

January 21, 2004



Acquisition

Acquisition of the CH-47F
Improved Cargo Helicopter
(D-2004-046)

Department of Defense
Office of the Inspector General

Quality

Integrity

Accountability

Additional Copies

To obtain additional copies of this report, visit the Web site of the Inspector General of the Department of Defense at www.dodig.osd.mil/audit/reports or contact the Secondary Reports Distribution Unit of the Audit Followup and Technical Support Directorate at (703) 604-8937 (DSN 664-8937) or fax (703) 604-8932.

Suggestions for Future Audits

To suggest ideas for or to request future audits, contact the Audit Followup and Technical Support Directorate at (703) 604-8940 (DSN 664-8940) or fax (703) 604-8932. Ideas and requests can also be mailed to:

ODIG-AUD (ATTN: AFTS Audit Suggestions)
Inspector General of the Department of Defense
400 Army Navy Drive (Room 801)
Arlington, VA 22202-4704

Defense Hotline

To report fraud, waste, or abuse, contact the Defense Hotline by calling (800) 424-9098; by sending an electronic message to Hotline@dodig.osd.mil; or by writing to the Defense Hotline, The Pentagon, Washington, DC 20301-1900. The identity of each writer and caller is fully protected.

Acronyms

CJCS	Chairman of the Joint Chiefs of Staff
DCSOPS	Deputy Chief of Staff Operations and Plans
JTA	Joint Technical Architecture
JTA-A	Joint Technical Architecture - Army
LRIP	Low-rate Initial Production
MOA	Memorandum of Agreement
ORD	Operational Requirements Document
USSOCOM	U.S. Special Operations Command



INSPECTOR GENERAL
DEPARTMENT OF DEFENSE
400 ARMY NAVY DRIVE
ARLINGTON, VIRGINIA 22202-4704

January 21, 2004

MEMORANDUM FOR AUDITOR GENERAL, DEPARTMENT OF THE ARMY

SUBJECT: Report on the Acquisition of the CH-47F Improved Cargo Helicopter
(Report No. D-2004-046)

We are providing this report for information and use. This report is the first of two reports that discuss acquisition of DoD heavy-lift helicopters. This report discusses the acquisition of the Army CH-47F Improved Cargo Helicopter Program and the second report will discuss the acquisition of the U.S. Special Operations Command MH-47G Service Life Extension Program. We considered management comments on a draft of this report in preparing the final report.

Comments on the draft of this report conformed to the requirements of DoD Directive 7650.3 and left no unresolved issues. Therefore, no additional comments are required.

We appreciate the courtesies extended to the staff. Questions should be directed to John E. Meling at (703) 604-9091 (DSN 664-9091) or Mr. Harold C. James at (703) 604-9088 (DSN 664-9088). See Appendix D for the report distribution. The team members are listed inside the back cover.

By direction of the Deputy Inspector General for Auditing:

A handwritten signature in cursive script, reading "Mary L. Ugone", is positioned above the printed name.

Mary L. Ugone
Director

Acquisition Management Directorate

Office of the Inspector General of the Department of Defense

Report No. D-2004-046

January 21, 2004

(Project No. D2003AE-0069)

Acquisition of the CH-47F Improved Cargo Helicopter

Executive Summary

Who Should Read This Report and Why? Civil service and military managers who are specifically involved in the management, support, and oversight of the CH-47F Improved Cargo Helicopter should read this report because it discusses acquisition issues that must be addressed before the program progresses further through the acquisition process.

Background. This report is the first of two reports that discuss acquisition of DoD heavy-lift helicopters. This report discusses the acquisition of the Army CH-47F Improved Cargo Helicopter (the CH-47F Program) and the second report will discuss the acquisition of the U.S. Special Operations Command MH-47G Service Life Extension Program (the MH-47G Program). The CH-47F Program is a rebuild of the current CH-47D helicopter that will extend the service life, increase operational performance (lift capability and range), and provide the cockpit with digital communications and navigation capability, allowing interoperability on the digital battlefield. Additionally, the rebuild of the airframe will reduce aircraft vibration through the stiffening of structural components, which should reduce CH-47F operations and support costs. The service life extension effort will sustain the heavy-lift capability that the aging CH-47D fleet provides the Army and bridge the gap until the DoD develops a follow-on aircraft. The Army estimated the cost of the CH-47F Program at \$13.6 billion for 301 CH-47F aircraft, including \$156.2 million for research, development, test, and evaluation; \$5.4 billion for procurement; and \$8.0 billion for operations and support.

