United States General Accounting Office

GAO

Report to the Chairmen, Subcommittees on Defense, Senate and House Committees on Appropriations

September 1990

DEFENSE BUDGET

Potential Reductions to DOD's Ammunition Budgets

GAO/NSIAD-90-256

GAO

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

National Security and
International Affairs Division

B-216058

September 17, 1990

The Honorable Daniel K. Inouye
Chairman, Subcommittee on Defense
Committee on Appropriations
United States Senate

The Honorable John P. Murtha
Chairman, Subcommittee on Defense
Committee on Appropriations
House of Representatives

As you requested, we reviewed the military services' justifications for their fiscal year 1991 budget requests for ammunition items and the Army's request for ammunition production base support. In addition, we examined selected segments of prior-year ammunition budgets. In March and April 1990, we provided your offices with some observations and questions on various ammunition line items for which fiscal year 1991 funds had been requested. In July 1990, we briefed your offices on the results of our review. This report includes the information provided at those briefings and the final results of our review.

We are sending copies of the report to the Secretaries of Defense, the Army, the Navy, and the Air Force; the Commandant of the Marine Corps; and other interested parties.

This report was prepared under the direction of Richard Davis, Director, Army Issues, who may be reached on (202) 275-4141 if you or your staff have any questions. Other major contributors are listed in appendix V.

Frank C. Conahan
Assistant Comptroller General

Executive Summary

Purpose

The Chairmen of the Subcommittees on Defense, Senate and House Committees on Appropriations, asked GAO to review the military services' justifications for their fiscal year 1991 budget requests for ammunition and the Army's request for modernizing and expanding the ammunition production base. GAO also examined selected segments of prior-year ammunition budgets.

Background

The military services requested about $2.2 billion for ammunition in fiscal year 1991. The services justified their ammunition requests by stating that the funds were needed for training and a war reserve stockpile.

The Army requested an additional $259.1 million for ammunition production base support, of which $94.9 million was intended for 12 projects to modernize and expand the ammunition production base.

Results in Brief

GAO concluded that $434.0 million, or 19.6 percent, of the services' $2.2 billion fiscal year 1991 ammunition request is not justified and should not be funded—$343.3 million for the Army, $19.6 million for the Navy, $62.6 million for the Air Force, and $8.5 million for the Marine Corps—and that the Army's request for modernizing and expanding the ammunition production base is adequately supported. GAO also concluded that the services' fiscal year 1989 ammunition appropriations can be reduced by $88,000, and their fiscal year 1990 ammunition appropriations can be reduced by $49.9 million.

Principal Findings

Army Ammunition Program

The Army's $1.2 billion fiscal year 1991 request for ammunition is overstated by $343.3 million for the following reasons:

- $192.8 million is for 2 items for which total program quantities will not be needed to meet fiscal year 1991 delivery schedules;
- $106.6 million is for 13 items for which program quantities are greater than needed;
- $15.6 million is for 1 item that will not be approved for production and troop use in time for inclusion in the fiscal year 1991 budget;

- $2.7 million is for 1 item that can be procured in a less expensive manner;
- $16.6 million is for 1 item for which the purchase quantity represents an uneconomical buy; and
- $9 million is for 3 items the Army decided not to buy.

In addition, the Army does not need $88,000 that was included in its appropriation for fiscal year 1989 and $48.9 million that was included in its appropriation for fiscal year 1990 because it no longer intends to buy two items.

Navy Ammunition Program

The Navy's $345.7 million fiscal year 1991 request for ammunition is overstated by $19.6 million for the following reasons:

- $5.3 million is for one item for which training consumption was overstated;
- $8.9 million is for one item the Navy no longer intends to buy; and
- $5.4 million is for three items for which requirements have decreased.

In addition, the Navy does not need $1 million that was included in its appropriation for fiscal year 1990 for one item whose unit cost has decreased.

Air Force Ammunition Program

The Air Force's $417.6 million fiscal year 1991 request for ammunition is overstated by $62.6 million for the following reasons:

- $4.8 million is for one item for which total program quantities will not be needed to meet fiscal year 1991 delivery schedules, and
- $57.8 million is for one item the Air Force no longer intends to buy.

The fiscal year 1991 request for another Air Force item could either be reduced by $2.4 million or the quantity increased. The Air Force overestimated the unit cost of this item but needs additional quantities.

In addition, the Air Force might have overestimated projected usage for three training items in its fiscal year 1991 request. Although GAO did not identify any specific budget reductions for these items, it has included information on them because the Committees on Appropriations should be aware of the issue when considering the Air Force's budget request.

Marine Corps Ammunition Budget

The Marine Corps' $284.7 million fiscal year 1991 request for ammunition was overstated by $8.5 million for the following reasons:

- $7.5 million is for two items for which total program quantities will not be needed to meet fiscal year 1991 delivery schedules, and
- $1 million is for one Marine Corps item for which total program quantities would result in excessive inventory.

The Marine Corps has a shortage of two items, and $2.3 million of the Marine Corps' overstated $8.5 million request could be used to fund these needed items.

Recommendations

GAO recommends that the Senate and House Committees on Appropriations adjust the Department of Defense's fiscal year 1991 ammunition budget by the following amounts:

- Reduce the Army's request by $343.3 million for 21 items.
- Reduce the Navy's request by $19.6 million for 5 items.
- Reduce the Air Force's request by $62.6 million for 2 items.
- Reduce the Marine Corps' request by $8.5 million for 3 items and increase the request by $2.3 million for 2 other items.

These recommended adjustments are summarized by budget line number in appendixes I, II, III, and IV.

In addition, GAO recommends that the Committees reduce the services' ammunition appropriations for fiscal years 1989 and 1990 as follows:

- Reduce the Army's fiscal year 1989 appropriation by $88,000 for one item.
- Reduce the Army's fiscal year 1990 appropriation by $48.9 million for two items.
- Reduce the Navy's fiscal year 1990 appropriation by $1 million for one item.

Agency Comments

As requested, GAO did not obtain agency comments on this report. However, GAO discussed the results of its work with Army, Navy, Air Force, and Marine Corps officials. They agreed with some of GAO's recommended reductions and identified items for which funding could be increased. GAO included in its report, but did not evaluate, the potential funding increases identified by these officials.

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Appendixes

Tables

Abbreviations

ADAM	area denial artillery munition
AT/AP	antitank, antipersonnel
CIWS	close-in weapon system
DS-TP	discarding sabot target practice
GAO	General Accounting Office
HE	high explosive
HEAA	high explosive anti-armor
HEDP	high explosive dual purpose
HERA	high explosive rocket assisted
IR	infrared
mm	millimeter
SMAW	shoulder-launched multipurpose assault weapon
TP	target practice
TPCSDS-T	target practice cone-stabilized discarding sabot with tracer
TP-T	target practice-traced

Introduction

As shown in table 1.1, the military services requested about $2.5 billion for ammunition in fiscal year 1991, including the Army's $259.1 million request for ammunition production base support.

Table 1.1: Military Services' Fiscal Year 1991 Budget Requests for Ammunition and for Ammunition Production Base Support

Dollars in millions

Military service	Amount
Army	$1,424.4
Navy	345.7
Air Force	417.6
Marine Corps	284.7
Total	**$2,472.4**

The funds requested for ammunition will be used to meet training needs and to build a war reserve stockpile. The Army's request of $259.1 million for ammunition production base support included

- $134.647 million for the provision of industrial facilities ($94.9 million of this amount was for 12 projects to modernize and expand the ammunition production base),
- $40.534 million for the layaway of industrial facilities,
- $12.1 million for components for prove-out,[1]
- $4 million for the Yuma Proving Ground modernization, and
- $67.8 million for the maintenance of inactive facilities.

Objectives, Scope, and Methodology

The Chairmen of the Subcommittees on Defense, Senate and House Committees on Appropriations, asked us (1) to assess the services' justifications for their fiscal year 1991 budget requests for ammunition and the Army's request for modernizing and expanding the ammunition production base and (2) to identify potential adjustments.

We evaluated the ammunition budget requests by reviewing such factors as ammunition requirements, inventory levels, production problems, item quality, testing and development, funded program status, unit costs, and field malfunctions to identify items with potential problems. We also analyzed production schedules, production capacities, past production, procurement lead times, and component deliveries to determine whether the services can execute the ammunition programs efficiently and economically. We compared projected inventory levels to

[1] "Prove-out" is a term used by the Army to describe the process of demonstrating a plant's production capacity.

training usage to ensure that inventories would not greatly exceed objectives. We also determined whether there will be sufficient quantities of components to produce end items. We did not verify the accuracy of data the services provided, such as inventory levels and training usage, but compared such information with data provided in prior years to evaluate its reasonableness. In conducting our review, we also examined selected segments of prior-year ammunition budgets.

