has not adequately controlled many items sent out to commercial contractors and interservice facilities for repair. In fiscal years 1985 and 1986, SPCC did not maintain adequate visibility and accountability over these materials, which were reportedly valued at nearly \$700 million in October 1985. Having no other way to determine the value and quantity of these items in the possession of repair facilities, SPCC requested this information from the contractors, with only limited assurance of reliability. The information it obtained accounted for only a portion of the materials and resulted in a net write-off from the financial records of \$464 million and a total gross monetary adjustment of \$621 million.

## Lack of Control Over Repairable Items

In early 1985, supply records for reparable items sent to non-Navy facilities were nearly nonexistent. Under the system then in force, NSCs sent certain items in stock that could not be issued in their current condition to 320 commercial contractors and some interservice depots for repair. When the NSCs reported shipment of the items to SPCC, SPCC removed the assets from its supply and financial records for the relevant NSC. Later, when SPCC received the shipping document from the NSC, it entered the financial value for the item into its financial records for the contractor. However, since SPCC was never certain that it had received all shipping documents, it could not be sure that its records for these items were accurate.

We were told that, in January 1985, the Navy introduced the Commercial Asset Visibility (CAV) program, in part to resolve the problem. Under this program, major contractors would report transactions daily or weekly to SPCC, so that it could reconcile its records. However, to implement the program the Navy first needed to calculate baseline data on the value and numbers of reparables. Lacking any reliable information of its own, the Navy had to solicit such data from its contractors. It did so by writing a letter to the contractors, asking them to provide information concerning the movement of reparable components in response to weekly or monthly requests from SPCC staff. In that letter SPCC told the contractor that

"...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" (See app. II.)



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of NSNs managed by the Norfolk NSC, shows an overall unit variance of 16 percent. NSNs valued at \$100,000 or less had the greatest incidence of errors, and very nearly all—99 percent—of the NSNs in Norfolk’s supply system are valued at \$100,000 or less. For 87 percent of the NSC’s supplies valued at \$10 or less, the estimated unit variance rate is 20.5 percent. (See table 3.5.) For the high-dollar-value items (more than \$100,000), the error rate is very small. Similarly, the unit variance rate for controlled and pilferable items is relatively small; however, these items account for only 3 percent of the Norfolk NSC’s supplies.

**Table 3.5: Unit Inaccuracy Rates by Unit Price Category**

Rates shown in percent				
Unit price	Inventory unit count	Gain rate	Loss rate	Total rate
\$ .01 to \$10	74,543,290	19.3	1.2	20.5
\$10.01 to \$100	7,158,664	0.2	15.5	15.7
\$100.01 to \$1,000	2,631,206	9.9	1.0	10.9
\$1,000.01 to \$10,000	715,388	3.0	10.9	13.9
\$10,000.01 to \$100,000	83,259	10.4	1.8	12.2
\$100,000.01 to \$200,000	2,023	0.1	0.0	0.1
\$200,000.01 to \$300,000	524	0.0	0.0	0.0
\$300,000.01 to \$400,000	110	0.0	0.0	0.0
\$400,000.01 to \$500,000	295	0.0	0.0	0.0
More than \$500,000	142	2.6	1.7	4.3
All cases <sup>b</sup>	85,134,901	9.5	6.4	16.0

Notes: All the rates presented are based on a sample and are, therefore, subject to some imprecision. While sample results are more accurately thought of as ranges, rates are shown as single numbers to simplify presentation. The ranges associated with these rates are found in appendix I.

<sup>a</sup>Rates may not add due to rounding.

<sup>b</sup>The rates presented are weighted to make them representative of the population of NSNs. The summary rate is not a simple average of the rates for the categories.

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**Table 3.3: Dollar Inaccuracy Rates by Unit Price Category**

Dollars in thousands/Rates shown in percent				
Unit price	Inventory value	Gain rate	Loss rate	Total rate
\$.01 to \$10	\$92,944	22.7	5.0	27.7
\$10.01 to \$100	229,218	0.2	13.5	13.7
\$100.01 to \$1,000	864,541	9.1	0.6	9.7
\$1,000.01 to \$10,000	2,042,201	2.8	13.9	16.7
\$10,000.01 to \$100,000	1,875,153	8.2	1.8	10.0
\$100,000.01 to \$200,000	280,331	0.1	0.0	0.1
\$200,000.01 to \$300,000	124,619	0.0	0.0	0.0
\$300,000.01 to \$400,000	39,076	0.0	0.0	0.0
\$400,000.01 to \$500,000	130,780	0.0	0.0	0.0
More than \$500,000	134,520	1.8	1.2	3.0
All cases <sup>b</sup>	\$5,813,381	10.4	7.5	17.9

Notes: All the rates presented are based on a sample and are, therefore, subject to some imprecision. While sample results are more accurately thought of as ranges, rates are shown as single numbers to simplify presentation. The ranges associated with these rates are found in appendix I.

<sup>a</sup>Rates may not add due to rounding.

<sup>b</sup>The rates presented are weighted to make them representative of the population of NSNs. The summary rate is not a simple average of the rates for the categories.

