

**Audit**



**Report**

OFFICE OF THE INSPECTOR GENERAL

**REVIEW OF THE M1A2 ABRAMS TANK PROGRAM AS A  
PART OF THE AUDIT OF THE EFFECTIVENESS OF THE  
DEFENSE ACQUISITION BOARD REVIEW  
PROCESS -- FY 1992**

Report No. 92-104

June 16, 1992

**Department of Defense**

**The following acronyms are used in this report.**

ASM.....Armored Systems Modernization  
DAB.....Defense Acquisition Board  
FMS.....Foreign Military Sales  
GAO.....General Accounting Office  
IPM1.....Improved Performance M1



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DEPARTMENT OF DEFENSE  
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ARLINGTON, VIRGINIA 22202-2884



June 16, 1992

MEMORANDUM FOR UNDER SECRETARY OF DEFENSE FOR ACQUISITION

SUBJECT: Audit Report on the Review of the M1A2 ABRAMS Tank Program as a Part of the Audit of the Effectiveness of the Defense Acquisition Board Review Process--FY 1992 (Report No. 92-104)

We are providing this final report for your information and use. On April 7, 1992, a draft of this report was provided to the Under Secretary of Defense for Acquisition for comments. As of June 8, 1992, we had not received responses to the draft report. DoD Directive 7650.3 requires that all audit recommendations be resolved promptly. Therefore, the Under Secretary of Defense for Acquisition must provide comments on the recommendations and the monetary benefits by August 17, 1992. The comments must indicate concurrence or nonconcurrence in the findings and recommendations addressed to you. If appropriate, you may propose alternative methods to accomplish desired improvements. Recommendations are subject to resolution in accordance with DoD Directive 7650.3 in the event of nonconcurrence or failure to comment.

We appreciate the courtesies extended to the audit staff. If you have any questions on this audit, please contact Mr. Russell A. Rau, Program Director, at (703) 693-0655 (DSN 223-0655) or Mr. D. Michael Welborn, Project Manager, at (703) 694-3459 (DSN 224-3459). Appendix G lists the planned distribution.

Robert J. Lieberman  
Assistant Inspector General  
for Auditing

Enclosure

cc:

Secretary of the Army  
Secretary of the Navy  
Assistant Secretary of the Army (Research,  
Development and Acquisition)



Office of the Inspector General

AUDIT REPORT NO. 92-104  
(Project No. 1AE-0036.02)

June 16, 1992

REVIEW OF THE M1A2 ABRAMS TANK PROGRAM AS A PART OF  
THE AUDIT OF THE EFFECTIVENESS OF THE DEFENSE  
ACQUISITION BOARD REVIEW PROCESS--FY 1992

EXECUTIVE SUMMARY

**Introduction.** The ABRAMS tank is the Army's primary ground combat weapon system. In January 1989, the Deputy Secretary of Defense granted the Army permission to begin the M1A2 development program to provide the ABRAMS tank with improved fighting capability, lethality, and survivability. However, the Assistant Secretary of the Army (Research, Development and Acquisition) curtailed the M1A2 production program in April 1990 because of budget reductions. In September 1991, the Under Secretary of Defense for Acquisition delegated the decision on a single low-rate initial production buy of 62 M1A2 tanks to the Army. In December 1991, the Secretary of Defense proposed rescinding the \$225 million for the remanufacture program that Congress approved in the FY 1992 Department of Defense Appropriations Act for remanufacturing earlier M1 tanks to the M1A2 configuration. Also, procurement of 60 additional M1A2 tanks was canceled at the same time by the Secretary of Defense. On May 18, 1992, the Army modified the M1A1 contract to produce 62 M1A2 tanks instead of 62 M1A1 tanks.

**Objectives.** Our overall objective was to evaluate the Defense Acquisition Board (DAB) review process for acquisition of major Defense acquisition programs. Also, we reviewed applicable internal controls related to compliance with DoD directives, instructions, and policy. We will address the overall effectiveness of the DAB review process and internal controls in a separate summary report.

**Audit Results.** This review disclosed the following conditions.

- o ABRAMS tanks in inventory and on contract exceeded requirements. As a result, plans to acquire an additional 18 M1A1 tanks are unjustified. Also, exercising an option on the existing M1A1 procurement contract to produce the last 62 units in the M1A2 configuration has not been adequately justified. The Army can potentially save \$24.5 million, improve industrial mobilization capabilities, and acquire tanks suitable for entry into service by producing the units in the M1A1 configuration (Finding A).

- o A DAB Milestone IV, Major Modification, review had not been scheduled for the ABRAMS tank program to assess alternatives for upgrading earlier configurations of M1 and IPM1 tanks. The Army extensively documented operational requirements that

supported approval of the incorporation of the M1A1 configuration, and subsequently the M1A2 configuration, into production before the M1A2 production program was curtailed in April 1990. However, the Army had not requested a DAB Milestone IV review of alternatives for upgrading existing tanks, including affordability assessments and Joint Requirements Oversight Council evaluation of an updated and validated System Threat Assessment Report. Documentation required to support program decisions was also not prepared (Finding B).

**Internal Controls.** If properly implemented, existing internal management controls would have been adequate to identify and correct the deficiencies noted in this report. Part I discusses the assessed controls.

**Potential Benefits of Audit.** The estimated monetary benefits that can be realized by implementing our recommendations are \$87.5 million (Appendix E).

**Summary of Recommendations.** We recommended that plans to modify the FY 1991 M1A1 tank production contract to substitute the production of 62 M1A2 tanks for 62 M1A1 tanks be canceled and that a contract for the production of 18 M1A1 tanks using congressional supplemental funding to the FY 1992 Appropriations Act not be awarded. We also recommended that a Milestone IV review of the ABRAMS tank program be conducted.

**Management Comments.** On May 6, 1992, we sent a memorandum (Appendix C) to the Under Secretary of Defense for Acquisition. We requested that the Under Secretary expedite comments on the draft report because the contracting process for the 62 M1A2 tanks and the 18 M1A1 tanks would be completed earlier than anticipated (see "Management Actions Evaluated" in Part II). No comments to the draft report or the memorandum were received before the contract modification for the 62 M1A2 tanks was executed on May 18, 1992, and no management action was initiated to mediate the audit results.

We request the Under Secretary of Defense for Acquisition to provide comments to this final report by August 17, 1992.

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This report was prepared by the Acquisition Management Directorate, Office of the Assistant Inspector General for Auditing, DoD. Copies of the report can be obtained from the Information Officer, Audit Planning Technical Support Directorate, (703) 614-6303.



## PART I - INTRODUCTION

### Background

The ABRAMS tank is the Army's primary ground combat weapon system for destroying enemy forces using mobility, firepower, and shock action. In July 1972, the Secretary of the Army directed that a program be started to develop the ABRAMS tank. In February 1980, the first production deliveries of the M1 tank began. To date, the Army has fielded two improved versions of the M1: the Improved Performance M1 (IPM1) and the M1A1. In addition, the Army has funded development and pilot production of the M1A2 variant. The improvements included in the IPM1, M1A1, and M1A2 configurations of the basic M1 tank are presented in Appendix A. The Marine Corps also uses the M1A1 common tank described in Appendix A.