To evaluate projects for modernizing and expanding the ammunition production base, we determined whether their designs had been completed prior to budget submission.

In conducting our evaluation, we interviewed ammunition production managers, procurement officials, and quality assurance and engineering staff; observed the production process; and reviewed various documents, such as briefings, program status reports, ballistics test reports, and budget support data, which we obtained at the following locations:

- Army, Navy, and Air Force Headquarters, Washington, D.C.;
- U.S. Army Armament, Munitions and Chemical Command, Rock Island, Illinois;
- U.S. Army Missile Command, Redstone Arsenal, Alabama;
- U.S. Army Production Base Modernization Activity, Picatinny Arsenal, New Jersey;
- Office of Project Manager for Binary Munitions, Aberdeen Proving Ground, Maryland;
- Project Manager, Tank Main Armament Systems, Picatinny Arsenal, New Jersey;
- Product Manager, Mortar Systems, Picatinny Arsenal, New Jersey;
- Project Manager, Mines, Countermines and Demolitions, Picatinny Arsenal, New Jersey;
- Close Combat Armaments Center, Picatinny Arsenal, New Jersey;
- Fire Support Armaments Center, Picatinny Arsenal, New Jersey;
- Armament Engineering Directorate, Picatinny Arsenal, New Jersey;
- Longhorn Army Ammunition Plant, Marshall, Texas;
- Talley Defense Systems, Mesa, Arizona;
- Naval Air Systems Command, Arlington, Virginia;
- Naval Sea Systems Command, Crane, Indiana; and
- Ogden Air Logistics Center, Hill Air Force Base, Utah.

We discussed a draft of this report with program officials of the Army's Office of the Program Executive Officer for Ammunition, the Navy's Office of the Deputy Chief of Naval Operations for Logistics, the Air

Force's Office of the Deputy Chief of Staff for Logistics and Engineering, and the Marine Corps' Office of Deputy Chief of Staff for Installations and Logistics. We made changes to the report, where appropriate, to reflect the views of these officials. As requested, we did not obtain official agency comments on this report.

We conducted our review from November 1989 to July 1990 in accordance with generally accepted government auditing standards.

Army Ammunition Program

The Army requested about $1.17 billion for ammunition and $259.1 million for ammunition production base support in its fiscal year 1991 ammunition budget request. We reviewed the justifications for 42 ammunition items, representing about $951 million (or about 82 percent of the fiscal year 1991 request), and 12 ammunition production base support items, representing $94.9 million (or about 37 percent of the request). We also examined selected segments of prior-year ammunition budgets. Appendix I shows the budget lines we reviewed and the potential reductions we identified.

We believe that the Army does not need $343.3 million in fiscal year 1991 for 21 ammunition items for the following reasons:

- $192.8 million is for 2 items for which total program quantities will not be needed to meet fiscal year 1991 delivery schedules;
- $106.6 million is for 13 items for which program quantities are greater than needed;
- $15.6 million is for 1 item that will not be approved for production and troop use in time for inclusion in the fiscal year 1991 budget;
- $2.7 million is for 1 item that can be procured in a less expensive manner;
- $16.6 million is for 1 item for which the purchase quantity represents an uneconomical buy; and
- $9 million is for 3 items the Army decided not to buy.

In addition, the Army does not need $88,000 that was included in its appropriation for fiscal year 1989 and $48.9 million that was included in its appropriation for fiscal year 1990 because it no longer intends to buy two items.

Deliveries Not Within Funded Delivery Period

According to Army budget guidance, ammunition program quantities for which funds are being requested should be delivered within the fiscal year's funded delivery period. The funded delivery period for an ammunition item is defined as the time in months from the first delivery of the ammunition item to the last delivery for a specific fiscal year's procurement. It begins the first day of the last month of the procurement lead time and ends 12 months later.[1] For example, if the procurement lead time for an ammunition item in the fiscal year 1991 budget is 15 months,

[1]Procurement lead time is the sum of administrative and production lead times. Administrative lead time begins at the start of the fiscal year and represents the time needed to award contracts for components. Production lead time begins when the component contracts have been awarded and ends when initial delivery is made for the assembled ammunition item.

the funded delivery period would start on December 1, 1991, and end on November 30, 1992. Since ammunition programs are funded each year, funding should not be provided for ammunition items that will be delivered after the funded delivery period.

The Army's fiscal year 1991 ammunition budget request could be reduced by $192.8 million because all or part of the quantities the Army requested for the following two items will not be delivered within the fiscal year 1991 funded delivery period. The potential reductions and undelivered quantities are as follows:

- $118.5 million for 138,000 155-mm M864 baseburner projectiles and
- $74.3 million for a classified quantity of 155-mm M687 GB-2 projectiles.

In addition, the Army no longer needs the $47 million in fiscal year 1990 funding provided for M687 projectiles since the Army does not plan to procure this item after the fiscal year 1989 program.

155-mm M864 Baseburner Projectile

The Army's $118.5 million request for 138,000 155-mm M864 projectiles could be denied for two reasons. First, the Army has not proven that the projectile meets required operating characteristics for reliability. Second, the Army agrees that the fiscal year 1991 quantity cannot be produced within the fiscal year 1991 funded delivery period without increasing production beyond one shift and incurring additional costs.

In August 1989, the Army stopped producing M864 projectiles when the joint between the projectile body separated from the baseburner assembly (the base/body joint) during a drop test. The Army corrected the base/body joint separation by redesigning the projectile to strengthen the joint. However, when the Army tested 113 projectiles with redesigned base/body joints, three projectiles experienced expulsion failures due to fractured ogive joints. According to Army officials, the ogive joint fractures were caused by strengthening the base/body joint. Army officials told us that the Army should have a new ogive joint design in July 1990, but the Army has no assurance that the new design will prevent ogive joint fractures.

An Army official said that last year, the Army produced parts for about 35,000 projectiles (at a cost of about $24 million) that were not assembled because of defective base/body joints. In April 1990, the Army decided to start producing M864 projectile parts again. The Army made

this decision because the percentage of successful expulsions (97.3 percent) during the tests of 113 custom-made casings exceeded the required operating characteristics percentage for expulsion reliability (97.0 percent). We analyzed the Army's expulsion reliability test data and concluded that the Army had not proven, within a reasonable level of confidence, that the projectile's expulsion reliability met required operating characteristics. Our analysis showed only a 59 percent probability that the projectile was 97-percent reliable. Therefore, the Army is producing M864 projectile parts without a reasonable assurance that the projectile is reliable.

Furthermore, in April 1990, the Army revised its production schedule for M864 projectiles. This schedule shows that the Army cannot deliver the fiscal year 1991 program quantity within the funded delivery period without increasing production beyond one shift. Even with multiple shifts, the Army cannot produce the entire fiscal year 1991 program within the funded delivery period. According to its April 1990 revised production schedule, the Army plans to produce 36,162 projectiles, about 25 percent of the fiscal year 1991 quantity, after the end of the funded delivery period. The Army also estimated that an additional $4.2 million would be needed in fiscal year 1990 to pay subcontractors to work more than one shift.

Army representatives agreed that the fiscal year 1991 program cannot be executed within the funded delivery period without accelerating production above one shift. They continue to believe, however, that the fiscal year 1991 program should be funded because inventories are far below amounts recommended by Department of Defense guidance and because program costs will increase if the program is stretched out. They also believe that the problems with the projectile body have been resolved. In our opinion the Army has not demonstrated that the projectile is reliable and that funding in fiscal year 1991 should, therefore, not be provided.

155-mm M687 Binary Chemical Projectile

The Army's $74.3 million fiscal year 1991 request for a classified quantity of 155-mm M687 GB-2 projectiles could be denied for four reasons. First, the canister supplier is behind in its delivery schedule; it has yet to deliver quantities for prior-year programs. Second, the Army is experiencing delays in completing a new chemical production facility needed to produce the projectiles. Third, according to Army officials, the Army does not have a source of supply for a key ingredient needed to produce the new chemical. Finally, the Secretary of Defense has decided

that production funding is no longer required for fiscal year 1991 because the United States and the Soviet Union have agreed to halt the production of chemical weapons. In addition, the Army's fiscal year 1990 appropriation of $47 million could be reduced since the Army does not plan to procure M687 projectiles after the fiscal year 1989 program.

The canister supplier has experienced problems in meeting past production schedules and is still behind in its contract delivery schedules. According to an Army official, the canister supplier did not meet contract schedules even though it had been operating multiple shifts. In addition, the Army has not demonstrated the capability to produce enough M687 projectiles to complete its fiscal year 1991 program within the program's funded delivery period. On the basis of most recent production rates, we estimate that the production backlog of M687 projectiles cannot be eliminated until the end of the fiscal year 1991 funded delivery period, making a fiscal year 1991 program unnecessary.

