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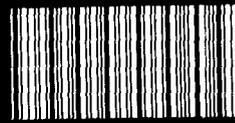
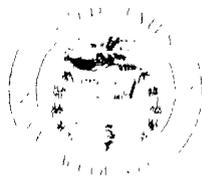
United States General Accounting Office

Briefing Report to the Chairman,  
Subcommittee on Defense, Committee  
on Appropriations, U.S. Senate

September 1991

# 1992 ARMY BUDGET

## Potential Reductions to Missile Programs



144956

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National Security and  
International Affairs Division

B-205940

September 23, 1991

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

Dear Mr. Chairman:

As you requested, we reviewed the Army's justification for its fiscal year 1992 budget requests of \$1.5 billion for the following 15 missile systems to determine whether the programs should be funded in the amounts requested: the Chaparral; the Line-of-Sight-Forward-Heavy; the Hawk; the Patriot; the Stinger; the Avenger; the Hellfire; the Advanced Antitank Weapon System-Medium (AAWS-M); the Tube-launched, Optically-tracked, Wire-guided (TOW) missile; the Multiple Launch Rocket System (MLRS) and its Terminal Guidance Warhead; the Army Tactical Missile System (ATACMS); the Fiber Optic Guided Missile; the Line-of-Sight Antitank missile; and the Corps Surface-to-Air Missile. In addition, we reviewed selected segments of appropriations for prior years for some systems, including the fiscal year 1991 Operation Desert Shield/Desert Storm supplemental appropriation of \$539.5 million for five of the systems, to determine whether unused funds could be rescinded. In July 1991, we briefed your staff on the preliminary results of our review. This report includes the information provided at that briefing and the final results of our review.

As shown in table 1, we identified \$90.2 million in potential reductions and rescissions to 7 of the 15 Army missile programs we reviewed: \$64.8 million in potential reductions to the fiscal year 1992 requests for 5 systems, \$23.4 million in potential rescissions from fiscal year 1991 appropriations for 3 systems, and \$2 million in potential rescissions from the fiscal year 1990 appropriation for 1 system. In addition, we believe restrictions could be placed on obligational authority for \$65.3 million in the fiscal year 1992 request for one of the seven systems. These reductions and rescissions result primarily from (1) requests for fiscal year 1992 procurement funds that could be postponed to future years, (2) questionable or reduced requirements, (3) less than anticipated costs, and (4) recalculated amounts using more current unit cost estimates. We found no potential reductions or rescissions for eight of the missile systems we reviewed. Details regarding the potential reductions and rescissions are provided in appendix I.

**Table 1: Potential Reductions and Rescissions to Army Missile Programs**

Dollars in millions

Missile system	Fiscal year			Total
	1992	1991	1990	
Patriot	\$24.3	\$8.0	\$0	<b>\$32.3</b>
Stinger	11.3	0	2.0	<b>13.3</b>
Hellfire	19.7	0	0	<b>19.7</b>
TOW	0 <sup>a</sup>	11.0 <sup>b</sup>	0	<b>11.0</b>
MLRS	5.1 <sup>c</sup>	0	0	<b>5.1</b>
ATACMS	4.4	0	0	<b>4.4</b>
AAWS-M	0	4.4	0	<b>4.4</b>
<b>Total</b>	<b>\$64.8</b>	<b>\$23.4</b>	<b>\$2.0</b>	<b>\$90.2</b>

<sup>a</sup>Obligational authority for \$65.3 million, if appropriated, could be made subject to certain restrictions.

<sup>b</sup>Research and development funds.

<sup>c</sup>Includes \$3 million in research and development funds.

In addition, our review of the fiscal year 1991 Operation Desert Shield/Desert Storm supplemental appropriation for five missile systems disclosed issues that might be useful during Committee deliberations on the fiscal year 1992 budget.

## Scope and Methodology

We performed most of our review at the U.S. Army Missile Command, Huntsville, Alabama. We examined selected aspects of the budget justifications for procurement and research and development funding for 15 Army missile systems.