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**Table 3.2: Item Inaccuracy Rates by Type of Item**

Rates shown in percent

Type of item	Number of NSNs	Gain rate	Loss rate	Total rate
Controlled <sup>b</sup>	1,409	4.3	1.6	5.9
Pilferable <sup>c</sup>	22,220	11.9	2.5	14.4
Depot-level reparable <sup>d</sup>	75,686	22.5	9.0	31.5
Wholesale <sup>e</sup>	156,175	3.5	10.0	13.5
Fast retail <sup>f</sup>	93,033	19.2	3.4	22.6
Other retail <sup>g</sup>	254,608	24.1	18.8	42.9
Other <sup>h</sup>	38,741	24.6	22.8	47.4
All cases <sup>i</sup>	641,872	17.8	12.9	30.7

Notes: All the rates presented are based on a sample and are, therefore, subject to some imprecision. While sample results are more accurately thought of as ranges, rates are presented as single number to simplify presentation. The ranges associated with these rates are found in appendix I.

<sup>a</sup>Rates may not add due to rounding.

<sup>b</sup>Controlled items are national security items (classified material) and items that are very closely watched, e.g., with signature accountability.

<sup>c</sup>Pilferable items are materials that tend to have high utility in a non-Navy setting to people in general, e.g., hand tools and over-the-counter medical supplies.

<sup>d</sup>Depot-level reparables are items that are replaced as units by the end-user, e.g., vehicle transmission.

<sup>e</sup>Wholesale items are owned by the SPCC or the Aviation Supply Office and are treated as consumables. The Norfolk NSC acts as a distributor.

<sup>f</sup>Fast retail items are small, generally low-cost, and fast-moving hardware store items owned by the Norfolk NSC, e.g., nuts, bolts, and nails.

<sup>g</sup>Other retail items are items owned by the Norfolk NSC, they are similar to fast retail items but tend to be more expensive and have a lower turnover rate, e.g., small electronic repair items.

<sup>h</sup>Other items are those that do not fall into one of the first six categories, e.g., sonobuoys and small items not owned by the Navy.

<sup>i</sup>The rates presented are weighted to make them representative of the population of NSNs. The summary rate is not a simple average of the rates in the categories.

**Adjusted Record Accuracy**

For fiscal year 1986, the adjusted record accuracy rate (for adjustments valued at \$800 or greater) at the Norfolk NSC was 80 percent. However, the adjusted record accuracy does not reflect true accuracy since it is based on only major adjustments. An inventory record is inaccurate regardless of the dollar amount of the inaccuracy. The proposed change to DOD's instructions will require the inclusion of all record adjustments when computing the inventory record accuracy rate.

**Dollar Variances**

The Norfolk NSC compares the dollar variance of items inventoried to total value of items inventoried, yielding the GMAR. In fiscal year 1986,

# Assessment of Inventory Accuracy at the Norfolk Naval Supply Center

In addition to problems with its reported accuracy, Norfolk NSC, at the time of our review, did not select line items for its physical inventories on a statistical basis. Statistical selection of items in scheduled inventories would permit the projection of its findings to its entire supply system. Norfolk NSC, however, inventoried most items on an unscheduled basis. Because of this, it could not rely on the results of its physical inventories to adequately depict the accuracy of its overall supply records. While many of the inventory procedures used at Norfolk NSC are consistent with DOD and Navy policy, the results of current inventories do not provide a valid picture of true inventory accuracy.

To obtain a valid representative assessment of the Norfolk NSC's inventory accuracy, we selected a stratified statistical sample of its national stock numbers and conducted a physical inventory of the sample (app. describes our sample methodology). Based on our statistical sample, we estimate record accuracy to be 69 percent, which is substantially higher than the 37 percent reported by the Norfolk NSC in fiscal year 1986. We believe that this difference can primarily be attributed to the fact that Norfolk NSC includes large numbers of unscheduled inventories in its reported accuracy rate.

We estimate the total value of dollar variances for the Norfolk NSC to be \$1.04 billion. This would produce a GMAR of 17.9 percent, compared with the 3.2 percent reported by the Norfolk NSC. At least part of that difference occurs because we did not offset variances through reversals. Finally, we estimate that unit variance at the Norfolk NSC is 16.0 percent. This measure of variance in quantities is not required in reporting Navy accuracy rates, but it provides a useful measure of the magnitude of variances. Taken together, these various measures of inventory accuracy provide a more valid and comprehensive picture of inventory accuracy than current measures. The Navy is moving in this direction with its STATMAN random-sample inventories.

## Problems With Record Accuracy

From its inventory data, the Norfolk NSC computes two record accuracy rates to measure the accuracy of its inventory system. The first, the initial record accuracy rate, or total line item adjustment rate, compares the number of records inventoried that do not require adjustments with the total number of inventoried records. The second, the adjusted record accuracy rate, or major adjustment rate, eliminates from the initial record accuracy rate those records for which the amount of the adjustment is less than \$800.

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NSCs to establish a trend of continuously improving inventory accuracy at installations where it has been implemented.

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### GAO's Observations at the Puget Sound NSC

While our audit was in process at the Norfolk NSC, the Assistant Commander of NAVSUP invited us to visit its Puget Sound NSC. We recognized that the Navy had developed numerous initiatives since fiscal year 1981 to improve its inventory accountability. Many had already been implemented and, therefore, it was important to our overall assessment of Navy inventory management to visit another supply center whose operations reflected many of these improvements. The Puget Sound NSC was also conducting a Navy test to improve record accuracy and to validate optimum inventory accuracy measures. The Puget Sound NSC is one of the Navy's smallest NSCs, stocking only 338,000 line items valued at \$65 million.