Further, the Army's production schedule at the Pine Bluff Arsenal requires the Army to operate a new chemical production facility to produce the M687 projectiles funded for fiscal years 1989 and 1990. Last year, the Army anticipated that the new facility would be completed by December 1989 and that full-scale production would start in March 1990. However, according to an Army official, completion of the facility has been delayed until the end of August 1990, and full-scale production is now scheduled to start in October 1990. Also, according to Army officials, this facility cannot start production because the Army does not have a source of supply for one of the ingredients needed to produce the chemical.

On the basis of the Army's current rate of production, we conclude that the Army will not be able to produce the requested fiscal year 1991 quantity within the fiscal year 1991 funded delivery period. Therefore, we believe that the Army's $74.3 million request for fiscal year 1991 could be denied.

Army officials agreed that the program has slipped. They initially said that they prefer to eliminate the fiscal year 1990 program, for which $47 million was funded, and to stretch out the fiscal year 1989 and prior-year programs to prevent a break in production. Subsequently, they advised us that the Army no longer plans to procure M687 projectiles after the fiscal year 1989 program. Therefore, the Army does not need the $47 million that was included in its appropriation for fiscal

year 1990 and the $74.3 million included in its budget for fiscal year 1991.

Inventory Will Exceed Requirements

The Army's $200.4 million fiscal year 1991 request for 13 items could be reduced by $106.6 million because projected inventories will exceed the Army's inventory objectives, as shown in table 2.1. This reduction would not affect the Army's ability to provide a sufficient number of cartridges for training.

Table 2.1: Projected Excessive Inventory for 13 Items in the Army's Fiscal Year 1991 Ammunition Budget

Quantities in thousands

Item	Beginning inventory[a]	Fiscal year 1991 request	Inventory estimated usage[b]	Inventory objective	Projected excess inventory
5.56-mm blank cartridge	317,325.0	136,045	372,593.0	68,707	12,070.0
5.56-mm ball cartridge	450,902.0	140,406	452,465.0	53,241	85,602.0
7.62-mm blank cartridge	139,876.0	13,102	107,514.0	19,559	25,905.0
30-mm M788 cartridge	3,309.0	841	3,292.0	469	389.0
105-mm M724A1 cartridge	974.0	34	879.0	89	40.0
120-mm M831 cartridge	174.0	43	163.0	42	12.0
105-mm M395 cartridge	137.7	181	32.1	1	285.6
155-mm M804 projectile	440.5	203	369.7	55	218.8
Hydra rocket, M274	468.8	109	448.0	85	44.8
35-mm training rocket	1,656.2	313	1,506.0	269	194.2
Airburst simulator, M74	429.0	220	494.0	90	65.0
Artillery flash simulator, M21	5,072.0	1,111	3,554.0	553	2,076.0
9-mm ball cartridge	39,901.0	8,721	27,686.0	8,564	12,372.0

[a]Figures include items due in from prior-year programs.

[b]Figures include estimated usage through the end of the fiscal year 1991 funded delivery period.

5.56-mm and 7.62-mm Cartridges

The Army's $56.2 million request for 5.56-mm and 7.62-mm cartridges includes $54.8 million for 5.56-mm blank, 5.56-mm ball, and 7.62-mm blank cartridges that we believe could be reduced by $27.1 million. Army officials agree that such a reduction is possible because projected inventories will exceed requirements. They pointed out, however, that such a reduction would increase the cost of other small caliber cartridges produced at the Lake City Army Ammunition Plant because existing plant overhead expenses would have to be allocated to a smaller number of items. They also said that these reductions would result in personnel layoffs.

We believe that the Army's concerns about work loading should not be used to justify funding ammunition items that are in excess supply. Rather, the Army should reduce overhead expenses at the Lake City plant to avoid cost increases. Funding for 5.56-mm and 7.62-mm cartridges totaling $27.1 million could, therefore, be denied in fiscal year 1991.

30-mm M788 Cartridge

The Army's $9.5 million request for 30-mm cartridges includes $9.2 million for 841,000 30-mm M788 cartridges. We believe that the M788 request could be reduced by $4.3 million for 389,000 cartridges. Army representatives agreed that if these cartridges are funded in fiscal year 1991, inventories will exceed requirements. They also stated, however, that the Army has considered the excess inventories and plans to reduce the fiscal year 1992 budget request by a corresponding amount. Since the cartridges are not needed in fiscal year 1991, we believe that the request could be denied.

105-mm M724A1 Cartridge

We believe that the Army's entire $6.5 million request for 34,000 105-mm M724A1 cartridges could be denied. Army representatives agreed that inventories of 105-mm M724A1 cartridges will be in excess of requirements at the end of the fiscal year 1991 funded delivery period. They stated, however, that the Army was requesting more M724A1 cartridges than it required in fiscal year 1991 to avoid buying this item in fiscal years 1992 and 1993. We believe that since the Army does not need more 105-mm M724A1 cartridges in fiscal year 1991, the request could be denied.

120-mm M831 Cartridge

We believe that the Army's $41.2 million request for 43,000 120-mm M831 cartridges could be reduced by $5.8 million for 6,000 cartridges. Army representatives agreed that inventories of 120-mm M831 cartridges will exceed requirements. They said, however, that 12,000 cartridges are unserviceable and that between 50 and 60 percent of unserviceable cartridges are eventually demilitarized. On the basis of the Army's estimates, we believe that the $41.2 million request for 120-mm M831 cartridges could be reduced by $5.8 million for 6,000 cartridges.

105-mm M395 Cartridge

We believe that the Army's entire $5.7 million request for 181,000 105-mm M395 cartridges could be denied. Army representatives

agree that additional 105-mm M395 cartridges are not needed in fiscal year 1991 to support normal training and saluting requirements and that existing inventories will be sufficient for several more years. They stated, however, that a larger inventory is required because about 45,000 rounds are needed for saluting purposes when a current or former president of the United States dies. We believe, however, that the Army can use either the 105-mm M395 cartridge or the 75-mm M337A1 cartridge for saluting purposes. The Army will have about 384,600 M395 and M337A1 cartridges in its inventory at the end of the fiscal year 1991 funded delivery period without a fiscal year 1991 program. This number is sufficient to cover all presidential saluting requirements. Therefore, the fiscal year 1991 request could be denied.

155-mm M804 Projectile

We believe that the Army's entire $32.6 million request for 203,000 155-mm M804 training projectiles could be denied. The Army uses M804 projectiles in place of M107 high explosive projectiles for training with 155-mm howitzers. Army representatives agreed that there would be an excess inventory of 155-mm M804 projectiles at the end of the fiscal year 1991 funded delivery period. They said that the Army would prefer not to buy additional M804 projectiles until a newer, less costly version of the projectile is available about March 1991. They stated, however, that the budget should not be reduced because the Army would like to use the fiscal year 1991 funds designated for the M804 to procure M107 projectiles.

Hydra Rocket, M274

The Army's $43.5 million request for Hydra 70 rockets includes $36 million for 109,000 M274 Hydra 70 signal practice rockets that we believe could be reduced by $14.8 million. Army representatives, however, did not agree that there would be an excess inventory of M274 Hydra rockets at the end of the fiscal year 1991 funded delivery period. The Army estimated greater training consumption during the fiscal year 1991 funded delivery period because it used a longer procurement lead time than indicated by its own budget backup data. However, we found no support for increasing the lead time. Since we calculated training consumption based on the Army's budget backup data, we believe that the Army's request could be reduced.

35-mm Training Rocket

The Army's $5.6 million request for demolition munitions includes $4.5 million for 313,000 35-mm training rockets that we believe could be reduced by $2.8 million. Army representatives agree that an excess

inventory of 35-mm training practice rockets will exist at the end of the fiscal year 1991 funded delivery period. However, they do not agree with our calculation of the excess quantity of 194,200. The Army representatives stated that we did not use official numbers in our calculation. We disagree. Since we used more current Army data to calculate inventories and the Army did not specifically show that we had used incorrect data, we believe that our computation of excess inventory is correct.

Simulator, Project Airburst, M74

The Army's $10.2 million request for simulators includes $4.1 million for 220,000 M74 airburst simulators that we believe could be reduced by $1.2 million. Army representatives did not agree, however, that there would be excess inventory of this item at the end of the fiscal year 1991 funded delivery period. We reviewed the Army's inventory calculations and found that the Army had not used accurate inventory balances as of September 30, 1989.

M21 Artillery Flash Simulator

The Army's $10.2 million request for simulators includes $4.4 million for 1,111,000 M21 artillery flash simulators that we believe could be denied. Army representatives agreed that inventories of this item will exceed requirements and that the Army's fiscal year 1991 request could be denied.

9-mm Ball Cartridges

The Army's $4.2 million request for items less than $2 million each includes $1.4 million for 8,721,000 9-mm ball cartridges that we believe could be denied. Army representatives agreed that inventories of this item will exceed requirements and that the fiscal year 1991 request could be denied.