Results. The Army had not finalized a revision to the 1997 Operational Requirements Document for the CH-47F to support the Project Manager, Cargo Helicopter's (the Project Manager's) revised acquisition strategy and establish required system interoperability and training asset requirements. Additionally, the Project Manager did not submit a waiver request to the Army Director, Enterprise Architecture Acquisition for non-compliance with standards from the Joint Technical Architecture - Army, and did not submit the cost-benefit analyses to the Office of the Deputy Assistant Secretary of the Army for Cost and Economics to support his decision to recapitalize 103 system components for validation. As a result, the contract for low-rate initial production of the CH-47F did not include specific CH-47F interoperability requirements that may result in initial helicopters that do not fully meet warfighter requirements. Additionally, the CH-47F aircraft may not fully meet the DoD objective for systems to have an open design. Further, the Office of the Deputy Assistant Secretary of the Army for Cost and Economics cannot validate for the Army Acquisition Executive the cost-effectiveness of the Project Manager's decisions to remanufacture aging components or to purchase new components without benefit of the cost-benefit analysis. Expediting the review and approval of the updated Operational Requirements Document will allow the Project Manager to update the low-rate initial production contract to fully address interoperability requirements and update acquisition planning documents for the CH-47F.

Submitting a waiver request for noncompliance with standards from the Joint Technical Architecture - Army will make the Army Acquisition Executive aware of potential interoperability shortfalls and better able to oversee system interoperability upgrades in future evolutionary acquisition blocks. Providing the Deputy Assistant Secretary of the Army for Cost and Economics with the cost-benefit analysis information will enable the Office of the Deputy Assistant Secretary to validate the Project Manager's decision to remanufacture the aircraft components. See the Finding sections of the report for detailed recommendations.

The Army and the U.S. Special Operations Command are to be commended for initiating corrective actions during the audit to address audit issues on updating and approving a draft memorandum of agreement for coordinating development and production of the CH-47F and MH-47G and for establishing procedures for ensuring prompt communication of critical information between their administrative contracting offices. Appendix B provides details on Army and U.S Special Operations Command corrective actions taken.

Management Comments. The Army Deputy for Acquisition and Systems Management, Office of the Assistant Secretary of the Army (Acquisition, Logistics, and Technology), responding for the Army Deputy Chief of Staff for Operations and Plans, the Army Director of Combat Development, and the Project Manager for Cargo Helicopters, concurred with the findings and recommendations; therefore, no further comments are required. Specifically, the Army Deputy for Acquisition and Systems Management stated that the Army had expedited the review and approval process for the draft "Operational Requirements Document for the CH-47F Cargo Helicopter, Change 3" and that the Joint Requirements Oversight Council approval of the document was scheduled for January 2004. He further stated that the Army had revised the draft Operational Requirements Document to include the requirement for 10 CH-47F aircraft to support training. The Army Deputy for Acquisition and Systems Management also stated that the Project Manager for Cargo Helicopters would include a deliverable for compliance with the latest Joint Technical Architecture - Army version, or compliance as directed by the Army Software Blocking requirements definition, in all subsequent contractual efforts impacting the software, system, or hardware architecture and would address any noncompliance in accordance with DoD policy. Finally, he stated that the Project Manager had completed and submitted a component level cost-benefit analysis for the recapitalization components to the Deputy Assistant Secretary of the Army for Cost and Economics for review and validation. (See the Findings sections of the report for a discussion of management comments and the Management Comments section for the complete text of comments.)

Table of Contents

Executive Summary	i
Background	1
Objectives	2
Findings	
A. Defining System Requirements	3
B. Requesting a Waiver to Using Standards in the Joint Technical Architecture - Army	8
C. Validating the Cost-Benefit Analyses for System Components Selected for Recapitalization	12
Appendixes	
A. Scope and Methodology	15
Management Control Program Review	16
Prior Coverage	16
B. Corrective Actions Taken During the Course of the Audit	17
C. Results of Contractor Joint Technical Architecture - Army Compliance Analysis	18
D. Report Distribution	19
Management Comments	
Department of the Army	21

