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September 30, 1992

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 justifications for the fiscal year 1993 budget requests of $1.7 billion for the following 13 missile systems procured by the Army: the Hellfire Optimized Missile System (HOMS); the Multiple Launch Rocket System (MLRS); the Army Tactical Missile System (ATACMS); the Tube-Launched, Optically-tracked, Wire-guided Missile System (TOW); the Patriot; the Javelin; the Extended Range Interceptor Technology (ERINT) program; the Theater High Altitude Area Defense System and related Ground Based Radar; the Corps Surface-to-Air Missile; the Brilliant Antitank Weapon; the Avenger; and the Stinger. We also reviewed the Navy's fiscal year 1993 requests of $50.5 million for the HOMS and $23.9 million for the TOW for the Marine Corps. In addition, we reviewed selected segments of appropriations for prior years, including the fiscal year 1991 Operation Desert Shield/Desert Storm supplemental appropriation, to determine whether unused funds could be rescinded. In September 1992, we briefed your staffs on the results of our review. This report summarizes those results.

As shown in table 1, we identified $47.4 million in potential reductions and rescissions to 5 of the 13 missile programs we reviewed: $22.2 million in potential reductions to the fiscal year 1993 requests for 2 systems, $17.8 million in potential rescissions from the fiscal year 1992 appropriation for 2 systems, and $7.4 million in potential rescissions from the fiscal year 1991 Operation Desert Shield/Desert Storm supplemental appropriation for 1 system.

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

Dollars in millions

Missile system	Fiscal year 1993	Fiscal year 1992	Fiscal year 1991	Total
Hellfire	$20.0[a]	0	0	**$20.0**
MLRS	2.2	0	0	**2.2**
ATACMS	0	$1.5	0	**1.5**
TOW	0	16.3[b]	0	**16.3**
Patriot	0	0	$7.4	**7.4**
Total	**$22.2**	**$17.8**	**$7.4**	**$47.4**

Note: The identified reductions and rescissions are in Army procurement funds unless otherwise noted.

[a]Includes $10.2 million requested by the Navy.

[b]Research and development funds.

These reductions and rescissions are possible because (1) requirements are questionable or have been reduced, (2) costs are less than anticipated, and (3) more current information indicates that decreases are possible. We found no potential reductions or rescissions for eight of the missile programs we reviewed. However, we identified issues concerning two programs—the Javelin and the ERINT—that are important to the appropriation deliberations. These issues relate to (1) whether the advance procurement funding for the Javelin will be needed and (2) whether, if appropriated, the total funding requested for ERINT will be used for the ERINT program. Details regarding the potential reductions, rescissions, and the other issues are provided in appendix I.

Scope and Methodology

We performed our work at the U.S. Army Missile Command and the Strategic Defense Command, Huntsville, Alabama. We examined selected aspects of the budget justifications provided by the Army, Navy, and Marine Corps for procurement and research and development funding requested for 13 Army missile systems.

In evaluating the budget requests, we examined (1) production plans, delivery plans, and improvement plans to determine whether 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 Army'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

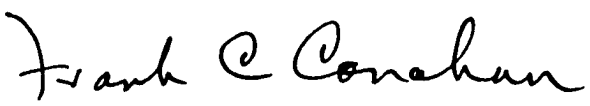
funds and the plans to obligate these funds. However, we did not examine each of these aspects for all weapon systems. Rather, we tailored our review to focus on identifying items that appeared to have the most potential for reduction. In many instances, we relied on testimonial evidence because it was the only evidence available. However, when possible, 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 1992 in accordance with generally accepted government auditing standards.

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

We are sending copies of this report to the Chairmen and Ranking Minority Members of the Senate and House Committees on Armed Services and on Appropriations; the Secretaries of Defense, the Army, and the Navy; the Director of the Strategic Defense Initiative Organization; the Director of the Office of Management and Budget; and other interested parties.