The March 19, 1991, Acquisition Program Baseline included a Defense Acquisition Board (DAB) review of the low-rate initial production decision to be made in January 1992. However, the DAB review was waived by the Under Secretary of Defense for Acquisition on September 17, 1991. The Under Secretary stated that the DAB review was not warranted since the 62 M1A2 tanks were only going to be used for verifying the production process and for test and evaluation purposes. However, the Under Secretary stated that a review of the current M1A2 contract costs and the rationale and plans for proceeding beyond the completion of the current test phase was needed.

Congress, through the FY 1991 and FY 1992 Appropriation Acts, provided \$240 million for production of 60 additional M1A2 tanks to replace the 60 M1A1 tanks transferred to the Marine Corps. Additionally, on November 27, 1991, Congress appropriated emergency supplemental funding of \$63 million for an additional 18 M1A1 tanks to replace those tanks lost in Operation Desert Storm. Also, Congress appropriated \$225 million in FY 1992 to remanufacture earlier configuration tanks.

Further, because of funding reductions, the changing threat, and congressional direction, the Army restructured its Armored Systems Modernization (ASM) program. The ASM program includes modernizing the six top priority systems in the armored force for the next century. The following five heavy protection level variants were to be developed on a common chassis: the Block III tank, Advanced Field Artillery System, Future Armored Resupply Vehicle-Ammunition, Combat Mobility Vehicle, and Future Infantry Fighting Vehicle. The Line-of-Sight Antitank, a medium level protection variant, will use the Bradley chassis. The Advanced Field Artillery System and the Future Armored Resupply Vehicle-Ammunition have become the lead systems for the heavy chassis vehicles, while the Block III tank, Combat Mobility Vehicle, and Future Infantry Fighting Vehicle have been deferred

beyond FY 1997. The Line-of-Sight Antitank required reprogramming in FY 1991, resulting in a delayed Milestone II until FY 1993.

In July 1990, partly to provide additional support to the U.S. tank industrial base, the United States agreed to sell 465 M1A2 tanks to Saudi Arabia.

**Program Budget Decision No. 716.** On December 17, 1991, the Deputy Secretary of Defense approved Program Budget Decision No. 716, which proposed rescinding congressionally authorized funding for the additional 60 M1A2 tanks and the M1 remanufacture program. The Deputy Secretary's rationale for the decision was that the Army neither required new M1A2 tanks nor planned to continue an M1 remanufacture program beyond the one year approved by Congress. Program Budget Decision No. 716 does not rescind funding for the additional 18 M1A1 tanks lost in Operation Desert Storm and does not address modification of the existing M1A1 contract to procure the last 62 units in the M1A2 configuration. The Army appealed the Program Budget Decision to the Secretary of Defense; however, on December 19, 1991, the Secretary of Defense denied the Army the remanufacture program by supporting the final version of the Program Budget Decision.

A complete chronology of events that affect the M1A2 ABRAMS tank program is in Appendix B.

### **Objective**

Our overall objective was to evaluate the DAB review process for acquisition of major Defense acquisition programs. The review included assessments of the adequacy of the information the Military Departments and the Defense agencies provided to the DAB in support of major milestones and program reviews and compliance with DoD acquisition policy. We expanded our review to include the basis for waiving DAB oversight in the form of a program review before initiating limited production and the adequacy of DAB oversight of the planned remanufacture of existing M1 and IPM1 tanks to the M1A2 configuration. We evaluated the ABRAMS tank program's compliance with applicable DoD directives and instructions. Our overall evaluations of the effectiveness of the DAB process and internal controls will be addressed in our summary report.

### **Scope**

To accomplish our objectives, we requested and reviewed reports that the Army was required to prepare and submit to the Under Secretary of Defense for Acquisition as part of the DAB review process prescribed in DoD Directive 5000.1 and DoD Instruction 5000.2. We also requested and reviewed data from November 1985 to November 1991 that supported the documentation that the Army was required to prepare and submit as part of the DAB review process. We selected the M1A2 program for review

because it was originally scheduled for a DAB program review in January 1992; however, as discussed in this report, the DAB review was waived. We performed this program results audit from September 23, 1991, through February 28, 1992. The audit was conducted in accordance with auditing standards issued by the Comptroller General of the United States as implemented by the Inspector General, DoD, and accordingly included such tests of internal controls as were considered necessary. Activities visited or contacted are in Appendix F.

### Internal Controls

We evaluated the internal controls associated with the adequacy of data provided to the DAB as part of the M1A2 ABRAMS tank program review. The audit identified material control weaknesses as defined by Public Law 92-255, Office of Management and Budget Circular A-123, and DoD Directive 5010.38. However, the audit concluded that existing internal controls, if properly implemented, were adequate to prevent or detect the deficiencies identified in this report. When this audit began in September 1991, the M1A2 ABRAMS tank program was scheduled for a DAB milestone review in January 1992; but key documents that DoD Directive 5000.1 and DoD Instruction 5000.2, February 23, 1991, direct the Military Departments to prepare in support of major program and milestone reviews had not been and were not being prepared. Subsequently, because the DAB review was postponed, the need for the program office to prepare these key documents was deferred. On March 23, 1992, the Assistant Secretary of the Army (Research, Development and Acquisition) indicated in a memorandum to the Program Executive Officer of the Armored Systems Modernization Program that DAB approval of a restructured M1A2 program leading to a Milestone III review will be required if M1A2 conversion/upgrade is directed. If this occurs, DoD Directive 5000.1 and Instruction 5000.2 require that key documents be prepared to support the DAB review.

### Prior Audit and Other Reviews

The General Accounting Office (GAO) has issued two reports on the M1A2 ABRAMS tank program: GAO Report No. NSIAD-91-254 (OSD Case No. 8717), "Armored Systems Modernization: Program Inconsistent with Current Threat and Budgetary Constraints," July 29, 1991, and GAO Report No. NSIAD-90-57 (OSD Case No. 8113-A), "Abrams Tank: Block II Modifications Not Ready to Enter Production," February 28, 1990. These reports are summarized in Appendix D.

### Other Matters of Interest

On December 18, 1991, we briefed Army officials from the Program Executive Office and ABRAMS Program Office at the Army Tank-Automotive Command in Warren, Michigan, on our audit results concerning tank production exceeding requirements and the need for a DAB Milestone IV, Major Modification, review of the ABRAMS program. Because of the Deputy Secretary of Defense's decision

to approve Program Budget Decision No. 716, we deleted a recommendation to stop procurement of 60 additional ABRAMS M1A2 tanks in FY 1992.

## PART II - FINDINGS AND RECOMMENDATIONS

### A. PROCUREMENT OF TANKS IN EXCESS OF REQUIREMENTS

The Army had excess ABRAMS tanks in inventory and on contract relative to the requirements identified in the Future Years Defense Plan. Specifically, we determined that the total buy of 7,804 tanks for the ABRAMS program exceeded requirements by 281 units. Therefore, procurement of additional M1A1 tanks beyond those already on contract is not justified. Additionally, exercise of an option on the existing M1A1 procurement contract to produce the last 62 units in the M1A2 configuration was not adequately justified. The Army already has on contract 10 prototype and 5 pilot production M1A2 tanks and has not sufficiently supported the requirement for an additional 62 M1A2 tanks for the purposes of test and evaluation, training, industrial base, or support to Foreign Military Sales (FMS). The plans to use \$63 million for an additional 18 M1A1 tanks are unjustified. Also, the Army can potentially save at least \$24.5 million, improve industrial mobilization capabilities, and acquire tanks suitable for entry into service by producing the last 62 production units in the M1A1 versus M1A2 configuration.