Type Classification Delayed

Type classification identifies items that are acceptable for their intended missions and for introduction into the inventory. Army policy states that, in general, ammunition items to be procured in a particular fiscal year should be type classified prior to their inclusion in the budget.

The Army's $15.6 million fiscal year 1991 budget request for 34,000 XM913 105-mm high explosive rocket assisted (HERA) artillery cartridges could be denied because the XM913 must be type classified before the Army can award the fiscal year 1990 contract, and the type classification decision has slipped to at least September 1990.

The Army originally planned to complete development and to type classify the cartridge for limited production in December 1987. However, due to contract and technical problems with pyrotechnic timer delays, the technical tests have not been completed, and the item has not yet been type classified. Last year, the Army expected to complete technical tests of the XM913 in January 1990 and to type classify it in March 1990. On the assumption that the XM913 would be ready for procurement in fiscal year 1990, the Congress provided $8 million to the Army in the fiscal year 1990 ammunition budget for the initial procurement of 13,000 cartridges.

The Army's fiscal year 1991 budget justification documents indicate that the cartridge is to be type classified for full production in May 1990. However, according to Army project officials, the Army has not been able to complete technical testing due to technical difficulty with the timer delays. This, in turn, has delayed the type classification decision. The Army has switched from an electronic timer delay to a pyrotechnic timer delay for the XM913 to save time and to reduce cost. The Army's current plan is to complete technical testing in August 1990, with type classification to follow in September 1990. This schedule, however, depends on achieving satisfactory pyrotechnic timer delay results and completing the cartridge firing tables.

Although the XM913 has not been type classified, the Army included it in the budgets for fiscal years 1990 and 1991 based on a waiver of this requirement. The waiver for fiscal year 1991 was granted because the user indicated that it had a critical requirement for the item and because the Army had scheduled type classification of the XM913 in May 1990. However, as we have indicated, the type classification date has slipped further to September 1990.

Since the XM913 cannot be type classified until at least September 1990, leaving insufficient time to award the fiscal year 1990 contract in fiscal year 1990, we believe that it is premature to provide additional funding for the XM913 in fiscal year 1991. Army representatives agreed that the XM913 cannot be type classified in time to award contracts for the fiscal year 1990 program in fiscal year 1990. However, the Army prefers to eliminate the $8 million provided in fiscal year 1990. We believe that the fiscal year 1991 request of $15.6 million for 34,000 XM913 cartridges could be denied because the $8 million the Congress provided for the initial procurement of 13,000 XM913 cartridges in the fiscal year 1990 budget could be used to meet fiscal year 1991 needs.

Potential to Reduce Cost by Converting Existing Inventory

The Army's request of $8.7 million for 45,000 105-mm, M490A1 target practice-traced (TP-T) cartridges could be reduced by $2.7 million because existing serviceable M456A1 high explosive antitank cartridges could be converted to M490 cartridges at an estimated savings of about $60 per cartridge, or a total savings of $2.7 million.

According to Army representatives, the Army has about 260,000 serviceable M456A1 cartridges in its inventory that could be converted to M490 cartridges—80,000 at the Milan Army Ammunition Plant in Tennessee and about 180,000 at other locations in the United States and Europe. The Army could save an estimated $60 per cartridge, or a total of $2.7 million, by converting these serviceable M456A1 cartridges to M490 cartridges. The M456A1 cartridges could be converted because the Army no longer uses them. It uses the M456A2, an improved version. The converted cartridges could be used for training in lieu of M490 cartridges.

Although Army representatives could not estimate the potential sales for the M456A1 cartridges, they said that they do not plan to convert the M456A1 cartridges because a demand from foreign governments and other sources exists for these cartridges. Army representatives also said that they would like to buy additional M490A1 cartridges in fiscal year 1991 to buy out the program by fiscal year 1993 but agreed that this would result in an excess inventory of this item at the end of the fiscal year 1991 funded delivery period.

Uneconomical Buy

The Army's $16.6 million request for 11,000 AT-4 multipurpose weapons could be denied because the purchase quantity represents an uneconomical buy. According to Army procurement and production personnel, the contract for AT-4 weapons stipulates a minimum contract quantity of 95,000 weapons. They said that the unit cost increases substantially for quantities less than 95,000 weapons. For this reason, the estimated unit cost for the fiscal year 1991 program is about $1,467, or $618 more than the fiscal year 1990 unit cost of about $849.

Although the projected inventory for the AT-4 is below the Army's inventory objective, the planned buy of 11,000 weapons in fiscal year 1991 would not increase the inventory significantly. Delivery of the quantities to be produced through the fiscal year 1990 program will provide an inventory of about 372,900 weapons, or about 83 percent of the Army's inventory objective. Adding the requested fiscal year 1991

quantity to this amount would increase the inventory to about 86 percent of the inventory objective.

In view of the high unit cost and the relatively small increase in inventory level that results from such a procurement, we believe that the Army's fiscal year 1991 request for AT-4 weapons could be denied.

Army representatives agreed that procuring 11,000 weapons is uneconomical. Therefore, they intend to negotiate with the contractor to add the 11,000 weapons to the fiscal year 1990 production contract. If the Army cannot negotiate a reasonable price, it will not procure the additional quantity. The Army does not plan to buy the weapon after fiscal year 1991.

Canceled Plans to Buy

A total of $9 million the Army requested for three items in fiscal year 1991 could be denied because the Army does not plan to buy them. The items and amounts are as follows:

- $1.4 million for 57,000 M185 personnel distress signal kits;
- $6.6 million for 121,707 L8A3 smoke screening red phosphorous launcher grenades; and
- $1 million for 1,658,000 M24 artillery flash simulators.

In addition, the Army does not need $88,000 included in its budget for fiscal year 1989 and $1.9 million included in its budget for fiscal year 1990 because it no longer intends to buy M185 kits.

M185 Personnel Distress Signal Kit

The Army requested $1.4 million for 57,000 M185 personnel distress signal kits in fiscal year 1991. However, the Army no longer plans to procure the kits because the technical data package required to produce them is obsolete. Therefore, the Army's fiscal year 1991 request could be denied. Also, since the Army's fiscal year 1989 appropriation includes $88,000 for 4,000 kits and its fiscal year 1990 appropriation includes $1.9 million for 81,000 kits, its appropriations for these fiscal years could be reduced as well.

According to an Army representative, a technical data package is required as part of the type classification process and must specify design and performance. The M185 signal kit was type classified over 20 years ago, and the technical data package only specified performance characteristics. As a result, the technical data package is obsolete.

Since the M185 signal kit cannot be procured at this time, the Army has decided to procure the Mark 79 MOD-2 signal kit used by the Navy. The Mark 79 signal kit was type classified for Navy use but not for Army use. The Army estimates that type classifying the Mark 79 using existing Navy data will take less time and cost less than developing a new technical data package for the M185. However, the Army does not know whether it can type classify the kit in time to include it in the fiscal year 1992 budget. As of early March 1990, the Army Armament, Research, Development, and Engineering Center was requesting funds for this purpose. They estimated that, at best, type classification would be completed about 10 months after funds were received.

Army representatives agreed that the $3.4 million in funding the Army received or is requesting for this item for fiscal years 1989 through 1991 is not needed.

L8A3 Smoke Screening Red Phosphorous Launcher Grenades

The Army's $6.6 million request for 121,707 L8A3 smoke screening red phosphorous launcher grenades could be denied because the Army no longer plans to procure them. According to Army documents and officials, a decrease in requirements has eliminated the need for the grenades in fiscal year 1991. Army representatives agreed that the $6.6 million request could be denied.

M24 Artillery Flash Simulator

The Army's $1 million request for 1,658,000 M24 artillery flash simulators could be denied because the Army does not plan to purchase the requested quantity until fiscal year 1992, after the item is type classified as "standard."

According to Army officials, the M24, which will replace the M21 simulator, is a "nondevelopmental" item. A "nondevelopmental" item is available from a variety of sources, requiring little or no follow-on developmental effort to meet Army requirements.

The Army uses a two-step type classification process for nondevelopmental items when the make and model are not initially known. First, the Army type classifies the item "generic" in order to obtain a manufacturer. After the Army selects a manufacturer and the item passes required testing, the Army identifies the make and model number and then type classifies the item as "standard." The M24 is currently type classified as "generic."

According to Army officials, the Army is in the process of soliciting a contractor to produce an initial quantity of 100,000 M24 simulators for testing. An official stated that the Army has fiscal year 1990 funds for this purpose. He also said that the Army does not plan to award another contract until February 1992 after the M24 is type classified as "standard."

Army representatives agreed that the $1 million requested in fiscal year 1991 could be denied.