We were briefed by center personnel and then toured its facilities. We observed that the center has implemented a comprehensive physical security program to prevent abuses of material security. Its internal and external controls substantially minimize the opportunity for anyone, including employees, to pilfer material. During the course of our visit, we found that tight security controls were in place. For example, we found (1) a system whereby senior management at customer activities validate the receipt of (and the legitimacy of) shipments for security-coded, high-cost, and selected weapons system items, (2) completely fenced warehouse compounds and designated customer pick-up areas, (3) access controls for entry into the center, requiring guards to touch identification badges and visually verify that anyone entering the center was authorized to do so, and (4) inactive stock segregated and placed in sealed warehouses to prevent loss or pilferage and to permit concentration on the management of active stock items.

The Puget Sound NSC has also implemented a program to measure its record accuracy through STATMAN analysis. According to NSC officials, its record accuracy has improved through the use of STATMAN, and inventory accuracy goals have been established for various classes of material (for instance, tighter goals are set for high-dollar value items and items affecting readiness).

Although the Puget Sound NSC's security and efforts to improve its material accountability are impressive, we recognize that the center is relatively small one, where improvements are easier to make than at a larger center like the one in Norfolk. Nonetheless, the progress at the

**Table 2.2: Record Errors for Line Items at the Norfolk NSC**

Fiscal year	Total number of line items inventoried	Total record errors	
		Number	Percentage
1984	56,513	26,056	
1985	81,471	39,997	
1986	112,344	71,233	

## Navy's Efforts to Improve Its Supply System

Partly in reaction to long-standing criticism, the Navy is implementing improvements to its supply system, including its inventory accuracy indexes. The Navy has implemented over 70 initiatives and is introducing a new inventory accuracy program based on statistical samples. In introducing this program, the Navy recognized that current inventory accuracy measures may not provide a valid picture of inventory accuracy. For example, NAVSUP's rationale for its new statistical approach acknowledges that the current monetary adjustment measure is easily manipulated and can provide misleading results.

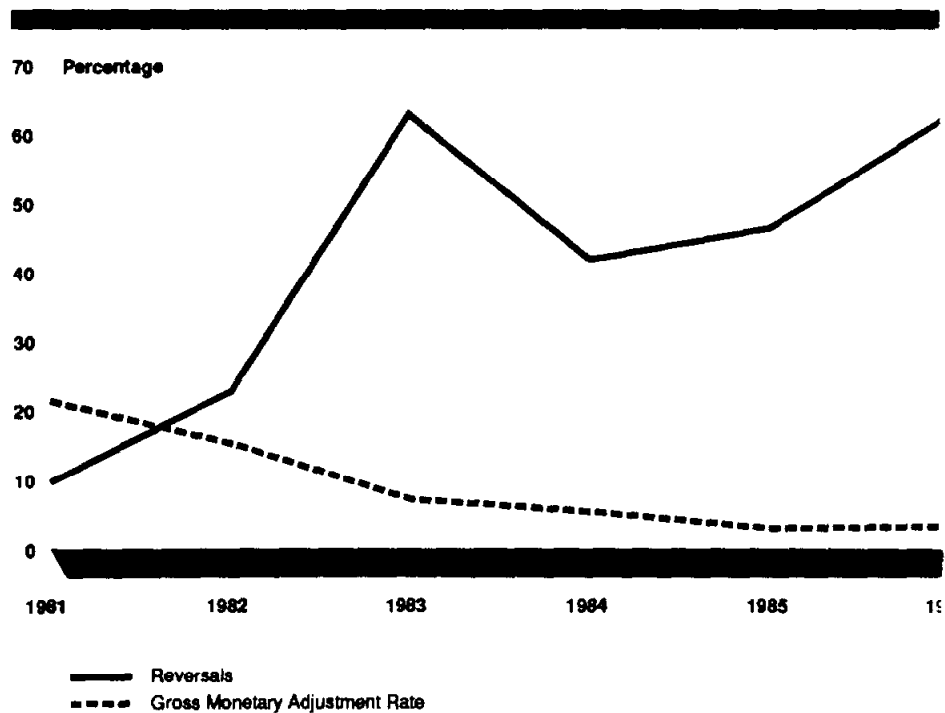
During the early 1980s, inventory accuracy received intensive criticism and attention. As a result, the Navy determined that the continuing poor performance of its supply system derived from four root problems:

- inadequate staffing at NSCs;
- a computerized record-keeping system that was outdated, overextended, and too complex;
- weak management practices (regarding training, physical security, care of stored items, and personal accountability); and
- ineffective performance of physical inventory and quality control procedures.

To address these problems, the Navy in fiscal year 1982 developed an extensive program characterized by frequent field assistance visits, comprehensive training programs, and increased stock-point staff resources for physical inventory and quality control. The program also sought to increase management emphasis on inventory accuracy, to improve the computer systems, to introduce bar-code technology, and to strengthen physical security. As part of these initiatives, inventory management has received top-command priority and emphasis. For example, NAVSUP has a flag officer who is responsible for inventory and system integrity.