Background

This report is the first of two reports that discuss acquisition of DoD heavy-lift helicopters. This report discusses the acquisition of the Army CH-47F Improved Cargo Helicopter (the CH-47F Program) and the second report will discuss the acquisition of the U.S. Special Operations Command MH-47G Service Life Extension Program (the MH-47G Program). The CH-47F Program is a rebuild of the current CH-47D helicopter that will extend the service life, increase operational performance (lift capability and range), and provide the cockpit with digital communications and navigation capability, allowing interoperability on the digital battlefield. Additionally, the rebuild of the airframe will reduce aircraft vibration through the stiffening of structural components, which should reduce aircraft operations and support cost. The service life extension effort will sustain the heavy-lift capability that the aging CH-47D fleet provides the Army and bridge the gap until the DoD develops a follow-on aircraft. The CH-47F aircraft's mission is to transport ground forces, supplies, and battle-critical cargo in support of all future contingencies. The MH-47G Program is a rebuild of MH-47D and MH-47E aircraft in use within the U.S. Special Operations Command (USSOCOM). The total production quantity is projected for 337 Chinook aircrafts, consisting of 301 CH-47Fs and 36 MH-47Gs. Based on the Vice Chief of Staff's direction, the acquisition communities within the Army and USSOCOM developed a memorandum of agreement (MOA) to support planning for the development and production of the CH-47F and MH-47G aircraft configurations. Appendix B details the MOA between the Army and USSOCOM.

The Army initiated the CH-47F Program in May 1998, when the Under Secretary of Defense for Acquisition and Technology (renamed Acquisition, Technology, and Logistics) approved the program for entry into the engineering and manufacturing development phase of the acquisition process as a major Defense acquisition program and designated the Army Acquisition Executive as the milestone decision authority. The Army then awarded Boeing Helicopters an engineering and manufacturing development contract for \$ 76.1 million. The Army Program Executive Officer, Aviation and the Project Manager, Cargo Helicopter (the Project Manager) manage the CH-47F Program.

The Army completed the engineering and manufacturing development contract in December 2002, with the delivery of two prototype CH-47F aircraft. Because of the increased mission demands for special operations aircraft, the Deputy Secretary of Defense issued Program Decision Memorandum I, December 12, 2002, that required the Army to transfer 16 additional CH-47s to USSOCOM for conversion and rebuild to the MH-47G configuration.

To implement the direction in Program Decision Memorandum I, the Project Manager, with Army Acquisition Executive approval, awarded the low-rate initial production (LRIP) Lot I contract in January 2003, to produce one CH-47F aircraft followed by an option for six MH-47Gs. The LRIP Lot I contract value totaled \$152.7 million. The Army plans to produce 16 MH-47Gs in LRIP Lot II and produce 10 CH-47Fs and 6 MH-47Gs in the first lot of full-rate production.

As a result of the Office of the Secretary of Defense prioritizing MH-47G production, the Project Manager expects a 21-month slip (from February 2006 to November 2007) in the first unit equipped date for the CH-47F, a schedule parameter in the Acquisition Program Baseline. In February 2003, the Project Manager submitted a program deviation report to the Under Secretary of Defense for Acquisition, Technology, and Logistics regarding the expected slip.

Because of technological constraints and affordability concerns, the Project Manager developed an acquisition strategy to produce the CH-47F aircraft in three sequential blocks. The Army Director of Combat Developments defined the incremental capabilities to achieve in Blocks 1 and 2 but had not yet defined the capabilities for Block 3. The Army estimated the cost of the CH-47F Program at \$13.6 billion for 300 CH-47F aircraft, including \$156.2 million for research, development, test, and evaluation; \$5.4 billion for procurement; and \$8.0 billion for operations and support.

Objectives

The primary objective was to evaluate the overall management of the Army CH-47F Improved Cargo Helicopter Program. Because the program was in the LRIP Phase, we evaluated management's preparation of the program for the full-rate production phase of the acquisition process. We also evaluated the management control program as it related to the audit objective. See Appendix A for a discussion of the scope and methodology, the review of the management control program, and prior coverage related to the audit objectives.

A. Defining System Requirements

The Army Director of Combat Developments and the Deputy Chief of Staff for Operations and Plans (DCSOPS) had not finalized a revision to the 1997 Operational Requirements Document (ORD) for the Improved Cargo Helicopter needed to support the evolutionary acquisition strategy that the Project Manager implemented and to establish a key performance parameter for system interoperability as required by the Chairman, Joint Chiefs of Staff. The draft ORD revision also did not include the estimated number of CH-47Fs that the Army will require for training as required in DoD policy. DCSOPS had not forwarded the revised ORD for Joint Requirements Oversight Council approval because of higher workload priorities. As a result, the Project Manager cannot modify the contract for LRIP units of the CH-47F to include specific interoperability requirements that may result in initial helicopters produced that do not fully meet planned Block I user requirements. Further, without an approved ORD, the Project Manager cannot finalize drafts of other critical program documentation, including the Test and Evaluation Master Plan, the Command, Control, Communications, Computers, and Intelligence Support Plan, and training plans.