This report was prepared under the direction of Henry L. Hinton, Jr., 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.



Frank C. Conahan
Assistant Comptroller General

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Abbreviations

ATACMS	Army Tactical Missile System
ERINT	Extended Range Interceptor Technology
HOMS	Hellfire Optimized Missile System
MLRS	Multiple Launch Rocket System
TOW	Tube-launched, Optically-tracked, Wire-guided

Potential Reductions and Rescissions to Army and Navy Missile Programs

We identified potential reductions and rescissions of $47.4 million from the Army's and the Navy's missile programs for 5 of the 13 selected systems: $22.2 million in potential reductions from the fiscal year 1993 request, $17.8 million in potential rescissions from the fiscal year 1992 appropriation, and $7.4 million in potential rescissions from the fiscal year 1991 Desert Shield/Desert Storm supplemental appropriation. In addition, although we did not identify potential reductions, we identified issues that could affect fiscal year 1993 funding needs for two other systems. The following sections provide brief descriptions of the missile systems and the results of our analysis of each system.

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 the target that has been illuminated by ground observers, attack helicopters, or other helicopters. The Army procures Hellfire missiles for its use and for the Marine Corps (based on a Navy budget request).

The Army is currently developing and testing an improved missile—the Hellfire Optimized Missile System (HOMS)—designed to have a more capable warhead and to be more effective in the presence of countermeasures. According to a program management official, the Army is experiencing developmental problems with the missile; therefore, it delayed HOMS production until March 1993, after live-fire tests are scheduled to be completed.

Results of Analysis

The Army and the Navy requested a total of $153.9 million in fiscal year 1993 to buy the HOMS and related equipment—$103.4 million for 2,158 Army missiles and $50.5 million for 1,000 Navy missiles—and $5 million for research and development of the Army's insensitive munitions program. Our review indicated that the fiscal year 1993 procurement requests could be reduced by $20 million because on the basis of their originally planned procurement quantities, the Army will have $9.8 million more than needed and the Navy will have $10.2 million more than needed.

The Army and the Navy have not yet purchased HOMS missiles, but, according to Hellfire program management officials, all previously planned procurements and the procurement requested in fiscal year 1993 will be bought under a fiscal year 1993 option to the development contract.

Through fiscal year 1993, the planned procurements are to total 3,738 missiles. Based on the development contract option, the missile hardware[1] for that quantity can be purchased for a maximum unit price of $37,495[2] each, or a total hardware cost of $140.2 million—$97.7 million for the Army and $42.5 million for the Navy.

However, the missile hardware portions of the appropriations provided for the Hellfire for fiscal years 1991 and 1992 and the requested fiscal year 1993 funding total $160.2 million—$107.5 million for the Army and $52.7 million for the Navy, as shown in table I.1.

Table I.1: Planned Procurements and Hardware Funds Provided or Requested for HOMS

Dollars in millions

Service	Fiscal year	Quantity	Amount	Comments
Army				
	1991	335	$21.0	The $21 million is the amount designated for HOMS hardware in the Operation Desert Shield/Desert Storm supplemental appropriation.
	1992	112	3.7	The $3.7 million is the amount provided for missile hardware costs only, rather than total missile costs.
	1993	2,158	82.8	The $82.8 million is the amount requested for missile hardware costs only, rather than total missile costs.
Subtotal		**2,605**	**$107.5**	
Navy				
	1991	133	9.3	The $9.3 million is the Army's estimate of the amount provided for missile hardware costs.
	1993	1,000	43.4	The $43.4 million is the amount requested for missile hardware costs only, rather than total missile costs.
Subtotal		**1,133**	**52.7**	
Total		**3,738**	**$160.2**	

The Deputy Project Manager generally agreed with the methodology we used in our computations. However, he said funding will be required for an

[1]We reviewed the total program cost. However, in this computation, we focused on hardware cost in order to have comparable figures.