For the same fiscal year, the Norfolk NSC reported inventory adjustments of almost \$345 million, a figure that could have yielded an 8.6 percent GMAR—almost three times the Navy’s goal of 3 percent. However, because the Norfolk NSC had reversed about 63 percent (\$215 million) of those adjustments, it was able to reduce the GMAR to 3.2 percent. In effect, for inventory accuracy reporting purposes the Norfolk NSC was able to treat nearly two-thirds of its inventory adjustments as if they had never occurred. Since 1981, the GMAR reported by the Norfolk NSC has significantly improved—from 21.3 percent to 3.2 percent. However, during this same period, adjustment reversals increased dramatically, from 9.7 percent to 62.5 percent. (See fig. 2.1.)

**Figure 2.1: Comparison of Reversals and Gross Adjustment Rates** (Fiscal Years 1981 to 1986)



**Low-Value Adjustments Omitted From Indexes**

In fiscal year 1986, the Navy reported inventory adjustments for 399,825 line items, based on physical inventories of 1,531,190 items. These figures resulted in an initial record accuracy rate of 74 percent. However, DOD policy allows DOD components to exclude from their computation of record accuracy on the ICE report any adjustment valued at

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## Causative Research Is Delayed

When physical inventories demonstrate a variance between recorded balance and balance on hand, DOD regulations require that the discrepancy be researched to determine a reason for the variance and to preclude its recurrence. Certain inventory variances are subject to in-depth investigations, which should be timely and helpful in improving operations.<sup>5</sup>

Navy regulations require causative research to be completed no later than 45 days after an adjustment is made to the inventory records.<sup>6</sup> Delay in researching the cause of an inventory imbalance reduces the likelihood of determining why the variance occurred. According to officials at the Norfolk NSC and internal reports, however, the NSC is exceeding the research deadline for nearly half of the adjustments it investigates and has a sizable backlog of research cases.

Norfolk NSC's inventory accuracy officer attributes delays in research to the backlog that has been accumulating for many years. At the time the backlog originated, the Navy's criteria required causative research to be conducted for general item adjustments of \$5,000 or more, and research personnel were few and poorly trained. By late fiscal year 1985, the backlog had grown to 2,700 cases. However, a year later, with more and better trained researchers and a change in DOD's criteria, requiring causative research only for general item adjustments of \$16,000 or more,<sup>7</sup> the backlog had been reduced to about 1,200 cases. The Norfolk NSC hoped to eliminate the remaining backlog by June 1987 and to make its research more timely. However, by March 1987, the timeliness of the Norfolk NSC's causative research had again deteriorated. While 51 percent of the cases were meeting research deadlines in the second quarter of fiscal year 1986, a year later that percentage had fallen to 25. At the same time, the backlog of research cases, had increased to 1,400 cases. Norfolk NSC official stated that the backlog continues because 4 of the 34 researchers left during February and March of 1987. Meanwhile, the work load has remained about the same.

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<sup>5</sup>Investigative criteria vary based on the value of the inventory at stock points. Causative research must be performed for all inventory adjustments (1) for classified or sensitive items and (2) for adjustments (at Norfolk) of \$16,000 or more for general items, and \$2,500 or more for pilferable items.

<sup>6</sup>Causative research is completed when the cause of the inventory variance has been identified, or when after all transactions made during the previous year or after the last inventory have been researched, no conclusive explanation for the variance can be determined.

<sup>7</sup>In November 1984, DOD changed the value of adjustments requiring causative research from \$5,000 or more to \$16,000 or more. This change became effective at the Norfolk NSC in July 1985.



informed us that Norfolk NSC had discontinued the practice of deferring inventory adjustments.

Another problem at the Norfolk NSC is that, when causative research on a deferred adjustment reveals an error that results in the reversal of a recorded inventory adjustment, no deferred adjustment is ultimately recorded. In effect, the records are corrected, and the deferred adjustment is never included in computations of the GMAR. If the adjustment had not been deferred, it would have been shown as an adjustment and then as a reversal, which provides management with better information on the turmoil in the inventory records.

In addition to not processing adjustments in a timely manner, the Norfolk NSC was improperly resolving deferred adjustments. For example, a physical inventory of high-dollar value items conducted in July 1985 revealed a shortage of one radar set (for a trainer aircraft) valued at \$1,217,850. Instead of making a record adjustment to reflect the loss, the Norfolk NSC deferred the adjustment while awaiting causative research results. After a complete search failed to locate the item, the researcher concluded that the radar set had never been received and recommended that a receipt for one item delivered in 1981 (4 years earlier) be reversed. This reversal was done, and the adjustment was not made, thereby omitting more than \$1.2 million from GMAR computation. This resolution is questionable for three reasons:

1. The Norfolk NSC should have recorded the deferred adjustment while awaiting research but did not. By the time the receipt was reversed, it was 169 days past the inventory adjustment recording deadline.
2. Three other inventories had been taken between the date of the 1981 receipt and the 1985 inventory, each of which had verified the receipt by showing that the stock records and number of items on hand were in agreement.
3. Another research group had also investigated the item and identified the shortage.

Although DOD and Navy regulations permit adjustment reversals only if the cause is found within the transactions of the past year (or before the last physical inventory), the Norfolk NSC's inventory accuracy officer contends that the regulations did not apply in this instance because Navy regulations do not specifically address the reversal of receipt and issue documents. However, when informed of such practices, NAVSUP

Our test showed that the Norfolk NSC had reversed inventory adjustments or transactions made months to years before the last physical inventory—a practice that appears to violate DOD criteria. Seven of the 37 NSNs that we reviewed had at least one variance improperly resolved (transactions that occurred before the last inventory date had been reversed). Four of the 7 variances had been resolved by reversing transactions more than 4 years old. As a result, the Norfolk NSC's inventory adjustments were understated by \$3.1 million. For example, inventory count and later research revealed a shortage of two amplifiers with a unit price of \$184,460. Consequently, two record adjustments totaling \$368,920 were made in early 1986 to reflect the loss. A second physical inventory confirmed the adjusted records. However, when a third physical inventory (in August 1986) revealed a gain of two amplifiers, the Norfolk NSC resolved this gain by reversing the earlier adjustments rather than making another inventory adjustment.