Ammunition Production Base Support

The Army requested about $259.1 million in fiscal year 1991 for production base support. This includes $134.647 million for the provision of industrial facilities, $67.8 million for the maintenance of inactive facilities, $40.534 million for the layaway of industrial facilities, $12.1 million for components for prove-out, and $4.0 million for proving ground modernization.

The $134.647 million requested for the provision of industrial facilities includes $94.9 million for 12 facility projects to modernize and expand the ammunition production base. We reviewed the status of the designs for all 12 projects. Congressional guidance states that a project should not be funded when the final design is not completed prior to budget submission. We found that, where applicable, the final designs had been completed prior to budget submission for all projects.

We ascertained that none of the 12 facility projects would establish a new or expand an existing production capacity. Ten projects valued at $59 million are primarily designed to correct safety and environmental deficiencies at existing facilities; one $10 million project is for the prove-out of an initial production facility; and one project valued at $25.9 million is for the design of future environmental projects.

Army's Proposed Budget Increases

Army representatives identified a list of items for which they believe additional funding could be used in fiscal year 1991. The Army provided the list after we had completed our fieldwork, and we did not evaluate the justification for these items. However, the list includes items for which we have recommended reductions in the fiscal year 1991 budget. Items the Army proposed for increases are shown in table 2.2.

Table 2.2: Army's Proposed Budget Increases

Dollars in millions

Item	Amount
Armor enhancement initiative	$10.0
Multi-option urban terrain fuze	18.0
155-mm M107 artillery projectile	32.6
105-mm M490A1 tank cartridge	14.3
105-mm M724A1 tank cartridge	16.6
Nitroguanidine	1.1
105-mm XM913 HERA cartridge	8.0
Total	**$100.6**

Conclusions

We believe that $343.3 million of the Army's fiscal year 1991 request is not needed because (1) 2 items cannot be delivered within the funded delivery period, (2) requested program quantities for 13 items are greater than needed, (3) type classification is too late for 1 item, (4) 1 item can be purchased in a less expensive manner, (5) 1 item is an uneconomical buy, and (6) 3 items will not be bought. In addition, $88,000 of the Army's fiscal year 1989 appropriation and $48.9 million of its fiscal year 1990 appropriation are not needed because the Army decided not to buy two items.

Recommendations

We recommend that the Senate and House Committees on Appropriations reduce the Army's ammunition budget request by $343.3 million for 21 items, as shown in appendix I. We also recommend that the Committees reduce the Army's fiscal year 1989 appropriation by $88,000 for one item and its fiscal year 1990 appropriation by $48.9 million for two items.

Navy Ammunition Program

The Navy requested $345.7 million for ammunition items in its fiscal year 1991 budget. We reviewed the justifications for 14 budget line items representing $313.8 million, or about 90.8 percent of the funds requested. We also reviewed selected aspects of the Navy's prior-year ammunition budgets. Appendix II shows the items we reviewed and the potential reductions we identified. We believe that the Navy does not need $19.6 million in fiscal year 1991 for five ammunition items for the following reasons:

- $5.3 million is for one item for which training consumption was overstated;
- $8.9 million is for one item the Navy no longer intends to buy; and
- $5.4 million is for three items for which requirements have decreased.

In addition, the Navy does not need $1 million included in its appropriation for fiscal year 1990 for one item whose unit cost has decreased.

Overstated Training Consumption

The Navy's $38 million fiscal year 1991 request for practice bombs includes $13.2 million for 575,100 MK 76 practice bombs. The request is overstated by $5.3 million for 231,600 MK 76 practice bombs, because the Navy overestimated training consumption rates. The Navy forecasted that it would use about 50 percent more MK 76 practice bombs during the fiscal year 1991 funded delivery period than its highest usage during fiscal years 1983 through 1988.

Navy officials did not agree that they had overestimated training consumption rates. They said that problems with the MK 14 suspension lug (a component of the MK 76) had limited its MK 76 supply, requiring the Navy to use other practice bombs and alternative methods to train pilots and maintain readiness. They told us that MK 76 usage will increase because the Navy has solved the suspension lug problem. However, Army officials told us that production problems with the MK 14 suspension lug began in about 1985. Navy documents show that the monthly consumption rate of the MK 76 during fiscal years 1983 through 1985 was lower than it was when the MK 76 was experiencing production problems.

Given the Navy's past consumption patterns, we believe that the Navy's fiscal year 1991 projected usage of its MK 76 practice bombs is overestimated. On the basis of the highest annual usage during fiscal years 1983 through 1988, we believe that the Navy's request could be reduced by $5.3 million for 231,600 MK 76 practice bombs.

Canceled Plans to Buy

The Navy requested $8.9 million to procure Bigeye bombs in fiscal year 1991. However, the Secretary of Defense has decided that production funding is no longer required for fiscal year 1991 because the United States and the Soviet Union have agreed to halt the production of chemical weapons. The Navy's request for Bigeye bombs could, therefore, be denied.

Requirements Decreased

The Navy's $33 million fiscal year 1991 request for 16-inch gun ammunition and $4.4 million request for 5-inch/38-caliber gun ammunition could be reduced by $5.4 million for three items because requirements have decreased. The items and amounts are as follows:

- $3.1 million for 399 16-inch blind, load, and plug projectiles;
- $0.5 million for 53 16-inch electronic time/point detonating projectiles; and
- $1.8 million for 2,086 5-inch/38-caliber gun ammunition.

We believe that these reductions are possible because the Navy has decided to retire two of its four battleships, resulting in decreased requirements for the ammunition fired from 16-inch and 5-inch/38-caliber guns on the ships. We determined that the Navy's request could be reduced by $5.4 million and that such a reduction would not affect the Navy's ability to provide a sufficient number of projectiles for training. A Navy representative agreed that training requirements should decrease but said that the Navy has not determined the amount of the decrease.

Furthermore, as discussed in our May 1990 testimony before the Senate Committee on Armed Services concerning several issues pertaining to the April 19, 1989, explosion of the center 16-inch gun in Turret II aboard the U.S.S Iowa, the planned retirement of two battleships raises questions about the usefulness and supportability of the other two ships in the active fleet.[1] A deployed battleship's presence in overseas theaters will be limited because of the effect of peacetime operating and personnel tempo restrictions on the two remaining battleships. Manning and training problems will also be compounded by a smaller pool of experienced 16-inch gun-related personnel.

[1] Battleships: Issues Arising from the Explosion Aboard the U.S.S. Iowa (GAO/T-NSIAD-90-46, May 25, 1990).

As stated in our testimony, there is current pressure to greatly reduce the defense budget, which led to the decision to retire two battleships. Because the battleships are costly to maintain (about $58 million to operate annually, according to the Navy) and difficult to man, and because of the unanswered safety and missions-related questions, the two remaining battleships seem to be top candidates for decommissioning as the United States looks for ways to scale back its forces. If the Navy also decommissions the remaining two battleships, the Navy's entire $33 million request for 16-inch ammunition could be denied, and the $4.4 million request for 5-inch/38-caliber gun ammunition could reduced by $3.6 million.

Unit Cost Decrease

The Navy's $41.3 million fiscal year 1990 appropriation for practice bombs included $7.2 million for 16,200 BDU-45/B practice bombs. About $1 million of this amount is no longer needed because the bomb's unit cost has decreased. The Navy's budget justification documents show a unit cost of $443.69 for the BDU-45/B fiscal year 1990 program. The Army procures this item for the Navy, and more recent Army cost information shows a unit cost of $374.18 for the practice bomb. This difference of $69.51 per bomb amounts to a total difference of $1,126,062 for the fiscal year 1990 program.

Navy officials said that they intend to procure as many BDU-45/B bombs as funds will allow. If they do this, however, the Navy will exceed its inventory objective. The Navy only needs $112,254 of the excess funds to procure an additional 300 bombs to reach its inventory objective at the end of the fiscal year 1991 funded delivery period. The remaining $1 million is not needed and could be reduced.

Navy's Proposed Budget Increases

Navy officials provided a list of items for which they believed additional funding could be used in fiscal year 1991 (see table 3.1). The Navy provided the list after we had completed our fieldwork, and we did not evaluate the justification for these items. However, the list includes an item for which we have recommended a reduction in the fiscal year 1990 program.

Table 3.1: Navy's Proposed Budget Increases

Dollars in millions

Item	Amount
20-mm target practice/M14 PGU-27B	$1.9
20-mm target practice/unlinked PGU-27B	20.0
20-mm target practice-traced/PGU-30/B	1.5
5-inch, 54-caliber blind, load, and plug/traced projectile	2.3
Adapter spotting charge	0.7
5-inch, 54-caliber smoke puff projectile with point detonating fuze	14.0
BDU-45/B practice bomb	0.1
5-inch, 54-caliber smoke puff projectile with mechanical time fuze	12.4
76-mm blind, load, and plug/traced projectile	2.3
16-inch, 50-caliber blind, load, and plug/traced projectile	3.1
3-inch, 50-caliber with blind, load, and plug/traced projectile (slow fire)	0.7
3-inch, 50-caliber with blind, load, and plug/traced projectile (rapid fire)	0.9
Total	**$59.9**

Conclusions

We believe that $19.6 million of the Navy's fiscal year 1991 budget request is unnecessary because training consumption was overestimated for one item, the Navy no longer intends to buy one item, and requirements have decreased for three items. In addition, about $1 million of its fiscal year 1990 appropriation is no longer needed because an item's unit cost has decreased.