In evaluating the budget requests, we examined (1) production plans, delivery plans, improvement plans, and effectiveness analyses to determine whether planned production was warranted; (2) test reports and missile delivery status to evaluate the effect of production problems on missile delivery; and (3) the requirements for selected missiles and support equipment. In addition, we reviewed selected aspects of missile costs by (1) examining the service's methodology in arriving at those costs, (2) determining the most recently experienced costs, and (3) examining recently awarded contracts. Also, for selected systems, we reviewed the status of obligations for previously appropriated funds and the plans to obligate these funds. However, we did not examine each of these aspects for all weapon systems. Rather, we tailored our review of each system to focus on identifying those items that appeared to have the most potential for reduction.

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In many instances, we relied on testimonial evidence because it was the only evidence available. However, when practicable, we corroborated this evidence with other sources or verified the evidence a second time with the same source.

We conducted our review from March through August 1991 in accordance with generally accepted government auditing standards.

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As requested, we did not obtain written agency comments on this report. However, we discussed the contents with officials from the Office of the Secretary of Defense, the Department of the Army, and the U.S. Army Missile Command, and we have incorporated their comments where appropriate. The officials generally agreed with the facts presented in this report, but they generally disagreed with any funding reductions. In some instances, they believed that the funds could be used for other requirements, and in other instances, they believed that the funding requested would contribute to defense readiness.

We are sending copies of the report to the Chairmen of the Senate and House Committees on Armed Services and the House Committee on Appropriations, the Secretaries of Defense and the Army, the Director of the Office of Management and Budget, 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 II.

Sincerely yours,



Frank C. Conahan  
Assistant Comptroller General

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## Abbreviations

AAWS-M	Advanced Antitank Weapon System-Medium
ATACMS	Army Tactical Missile System
MLRS	Multiple Launch Rocket System
TOW	Tube-launched, Optically-tracked, Wire-guided



# Potential Reductions and Rescissions to Army Missile Programs

We identified potential reductions and rescissions of \$90.2 million from the Army's missile programs for 7 of the 15 selected systems: \$64.8 million in reductions from the fiscal year 1992 request, \$23.4 million in rescissions from the fiscal year 1991 appropriation, and \$2 million in rescissions from the fiscal year 1990 appropriation. In addition, we believe restrictions could be placed on obligational authority for \$65.3 million in the fiscal year 1992 request. The following sections provide a brief description of the missile systems and the results of our analysis of each system.

## Patriot

The Patriot is a surface-to-air missile capable of engaging multiple high-performance aircraft and missiles. The system consists of a radar, ground support equipment, missile launchers, and missiles. It is intended for use primarily against enemy aircraft flying at high-to-medium altitudes. It is also designed to protect ground forces and other high-value targets such as air bases in rear combat areas.

## Results of Analysis

The Army requested \$142.6 million for fiscal year 1992 to support Patriot requirements—\$107.1 million to buy Patriot support equipment and provide associated technical support and \$35.5 million for Patriot hardware modifications. The Army also received a fiscal year 1991 supplemental appropriation for Operation Desert Shield/Desert Storm of \$312.4 million, which included \$10 million for procuring global positioning system receivers.

The fiscal year 1992 request could be reduced by \$24.3 million for the following reasons:

- \$7 million by deleting program support items that are no longer required,
- \$8.1 million by deleting funding for configuration modifications that are not ready for production,
- \$7.9 million by postponing emplacement modifications until the more capable version is available, and
- \$1.3 million because the unit price for north-finding modules has decreased.

In addition, \$8 million could be rescinded from the fiscal year 1991 supplemental appropriation because the estimated unit price for global positioning receivers has decreased.

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**Program Support Items**

The Army requested \$7 million for program support items that are no longer required. According to a program management official, the Army reassessed the fiscal year 1992 budget request and made the following deletions or reductions: (1) \$3.5 million for peculiar support equipment, (2) \$2 million for training software, and (3) \$1.5 million for project administration.

The program management official stated that the requested funding will be needed to partially fund a shortfall of \$30.1 million; however, the funds were not requested for that purpose. In addition, at this time, the shortfalls are project office estimates rather than actual shortages.