### DISCUSSION OF DETAILS

#### Background

DoD Instruction 5000.2, part 15, refers to a business and technical management approach that is designed to achieve program objectives within imposed resource constraints as an acquisition strategy. Part 5, section A, of the Instruction states that the main goal in developing an acquisition strategy is to minimize the time and cost of satisfying an identified and justified need consistent with common sense, sound business practices, and policies. Activities and elements that are critical to the success of a program must be realized and addressed. These include identifying and documenting:

- o procurement and contracting,
- o requirements,
- o developmental and operational testing,
- o training,
- o affordability,
- o cost and operational effectiveness,
- o threat,
- o resources, and
- o production readiness and supportability.

In addition to accomplishing the above, sound management practices must be an integral part of directing each activity and element.

The Army awarded Contract DAAE07-89-C-R045 to General Dynamics Land Systems in December 1988 for the full-scale development and testing of the ABRAMS M1A2 tank. The cost-plus-fee<sup>1</sup> contract had a ceiling price of \$297.3 million and a \$402 million cost at completion, which was based on project office estimates as of October 31, 1991. Additionally, the Army had planned to extend the M1A2 full-scale engineering development contract by 18 months to cover additional research and development under a request for proposals for \$74.6 million. However, on December 19, 1991, the Secretary of Defense rescinded funding for continued M1A2 development by supporting a finalized version of Program Budget Decision No. 716.

On September 17, 1991, the Under Secretary of Defense for Acquisition issued a memorandum to the Assistant Secretary of the Army (Research, Development and Acquisition) approving the Army's request to waive a DAB review of the Army's plan to procure 62 ABRAMS M1A2 tanks. The tanks were the first low-rate initial production lot and were to be used for proving out the production process and for test and evaluation. The Under Secretary of Defense for Acquisition granted the Army's request with the consideration that this would be the only Army production. On November 27, 1991, Congress provided \$63 million in supplemental appropriations for the Army to procure 18 additional M1A1 tanks that would replace tanks lost or severely damaged during Operations Desert Shield and Desert Storm. Appendix B provides the M1 tank program chronology of recent events.

### Requirements

Since the start of the ABRAMS tank program, the tank program office has contracted to buy 7,804 tanks for the Army. If the M1A2 configuration is approved by the Army, the M1A2 program office will modify the FY 1991 production contract to substitute the production of 62 M1A2 tanks for 62 M1A1 tanks.

The schedule below shows that the projected force requirement for the Active Army can be met without the production of 18 new ABRAMS tanks as appropriated by Congress. The Army already has 281 excess M1 series tanks and, even after consideration of unfunded requirements for bridger and breacher vehicles, which can use the M1 chassis, the Army has 49 excess tanks. The 49 excess ABRAMS tanks are more than sufficient to cover the 18 losses in Operation Desert Storm for which Congress appropriated supplemental funding in FY 1992.

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<sup>1</sup> Cost line item numbers 0001 and 0006 are cost-plus-incentive-fee items. Cost line item numbers 0002 through 0005, 0007, 0008, and 0010 are cost-plus-fixed-fee items.

**ABRAMS TANK REQUIREMENTS**

Total Buy		7,804
Projected Force Requirement - Active and Reserve	7,523	
Less: National Guard Tanks	<u>58</u>	
Less: Projected Force Requirement - Active Army		<u>7,465</u>
Subtotal		339
Less: Tank Transfer to Marine Corps		60
Subtotal		279
Less: Desert Shield/Desert Storm Supplemental Package		<u>18</u>
Subtotal		261
Army Procurement Objective (Unfunded Requirement)		
Using M1 Chassis:		
Bridgers	106	
Breachers	<u>106</u>	
Less: Army Procurement Objective Using M1 Chassis		<u>212</u>
ABRAMS Tanks Above Projected Force Requirements		<u><u>49</u></u>

As of December 31, 1991, the projected "end state"<sup>2</sup> force requirement for the active duty Army is 7,465 tanks; however, these figures are constantly changing. The 58 National Guard tanks were funded by the National Guard, and these tanks are not included in the 7,804 tank contract total tracked by the Tank Program Office. "End state" for the ABRAMS tank will be early FY 1997. Also, as of November 26, 1991, the Army had an unfunded procurement objective of 212 bridgers and breachers (support assault vehicles) using an M1 chassis.

**M1A2 Procurement**

Our review of the ABRAMS program also concluded that the Army's planned acquisition of 62 M1A2 tanks was not justified based on requirements for test and evaluation, training, industrial base support, and Foreign Military Sales.

**Testing and evaluation.** The Army stated that the 62 M1A2 tanks were needed for testing and evaluation. However, the Army has not developed a test plan for use of these 62 tanks. Army Contract DAAE07-89-C-R045, modification number 00078, set aside two of the five production pilot vehicles to be used for Government testing. In addition, the Army has allocated 10 prototypes for testing the M1A2 configuration. The 10 M1A2 prototypes are located as follows:

- o one at White Sands Missile Range for electromagnetic interference testing and electromagnetic countermeasures testing;

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<sup>2</sup> The total number of ABRAMS tanks that will be available for use in the force.

- o three at Aberdeen Proving Ground for ballistic shock testing, auto and fire control testing, and Reliability, Availability and Maintainability testing;

- o five at Fort Hunter Liggett, which will be located at Fort Knox for Training/Test and Support Package; and

- o one at the General Dynamics Land Systems plant for future testing and enhancement of software integration systems.

The Army has not completed development of the M1A2 configuration of the ABRAMS tank; therefore, testing has been limited. Reliability, Availability and Maintainability Testing, Live Fire Testing, Initial Operational Test and Evaluation, and other test support of the M1A2 were required to support a Milestone III Full-Rate Production decision for the M1A2 tank. The testing completed through December 1991 included only Early User Test and Evaluation. The Army had planned to obtain authorization to initiate the FMS production scheduled to start in April 1993, after delivery of the 62 M1A2 tanks for Army testing. The Army issued a request for proposals, contract line item number 0011, for the full-scale development contract estimated for \$74.6 million for additional developmental effort. This request also proposed extending testing from February 1, 1992, through October 1, 1993, to support a Milestone III decision although no full-rate production is contemplated. However, on December 19, 1991, the Secretary of Defense rescinded funding for further M1A2 development. As a result, we consider the five M1A2 pilot production and ten prototype units sufficient to support testing requirements. Given the uncertain future of the M1A2 program and the need for test assets, we disagree that the existing contract should be modified to provide M1A2 rather than M1A1 tanks.

**Training.** GAO Report No. GAO/NSIAD-90-57, "ABRAMS Tank Block II Modifications Not Ready To Enter Production," February 28, 1990, stated that M1A2 training requirements were not developed even though the M1A2 maintenance and tank crews will require specialized training. The physical design of the tank equipment and the new tasks for the maintenance and tank crews merit specialized training. Additionally, training estimates in the cost and operational effectiveness analysis are based on M1A1 data, although Army training officials acknowledged use of M1A1 data was not entirely accurate due to the M1A2 configuration changes.