Recommendations

We recommend that the Senate and House Committees on Appropriations reduce the Navy's fiscal year 1991 ammunition budget request by $19.6 million and its fiscal year 1990 appropriation by $1 million, as shown in appendix II.

Air Force Ammunition Program

The Air Force requested $417.6 million for ammunition items in its fiscal year 1991 budget. We reviewed the justifications for 19 budget line items representing $345.7 million, or about 82.8 percent of the funds requested. Appendix III shows the items we reviewed and the potential reductions that we identified. We believe that the Air Force's request is overstated by $62.6 million for two items—$4.8 million for one item for which total program quantities will not be delivered during the fiscal year 1991 funded delivery period and $57.8 million for one item the Air Force no longer intends to buy. The fiscal year 1991 request for another Air Force item could either be reduced by $2.4 million or the quantity increased. The Air Force overestimated the unit cost of this item but needs additional quantities.

In addition, the Air Force might have overestimated its funding needs for three training items in its fiscal year 1991 request because the Air Force might have overestimated projected usage. Although we did not identify any specific budget reductions for these items, we have included information on them because the Committees on Appropriations should be aware of the issue when considering the Air Force's budget request.

Deliveries Not Within Funded Delivery Period

The Air Force's $19.3 million request for 47,260 BSU-49 inflatable retarders could be reduced by $4.8 million for 11,800 retarders because that quantity cannot be delivered within the fiscal year 1991 funded delivery period.

According to Air Force documents supporting the fiscal year 1991 budget, the procurement lead time for the BSU-49 is 12 months. Deliveries of the fiscal year 1991 program should therefore begin in September 1991 and end in August 1992. According to Air Force officials, however, deliveries of the fiscal year 1990 program are not scheduled to be completed until November 1991. As a result, the fiscal year 1991 deliveries cannot begin until December 1991 and cannot be completed until 3 months after the end of the fiscal year 1991 funded delivery period. Consequently, the Air Force's fiscal year 1991 budget request could be reduced by $4.8 million for 11,800 retarders.

Air Force representatives agreed that 3 months of production are not scheduled to be delivered before the end of the fiscal year 1991 funded delivery period, but said that they need the requested funds to build war reserve inventories and for training. Since the procurement of the

11,800 retarders could be deferred to fiscal year 1992 and still be available in time to support scheduled production, the fiscal year 1991 request could be reduced.

Canceled Plans to Buy

The Air Force requested $57.8 million to procure Bigeye bombs in fiscal year 1991. However, the Secretary of Defense has decided that production funding is no longer required for fiscal year 1991 because the United States and the Soviet Union have agreed to halt the production of chemical weapons. The Air Force's request for Bigeye bombs could, therefore, be denied.

Overstated Unit Cost

The Air Force overstated the estimated unit cost for MJU-23B flares included in its fiscal year 1991 request. The Air Force budgeted $7.3 million for 5,052 MJU-23B flares but only needs $4.9 million for the requested quantity. However, the Air Force has a shortage of MJU-23B flares. Therefore, the Air Force's $7.3 million request for 5,052 MJU-23B flares could either be reduced by $2.4 million, or the overstated amount could be used to procure additional flares. The request is overstated because the unit cost is overstated by about $481. The Air Force's budget support documents show a unit cost of $1,446.95 for the fiscal year 1991 program, which represents a previous research and development unit cost. However, the fiscal year 1989 contract was awarded at a unit cost of $966 in December 1989 for 1,887 flares.

Air Force officials agree that the fiscal year 1991 unit cost will most likely be in the $1,000 range. However, they disagree that the program should be reduced since the Air Force is significantly short of its war reserve requirement for this item. We agree with this assessment.

Projected Usage Might Be Overestimated

The Air Force requested $38.5 million for 14,418,000 20-mm training cartridges, $23.9 million for 68,732 MK-82 inert BDU-50 practice bombs, and $27.8 million for 14,529 MK-84 2,000-pound empty bombs in its fiscal year 1991 budget. We did not identify any specific budget reductions for these items because the Air Force followed established guidelines in estimating its funding needs. However, the requests for these three training items might be overstated because the Air Force might have overestimated its projected usage of these items. In addition, after the budget was submitted, the Air Force proposed force structure changes that, if implemented, could affect the funding needs.

20-mm Training Cartridge

The Air Force's $38.5 million budget request for 14,418,000 20-mm training cartridges may be overstated because the Air Force's projected usage of 13.2 million cartridges for the fiscal year 1991 program exceeds historical usage rates. As shown in table 4.1, the projected usage of 20-mm cartridges has exceeded actual usage each year from 1985 through 1989 except for 1986, for which no projected consumption data was available.

Table 4.1: Comparison of Projected and Actual Usage Rates for 20-mm Training Cartridges

Calendar year	Projected usage	Actual usage	Difference
1985	8,000,000	6,908,676	1,091,324
1986	[a]	4,478,995	[a]
1987	7,552,000	4,663,436	2,888,564
1988	8,138,000	7,063,144	1,074,856
1989	9,200,000	7,773,116	1,426,884

[a]No projected data was available for 1986.

Annual usage averaged about 6.2 million cartridges during the 5-year period from 1985 through 1989. Although annual usage for the past 2 years has increased significantly when compared to the prior 3 years, the projected usage still exceeds the actual usage for these 2 years.

Air Force officials stated that the projected usage of 13.2 million cartridges for fiscal year 1991 represents user requirements and that they try to support these requirements. These officials stated that, as a result of a change in force structure, there are more F-15 and F-16 aircraft in the Air Force's inventory that require 20-mm training cartridges. Consequently, projected expenditures of this item have increased. Nevertheless, historical data shows that the Air Force typically overestimates its usage of 20-mm training cartridges. Thus, the projected usage of 13.2 million for the fiscal year 1991 program may be overstated.

MK-82/BDU-50 Practice Bomb

The Air Force's $23.9 million request for 68,732 MK-82/BDU-50 practice bombs may be overstated because the Air Force might have projected usage in excess of what it will actually consume.

The Air Force projected fiscal year 1991 usage at about 82,718 practice bombs. This projection seems excessive compared to past usage rates. Historical data from 1986 through 1989 shows that the Air Force's projected annual consumption rates exceed actual usage for each year in the period, as shown in table 4.2.

Table 4.2: Comparison of Projected and Actual Usage Rates for MK-82/BDU-50 Practice Bombs

Calendar year	Projected usage	Actual usage	Difference
1986	101,643	45,156	56,487
1987	57,765	38,340	19,425
1988	79,557	26,827	52,730
1989	78,955	28,511	50,444

Annual usage has averaged about 34,709 bombs during the past 4 years. However, projected usage during this period has averaged 79,480. Air Force documents supporting the budget show that usage was constrained in calendar years 1988 and 1989 due to the unavailability of assets. On the other hand, with unconstrained expenditures, usage never exceeded 45,156 practice bombs. According to Air Force officials, the Air Force had 91,272 practice bombs on hand as of March 31, 1989, and 157,612 due in with fiscal year 1990 and prior funds, for a total of 248,884. On the basis of an average usage rate of 6,160 bombs per month (73,920 per year), these officials estimated that they would use 248,884 bombs before fiscal year 1991 deliveries began in May 1992. However, actual usage for the past 4 years has been well below the projected 73,920 annual usage rate. Projected usage for the highest unconstrained consumption year (1986) exceeded actual consumption by 56,487 bombs. Moreover, projected usage significantly exceeded actual usage for each year during the period.

On the basis of past usage data, we believe that the Air Force's projected usage rate for fiscal year 1991 may be overstated.

MK-84 2,000-Pound Empty Bomb

The Air Force requested $27.8 million for 14,529 MK-84 2,000-pound empty bombs. This request may be overstated because the Air Force might have projected consumption in excess of what it will use.

The Air Force's projection that it would use about 10,058 bombs for the fiscal year 1991 program seems excessive compared to past usage rates. As shown in table 4.3, from 1986 through 1989, the Air Force projected annual consumption rates that exceeded actual usage for each year in the period except 1987.

Table 4.3: Comparison of Projected and Actual Usage Rates for MK-84 2,000-Pound Empty Bombs

Calendar year	Projected usage	Actual usage	Difference
1986	6,211	2,928	3,283
1987	4,760	7,464	(2,704)
1988	9,711	1,503	8,208
1989	10,732	857	9,875

Annual usage has averaged 3,188 bombs during the past 4 years. However, projected usage during this period averaged about 7,854 bombs.