**Configuration Modifications**

The Army's fiscal year 1992 request includes \$8.1 million to upgrade fielded fire units to the configuration currently being produced. It also received \$7.9 million in its fiscal year 1991 appropriation for this effort. However, according to program management officials, the contractor's efforts were diverted to Operation Desert Storm activities; and as a result, modification development will not be completed in time for a fiscal year 1991 contract award. Therefore, the \$7.9 million provided in fiscal year 1991 could be used to award the initial contract in fiscal year 1992, and the \$8.1 million fiscal year 1992 request could be postponed until fiscal year 1993.

Program management officials do not plan to use the fiscal year 1991 appropriation for configuration modifications, rather they would like to use the funds for Patriot training improvements. However, training improvements were not requested for the fiscal year 1991 program, and the funds were not appropriated for that purpose.

**Navigation Enhancement System**

The Army is currently developing a navigation enhancement system to eliminate the need for manually surveying locations before deploying fire units. Each radar and launcher will be equipped with a global positioning system receiver, which is to allow fire units to receive position and location data directly from satellites; a north-finding module, which is to provide a quick, precise location of north; and an emplacement modification, which integrates the receiver and the module with the fire unit. Each component is dependent upon the others to effectively shorten deployment time. The Army has structured a 2-year program to procure 597 units of each item. We identified potential reductions to the fiscal year 1992 requests for emplacement modification kits and north-finding modules and rescissions from the fiscal year 1991 appropriation for global positioning system receivers.

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**Emplacement Modification Kits**

The Army plans to procure 597 emplacement modification kits over a 2-year period. It received a fiscal year 1991 appropriation of \$5.7 million for 202 kits and requested \$10 million for 395 kits in fiscal year 1992. Our review disclosed that the kits to be bought with the fiscal year 1991 funds will provide some improvement, but do not meet Army requirements. However, the kits to be procured with fiscal year 1992 funds are designed to meet requirements, and the contractor's schedules for delivering both versions are identical. Therefore, the fiscal year 1991 appropriation could be used to award a contract in March 1992 for improved kits that meet requirements, and the amount requested for fiscal year 1992 could be postponed until fiscal year 1993.

Program management officials agreed that buying the earlier version would not be prudent. However, they would like to buy 299 improved kits in fiscal year 1992 at an estimated cost of \$7.8 million and procure the remaining 298 kits in fiscal year 1993. Taking this into consideration and because the \$5.7 million provided for kits in fiscal year 1991 could be used for awarding the fiscal year 1992 contract, the Army's fiscal year 1992 request could be reduced by \$7.9 million.

**North-Finding Modules**

The Army's fiscal year 1992 request includes \$18 million for procurement of 300 north-finding modules. The Army's request could be reduced by \$1.3 million because after submitting the request, the unit price decreased by \$4,333, from \$60,000 each to \$55,667.

**Global Positioning System Receivers**

The fiscal year 1991 supplemental appropriation for Operation Desert Shield/Desert Storm included \$10 million to buy 250 global positioning system receivers to support the navigation enhancement system. This amount was based on buying 250 receivers at an estimated cost of \$43,000 each. However, the Army currently estimates the 250 receivers will cost a maximum of \$8,000 each, or a total of \$2 million. Therefore, the remaining \$8 million could be rescinded.

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**Stinger**

Stinger is a portable guided missile system used to defend against low-flying enemy airplanes and helicopters. It is stored in a disposable launch tube and launched by using a removable gripstock. The current system includes a reprogrammable microprocessor to counter more advanced threats.

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**Results of Analysis**

The Army requested \$37.5 million for fiscal year 1992 to provide training facility improvements, training missiles, and engineering and

administrative support for the Stinger missile system. The request could be reduced by \$11.3 million—\$9.5 million because the Army reduced the requirement for training facility improvements and \$1.8 million because the request includes fiscal year 1993 training missile requirements. In addition, \$2 million could be rescinded from the fiscal year 1990 appropriation because the missiles cost less than anticipated.

### Training Facilities

The Army requested about \$19 million to modify 10 existing training facilities; however, it subsequently decided to modify only 5 facilities. The Army estimates the cost for improving each facility at \$1.9 million; therefore, \$9.5 million of the request is not needed for the improvements.

