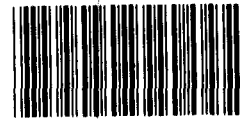


September 1991

# ARMY WEAPONS

## Acquisition of Interim Improved Hellfire Missiles Not Justified



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**National Security and  
International Affairs Division**

B-241507

September 6, 1991

The Honorable Richard B. Cheney  
The Secretary of Defense

Dear Mr. Secretary:

The purpose of this report is to inform you that, despite your May 1991 comments on our January 1991 classified report on the status of improvements to the Hellfire missile system, the Army intends to buy interim improved Hellfire missiles with a portion of the fiscal year 1991 supplemental appropriation for Operation Desert Shield/Desert Storm. In our opinion, this action would not be the most effective use of appropriated defense funds.

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**Background**

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 from as far away as 6,500 meters 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, the attack helicopter, or other helicopters. After reaching the target, the missile uses a high-explosive charge, which, upon striking the target, produces a high velocity jet of molten metal to penetrate the tank.

The Army began developing the Hellfire missile in 1972; production of the missile began in 1982; and the missile was first fielded in 1985. However, because of changes in the capability of Soviet tanks, the Army recognized that the basic Hellfire missile needed improvement. Therefore, it has developed or is developing three improved versions of the Hellfire. The Army is producing the first improved version—called the “interim improved Hellfire missile”—which is designed to defeat more formidable tanks than the basic missile. According to the Hellfire program office, the Army will have more than 32,000 basic and interim improved Hellfire missiles in its inventory by February 1993, when missile deliveries under the existing contracts are scheduled to be completed.

The second improved version—called the “Hellfire optimized missile”—is scheduled for limited production in June 1992, and it is designed to further improve lethality and increase the missile's effectiveness in a

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countermeasure or obscured environment. The third improved version—called the “Longbow”—uses radar rather than a laser to acquire targets and guide the missile.

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## Results in Brief

The Congress provided funding for Hellfire missiles in the fiscal year 1991 supplemental appropriation for Operation Desert Shield/Desert Storm. Although the Department of Defense informed us that the appropriation would be used to purchase the more capable Hellfire optimized missile, Hellfire program officials told us that the Army is planning to use most of the supplemental appropriation for Hellfire to purchase the interim improved Hellfire missile.

We believe that the planned purchase of interim improved Hellfire missiles would not be the most effective use of these 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.

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## Appropriation and Planned Usage

The Congress provided \$86.6 million to buy 3,150 Hellfire missiles in the fiscal year 1991 supplemental appropriation for Operation Desert Shield/Desert Storm. In early May 1991, a program management official told us that the Army planned to use the supplemental appropriation to buy optimized missiles during fiscal years 1992 and 1993. According to this official, the Army planned to use \$2.4 million of the supplemental appropriation to purchase 37 optimized missiles in fiscal year 1992, and the remainder would be used to purchase optimized missiles in fiscal year 1993.

This position appeared consistent with the Department of Defense’s response to our January 1991 report on Hellfire. In a May 1991 letter, a Deputy Director of Defense Research and Engineering stated, at your direction, that (1) all Hellfire missile procurements were under contract except for the one resulting from the Operation Desert Shield/Desert Storm supplemental appropriation and (2) the Army was planning to use the supplemental funding to procure the Hellfire optimized missile, which is designed to be more capable than the interim improved missile.

However, a Hellfire program office official recently informed us that the Army intended to buy 2,174 interim improved missiles and associated

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support with \$62.8 million of the appropriation and 335 optimized missiles with the remaining \$23.8 million. A Department of the Army official said that the Army had changed its plans because of its desire to more quickly replace the missiles expended during Operation Desert Storm. He also said that the optimized missile would not enter the inventory until mid-1993 and a large quantity would not be available until at least mid-1994. But he did not explain what factors had changed since the Department of Defense's May 1991 letter to justify the need to buy the less capable interim missiles.

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## Interim Improved Missile's Shortfalls

In our January 1991 report on the status of improvements to the Hellfire missile system, we concluded that the interim improved missile had performance shortfalls. Although Army tests have shown that the 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 is 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. Because of these shortfalls, we recommended that the Army postpone further procurement of interim improved missiles.

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## Optimized Missile's Superiority Over the Interim Improved Missile

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's lighter weight should enhance aircraft performance.

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## Recommendation

We recommend that you 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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## Scope and Methodology

We discovered the Army's change in plans regarding use of the supplemental funding during the course of another review—the review of the Army's fiscal year 1992 budget request for missiles—and conducted our work during that review. We discussed the plans to use the supplemental appropriation and the rationale for changing plans with personnel from the Department of Defense and the Department of the Army. We also updated selected information on missile performance and inventory information through discussions with U.S. Army Missile Command officials.

We did not obtain written agency comments on this report. However, we discussed its contents with officials from the Office of the Secretary of Defense and the Department of the Army and have incorporated their comments where appropriate. We conducted our review from March through August 1991 in accordance with generally accepted government auditing standards.

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

We are sending copies of this report to the Chairmen of the above Committees and of the Senate and House Committees on Armed Services, the Secretary of 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 I.

Sincerely yours,



Frank C. Conahan  
Assistant Comptroller General



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