In another example, a record adjustment was later reversed through a questionable accounting transaction. The adjustment involved a loss of one item. In this instance, the Norfolk NSC concluded that it had not received the item because there appeared to be duplicate receipts; therefore, it reversed one of the posted receipts in its accounting records. However, there had been two intervening inventories after the dates of the receipts that had confirmed the on-hand items.

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### Improper Substitution of Line Items

Our tests also revealed instances where the Norfolk NSC used an inventory transaction in one account to offset a transaction in another account—an improper practice, especially since the two items involved were not interchangeable. For example, in the January 1986 physical inventory, the Norfolk NSC identified the loss of one compressor valued at \$244,920 and adjusted its records. Later, the Norfolk NSC offset this loss with the gain of an unrelated item—a rotor-and-stator assembly worth \$104,360—and reversed the compressor adjustment. Technical experts with the Navy state that these two items are not interchangeable.<sup>1</sup> The impact of this transaction was to reduce reported inventory adjustments by almost \$350,000 and, consequently, to improve GMAR in that it (1) reversed an inventory loss adjustment of \$244,920 and (2) avoided the processing of an inventory gain adjustment valued at \$104,360.

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<sup>1</sup>NSC personnel, when questioned about this substitution, cited as precedent a previous incident in which a compressor had been misidentified as a rotor-and-stator assembly. In that case, however, the compressor had simply been incorrectly substituted for the other part and later correctly identified by the customer.

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## Objectives, Scope, and Methodology

The objectives of our review were to assess in greater detail some of the problems we identified in our May 1986 report and the Navy's actions to address these problems. More specifically, our objectives were to determine whether the Navy's procedures and practices for conducting physical inventories, making record adjustments, and conducting causative research ensure that supply records actually represent stock quantities. We also evaluated the way the Navy computes accuracy rates.

Our review focused on the supply system as it operated from May 1986 to May 1987 at the Norfolk NSC and SPCC. We selected these locations because the Norfolk NSC issued 33 percent of all Navy supplies issued by the eight NSCs during fiscal year 1986 and because, as of the end of fiscal year 1986, the SPCC managed 42 percent of the value of stock located at the Norfolk NSC. In the course of this work we also visited NAVSUP in Washington, D.C., and we toured the Puget Sound NSC in Bremerton, Washington.

We reviewed DOD, Navy, and local policies, practices, and procedures concerning physical inventories. We also examined how the Norfolk NSC resolved inventory imbalances for 37 high-dollar value items (items valued at \$100,000 or more) during one of its then most recent high-dollar value semiannual physical inventories. We also interviewed officials responsible for managing Navy supply inventories.

To assess inventory accuracy, we selected a statistical sample of 674 items stored at the Norfolk NSC. After physically inventorying these items, we compared our results with the records maintained by the Norfolk NSC and SPCC. The results of our physical inventory can be generalized to all items managed by the Norfolk NSC with a 95-percent confidence level. Using our projected sample results, we computed record, dollar, and quantity accuracy (the Navy does not compute quantity accuracy). We compared our record and dollar accuracy statistics with statistics the Norfolk NSC reported to Navy headquarters and DOD. Additional information about our sampling methodology is provided in appendix I.

We conducted our review in accordance with generally accepted government auditing standards.

At about the same time, the Naval Audit Service found that Navy inventory procedures provided limited accountability for supplies. For example, the Naval Audit Service concluded that the system did not provide accountability for assets and, because of inaccurate data, higher levels of Navy management did not have a reasonable perspective on supply inventory problems.

The Subcommittee on Readiness and the Naval Audit Service criticized the Navy's monitoring and control of record adjustments, particularly the high rate of those adjustments and the large number of other changes made to record balances that had not been reported as adjustments. Both the Subcommittee and the Naval Audit Service also concluded that, under these conditions, Navy forces could be denied available supplies; Navy managers could make wrong procurement decisions; and the Navy could fail to detect thefts. They cited insufficient management attention and personal accountability as major factors in creating and continuing these unacceptable conditions. In response to this criticism, the Secretary of the Navy directed the NSCs to conduct special physical inventories and ordered NAVSUP to develop an inventory improvement program.

In May 1982, the Chairman of the Subcommittee asked us to review the Navy's progress in improving supply inventory controls. In April 1983, at follow-up hearings, we testified on conditions within the Navy. As discussed later in our November 1983 report, we informed the Subcommittee that the Navy was implementing an extensive program of more than 70 initiatives to permanently improve its physical inventory controls.<sup>1</sup>

From August 1983 through September 1984, DOD's control of wholesale supplies was again evaluated by service audit agencies. In the summary report of this audit, the DOD Inspector General concluded that, overall, DOD and its services had responded constructively to the congressional criticism.<sup>2</sup> However, the Inspector General noted that some procedures needed refinement or revision and that the execution of many procedures was still seriously deficient.