Program management officials agreed that the funds are not needed for the required facility modifications; however, they believe that other requirements could arise. The Army official responsible for training development told us that currently the five facilities are the only requirements for fiscal year 1992.

Also, program management officials believe that additional funding will be required in the following amounts: \$1.9 million to buy the technical data package; \$2 million for initial contractor logistic support of facilities procured with fiscal year 1990 funds; and \$1.1 million to support those requested for fiscal year 1992. However, the request was for facility modifications rather than supporting the facilities.

### Training Missiles

The Army requested about \$6.6 million to buy 8,250 training missiles, but the request included \$1.8 million for 2,184 training missiles for fiscal year 1993. Program management officials stated that the quantity should have been 7,384, but agreed that the \$1.8 million was for fiscal year 1993 requirements. Therefore, \$1.8 million of the request is not needed for fiscal year 1992.

According to Army budget guidance, deliveries that can be funded in a future fiscal year and still be available in time to support a scheduled production will not be programmed in an earlier fiscal year. Since the Army does not need delivery of the training missiles until fiscal year 1993, the Army's fiscal year 1992 request can be reduced by \$1.8 million. The Army will need, however, to request the funds to procure the additional missiles in fiscal year 1993. Program officials agreed that the \$1.8 million was not needed until fiscal year 1993. One program management official said the Army included it in the fiscal year 1992 request because of doubt that the requirement would be funded in fiscal year

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1993. We believe, however, that the Army should request funds in the year required.

### Fiscal Year 1990 Excess

The Army received a lower than anticipated price for some Stinger missiles purchased with fiscal year 1990 funding. The Congress provided \$39.5 million to award a second source production contract, but the Army allocated \$41.5 million for this effort. When the second source producer failed to qualify within the required time frame, the Army awarded the contract to the prime contractor at a maximum price of \$37.5 million, or \$4 million less than allocated. A program management official said that \$2 million of the excess has been obligated for another purpose. Taking this into consideration, we believe that \$2 million could be rescinded from the Army's fiscal year 1990 appropriation.

A program management official stated that they need the excess funds to replace Stinger support equipment damaged during Operation Desert Shield/Desert Storm and to fix a safety-related problem with earlier procured Stinger rocket motors. However, the Army is requesting another supplemental appropriation, which includes funds for correcting an undefined amount of Operation Desert Shield/Desert Storm damage, and it does not know the amount required to correct the safety problem.

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### Hellfire

The Hellfire missile system is the main armament on the Army's Apache helicopter and the Marine Corps' Cobra helicopter. It is designed to defeat stationary or moving tanks with minimal exposure of the delivery helicopter to enemy fire. The missile is guided by laser energy reflected from a target that has been illuminated by ground observers, attack helicopters, or other helicopters.

The Army is making several improvements to the Hellfire missile. It is currently producing a model with an interim warhead improvement. In June 1992, the Army plans to begin producing the Hellfire Optimized Missile System—designed to have an even more capable warhead and to be more effective in the presence of countermeasures.

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### Results of Analysis

The Army requested \$37.5 million for fiscal 1992—\$17.8 million for research, development, test, and evaluation of the optimized missile and \$19.7 million to buy 112 optimized missiles. Additionally, under the fiscal year 1991 Operation Desert Shield/Desert Storm supplemental appropriation, the Congress provided \$86.6 million to buy 3,150 Hellfire missiles. According to a Hellfire program office official, the Army

intends to buy 2,174 interim improved missiles and associated support with \$62.8 million of the fiscal year 1991 Operation Desert Shield/Desert Storm supplemental appropriation and 335 optimized missiles with \$23.8 million of the appropriation.

We believe that the Army does not need the \$19.7 million it requested for 112 optimized missiles in fiscal year 1992 because the Hellfire optimized missiles the Army plans to buy with the fiscal year 1991 supplemental appropriation for Operation Desert Shield/Desert Storm will be delivered during the fiscal year 1992 funded delivery period. In addition, we believe that the planned purchase of interim improved Hellfire missiles would not be the most effective use of these appropriated funds.