[2]This price includes an Army estimate for a safe and arming device and first article testing, not included in the priced option.

initial production facilities contract to (1) keep the contractor's team together, (2) perform production prove-out, and (3) solve a few production problems. But he agreed that (1) the Army had not previously planned to award a facilities contract, (2) the contractor would be required to perform at the option price without the contract, and (3) he did not know the cost of such a contract. He also acknowledged that the priced option for full-rate production should decrease because of the facilities contract but could not reliably estimate the amount of the decrease. Navy officials believe the Hellfire missiles will cost more than the requested amount, but did not have support for their position.

Multiple Launch Rocket System

The Multiple Launch Rocket System (MLRS) consists of a tracked self-propelled launcher loader, disposable launch pods, and fire control equipment. The system is 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 requires three crew members to operate. The system is used in counterfire, air defense suppression, and armor-defeating roles.

Results of Analysis

The Army requested $223.1 million for fiscal year 1993 for the MLRS—$197.3 million for 44 launchers, $11.4 million for development of fire control system improvements, $12.2 million for launcher modifications, and $2.2 million to maintain the production base for MLRS rockets. Our review indicated that the $2.2 million request to maintain the production base could be denied because current MLRS rocket production will extend through fiscal year 1993.

The MLRS project manager agreed that the $2.2 million is not needed for the requested purpose. However, he would like to reprogram the $2.2 million for use in procuring MLRS rockets in fiscal year 1993. But the Army did not request funding for MLRS rockets in the fiscal year 1993 budget request. In addition, according to Army documents prepared in support of the fiscal year 1993 budget request, inventories already on hand and on order exceed requirements without a fiscal year 1993 program.

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.

Results of Analysis

The Army requested $188.2 million in fiscal year 1993 for ATACMS missiles and related equipment. We did not identify any potential reductions in that request, but our review did indicate that $1.5 million of the Army's fiscal year 1992 appropriation could be rescinded.

The fiscal year 1992 appropriation for ATACMS included about $5.7 million planned for the missile's fuzes, detonators, and associated technical data packages. The Army awarded the contract for fuzes and associated items for $3.3 million, or $2.4 million less than planned. However, according to an ATACMS program management official, $0.9 million of the $2.4 million has been obligated for a classified modification. The remaining $1.5 million could therefore be rescinded.

The program management official agreed that the fuzes cost $2.4 million less than planned and that $1.5 million remained unobligated at this time. However, she wanted to use the $1.5 million for unfunded engineering change proposals. But the funds were not originally requested for this purpose.

TOW

The TOW missile 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 cross hairs 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 Wheeled Vehicle, and the Cobra helicopter. The Army is currently producing two versions of the TOW missile—the TOW 2A and the TOW 2B. The TOW 2B missile is designed to improve the TOW 2A's lethality. A new warhead, a new fuze, and new software will make it a fly-over-shoot-down missile. The Army procures the TOW missile for its use and for the Marine Corps (based on a Navy budget request).

Results of Analysis

For fiscal year 1993, the Army and the Marine Corps requested a total of $207 million to buy 10,378 TOW missiles and related equipment—$183.1 million to buy 9,440 TOW 2B missiles for the Army and $23.9 million to buy 938 TOW 2A missiles for the Marine Corps. The Army also requested $5 million for TOW 2B warhead modifications. We did not identify any specific reductions in the fiscal year 1993 requests, but our review did indicate that $16.3 million of the Army's fiscal year 1992 research and development appropriation could be rescinded.

The Army received $16.3 million in fiscal year 1992 appropriations for the TOW sight improvement program. However, after requesting fiscal year 1992 funding, the Army terminated the program. Since the program has been terminated, the $16.3 million could be rescinded.

The Project Manager agreed that the funding would not be used for the TOW sight improvement program. He said that the Army is seeking congressional approval to reprogram the $16.3 million to initiate an improved target acquisition system program. However, the Army has not yet received the required approval.