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<sup>1</sup>Navy's Progress in Improving Physical Inventory Controls and the Magnitude, Causes, and Impact Inventory Record Inaccuracies in the Army, Air Force, and Defense Logistics Agency (NSIAD-84-9, Nov. 4, 1983).

<sup>2</sup>Summary Report on the Defense-Wide Audit of Physical Inventory Adjustments, Department of Defense, Office of the Inspector General (3SS-115, Aug. 16, 1985).

# Introduction

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The Navy buys, stores, and issues billions of dollars of spare and repair parts annually to support its fleets and aircraft. In fiscal year 1986, its inventory of these items was valued at approximately \$28 billion. Effective management of these items is necessary to ensure that they are available to support the Navy's needs yet, at the same time, are not overstocked, thereby wasting government funds.

The Navy uses its inventory records as the basis for management decisions concerning what items to buy, how many to buy, and when to buy them. Inaccurate records can affect the Navy's capability and readiness since shortages and delays could occur in critical supplies. Inaccurate records, which do not record all supplies on hand, can also result in unnecessary expenditures—e.g., inflated requests for funds, duplicative procurements, and accumulation of excess stock.

In the last 5 fiscal years, the Congress, the Navy, and GAO have conducted various investigations of the Navy's supply system. These reviews have found that (1) large dollar adjustments to inventory records have been required, (2) the Navy has limited accountability over its supplies, and inaccurate records do not provide managers with a reasonable perspective of inventory problems, and (3) significant record inaccuracies and adjustments continue because the Navy has not corrected these problems.

Navy supplies are managed primarily by two inventory control points (ICP)—the Aviation Supply Office in Philadelphia, Pennsylvania, and the Ships Parts Control Center (SPCC) in Mechanicsburg, Pennsylvania—and by eight major stock points, known as naval supply centers (NSC). The overall supply system is centrally managed by the Naval Supply Systems Command (NAVSUP). The ICPS determine inventory needs, purchase items, and distribute them among the NSCs, which receive, store, and issue the stock.

Each year the NSCs must schedule and conduct complete physical inventories of all their controlled (classified, sensitive, or pilferable) items and conduct periodic physical inventories of all other items. The NSCs also make unscheduled physical inventories when errors in stock records are suspected. During physical inventories, the NSCs check the recorded stock number, quantity, condition, and location of items to ensure that records are accurate. When a physical inventory reveals an error in the records, the records should be adjusted. The supply center should then determine the cause of the discrepancy to preclude recurrence of the error (causative research).

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## Executive Summary

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### Chapter 1

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## Agency Comments and GAO's Evaluation

DOD generally agreed with most of GAO's findings and recommendations and noted planned or ongoing corrective actions in the inventory management area. (See app. III.)

However, DOD disagreed with GAO's basic conclusion. DOD was concerned that GAO's draft report overstated the significance of observed incidents and did not recognize the existence of effective management programs. GAO made changes to its report which clarified the applicability of its conclusions. DOD partially concurred in GAO's recommendation regarding the application and enforcement of inventory regulations at the Norfolk Supply Center. After considering DOD's comments, GAO revised this recommendation and added a new recommendation for the Assistant Secretary of Defense (Production and Logistics) to clarify DOD's guidance on reversals.

by \$313 million, 10 percent of the total value of items inventoried, in fiscal year 1985, and by \$1.06 billion, or 27 percent of the total value, in fiscal year 1986. By including the maintenance checks in the value of physical inventories, Norfolk overstated the amount of inventoried items and significantly overstated reported accuracy.

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**Postponed Adjustments**

Navy regulations require that adjustments for discrepancies be made within 30 days of the beginning of the inventory period for scheduled inventories and within 15 days for unscheduled inventories. However, the Norfolk Supply Center postponed adjustments until causative research was completed. This practice allowed on-hand balances and inventory records to be at variance until research was completed. By deferring these adjustments, Norfolk's records were in error an excessive period of time. DOD advised GAO that Norfolk has discontinued this practice.

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**Delayed Causative Research**

The Norfolk Supply Center was exceeding the 45-day deadline for completion of causative research for nearly half of the adjustments it investigated, resulting in a sizable backlog of research cases. Delays in researching the cause of inventory discrepancies reduced the likelihood of determining when variances occurred and delayed corrective action.

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**Current Policies Adversely Affect Accuracy Rates**

Although current policy allows adjustments to be reversed, this practice results in understated gross monetary adjustment rates. In fiscal year 1986, the Navy reversed 84 percent of its adjustments (\$2.2 billion out of \$2.6 billion). As a result, the Navy was able to report a 2.7-percent gross monetary adjustment rate; if reversals had been considered, the rate would have been 16.6 percent. Also, current policies allow adjustments valued at less than \$800 to be excluded from computations of the major adjustment record accuracy rate. This practice also caused inventory accuracy to be overstated.

On the other hand, current policies allow the results of unscheduled inventories to be included in accuracy measures. Since unscheduled inventories occur primarily when an inventory problem is already known or suspected, this practice causes inventory accuracy to be understated.



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# Executive Summary

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## Purpose

In fiscal year 1986, the U.S. Navy's inventory of general supply items and repair parts was valued at approximately \$28 billion. Since these items must be available for speedy delivery to naval forces in time of war, their effective management is essential to national defense. At the request of the Chairman of the former Task Force on DOD Inventory Management, Senate Committee on Armed Services, and the Chairman of the Senate Committee on Governmental Affairs, GAO reviewed the accuracy of inventories at the Naval Supply Center in Norfolk, Virginia and examined the management of these inventories by the Ships Parts Control Center in Mechanicsburg, Pennsylvania.