Policy and Guidance for Defining System Requirements

The Chairman of the Joint Chiefs of Staff (CJCS) provides policies and procedures for DoD Components to use in defining system requirements in ORDs. The Army supplemented this policy with guidance for combat developers to use when preparing ORDs for Army systems.

Joint Chiefs of Staff Policy. CJCS Instruction 3170.01B, “Requirements Generation System,” April 15, 2001, provides the policies and procedures the Army Director of Combat Developments used to formulate a draft update of the 1997 ORD for the CH-47F. CJCS Instruction 3170.01B requires that the ORD contain operational performance requirements for a proposed weapon system. Specifically, CJCS Instruction 3171.01B requires the ORD to define required operational performance characteristics in terms of:

- system performance parameters, such as range, payload and speed; information exchange requirements;
- logistics and readiness, including operational availability, and frequency and duration of maintenance; command, control, communications, computers, and intelligence support standardization;
- interoperability, and standardization; and
- human systems integration.

The CJCS revised policies and procedures for identifying, assessing, and prioritizing military capability needs in June 2003, with the issuance of CJCS Instruction 3170.01C, “Joint Capabilities Integration and Development

System.” CJCS Instruction 3170.01C states that the Joint Staff will accept ORDs developed under CJCS Instruction 3170.01B through December 2003. After December 2003, the Joint Staff will accept only ORD updates developed in accordance with the new Instruction.

Army Guidance. The Army “Guide for Development of Army Operational Requirements Documents,” (the Guide) November 16, 2001, supplements the Joint Chiefs of Staff policy by providing guidance tailored to developing ORDs within the Army. To provide for consistency and commonality between Army ORDs, the Guide references the Army Universal Task List for combat developers to use in ORD preparation.

Revising the Operational Requirements Document

On November 20, 1997, the Army approved the “Operational Requirements Document for the Improved Cargo Helicopter Change 2.” Since 1997, significant changes have occurred in the CH-47 Program and in DoD policies for managing acquisition programs and defining system requirements. Specifically, the Project Manager converted to an evolutionary acquisition strategy for CH-47F in response to DoD acquisition policy changes that emphasized the use of evolutionary acquisition strategies. Also, updates in CJCS Instruction 3170.01B require that DoD Components more completely define requirements for system interoperability in ORDs. Because of those updates, in 2001 the Army began, but had not yet completed, the process to formulate Change 3 of the ORD for approval in 2001. However, when updating the ORD, the Army Director of Combat Developments did not define the estimated number of CH-47Fs that the Army required for training.

Converting to an Evolutionary Acquisition Strategy. As DoD moves to reduce program cycle times through evolutionary acquisition, CJCS Instruction 3170.01B states that the ORD will serve as the vehicle for documenting successive operational requirements and for managing the scope of the acquisition process. CJCS Instruction 3170.01B also requires that DoD Components update the ORD as necessary between acquisition milestones. In the draft Change 3 of the ORD, the Army added requirements for information exchange, an interoperability key performance parameter, and the Global Air Traffic Management capability. Those requirements will provide the aircraft with capabilities for situational awareness and the ability to function on the digitized battlefield. In addition to those increased system capabilities, the Army Director of Combat Developments restructured the ORD to implement an evolutionary acquisition strategy for the CH-47F Program containing three blocks. The three blocks were:

- **Block 1.** Planned Block 1 improvements to the aircraft included airframe rebuild, component recapitalization, avionics architecture, and interim digital messaging and situational awareness technology. The draft ORD stated that the Army planned to achieve Block I capability in the LRIP Phase.
- **Block 2.** Planned Block 2 improvements included all Block 1 improvements plus the integration of the command and control messaging

and situational awareness capability needed to support the Army Core Message set and the integration of the Global Air Traffic Management capability. The Army planned to incorporate Block 2 improvements during the Block I full-rate production phase based on system availability and affordability.

- **Block 3.** The Army had not yet defined the requirements for Block 3. The undefined requirements will supplement or fulfill heavy lift helicopter mission requirements for the Army Objective Force. The Army plans to define Block 3 capability requirements once it has defined the Objective Force requirements.