The GAO review was based on the old requirement of 2,926 M1A2 tanks. However, our review found that the situation had not changed and that program documentation had not been modified to reflect the impact of the reduction from 2,926 to 62 M1A2 tanks. For example, program officials could not tell us who would be trained, how the trainees would benefit after completing training, or how many tanks would be needed for training purposes. The 62 M1A2 tanks were supposedly necessary for Army

division level training. However, since training plans were not developed supporting this requirement, we found no reason to conduct such training if the M1A2 is not going to enter the active inventory. In addition, in a memorandum dated December 10, 1990, the Army Deputy Chief of Staff waived the Army requirement to type-classify the M1A2 tank. Unless the tank is type-classified, it is unclear why the Army would develop standard training procedures or documents or establish a standardized logistics support system for this tank. This indicates that the M1A2 will not be used as part of the Army Heavy Armor Fleet.

**Industrial base.** The Army's 1990 decision to reduce the quantity of M1A2 ABRAMS tanks was driven by its shrinking budget and a diminished threat. This decision led to significant concerns about the mobilization base for tanks.

Since the 1990 decision, the Army conducted two industrial base studies, "ABRAMS Program Closure Study," September 1990, and "ABRAMS Program Closure Study (Austere)," August 1991; and OSD conducted one study, "ABRAMS Tank Industrial Base Analysis," November 1990. In addition, OSD, as directed by section 825 of the FY 1991 National Defense Authorization Act, issued its "Report to Congress on the Defense Industrial Base," November 1991, addressing issues confronting the industrial base. Many of these issues focused on industry's ability to continue supporting DoD at reduced procurement levels.

**Army studies.** The Army studies, which were conducted by the Army Tank-Automotive Command, concluded that:

- o supporting a conversion program and FMS as a means of keeping the production base active would be more cost-effective for the Army;

- o maintaining the industrial base would save the Armored Systems Modernization (ASM) program about \$1.4 billion in cost and about 5 years in schedule to reestablish an active industrial base;<sup>3</sup>

- o an active industrial base would maintain skilled labor and vendor bases, thus helping to bridge the gap between the completion of ABRAMS production and the introduction of the Block III tank; and

- o FMS alone will not sustain an active industrial base. With FMS only, the Department of Energy heavy armor production facility could not be economically sustained

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<sup>3</sup> The Block III tank, part of the ASM program, was scheduled to enter production in FY 1997 and has been deferred indefinitely.

and would close. This facility is the only location that currently produces the depleted uranium or so-called "heavy" armor. With a conversion program only, other specialized contractors would also be lost.

Thus, the Army's position was to use a combination of FMS and a conversion program to sustain an active industrial base and all critical tank production facilities.

**OSD study.** The ABRAMS Tank Industrial Base Analysis that the Office of the Assistant Secretary of Defense (Production and Logistics) conducted was, in part, based on analyses of the Army studies mentioned above. Although the analysis did not render recommendations, it did cite alternatives and the associated costs to maintain the tank industrial base versus plant closures. In addition, the analysis indicated that a tank conversion program, in conjunction with continuing tank production, would be the most cost-effective alternative for sustaining the industrial base. However, the analysis concluded that continuing tank production would result in tank inventories exceeding force requirements and would maintain a high program cost. The high cost was not compared to a break in tank production.

**OSD report to Congress.** The OSD's report focused on five major procurement categories, one of which was combat vehicles. Its assessment identified planned funding changes in each major category and provided a brief view of the financial status of firms supporting those areas. The report noted that the existing level of tank industrial base capacity will not be needed in the 1990's and that the DoD analysis indicates that to store portions of the base is more cost-effective than retaining private facilities at low, less efficient production rates. Therefore, this report conflicts sharply with the previous studies that supported continuing inefficient production levels to sustain the industrial base.

While all these analyses indicated some benefit to future programs by maintaining the M1A2 program, delays in these programs, especially the ASM program, due to affordability concerns, resulted in the DoD decision to discontinue U.S. tank production. However, this direction was not specific with regard to the 62 M1A2 tanks. The Army did not have a firm production schedule for the 62 M1A2 tanks during our review, although production was tentatively scheduled for completion in March 1993 if no FMS occurred. After the completion of the 62 tanks, the production line was to be stored in a M1A2 configuration. If it becomes necessary to resume producing main battle tanks before the introduction of the Block III ASM tank, the production line will be set up for a tank that is not type-classified, not in the established inventory, not logistically supportable from an established supply system, and not supported by sufficient numbers of trained tank crews or maintenance personnel. Therefore, we disagree that industrial base support is a

justifiable reason to modify the M1A1 tank contract to produce 62 M1A2 tanks and that the production line should be stored in the M1A2 configuration. This latter point is especially true if a remanufacture program to the M1A2 configuration is not approved and subsequently initiated.

**Foreign military sales.** In July 1990, the United States agreed to sell 465 M1A2 tanks to Saudi Arabia. These tanks will be slightly different from the 62 M1A2 tanks being produced for the U.S. Army. With a combination of the FMS case and the M1 remanufacture, the Army perceived a need to continue the production lines between the completion of production of new ABRAMS tanks and the start of production on FMS cases to maintain the industrial base. The FMS production contract has not been awarded. ABRAMS tank production, including the planned 62 M1A2 tanks, is scheduled to be completed in March 1993, if FMS sales do not occur. The start of production on the FMS case is scheduled for April 1993. Because of the production gap, Congress appropriated \$90 million in FY 1992 for procurement of 60 more M1A2 tanks in April, May, and June 1993; however, the Deputy Secretary of Defense approved rescinding this funding in Program Budget Decision No. 716. Given that the Army will not type-classify and develop logistics support for the M1A2 tanks, it is questionable why M1A2 configured tanks would be made available through the FMS program. Also, the studies discussed above do not support that FMS sales alone can sustain the production of new tanks. Therefore, FMS does not provide a basis for the contract modification to produce M1A2 instead of M1A1 tanks.

### **Monetary Effect of the Modifying Tank Procurement Plans**

The Army could meet its ABRAMS tank force requirements by ending the production of the ABRAMS tank with the FY 1991 production contract. If the Army does not substitute the production of 62 M1A2 tanks for 62 M1A1 tanks already under contract and if the Army does not produce 18 M1A1 tanks to replace the 18 M1A1 tanks lost or seriously damaged during Operations Desert Shield and Desert Storm, about \$87.5 million, as calculated below, could be saved. Additionally, excess M1A1 common tanks could be potentially used to fulfill the following priority Marine Corps requirements for at least 217 tanks: active duty (28), maritime prepositioning (84), Marine Corps Reserve (100), and training (5). The maritime prepositioning forces are "National Assets," available either to the Army or Marine Corps as necessary in the event of a contingency.

**POTENTIAL SAVINGS**

<u>Action</u>	<u>Quantity</u>	<u>Dollar Amount</u> (millions)
Substitution of M1A2 for M1A1	62	\$24.5*
Congressional Supplemental Appropriations	<u>18</u>	<u>63.0</u>
Total Potential Funds Put to Better Use	<u>80</u>	<u>\$87.5</u>

\* The recurring cost delta between the M1A2 and the M1A1 configurations multiplied by 62 tanks, minus the termination costs for long lead material M1A2 unique hardware and long lead material special tooling and special test equipment necessary to manufacture M1A2 unique hardware. [All dollars in million:  $\$80.8 - (\$37.7 + \$18.6) = \$24.5$ ]

**Conclusion**

Congress has appropriated supplemental funding to the Army for an additional 18 M1A1 tanks although the Army already has excess ABRAMS tanks in its inventory and on contract. In addition, the Army plans to have the last 62 production units configured to the M1A2 even though the Army has 10 prototype and 5 pilot production M1A2 tanks on contract and has inadequate plans to use the M1A2 tanks. For example, training and logistics support plans for the 62 M1A2 tanks have not been developed. We believe that the Army should not contract for the production of 18 additional M1A1 tanks as appropriated by Congress. Also, we believe that the Army should cancel plans approved by the Assistant Secretary of the Army (Research, Development and Acquisition) on March 23, 1992, to modify the FY 1991 M1A1 tank production contract to substitute the production of 62 M1A2 for 62 M1A1 tanks. Procuring additional M1A1 tanks beyond those already on contract and exercising an option on the existing M1A1 procurement contract to produce the last 62 units in the M1A2 configuration has not been justified.