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## Background

Navy supplies are primarily managed by two inventory control points (the Ships Parts Control Center and the Aviation Supply Office) and eight naval supply centers. The control points procure needed items, distribute them to the supply centers, and maintain the accountable records for these items. The supply centers receive, store, and issue items and maintain inventory records for them.

Supply centers must take complete, annual physical inventories of some items and sample physical inventories of other items at less predictable intervals. Some sample physical inventories are scheduled, while many occur only when an inventory problem is known or suspected. During a physical inventory, personnel check the recorded stock number, quantity, condition, and location of items to ensure that records are accurate. When a physical inventory reveals a discrepancy in the records, the records should be adjusted. The supply center should complete research to determine the cause of the discrepancy no later than 45 days after the inventory records are adjusted. If this research finds the cause of the discrepancy, the inventory adjustment is cancelled by a reversal transaction and the accountable records are corrected. Because the original adjustment is cancelled, it is not considered in calculating the total dollar value of adjustments.

The Navy measures inventory accuracy using several measures, two of which are (1) the gross monetary adjustment rate, obtained by comparing the dollar value of all adjustments with the dollar value of all items inventoried, and (2) the record accuracy rate, obtained by comparing the number of records requiring adjustment with the number of records inventoried.

Partly in reaction to long-standing criticism, the Navy in fiscal year 1982 developed an extensive inventory improvement program. The



March 1988

# NAVY INVENTORY MANAGEMENT

## Inventory Accuracy Problems



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General Accounting Office  
Washington, D.C. 20548

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National Security and  
International Affairs Division

B-222859

March 4, 1988

The Honorable Pete Wilson  
United States Senate

The Honorable John Glenn  
Chairman, Committee  
on Governmental Affairs  
United States Senate

As requested in Senator Wilson's letter of April 15, 1987, we have reviewed the Department of the Navy's inventory management. This report is one in a series related to the effectiveness of defense logistics.

As arranged with your offices, unless you publicly announce its contents earlier, we plan no further distribution of this report until 30 days from its issue date. At that time, we will send copies to interested committees and other Members of Congress; the Secretary of Defense; the Secretary of the Navy; and the Director, Office of Management and Budget. Copies will also be made available to other parties upon request.

  
Frank C. Conahan  
Assistant Comptroller General

Navy introduced over 70 initiatives characterized by frequent field visits, comprehensive training programs, and increased stock-point staff resources for physical inventory and quality control. Increased emphasis has been placed on inventory accuracy, computer systems, and physical security. As part of these initiatives, inventory management was made a top-command priority.

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## Results in Brief

Although the Navy has improved its inventory management procedures, the Norfolk Naval Supply Center and the Ships Parts Control Center still have problems maintaining accurate inventory records. Inventory accuracy reporting remains unreliable, thereby impairing the accuracy of information available to Navy decisionmakers.

The Norfolk Naval Supply Center did not know whether its inventory records accurately reflected the status of its on-hand inventories. Indicators used to measure inventory accuracy were based on inadequate and incomplete data on the number and dollar value of inventory adjustments. This resulted from (1) the center's failure to comply with Department of Defense (DOD) and Navy policies on conducting physical inventories, making inventory adjustments, researching causes of discrepancies between records and physical inventory counts, and reversing previously recorded adjustments and (2) DOD and Navy policies that allow accuracy rates to be determined without including low value adjustments and adjustments which are subsequently reversed.

The Ships Parts Control Center lacks adequate accountability over items sent to contractor and other services' facilities for repair. As a result, large quantities of repair parts are vulnerable to waste, fraud, and abuse. Although the center is implementing programs to improve its inventory accuracy and to provide accountability over assets, it is too early to evaluate these programs.

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## Principal Findings

GAO found instances where the Norfolk Naval Supply Center was not implementing DOD and Navy policies on physical inventories, adjustments, causative research, and reversals.

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## Inflated Value of Items Inventoried

Contrary to Navy regulations, the Supply Center included the dollar value of expensive aircraft engines subjected to multiple routine maintenance checks in the total dollar value of inventories reported in fiscal years 1985 and 1986. This inflated the total value of items inventoried

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### Lost Visibility Over Certain Repairable Items

The Ships Parts Control Center had not maintained stock records for items sent to contractors or interservice maintenance facilities for repair. Moreover, its financial records for these items were inaccurate. Consequently, over the past 15 years, the Control Center has not maintained adequate accountability over these items. Since 1985, the center has been trying to reconcile its records with those of the contractors and interservice repair facilities to show the dollar value of the repairable items at these locations. Based on information the contractors and interservice facilities provided, the Control Center adjusted its financial records by \$621 million for a net write-off of \$464 million. Without reliable stock records, the center was unable to verify amounts reported by contractors and interservice maintenance facilities.

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### Internal Control Reporting

The Federal Managers' Financial Integrity Act requires government activities to evaluate their internal controls to ensure that activities are conducted in accordance with policies and regulations; that assets are safeguarded against waste, fraud, and abuse; and that reliable data is maintained and fairly reported. GAO believes the inventory weaknesses it identified should be included in the Navy's next Financial Integrity Act assessment.