#### Hellfire Optimized Missile

The Army requested \$19.7 million for 112 Hellfire missiles in its fiscal year 1992 budget. According to Army documents supporting the request, the funding was intended for low-rate initial production of Hellfire optimized missiles, and production was scheduled to begin in June 1992. However, after submitting the request, the Army received a fiscal year 1991 supplemental appropriation to replace Hellfire missile losses during Operation Desert Shield/Desert Storm. A Hellfire program office official told us that the Army intends to use \$23.8 million of the supplemental to buy 335 Hellfire optimized missiles in fiscal year 1992. We believe that the Army's fiscal year 1992 request could be denied because the Army intends to use a portion of the fiscal year 1991 supplemental funding to buy Hellfire optimized missiles in fiscal year 1992. Also, the quantity to be bought with the supplemental funding is greater than the Army's estimate of its funding needs for fiscal year 1992 for initial procurement of Hellfire optimized missiles.

#### Interim Improved Hellfire Missile

In a prior report,<sup>1</sup> we concluded that buying interim improved Hellfire missiles with the fiscal year 1991 Operation Desert Shield/Desert Storm supplemental appropriation would not be the most effective use of appropriated defense funds because (1) the interim improved missile has performance shortfalls, (2) the optimized missile—an improvement designed to correct many of these shortfalls—is scheduled for limited production in June 1992, and (3) the Army will have over 32,000 basic and interim missiles in its inventory by February 1993.

<sup>1</sup>Army Weapons: Acquisition of Interim Improved Hellfire Missiles Not Justified (GAO/NSIAD-91-314, Sept. 6, 1991).

Although Army tests have shown that the interim improved Hellfire missile will penetrate more formidable tanks than the basic Hellfire missile, intelligence analysts believe that it may not defeat the most recently deployed Soviet armor. In addition, other Army tests have demonstrated that the missile was susceptible to current and projected countermeasure threats, and its performance can be degraded by natural and man-made obscurants, such as inclement weather and smoke generated by the battle or the enemy.

The Hellfire optimized missile—an improvement designed to correct many of the existing shortfalls of the interim improved missile—is scheduled for low-rate production in June 1992. According to Hellfire program officials, optimized missile component tests to date have demonstrated significant increases in (1) lethality, (2) effectiveness against current and projected countermeasure threats, and (3) probability of hitting a target in adverse weather or obscured battlefield conditions. In addition, the optimized missile is lighter than the interim missile, which should enhance aircraft performance.

In our September 1991 report, we recommended that the Secretary of Defense direct the Secretary of the Army to use the \$86.6 million fiscal year 1991 supplemental appropriations for Operation Desert Shield/Desert Storm to buy Hellfire optimized missiles rather than interim improved Hellfire missiles unless the Army clearly demonstrates a legitimate need to add more than 2,000 less-capable missiles to its inventory.

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## TOW

The TOW missile system is a heavy, antitank and assault weapon system consisting of a missile, a launcher, and ground support equipment. The missile is connected to its launcher by wire. After firing, the gunner keeps the sight's crosshairs on the target, and the launcher automatically transmits course corrections through the wire to the missile. TOW can be employed from a ground mount or from the Bradley Fighting Vehicle, the High-Mobility Multipurpose Wheeled Vehicle, and the Cobra helicopter. The Army is currently producing TOW-2A missiles that will be converted to the TOW-2B missile configuration, and it plans to begin TOW-2B missile production in December 1991.

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## Results of Analysis

The Army requested \$289.5 million for fiscal year 1992 for TOW—\$200.6 million to buy 10,000 TOW-2B missiles, \$65.3 million in research and development funds for the TOW sight improvement program, and \$23.6 million for missile modifications. If the requested fiscal year 1992

funds are appropriated, the Congress may wish to place restrictions on obligational authority for the \$65.3 million TOW sight improvement program until the Army resolves its policy options. In addition, \$11 million from the fiscal year 1991 research and development appropriation could be rescinded because it is excess to the program's needs for that year.

**Fiscal Year 1992 Request**

The Army is currently considering several options for the TOW sight improvement program. One option would terminate the program and another would be a less expensive program. Therefore, restricting obligational authority until the Army makes a decision could provide for more effective administration of the appropriation.