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. The Patriot was originally intended for use primarily against enemy aircraft flying at high to medium altitudes; however, some of the missiles have been modified to include capability against certain tactical missile threats. It is designed to protect ground forces and other high value targets such as air bases in rear combat areas.

Results of Analysis

The Army requested $97.2 million for fiscal year 1993 to support Patriot requirements—$25.2 million to provide technical support for the fiscal year 1991 missile buy, $10 million for fire unit computer modifications, and $62 million to support the Patriot theater missile defense program. We did not identify specific reductions to the fiscal year 1993 request, but our review indicated that $7.4 million could be rescinded from the fiscal year 1991 Desert Shield/Desert Storm supplemental appropriation because the Army does not need the funds for the purpose appropriated.

The Army received a fiscal year 1991 supplemental appropriation of $114 million to upgrade Patriot missiles to include an antitactical missile

capability. According to Patriot program management officials, the missile upgrades cost $25.2 million less than appropriated. However, the Army has obligated $17.8 million to (1) purchase van-mounted tactical operations centers and (2) fund cost overruns for tactical trainer modifications. The remaining $7.4 million of the appropriation for missile upgrades could be rescinded.

The program management officials agreed that the $7.4 million is unobligated at this time. However, they said they would like to reprogram the funds for existing radar inventory improvements to correct a performance deficiency identified during Operation Desert Storm. But the Army did not request funds for the radar improvements and has not justified the funds for this purpose.

Javelin

The Javelin is designed to be a medium-range, 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, and it will replace the Dragon weapon system in the Army and 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.

Results of Analysis

The Army requested $109.7 million in fiscal year 1993 for the Javelin—$91.4 million for research and development and $18.3 million for advance procurement funds. The advance procurement funds are to permit procurement of long lead items for low-rate initial production, currently scheduled for fiscal year 1994.

We did not identify any potential reductions to the Army's request for the Javelin. However, as stated in our recent report on the Javelin system, the Army has encountered significant problems in developing an acceptable focal plane array missile seeker component, and the cost of producing the component remains uncertain.[3] Therefore, the Under Secretary of Defense for Acquisition established certain cost thresholds for the seeker and plans to review the program in early 1993 to determine whether the thresholds—which some Office of Secretary of Defense analysts consider optimistic—are being met. If not, the Under Secretary of Defense for Acquisition plans to evaluate alternatives to the Javelin program, such as

[3]Javelin Antitank Weapon: Quantity and Identification Capability Need to Be Reassessed (GAO/NSIAD-92-330, Sept. 14, 1992).

an earlier competing concept for the Javelin or upgrades to the existing Dragon II system that the Javelin is expected to replace.

Extended Range Interceptor Technology

The Extended Range Interceptor Technology (ERINT) is being designed primarily to intercept missiles, but it will also have capability against aircraft. The ERINT would replace or complement Patriot missiles; it would be fired from Patriot launchers; and it would destroy targets by colliding with them, rather than using an explosive warhead. The system is currently undergoing flight tests, and an engineering and manufacturing development decision is scheduled for September 1993.

Results of Analysis

According to ERINT project management officials, the Strategic Defense Initiative Organization requested $135 million in ERINT research and development funds for fiscal year 1993—approximately $105 million to continue the current ERINT development program and Patriot integration efforts and $30 million to begin preparation for an ERINT engineering and manufacturing development decision and effort.

According to a project management official, the Strategic Defense Initiative Organization has requested that the ERINT project office revise the fiscal year 1993 program based on funding of $125 million rather than $135 million, but a decision has not been made as to which amount ERINT will receive. Therefore, there is uncertainty regarding the planned use of $10 million of the $135 million requested for ERINT.

The Strategic Defense Initiative Organization officials agreed that ERINT would receive less than the requested $135 million, but they did not know the specific amount. They also said that the reduced funding allocation does not indicate a downgrading of the ERINT program's priority and that the program would be fully funded based on revised schedules.

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