On March 20, 1992, the Chairman of the Joint Chiefs of Staff testified before the Senate Armed Services Committee stating that "there is no need for the Army to have a better tank than the M1A1 because it is unmatched in the world." The Chairman further commented that the Army has more than enough tanks. He concluded that "this is not the time to be building more tanks." The M1A2 was being developed in response to the anticipated deployment of the future Soviet tank and other threat advances. Also, the M1A2 was designed as the principal weapon of Army tank battalions during all types of combat operations. We found no evidence that

the Army reconsidered the impact of the Soviet Union or the performance of the M1A1 in Operation Desert Storm in assessing the need to pursue the M1A2 configuration. The Army has not updated the System Threat Assessment Report since 1989.

#### **RECOMMENDATIONS FOR CORRECTIVE ACTION**

We recommend that the Under Secretary of Defense for Acquisition direct the Assistant Secretary of the Army (Research, Development and Acquisition) to:

1. Cancel plans to substitute the production of 62 M1A2 tanks for 62 M1A1 tanks.
2. Not contract for the production of 18 M1A1 tanks using the funds appropriated by Congress as supplemental funding to the FY 1992 Appropriations Act.

#### **MANAGEMENT COMMENTS**

On May 6, 1992, we sent a memorandum (Appendix C) to the Office of the Under Secretary of Defense for Acquisition requesting that comments on the draft audit report be expedited because the contracting process for the 62 M1A2 tanks and the 18 M1A1 tanks would be completed earlier than anticipated. The Office of the Under Secretary of Defense for Acquisition did not provide comments by June 8, 1992, as requested in the draft audit report.

#### **Management Actions Evaluated**

On May 18, 1992, the Army issued Modification No. P00022 to Contract DAAE07-91-C-A037 for \$143.6 million authorizing General Dynamics Land Systems to substitute the production of 62 M1A2 tanks for 62 M1A1 tanks. Since the Office of the Under Secretary of Defense for Acquisition did not comment on the draft report as requested, we consider Contract Modification P00022 to be a preemptive action since the Army proceeded with the contract modification although the production of the 62 M1A2 tanks was questioned in the draft report. The Deputy Secretary of Defense memorandum, "Department of Defense Internal Audit Resolution and Followup," August 16, 1989, directs that preemptive actions relative to issues raised in unresolved audit reports be avoided. Managers should not proceed with activities questioned in audit reports without some attempt to resolve the differences. Such restraint would ensure that DoD fully considers opportunities for better use of constrained fiscal resources.

**STATUS OF RECOMMENDATIONS**

<u>Number</u>	<u>Addressee</u>	<u>Response Should Cover:</u>			<u>Related Issues*</u>
		<u>Concur/ Nonconcur</u>	<u>Proposed Action</u>	<u>Completion Date</u>	
A.1.	USD(A)	X	X	X	IC
A.2.	USD(A)	X	X	X	IC

\* IC = material internal control weakness

## B. MAJOR MODIFICATION OF EARLIER CONFIGURATION ABRAMS TANKS

The DoD has not scheduled a DAB Milestone IV, Major Modification, review to assess upgrade alternatives for earlier configuration M1 and IPM1 tanks. Specifically, no DAB reviews were conducted approving the remanufacture program to the M1A2 configuration. An evaluation of mission area requirements and ABRAMS program alternatives to fulfill those requirements has not been scheduled. The Army extensively documented operational requirements that supported approval of the incorporation of the M1A1 configuration and subsequently the M1A2 configuration into production before curtailing the M1A2 production program in April 1990. However, the Army had not requested a DAB Milestone IV Review of upgrade alternatives for existing M1 and IPM1 tanks. A Milestone IV review is particularly important because of the deferral of the Block III Tank, as part of the Armored Systems Modernization Program, and the Secretary of Defense's decision to request congressional approval for rescinding funds intended for the remanufacture of earlier ABRAMS tanks to the M1A2 configuration. As a result, DoD does not have an approved program for modernizing the ABRAMS tank fleet and therefore may not select the most viable upgrade alternative for earlier configuration ABRAMS M1 and IPM1 tanks.

### DISCUSSION OF DETAILS

#### Background

In 1989, the Deputy Secretary of Defense issued an Acquisition Decision Memorandum that allowed the Army to proceed with the M1A2 new procurement modernization program. This program would have permitted replacement of older configuration tanks with new tanks. In 1990, because of OSD and Army decisions and budget constraints, the M1A2 program was reduced from 2,926 to 62 new M1A2 tanks. The Army extensively documented operational requirements that supported approval of the incorporation of the M1A1 configuration and, subsequently, the M1A2 configuration into production before the M1A2 production program was curtailed in April 1990. In December 1991, a remanufacture program of existing M1 tanks to the M1A2 configuration was disapproved. Presently, the Army has no approved plan to address operational deficiencies in earlier configuration M1 tanks compared to the M1A1 tank or deficiencies that supported proceeding with the M1A2 program.

The Army has not updated its System Threat Assessment Report since 1989 in support of major modification of earlier configuration ABRAMS tanks because of the constantly changing program status. Specifically, DOD Instruction 5000.2 requires that the system threat assessment be maintained and updated by the DoD Component before critical program events throughout each phase, as determined by the milestone decision authority. While

we recognize that the rate of change in this program precluded revision of the System Threat Assessment Report, it is important that it now be done to assess the threat in the mission area.

Product improvements of the ABRAMS tanks are known as Block Improvements and occur at logical break points in production. To date, there have been two improved versions of the M1 ABRAMS tank: the IPM1 and the M1A1. The M1A1 improvements, known as Block I improvements, included additional armor; modified turret structure; a 120mm smoothbore cannon; a nuclear, biological, chemical microclimatic conditioning system; modified fire control; new ammunition racks; upgraded transmission and final drives; and upgraded suspension. Approximately 38 percent of the Army's force requirements of 7,523 tanks is filled with earlier configurations of the ABRAMS tanks. These earlier configuration tanks do not include the Block I improvements, which are critical in scenarios involving third world countries, as demonstrated in Operation Desert Storm, as well as the more traditional threat scenarios. The Army has not formally considered upgrade alternatives other than complete remanufacture to the M1A2 configuration, although less costly approaches may be all that is feasible.

#### Program Review

Program budget decision. On December 17, 1991, the Deputy Secretary of Defense approved Program Budget Decision No. 716, rescinding funding for the additional 60 M1A2 tanks authorized by Congress in the FY 1992 and FY 1993 National Defense Authorization Act, as well as for the remanufacture program to the M1A2 configuration appropriated by Congress. The Deputy Secretary's rationale for the proposal was that the Army had no requirement for new tanks, nor did the Army have any plans to continue an M1 upgrade conversion program beyond the 1 year approved by Congress. The Army must determine if an upgrade is required for earlier M1 tanks and what type of upgrade is affordable and effective. Such a determination is a prerequisite to plan and program the funds for any upgrade.