**Fiscal Year 1991 Excess**

The Congress provided \$15 million in the fiscal year 1991 research and development appropriation to initiate full-scale development of the TOW sight improvement—a program designed to increase the system's capability to acquire targets and engage them at extended range under all battlefield conditions. The Army has obligated \$4 million of the appropriation to support the program, and it planned to obligate the remaining \$11 million upon awarding the full-scale development contract.

However, according to the TOW project manager and a contracting official, it would be highly unlikely that a contract could be awarded during fiscal year 1991. In addition, the project manager stated that delaying contract award until fiscal year 1992 would not affect fielding of the improvement. Therefore, we believe the \$11 million is excess to the fiscal year 1991 needs and could be rescinded.

According to the project manager, the \$11 million will be needed in addition to the fiscal year 1992 request to fund the first 12 months of the program, regardless of when the contract is awarded. A project office estimate, based on one unnegotiated contractor proposal, shows that \$77.5 million will be required for the first 12 months. However, the deputy project manager acknowledged that the estimate could change upon negotiation of the contract, and he suggested restricting obligational authority for \$11 million of the fiscal year 1992 request until the Army knows the actual contract cost. As stated earlier, in our opinion, obligational authority for the entire TOW sight improvement program could be restricted pending resolution of the various policy options.

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## Multiple Launch Rocket System

The Multiple Launch Rocket System (MLRS) has a self-propelled rocket launcher designed to provide a high volume of fire in a short period of time. It is mounted on a derivative of the Bradley Fighting Vehicle, and it requires three crew members. The system is used in counter fire, air defense suppression, and armor defeating roles.

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## Results of Analysis

The Army requested \$228.4 million for fiscal year 1992 for MLRS—\$178.2 million for 43 launchers, \$3 million for procurement of advance materials, \$36.9 million for launcher modifications, \$8.2 million for development of fire control system improvements, and \$2.1 million to maintain a “warm base” production line for MLRS rockets. The request could be reduced by \$5.1 million—\$3 million of the \$8.2 million in research and development funds because delaying award of the fire control system contract appears more prudent than presently planned and \$2.1 million because warm base production funds are not needed for fiscal year 1992.

## Improved Fire Control System

The Army plans to replace certain circuits in the launcher’s fire control system because of obsolescence. It requested \$8.2 million for this task—\$5.2 million for activities leading to contract award and \$3 million to award a fiscal year 1992 development contract. We believe that the Army’s \$3 million request for awarding the development contract could be postponed because a project office analysis concluded that following normal acquisition procedures would not permit awarding the contract before February 1993.

Although the project manager has recently accelerated the program schedule to permit award in August 1992, a program management official told us that there is moderate risk associated with being able to award the contract in August 1992 because many development steps have been accelerated.

According to the deputy project manager, delaying contract award could possibly increase future retrofit costs and delay fielding of the improvement. However, delaying the contract award until early fiscal year 1993 would reduce risk and, according to the program management official, would not impact the program.

## Warm Production Base

The Army requested \$2.1 million to maintain a warm production base for rockets in fiscal year 1992. Current MLRS production is scheduled through January 1993. According to a project management official, the Army plans to use fiscal year 1991 Operation Desert Shield/Desert

Storm supplemental funding to extend production for another 12 months. Because rocket production will extend into fiscal year 1994, the Army's request of \$2.1 million to maintain a warm production base for rockets in fiscal year 1992 is not needed.

The project manager agreed, but he would like to apply the funding toward extending production for another year. However, the funding is not being requested for that purpose.

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## Army Tactical Missile System

The Army Tactical Missile System (ATACMS) is a surface-to-surface missile capable of destroying targets in the rear area of an enemy's defense. The ATACMS missiles are fired from a MLRS modified launcher. The missiles are intended for use primarily against surface-to-surface missile sites; air defense systems; command, control, and communication sites; and other high-value military targets.

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## Results of Analysis

The Army requested \$174.9 million for fiscal year 1992 for ATACMS—\$150.9 million for 300 missiles and associated engineering and administrative support services and \$24 million for advance procurement. The request could be reduced by \$4.4 million because the Army overstated the amount required for fuzes.