Air Force documents supporting the fiscal year 1991 budget show that usage in calendar years 1988 and 1989 was constrained due to the unavailability of assets. The Air Force used an average of 5,196 MK-84 bombs during calendar years 1986 and 1987 when usage was not constrained.

Air Force officials stated that the expenditure of 7,464 MK-84 bombs in calendar year 1987 presents a more realistic picture of actual usage. However, these officials also stated that usage rates, even during unconstrained availability years, are very dependent on weather, range air space, and specific aircraft availability. We believe that these factors may account for part of the significant differences between projected and actual usage. Consequently, the Air Force's projected usage for the fiscal year 1991 program may be overstated.

Conclusions

We believe that the Air Force's request is overstated by $62.6 million for two items—$4.8 million for one item for which total program quantities will not be delivered during the fiscal year 1991 funded delivery period and $57.8 million for one item the Air Force no longer intends to buy. The fiscal year 1991 request for another Air Force item could either be reduced by $2.4 million or the quantity increased, because the Air Force overestimated the unit cost of this item but needs additional quantities. In addition, the Air Force might have overstated its needs for three items in fiscal year 1991 because it might have overestimated projected usage.

Recommendations

We recommend that the Senate and House Committees on Appropriations reduce the Air Force's ammunition budget request by $62.6 million for two items, as shown in appendix III. We also recommend that the

Committees either reduce the request for another item by $2.4 million or increase the procurement quantity for the item.

Marine Corps Ammunition Program

The Marine Corps requested $284.7 million for ammunition items in its fiscal year 1991 budget. We reviewed the justifications for 13 budget line items representing $183.5 million, or about 64.5 percent of the funds requested. Appendix IV shows the items we reviewed and the potential reductions that we identified. We believe that the Marine Corps does not need $7.5 million for two items for which total program quantities will not be delivered during the fiscal year 1991 funded delivery period and $1 million for another item for which total program quantities would result in excessive inventory.

However, the Marine Corps has a shortage of two items, and $2.3 million of the Marine Corps' overstated $8.5 million request could be used to fund these needed items.

Deliveries Not Within Funded Delivery Period

40-mm, All Types

The Marine Corps' $25.6 million request for all types of 40-mm cartridges in fiscal year 1991 includes $10.9 million for 727,743 M918 target practice (TP) cartridges and $13 million for 1,106,145 high explosive dual purpose (HEDP) cartridges. The Marine Corps does not need $1.3 million for 87,111 M918 cartridges in fiscal year 1991 because that quantity is not scheduled to be delivered within the fiscal year 1991 funded delivery period. However, the Marine Corps could procure additional 40-mm HEDP cartridges with this $1.3 million.

In its role as the Single Manager for Conventional Ammunition, the Army procures 40-mm cartridges for the Marine Corps. In November 1989, the Army terminated a contract with one of two producers of M918 projectile assemblies because it had not delivered 1,455,000 projectile assemblies it agreed to produce for the fiscal years 1987 and 1988 programs. The remaining contractor is successfully producing M918 projectile assemblies at a rate of about 156,000 assemblies per month.

As of January 31, 1990, the Army needed about 6,534,111 projectile assemblies to complete deliveries of M918 projectiles for fiscal years 1986 through 1990 programs and the requested fiscal year 1991

program. According to an Army official, the Army is looking for a replacement contractor to manufacture the 1,455,000 projectile assemblies not delivered under the terminated contract. The current producer will manufacture the other 5,079,111 projectile assemblies needed. But, according to the Army official, the Army will not ask the current producer to increase production above 156,000 projectile assemblies per month because it has obligations under other government contracts.

Producing at a rate of 156,000 projectile assemblies per month, the current contractor could manufacture 4,992,000 M918 projectile assemblies by the end of the fiscal year 1991 funded delivery period, or 87,111 fewer than required. As a result, the Marine Corps' fiscal year 1991 request could be reduced by $1.3 million for 87,111 M918 cartridges that cannot be produced in time. However, according to Marine Corps documents supporting the fiscal year 1991 budget request, the Marine Corps has a shortage of 40-mm HEDP cartridges. We estimate that the Marine Corps could procure an additional 110,356 40-mm HEDP cartridges with the $1.3 million that is not needed for 40-mm M918 cartridges.

The Marine Corps did not disagree with our analysis and stated that since it had no control over the production of M918 cartridges, it could not comment on the production status of the item. It added, however, that the Marine Corps could use additional 40-mm HEDP cartridges.

155-mm M864 Baseburner Projectile

The Marine Corps' $6.2 million fiscal year 1991 request for 7,205 155-mm M864 projectiles could be denied for the same reasons that the Army's request could be denied. The Army cannot produce these projectiles within the fiscal year 1991 funded delivery period without increasing production beyond one shift and incurring additional costs. Further, the Army has not resolved all technical problems with the M864 projectile.

In view of the unresolved technical problems with the M864 projectile and the large backlog of undelivered items from prior-year Army programs, additional funding for the M864 in fiscal year 1991 is unnecessary. The Marine Corps' request could be denied because none of the Marine Corps' $6.2 million request for 7,205 M864 projectiles can be delivered within the fiscal year 1991 funded delivery period.

Marine Corps representatives did not disagree with our analysis but said that the fiscal year 1991 program is needed because the number of

M864 projectiles in its inventory is far below the Marine Corps' inventory objectives. While we agree that M864 inventory levels are below objectives, additional funding is not needed in fiscal year 1991 because problems have caused a large production backlog.

Projected Excessive Inventory

The Marine Corps' fiscal year 1991 request of $30.9 million for all types of 5.56-mm cartridges could be reduced by $1 million for 5.56-mm tracer cartridges that are not needed in fiscal year 1991. As shown in table 5.1, procuring the requested quantity of 5.56-mm tracer cartridges would result in a projected excessive inventory of 3,114,718 cartridges by September 30, 1992, which marks the end of the fiscal year 1991 funded delivery period.

Table 5.1: Projected Excessive Inventory of 5.56-mm Tracer Cartridges

Item	Quantity
Inventory as of September 30, 1989	15,517,830
Projected increases	
Quantity due in from fiscal year 1990 and prior years	26,886,160
Quantity requested for fiscal year 1991	4,970,312
Total	**47,374,302**
Estimated usage through September 30, 1992	−19,037,052
Projected inventory as of September 30, 1992	**28,337,250**
Inventory objective	−25,222,532
Projected excessive inventory	**3,114,718**

Although the Marine Corps does not need to procure additional 5.56-mm tracer cartridges in fiscal year 1991, it has a shortage of 5.56-mm blank and linked cartridges. Therefore, the $1 million not needed for 5.56-mm tracer cartridges could be used to procure additional quantities of 5.56-mm blank and linked cartridges.

Marine Corps representatives agreed with our calculation of excess inventory for 5.56-mm tracer cartridges.

Conclusions

We believe that $8.5 million of the Marine Corps' fiscal year 1991 request is not needed because two items cannot be delivered within the funded delivery period, and the requested quantity for one item will cause inventory to exceed the Marine Corps' needs. On the other hand,

the Marine Corps has shortages of two items, and $2.3 million of the unneeded funds could be used to procure these other items.

Recommendations

We recommend that the Senate and House Committees on Appropriations reduce the Marine Corps' ammunition budget request by $8.5 million for three items and increase its request by $2.3 million for two other items, as shown in appendix IV.