Milestone IV review. The DAB had not conducted a Milestone IV, Major Modification, review of the ABRAMS program. Such a review would contribute to DoD adopting an approved and consistent position on the requirement for, and nature and extent of, a modification or remanufacture program. The information required to be presented at a DAB Milestone IV review is essential to support acquisition decisions concerning requirements, affordability, and acquisition strategies. The absence of such information during Congress' deliberations on the FY 1992 Department of Defense Authorization and Appropriation Acts and subsequently during the formulation of the President's FY 1993 Budget lead to significantly different conclusions concerning modification of outmoded ABRAMS tanks.

A Milestone IV review is designed to ensure that all reasonable alternatives are thoroughly examined before committing to a major modification or upgrade of a program. The need for a major modification or upgrade may be due to a change in threat or the Defense Planning Guidance or an opportunity to reduce the cost of ownership. Before committing to a major modification program, the milestone decision authority must carefully consider the availability of other alternatives to address the deficiency.

**Congressional action.** The Army did not plan for an ABRAMS tank modification program because it wanted to continue new production. Congressional interest in an ABRAMS tank conversion program focused on preserving the industrial base and the perceived cost-effectiveness of a conversion program compared to new production of the M1A2.

Congress was concerned about the vendor supply base for primary and secondary parts deteriorating if there was no conversion program. The House and Senate Armed Services Committees and the House Appropriations Committee have indicated their support of converting the M1 tank to the M1A2 configuration. However, the Senate Appropriations Committee estimated that it would be more cost-effective to convert M1 tanks to the M1A1 configuration rather than to the M1A2 configuration.

**Preservation of the industrial base.** On July 19, 1991, the Senate Armed Services Committee supported a program for converting the M1 tank to the M1A2 configuration; however, estimates for unit and program costs raised some concern. The Committee noted that the Army, after direction from Congress in FY 1990, did not initiate a program to convert the older M1 tanks to the M1A2 configuration. On September 20, 1991, the Senate Appropriations Committee indicated that it was "disappointed" that DoD had not begun an upgrade program of the M1 tank series. The Committee believed the primary objective of the conversion program was to keep the tank industrial base warm. The secondary objective was to improve the warfighting capability of the current force. The House Armed Services Committee stated in the "Report of the Committee on Armed Services, House of Representatives, for the National Defense Authorization Act for Fiscal Years 1992 and 1993, May 13, 1991," that it:

. . . does not agree with the Army's position to accept the near-and mid-term risk of having no U.S. tank production base for what could be a period of six to seven years between the end of M1 production and the beginning of the Block III tank production, if future FMS orders do not materialize.

The Senate Armed Services Committee found it unacceptable to stop procurement of the M1 tanks as it would terminate the tank industry. All Defense committees in their respective FY 1992 reports provided appropriate funding and direction to the DoD to immediately commence an M1 tank upgrade program. It is clear from congressional language that a conversion program is wanted to sustain the tank industrial base; however, the cost and implementation of a conversion program was not clear. By having a Milestone IV review, the OSD decisionmakers could evaluate all reasonable alternatives for the ABRAMS tank program.

In Program Budget Decision No. 716, DoD ended any remanufacture efforts and accepted the military risk and industrial base impact of not having a remanufacture program. However, it has not been decided which improvements are both essential and affordable for earlier M1 tanks without completely remanufacturing existing tanks. The objective of a DAB Milestone IV review is to assess such upgrades even without a resulting new major Defense acquisition program.

### **Conclusion**

The Army does not have an approved program for modernizing the ABRAMS tank fleet. This is particularly significant because of the deferral of the ASM future Block III tank beyond FY 1997 for the start of production. Additionally, the Army expedited delivery of M1A1 tanks with depleted uranium turrets in Operation Desert Storm to avoid reliance on earlier configuration M1 and IPM1 tanks without this added protection. Therefore, a DAB Milestone IV review of upgrade alternatives for existing earlier configuration M1 and IPM1 tanks is required. The Milestone IV review should include DAB documentation, such as an Integrated Program Summary, Cost and Operational Effectiveness Analysis, affordability assessment, and Joint Requirements Oversight Council evaluation of an updated and validated System Threat Assessment Report.

### **RECOMMENDATION FOR CORRECTIVE ACTION**

We recommend that the Under Secretary of the Defense for Acquisition schedule the ABRAMS tank program for a Defense Acquisition Board Milestone IV Review.

### **MANAGEMENT COMMENTS**

Initially, we requested that comments on the draft report be provided to us by June 8, 1992. In a May 6, 1992, memorandum to the Under Secretary of Defense for Acquisition (Appendix C), we requested that comments on the draft be expedited. As of June 8, 1992, however, we had not received responses to the draft report. Therefore, we request that the Under Secretary of Defense for Acquisition provide comments to the final report.

**STATUS OF RECOMMENDATION**

<u>Number</u>	<u>Addressee</u>	<u>Response Should Cover:</u>			<u>Related Issues*</u>
		<u>Concur/ Nonconcur</u>	<u>Proposed Action</u>	<u>Completion Date</u>	
B.	USD(A)	X	X	X	IC

\* IC = material internal control weakness

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**PART III - ADDITIONAL INFORMATION**

- Appendix A - ABRAMS Tank Improvements
- Appendix B - Chronology of Events
- Appendix C - Memorandum for Under Secretary of Defense  
for Acquisition
- Appendix D - Prior Audits
- Appendix E - Summary of Potential Benefits Resulting  
from Audit
- Appendix F - Activities Visited or Contacted
- Appendix G - Report Distribution

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**APPENDIX A: ABRAMS TANK IMPROVEMENTS**

**ABRAMS MODELS**

<u>M1</u>	<u>IPM1</u>	<u>M1A1</u>	<u>M1A2</u>
105MM Main Gun Compartmented Fuel and Ammunition	Increased Turrent Armor	120MM Gun	Improved Commander's Weapon Station
Special Armor Package (Compared to M-60 Series Tanks)	Improved Suspension/ Transmission/ Final Drives	Nuclear, Biological, Chemical Overpressure System	Commander's Independent Thermal Viewer
1500 HP Turbine with Improved Suspension	Improved Gun Trunion Bearing/ Resolver	Improved Armor Package	Position/ Navigation Equipment
		Depleted Uranium in Special Package <sup>1,2</sup>	Digital Electronically Integrated Information System
		Deep Water Fording Kit Capability <sup>2</sup>	
		Position/ Location Reporting System Capability <sup>2</sup>	
		Muzzle Reference System <sup>2</sup>	
		Digital Electronic Control Unit <sup>2</sup>	
		Ammunition Rack Upgrade <sup>2</sup>	
		Battlefield Override <sup>2</sup>	

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<sup>1</sup> M1A1 tanks that included this package were designated M1A1 Heavy Armor (HA) tanks.

<sup>2</sup> M1A1 tanks that included these improvements were designated M1A1 (HA) Common Tank (CT). The Army and the Marine Corps use this model and share the same tank production line.

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## APPENDIX B: CHRONOLOGY OF EVENTS

The following is a chronology of events that affect the M1A2 ABRAMS tank program starting in 1989.