A program management official told us that the fiscal year 1992 budget request mistakenly included fuzes twice, once in the primary request and again in the advance procurement request. This official told us that the excess funds will be needed for projected funding shortfalls in production engineering support services. However, the funds are not being requested for that purpose.

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## Advanced Antitank Weapon System-Medium

The Advanced Antitank Weapon System-Medium (AAWS-M) is designed to be a medium-range, one-person portable antiarmor system for use in rapid deployment operations, rough terrain, and air assault operations. It is intended to defeat tanks and other targets expected on the battlefield of the 1990s, and it will replace the Dragon weapon system in the Army and the Marine Corps inventories. The system will consist of a missile; an expendable container and launch tube, which houses the missile; and a reusable command and launch unit for target acquisition and surveillance.

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**Results of Analysis**

The Army requested \$120.4 million for fiscal year 1992 to support the AAWS-M program—\$49.5 million for research and development and \$70.9 million for advance procurement. It later amended its request to \$120.4 million for research and development. We did not identify a specific reduction for fiscal year 1992, but about \$4.4 million could be rescinded from the fiscal year 1991 appropriation.

The Congress provided about \$15.6 million in advance procurement funding for the AAWS-M in fiscal year 1991 to purchase long-lead items for initiation of production. However, in March 1991, the Army restructured the AAWS-M program to extend the development effort and declared the \$15.6 million as excess because production was delayed. As a result, the Office of the Secretary of Defense obtained congressional approval to reprogram \$11.2 million of the funds. It also requested authority to reprogram the remaining \$4.4 million; however, according to an Army budget official, that request has not been approved. Therefore, the \$4.4 million is available for rescission.

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**Operation Desert  
Shield/Desert Storm  
Supplemental**

The Congress appropriated \$539.5 million in fiscal year 1991 supplemental funding for five Army missile systems to replace missiles expended during Operation Desert Shield/Desert Storm.

Our review disclosed that the missile quantities authorized by this appropriation exceed the quantities of missiles fired in anger for most systems. (See table I.1.) However, at this time, the Army has been unable to determine other losses such as those fired for training purposes, those damaged in shipping and handling, and those rendered ineffective by environmental conditions. According to an official from the Office of the Deputy Chief of Staff for Operations and Plans, total losses will not be known until November 1991, when all missiles have been returned to the United States, inventoried, and inspected.

**Appendix I  
Potential Reductions and Rescissions to  
Army Missile Programs**

**Table I.1: Fiscal Year 1991 Supplemental  
Appropriation for Operation Desert  
Shield/Desert Storm and Quantities Fired  
in Anger**

Missile system	Fiscal year 1991 supplemental		Quantity fired in anger <sup>a</sup>
	Amount appropriated	Quantity authorized	
Patriot	\$166.2 <sup>b</sup>	283	158
Hellfire	86.6	3,150	2,876
TOW	84.8	4,500	1,426
MLRS	151.9	20,286	9,660
ATACMS	50.0	32	32

<sup>a</sup>This data was provided by the Army's Office of the Deputy Chief of Staff for Operations and Plans and is as of April 16, 1991.

<sup>b</sup>The total Operation Desert Shield/Desert Storm supplemental appropriation for Patriot was \$312.4 million of which \$166.2 million was for procurement of replacement missiles.

Because total actual losses may be less than the quantities being procured, any excess quantities could be used to offset the fiscal year 1992 request or future requests for the missiles. The Army has exercised contract options to procure the authorized quantity of TOW and Patriot missiles. It plans to use the supplemental appropriations for Hellfire to buy interim improved and optimized Hellfire missiles and the supplemental appropriations for MLRS to execute the fourth year of the multiyear contract.

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# Major Contributors to This Report

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**National Security and  
International Affairs  
Division, Washington,  
D.C.**

Henry L. Hinton, Associate Director  
Raymond Dunham, Assistant Director

---

**Atlanta Regional  
Office**

Thomas W. Gilliam, Senior Evaluator-in-Charge  
James H. Beard, Site Senior  
Mark A. Lambert, Evaluator  
Leon S. Gill, Evaluator  
Troy D. Thompson, Evaluator

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