Potential Reductions to the Army's Ammunition Request

Dollars in millions

Budget line number	Item	Budget request	Potential reduction	Adjusted request	Remarks
3	Projectile, 155-mm binary chemical, M687	$74.3	$74.3[a]	0	Deliveries not within funded delivery period (see p. 15).
4	Cartridge, 5.56-mm, all types	52.0	23.6	$28.4	Inventory will exceed needs (see p. 17).
5	Cartridge, 7.62-mm, all types	4.2	3.5	0.7	Inventory will exceed needs (see p. 17).
7	Cartridge, .50 caliber, all types	3.1	0	3.1	-
8	Cartridge, 20-mm, all types	9.9	0	9.9	-
9	Cartridge, 25-mm, all types	89.6	0	89.6	-
10	Cartridge, 30-mm, all types	9.5	4.3	5.2	Inventory will exceed needs (see p. 18).
11	Cartridge, 40-mm, all types	2.4	0	2.4	-
12	Cartridge, 60-mm, smoke M72	4.0	0	4.0	-
21	Cartridge, 105-mm, TP-T, M490A1	8.7	2.7	6.0	Can obtain 105-mm less expensively through conversion (see p. 22).
22	Cartridge, DS-TP, M724A1	6.5	6.5	0	Inventory will exceed needs (see p. 18).
23	Cartridge, 105-mm, M900E1	67.0	0	67.0	-
28	Cartridge, 120-mm, TP-T M831	41.2	5.8	35.4	Inventory will exceed needs (see p. 18).
29	Cartridge, 120-mm, TPCSDS-T, M865	130.5	0	130.5	-
31	Cartridge, 105-mm blank, M395	5.7	5.7	0	Inventory will exceed needs (see p. 19).
32	Cartridge, 105-mm, HERA, M913	15.6	15.6	0	Type classification delayed (see p. 20).
35	Projectile, 155-mm, ADAM-S, M731	36.9	0	36.9	-
38	Projectile, 155-mm, Baseburner, M864	118.5	118.5	0	Deliveries not within funded delivery period (see p. 14).
39	Projectile, 155-mm, M804	32.6	32.6	0	Inventory will exceed needs (see p. 19).
44	Fuze, electronic time, M767	3.1	0	3.1	-
45	Fuze, proximity, M732	33.0	0	33.0	-
49	Fuze, electronic time, M762	7.2	0	7.2	-
52	Mine, Volcano, practice, M88	1.6	0	1.6	-
53	Mine, Volcano, AT/AP, M87	78.5	0	78.5	-
54	Mine, clearing charge, all types	1.6	0	1.6	-
57	AT-4 multipurpose weapon	16.6	16.6	0	Uneconomical buy (see p. 22).

(continued)

Budget line number	Item	Budget request	Potential reduction	Adjusted request	Remarks
59	Rocket, Hydra 70, all types	43.5	14.8	28.7	Inventory will exceed needs (see p. 19).
62	Demolition munitions, all types	5.6	2.8	2.8	Inventory will exceed needs (see p. 20).
64	Grenades, all types	8.0	6.6	1.4	Army decided not to buy (see p. 24).
65	Signals, all types	2.7	1.4[b]	1.3	Army decided not to buy (see p. 23).
66	Simulators, all types	10.2	6.6	3.6	Inventory will exceed needs, and Army decided not to buy (see pp. 20 and 24).
69	Items less than $2 million	4.2	1.4	2.8	Inventory will exceed needs (see p. 23).
73	Nitroguanidine	28.8	0	28.8	-
76	Provision of industrial facilities	134.6	0	134.6	-
	Total[c]	**1,091.4**	**343.3[d]**	**748.1**	
	Total[e]	**333.0**	**0**	**333.0**	
	Total	**$1,424.4**	**$343.3[d]**	**$1,081.1**	

[a]Excludes $47 million in potential reductions to the Army's fiscal year 1990 appropriation.

[b]Excludes $88,000 in potential reductions to the Army's fiscal year 1989 appropriation and $1.9 million in potential reductions to the Army's fiscal year 1990 appropriation.

[c]Total for budget requests we reviewed.

[d]Excludes $88,000 in potential reductions to the Army's fiscal year 1989 appropriation and $48.9 million in potential reductions to the Army's fiscal year 1990 appropriation.

[e]Total for budget requests we did not review.

Potential Reductions to the Navy's Ammunition Request

Dollars in millions

Budget line number	Item	Budget request	Potential reduction	Adjusted request	Remarks
60	General purpose bombs	$48.0	0	$48.0	-
61	2.75-inch rockets	14.6	0	14.6	-
62	Machine gun ammunition	12.5	0	12.5	-
63	Practice bombs	38.0	$5.3[a]	32.7	Overstated training consumption and decreased unit cost for a prior year program (see pp. 27 and 29).
64	Bigeye chemical weapon	8.9	8.9	0	Canceled plans to buy (see p. 28).
65	3-inch, 50 caliber gun ammunition	0.5	0	0.5	-
66	5-inch, 38 caliber gun ammunition	4.4	1.8	2.6	Requirements have decreased (see p. 28).
67	5-inch, 54 caliber gun ammunition	11.9	0	11.9	-
68	16-inch gun ammunition	33.0	3.6	29.4	Requirements have decreased (see p. 28).
69	CIWS ammunition	32.8	0	32.8	-
70	76-mm gun ammunition	1.1	0	1.1	-
71	Other ship gun ammunition	32.9	0	32.9	-
72	Small arms and landing party ammunition	33.9	0	33.9	-
191	Airborne expendable counter-measures	41.3	0	41.3	-
	Total[b]	**313.8**	**19.6[a]**	**294.2**	
	Total[c]	**31.9**	**0**	**31.9**	
	Total	**$345.7**	**$19.6[a]**	**$326.1**	

[a]Excludes $1 million in potential reductions to the Navy's appropriation for fiscal year 1990.

[b]Total requested for these budget items.

[c]Total for budget items we did not review.

Potential Reductions to the Air Force's Ammunition Request

Dollars in millions

Budget line number	Item	Budget request	Potential reduction	Adjusted request	Remarks
1	2.75-inch rocket motor	$15.8	0	$15.8	-
2	2.75-inch rocket head	4.5	0	4.5	-
4	Items less than $2 million	3.9[a]	0	3.9	-
6	5.56-mm cartridge	6.6	0	6.6	-
7	Cartridge, 20-mm, combat	6.9	0	6.9	-
8	Cartridge, 20-mm, training	38.5	0	38.5	Requested quantity may be overstated (see p. 33).
9	Cartridge, 30-mm, training	46.6	0	46.6	-
14	Cartridge, Impulse, 3,000-foot pounds	6.2	0	6.2	-
16	Items less than $2 million	7.5[b]	0	7.5	-
17	MK-82 inert, BDU-50 practice bomb	23.9	0	23.9	Requested quantity may be overstated (see p. 33).
18	BSU-49 Inflatable Retarder	19.3	$4.8	14.5	Deliveries not within funded delivery period (see p. 31).
23	Bomb, practice, 25 pound, BDU-33	23.9	0	23.9	-
25	MK-84 bomb, empty	27.8	0	27.8	Requested quantity may be overstated (see p. 34).
27	Bigeye bomb	57.8	57.8	0	Canceled plans to buy (see p. 32).
29	Flare, IR, MJU-7B	4.4	0	4.4	-
31	Flare, IR, MJU-23B	7.3	0[c]	7.3[c]	Overstated unit cost (see p. 32).
32	Flare, MJU-10B	7.6	0	7.6	-
36	Items less than $2 million	3.8[d]	0	3.8	-
37	Fuze, FMU-139	33.4	0	33.4	-
	Total[e]	**345.7**	**62.6**	**283.1**	
	Total[f]	**71.9**	**0**	**71.9**	
	Total	**$417.6**	**$62.6**	**$355.0**	

[a]The total request for this budget line was $6.3 million for five items. We reviewed two items valued at $3.9 million.

[b]The total request for this budget line was $17 million for 21 items. We reviewed four items valued at $7.5 million.

[c]Additional quantities can be procured because the unit cost was overstated.

[d]The total request for this budget line was $17.7 million for 24 items. We reviewed two items valued at $3.8 million.

[e]Total requested and reviewed in these budget lines

[f]Total for items in budget lines that we did not review.

Potential Reductions to the Marine Corps' Ammunition Request

Dollars in millions

Budget line number	Item	Budget request	Potential reduction	Adjusted request	Remarks
1	5.56-mm, all types	$30.9	$1.0[a]	$29 9	Inventory will exceed needs (see p. 39).
2	7.62-mm, all types	8.3	0	8.3	-
4	.50 caliber	19.5	0	19.5	-
5	40-mm, all types	25.6	1.3[b]	24.3	Deliveries not within funded delivery period (see p. 37).
6	60-mm, illumination, M721	10.7	0	10.7	-
7	60-mm, smoke, WP	3.0	0	3 0	-
8	60-mm, HE, M888	5.7	0	5 7	-
9	81-mm, HE	3.6	0	3 6	-
11	81-mm, TP, M879	9.2	0	9 2	-
14	120-mm, TPCSDS-T, M865	18.6	0	18.6	-
15	120-mm, TP-T, M831	12.9	0	12.9	-
21	155-mm, M864, projectile, Baseburner	6.2	6.2	0	Deliveries not within funded delivery period (see p. 38).
28	83-mm, rocket, HEAA (SMAW)	29.3	0	29.3	-
	Total[c]	**183.5**	**8.5[d]**	**175.0**	
	Total[e]	**101.2**	**0**	**101.2**	
	Total	**$284.7**	**$8.5[d]**	**$276.2**	

[a]The $1 million potential reduction is for 5.56-mm tracer cartridges. These funds could be used to procure additional quantities of 5 56-mm blank and linked cartridges.

[b]The $1.3 million is for 40-mm M918 cartridges. These funds could be used to procure 40-mm HEDP cartridges.

[c]Total for budget requests we reviewed.

[d]Includes $2.3 million that could be used to increase the request for two other items.

[e]Total for budget requests we did not review.

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