January 25, 1989. The Deputy Secretary of Defense issued an Acquisition Decision Memorandum authorizing the Army to proceed with development and production of a fiscally constrained M1A2 tank modernization program to provide quality enhancements in lethality, survivability, and fighting capability.

October 18, 1989. The Deputy Secretary of Defense issued an Acquisition Decision Memorandum authorizing the Army to complete full-scale development and testing of the M1A2 tank configuration.

April 6, 1990. The Assistant Secretary of the Army (Research, Development and Acquisition) issued an Acquisition Decision Memorandum approving the special Army Systems Acquisition Review Council recommendation to procure 62 M1A2 ABRAMS tanks for the U.S. Army with the program subject to continued review.

July 1990. The U.S. agreed to sell 465 M1A2 tanks to Saudi Arabia.

October 9, 1990. The House Committee on Appropriations, in its "Department of Defense Appropriations Bill, 1991," recommended \$64 million to start a conversion program for the M1A2 tank.

October 23, 1990. The House Conference Report, "National Defense Authorization Act for Fiscal Year 1991," recommended \$150 million to initiate a M1 to M1A2 conversion program or to buy tanks in the M1A2 configuration. However, these funds were not to be used until the Secretary of the Army certified to appropriate congressional defense committees that the M1A2 tank had passed operational tests.

May 13, 1991. The House Committee on Armed Services, in its "National Defense Authorization Act For Fiscal Years 1992 and 1993," recommended \$64 million for research and development, \$225 million for procurement for tank upgrade (conversion), and \$90 million for 60 new production M1A2 tanks.

June 4, 1991. The House Committee on Appropriations, in its "Department of Defense Bill, 1992," recommended \$225 million to reinitiate the M1 tank upgrade (conversion program) to the M1A2 configuration.

July 19, 1991. The Senate Committee on Armed Services, in its "National Defense Authorization Act for Fiscal Years 1992 and 1993," recommended \$225 million in advanced procurement funds for

## APPENDIX B: CHRONOLOGY OF EVENTS (continued)

the M1 tank upgrade (conversion program). The committee was disappointed that the Army had disregarded Congress's directive in 1990 to begin a tank upgrade program. The committee also addressed the 60 additional M1A2 tanks that the Army will buy to replace the 60 M1A1 tanks the Army transferred to the Marine Corps. The committee recommended \$90 million in FY 1992 to produce these 60 additional M1A2 tanks. This \$90 million plus the \$150 million in advanced procurement funds provided in FY 1991 were supposed to be used to produce these 60 tanks.

September 20, 1991. The Senate Committee on Appropriations, in its "Department of Defense Appropriation Bill, 1992," recommended \$225 million in advanced procurement funds and directed the Army to begin an M1 tank upgrade program. The Committee also directed that the Army forego the M1A2 option and instead use the M1A1 configuration. The committee expressed what it believed to be the primary and secondary objectives of the upgrade program, to keep the tank industrial base warm and improve the warfighting capability of the deployed force. The committee questioned the Army's desire to upgrade the M1 to the M1A2 configuration since such an upgrade, based on Army estimates, would cost at least \$9.1 billion versus an upgrade program using the M1A1 configuration, which would cost about \$4.4 billion.

November 13, 1991. The House Conference Report, "National Defense Authorization Act for Fiscal Years 1992 and 1993," stated that the Secretary of the Army is to obligate \$150 million within 90 days after the enclosed act is established and authorized appropriations of \$90 million in FY 1992 for procurement of 60 new production M1A2 tanks and \$225 million for the remanufacture of M1 tanks (M1 tanks to M1A2 configuration).

November 18, 1991. The House Conference Report, "Making Appropriations for the Department of Defense for the Fiscal Year Ending September 30, 1992, and for Other Purposes," agreed to the authorization and appropriated funding levels of \$90 million for new M1 tanks and \$225 million for a tank upgrade program to the M1A2 configuration. The \$90 million will be combined with the \$150 million, recommended in FY 1991, for procuring 60 additional tanks. The committee noted that the new-production tanks will provide production line continuity, when combined with supplemental funding and FMS, to transition to the upgrade program.

November 27, 1991. The House Conference Report, "Making Technical Corrections and Correcting Enrollment Errors in Certain Acts Making Appropriations for the Fiscal Year Ending September 30, 1991, and for Other Purposes," approved supplemental

## APPENDIX B: CHRONOLOGY OF EVENTS (continued)

appropriations to procure 18 M1A1's that would replace tanks lost or damaged during Operations Desert Shield and Desert Storm.

December 5, 1991. Because of the demise of the near-term Soviet threat and the slowed pace of the Soviet conventional force modernization, the Secretary of the Army issued a memorandum deferring further development of the Block III tank. The Secretary reserved the option to resume system development in the future based on recurring threat assessments and the pace of technological maturation.

December 11, 1991. The Assistant Secretary of the Army (Financial Management) issued a memorandum to the Comptroller, DoD, requesting that the Army ASM program be restored as submitted in the December 5, 1991, memorandum instead of rescinding the funding as proposed in Program Budget Decision No. 716.

December 17, 1991. The Deputy Secretary of Defense approved Program Budget Decision No. 716, which proposed rescinding funding for the additional 60 M1A2 tanks authorized by Congress and the M1 remanufacture program approved by Congress because the Army had no requirements for new tanks and had made no provision in the outyears to continue the upgrade beyond one year.

December 19, 1991. The Secretary of Defense supported Program Budget Decision No. 716 as approved by the Deputy Secretary of Defense on December 17, 1991.

March 20, 1992. The Chairman of the Joint Chiefs of Staff testified before the Senate Armed Services Committee that the Army has more than enough tanks and has no need for the M1A2 tank. The Chairman concluded that now is not the time to build more tanks.

March 23, 1992. The Assistant Secretary of the Army (Research, Development and Acquisition) approved plans to modify the FY 1991 M1A1 tank production contract to substitute the production of 62 M1A2 for 62 M1A1 tanks.

May 18, 1992. The House Armed Services Committee recommended a legislative provision requiring the Army to spend funds provided in FY 1992 to upgrade M1 tanks to the M1A1 configuration.

May 18, 1992. The Army issued Modification No. P00022 to Contract DAAE07-91-C-A037. The modification substituted the production of 62 M1A1 tanks for 62 M1A2 tanks.

**APPENDIX B: CHRONOLOGY OF EVENTS (continued)**

May 20, 1992. The Under Secretary of Defense for Acquisition issued a memorandum, "Defense Acquisition," which stated, "There are enough tanks available now to meet any perceived contingency, and there is enough time to reconstitute the tank industrial base if a global threat emerges. Therefore, tank production will cease as planned." However, the Under Secretary does not define the plan for cessation of the tank production.



INSPECTOR GENERAL  
DEPARTMENT OF DEFENSE  
400 ARMY NAVY DRIVE  
ARLINGTON, VIRGINIA 22202 2884



MAY 6 1992

MEMORANDUM FOR UNDER SECRETARY OF DEFENSE FOR ACQUISITION

SUBJECT: Draft Report on the Audit of the M1A2 ABRAMS Tank  
Program (Project No. 1AE-0036.02)

The enclosed report was provided for your review and comments on April 7, 1992. In the report, we recommended that plans to modify the FY 1991 ABRAMS production contract to substitute the production of 62 M1A2 tanks for 62 M1A1 tanks be cancelled. Production of the 62 tanks in the M1A2 configuration was approved by the Assistant Secretary of the Army (Research, Development and Acquisition) on March 23, 1992. We also recommended that a contract for the production of 18 M1A1 tanks using the funds appropriated by Congress as supplemental funding to the FY 1992 Appropriations Act not be awarded, because tanks in inventory and on contract already exceeded requirements. Your comments to the draft report were requested by June 8, 1992.