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## Recommendations

GAO recommends that the Secretary of Defense clarify inventory adjustment reversal procedures to prevent misinterpretation, to ensure complete financial and inventory accountability, and to ensure that inventory adjustment reversals are included in the computation of inventory accuracy rates. GAO also recommends that the Secretary of the Navy

- provide the naval supply centers with specific criteria for designing physical inventory samples to eliminate those practices that distort the reporting of accuracy rates, such as selecting too many high-dollar items or excluding low value items;
- require the Commanding Officer of the Norfolk Naval Supply Center to properly apply and enforce inventory regulations, to make adjustments within the established time frames for completing inventories, and to complete causative research as rapidly as is feasible;
- require that the Ships Parts Control Center establish and keep current stock records for items sent to non-Navy facilities for repair; and
- require that the next annual Financial Integrity Act assessment include a review of the internal control weaknesses discussed in this report.

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**Abbreviations**

CAV	Commercial Asset Visibility
DOD	Department of Defense
FIA	Financial Integrity Act
GAO	General Accounting Office
GMAR	gross monetary adjustment rate
ICE	Inventory Control Effectiveness
ICP	inventory control point
MSIR	Master Stock Item Record
NAVSUP	Naval Supply Systems Command
NSCs	naval supply centers
NSN	national stock number
SPCC	Ships Parts Control Center
STATMAN	Statistical Accuracy Techniques and Measurements Analysis
STATPAC	Statistical Package



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## Navy's Measurement of Inventory Accuracy

The Navy uses various physical inventory statistics to measure inventory accuracy. Some of these are the gross monetary adjustment rate (GMAR), the major adjustment record accuracy rate, the cancellation rate (percent of inventories completed on time), the results of causative research, the reversal rates, location reconciliation and accuracy, and the warehouse refusal. For some of these measures, the Navy accumulates data for further reporting in the Department of Defense's (DOD) Inventory Control Effectiveness (ICE) report. Two of the measures more frequently cited by the Navy and other DOD components for the ICE report are the GMAR and the records accuracy rate.

The Navy computes two record accuracy rates to measure the accuracy of its inventory system. The first, the initial records accuracy rate, compares the total number of unadjusted records with the total number of records inventoried. The adjusted record accuracy rate eliminates from the initial records accuracy rate records for which the amount of the adjustment is less than \$800. The Navy also computes GMAR, which is the dollar value of all adjustments—gains and losses—compared with the dollar value of all items inventoried. Inventory gains occur when more items are found during the physical count than are recorded in the inventory records, and the records are then adjusted accordingly. An inventory loss occurs when the physical counts show fewer items than recorded in the inventory records. The Navy has established two goals: (1) that not more than 10 percent of line items require major adjustments (\$800 or more) and (2) that the GMAR not exceed 3 percent. The Navy hopes to achieve a 90-percent record accuracy rate for major adjustments and a 97-percent monetary accuracy rate.

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## Prior Audits

Navy supply management problems have been well documented in numerous reviews for a number of years. In 1982, the House Committee on Armed Services' Subcommittee on Readiness investigated the large increase in gross monetary adjustments at NSCs—from \$66 million in fiscal year 1978 to \$504 million in fiscal year 1981. The Subcommittee's investigation and subsequent hearings in February 1982 established that the large increases in inventory adjustments might have impaired supply economies and military readiness. This investigation also documented serious management deficiencies, including a lack of management concern and accountability, ineffective inventory controls, a shortage of qualified personnel, inadequate physical security, and a lack of computer controls.

At about the same time as the Inspector General's report, the news media reported large-scale diversion of government property, weapons, and F-14 aircraft parts to Iran from our military supply systems. Concerned about the security of military material, Senator Wilson of the Committee on Armed Services asked us in September 1985 to review inventory management practices within the military supply systems. Our May 1986 report identified significant management problems within the Navy supply system, especially concerning confirmation of receipt, accuracy of records, conduct of physical inventories, reconciliation and research of inventory discrepancies, and physical security.<sup>3</sup> Although the Navy had taken some action in response to the earlier reports, inaccuracies in records and adjustments continued because the Navy had not corrected these problems.

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## Assessment of Internal Controls

Internal controls are essential elements of effective inventory management. When properly implemented, effective internal controls provide reasonable assurance that

- resources are protected from waste, fraud, and abuse;
- resources are used in accordance with applicable laws, regulations, and policies; and
- reliable data is obtained, maintained, and fairly reported.

The Federal Managers' Financial Integrity Act (FIA) requires government activities to evaluate their internal controls to ensure that (1) activities abide by policies and regulations, (2) assets are safeguarded against waste, fraud, or abuse, and (3) reliable data is maintained and fairly reported.<sup>4</sup> At SPCC, where we did part of our work, the assessment of internal controls for supply accountability did not disclose any deficiencies in inventory accuracy or causative research for fiscal years 1985 and 1986. At the Norfolk NSC, where we also did work, the vulnerability assessment of internal controls for fiscal 1985 and 1986 identified no material weaknesses in supply accountability. Our review showed, however, that inventory accuracy is an area of vulnerability.

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<sup>3</sup>Inventory Management: Problems in Accountability and Security of DOD Supply Inventories (NSLAD-86-106BR, May 23, 1986).

<sup>4</sup>The FIA of 1982 establishes standards to be used by agency managers in implementing effective internal control systems and in reporting the overall status of their systems.