After issuance of the draft audit report, the ABRAMS M1A2 Program Office informed us that the Army is proceeding with the contract modification process to provide 62 M1A1 tanks in the M1A2 configuration. The contract modification will be completed in the immediate future. The Army is also proceeding with the procurement of 18 M1A1 tanks. The final production of the M1A2 tanks will occur in March 1993, which will then be followed by the production of the 18 M1A1 tanks in April and May 1993.

Since the contracting process for the 62 M1A2 tanks and the 18 M1A1 tanks will be completed sooner than anticipated, we request you expedite your comments on the draft audit report. We consider the Army decision to complete the contracting actions to be unfortunate because it preempts the acquisition decision-making and audit resolution processes.

Your cooperation will be appreciated.

  
Derek J. Vander Schaaf  
Deputy Inspector General

Enclosure

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#### APPENDIX D: PRIOR AUDITS

GAO Report No. NSIAD-91-254 (OSD Case No. 8717), "Armored Systems Modernization Program: Inconsistent With Current Threat and Budgetary Constraints," July 29, 1991, concluded that the Army is using a threat scenario to justify the ASM program when the threat has diminished considerably and the Soviet Union would have a difficult time reversing its military reductions. The affordability of the program is also under question, while the program priorities are inconsistent with the threat. The GAO recommended that the Secretary of Defense reassess the program's justification, affordability, and priorities in light of the threat changes and that Congress should not provide additional funding for the program without the reassessment. Also, the GAO recommended that the 1992 test demonstrate the viability of the electrothermal gun technology and use the gun to improve the lethality and survivability of the M1A1 and the M1A2 tank fleets.

GAO Report No. NSIAD-90-57 (OSD Case No. 8113-A), "Abrams Tank: Block II Modifications Not Ready to Enter Production," February 28, 1990, concluded that the currently approved M1A2 tank does not include all survivability, fighting capability, and lethality enhancements that were assumed to be available when the Army performed its cost and operational effectiveness analysis. The Army has not demonstrated its additional justification, that is, the link between this and the next generation tank. Additionally, the Army has adopted a compressed acquisition strategy that is risky because components are in early stages of development. Therefore, testing and evaluation of the components and the integrated system will not be complete when production decisions are made. The GAO recommends that the Secretary of Defense withhold approval of the obligation of funds until the Army can demonstrate the cost-effectiveness using current information, and modify its acquisition strategy to allow for complete applicable testing and for the corrective actions before production. The DoD agreed with GAO's recommendations but believes that it has addressed the concerns raised in the report. However, GAO still was concerned that the Office of the Secretary of Defense should review the program well in advance of the Milestone III production decision. The GAO determined that, as part of this review, the Army should demonstrate the cost-effectiveness and should also state its plans to develop and test the tank, evaluate test results, and make appropriate hardware and software changes before the tank enters production. In response, the DAB reviewed the cost and operational effectiveness analysis for two Block II elements using a core integration approach and found the analysis adequate to complete the full-scale development effort. There will be limited live fire testing conducted on the M1A2.

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**APPENDIX E: SUMMARY OF POTENTIAL BENEFITS RESULTING FROM AUDIT**

<u>Recommendation Reference</u>	<u>Description of Benefit</u>	<u>Amount and/or Type of Benefit</u>
A.1.	Economy and Efficiency. Implementation of the recommendation to procure the 62 tanks in the M1A1 configuration instead of the M1A2 configuration will improve the industrial mobilization capabilities while reducing program costs.	Funds put to better use of \$24.5 million. (Army FY 1991 procurement funds)
A.2.	Economy and Efficiency. Implementation of the recommendation not to contract for production of the 18 M1A1 tanks will ensure that additional excess tanks are not procured.	Funds put to better use of \$63 million. (Army FY 1991 procurement funds)
B.	Compliance with DoD Directive 5000.1 and DoD Instruction 5000.2. Implementation of the recommendation will help ensure that the most viable upgrade alternative is selected.	Nonmonetary.

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**APPENDIX F: ACTIVITIES VISITED OR CONTACTED**

Office of the Secretary of Defense

Office of the Under Secretary of Defense for Acquisition,  
Washington, DC  
Office of the Assistant Secretary of Defense (Program Analysis  
and Evaluation), Washington, DC

Department of the Army

Office of the Assistant Secretary of the Army (Financial  
Management and Comptroller), Washington, DC  
Office of the Assistant Secretary of the Army (Research,  
Development and Acquisition), Washington, DC  
Office of the Director, Army Cost and Economic Analysis  
Center, Arlington, VA  
Commander, U.S. Army Tank-Automotive Command, Warren, MI  
Commander, U.S. Army Missile Command, Redstone Arsenal, AL

Department of the Navy

Marine Corps Systems Command, Quantico, VA

Defense Agency

Defense Intelligence Agency, Washington, DC

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**APPENDIX G: REPORT DISTRIBUTION**

Office of the Secretary of Defense

Under Secretary of Defense for Acquisition  
Assistant Secretary of Defense (Production and Logistics)  
Assistant Secretary of Defense (Program Analysis and Evaluation)  
Comptroller of the Department of Defense  
Director, Defense Research and Engineering  
Director of Defense Procurement  
Director, Operational Test and Evaluation

Department of the Army

Secretary of the Army  
Inspector General, Department of the Army  
Assistant Secretary of the Army (Financial Management)  
Assistant Secretary of the Army (Installations, Logistics and Environment)  
Assistant Secretary of the Army (Research, Development and Acquisition)  
Commander, U.S. Army Tank-Automotive Command  
Program Executive Officer, Armored Systems Modernization Program  
Project Manager, ABRAMS M1A2 Tank Program Office

Department of the Navy

Secretary of the Navy  
Assistant Secretary of the Navy (Financial Management)  
Assistant Secretary of the Navy (Research, Development, and Acquisition)  
Commandant of the Marine Corps  
Comptroller of the Navy  
Auditor General, Naval Audit Service

Defense Agency

Director, Defense Intelligence Agency

**APPENDIX G: REPORT DISTRIBUTION (continued)**

**Non-DoD Activities**

Office of Management and Budget

U.S. General Accounting Office,  
NSIAD Technical Information Center

**Congressional Committees**

Senate Committee on Armed Services

Senate Committee on Governmental Affairs

Senate Subcommittee on Defense, Committee on Appropriations

Ranking Minority Member, Senate Committee on Armed Services

House Committee on Appropriations

House Subcommittee on Defense, Committee on Appropriations

Ranking Minority Member, House Committee on Appropriations

House Committee on Armed Services

House Committee on Government Operations

House Subcommittee on Legislation and National Security,  
Committee on Government Operations

**AUDIT TEAM MEMBERS**

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Russell A. Rau, Program Director

D. Michael Welborn, Project Manager

Alvin B. Lowe, Team Leader

Patrick E. McHale, Team Leader

James M. Cochrane, Auditor

Dennis R. Wokeck, Auditor

Edward A. Blair, Auditor