Revising Interoperability Requirements. CJCS Instruction 3170.1B requires DoD Components to include a key performance parameter for interoperability in ORDs to define the level of interoperability for the proposed system. In addition, CJCS Instruction 6212.01B, “Interoperability and Supportability of the National Security Systems, and Information Technology Systems,” May 8, 2000, details the methodology for the DoD Components to follow in developing the interoperability key performance parameter. CJCS Instruction 6212.01B requires the DoD Components to include a detailed definition of system interoperability requirements in the ORD by providing a high-level operational concept graphic, a system interface description, and an interoperability matrix. The high-level operational concept graphic identifies required top-level joint and combined external interfaces. The system interface description provides more detail through identifying legacy, current, and future joint and combined subsystems and interfaces required to exchange information. The interoperability matrix details the system’s top-level joint and combined external information exchange requirements in a matrix format.

The draft ORD included a key performance parameter for information exchange interoperability requirements for the CH47F that required the aircraft to have information exchange interoperability with Army, joint, and combined systems in order to maintain situational awareness and combat effectiveness. As a threshold for Block I, the draft ORD required that the CH-47F demonstrate the ability to exchange voice and data messages with the following Army, joint, and combined tactical nodes: Joint Airborne Command Post, Navy ships, Joint Maneuver and Maneuver Support Command Post, Allied and Coalition Command Post, Tactical Air Traffic Services, and Aviation Battalion and Brigade Command Post. For Block II, the draft ORD required that the CH-47F also have information exchange interoperability with the Army Airspace Command and Control System as well as with cargo, utility, attack, and armed reconnaissance helicopters.

Estimating Training Asset Requirements. As a program is further defined between acquisition milestones, CJCS Instruction 3170.01B requires that the DoD Components update the requirements documented in the ORD based on the results of analysis and testing. For training requirements, CJCS Instruction 3170.01B requires that DoD Components estimate the number of systems, including training units, needed to support the planned force structure. In processing draft Change 3 of the ORD, however, the Army Director of Combat Developments staff stated that they had not yet taken action to update training asset requirements based on the results of analysis and testing determined during

the engineering and manufacturing development phase of the acquisition process. Although a July 2002 version of the draft Change 3 of the ORD stated that the Army Force Structure Plan would include 13 CH-47Fs for institutional training, subsequent revisions of Change 3 dated April 29, 2003, and July 21, 2003, did not identify the CH-47Fs needed for training.

Factors Affecting Revision of the ORD

DCSOPS staff stated that the Joint Chiefs of Staff had originally required the Army to update the Change 2 version of the ORD by March 2001. However, DCSOPS staff further stated that the Joint Chiefs of Staff granted the Army a delay in updating the ORD because the Joint Chiefs had not yet finalized the interoperability requirements in CJCS Instruction 3170.01B and the Army was still addressing issues relating to recapitalization and aviation transformation. Although the Army Director of Combat Developments developed the initial version of the Change 3 update of the CH-47F ORD in September 2001, the DCSOPS staff stated that the update was not yet finalized for submission to the Joint Requirements Oversight Council. DCSOPS staff explained that, as of September 2003, the Army was still in the process of coordinating the July 21, 2003, version of Change 3 with the Joint Chiefs of Staff. Through September 2003, the Director of Combat Developments staff had responded to comments that the Joint Chiefs had collected from officials at the O-6 officer or equivalent civilian level at 22 DoD organizations including the Departments of Army, Navy, and Air Force, as well as DoD commands and agencies. According to DCSOPS staff, once the O-6 level review is completed, the Director of Combat Development must respond to a Flag-level review from the organizations participating in the O-6 review. After completing the Flag-level review, Director of Combat Development must brief the Joint Warfighting Capabilities Assessment Team and the Functional Capabilities Board, followed by the Joint Capabilities Board, before it can seek Joint Requirements Oversight Council approval of ORD Change 3. Finally, DCSOPS staff stated that once the Joint Requirements Oversight Council approves Change 3, DCSOPS could submit the document to the Army Chief of Staff for approval.

The Director of Combat Developments staff stated that the delay in the review and approval of Change 3 occurred because of higher workload priorities within the office of DCSOPS. The DCSOPS staff agreed that their office had given the CH-47F Program a lower priority for ORD update approval than for other Army weapon system acquisition programs that had more OSD interest or urgency. Additionally, the DCSOPS staff stated that non-ORD workload related to military actions in Afghanistan and Iraq, changes in personnel, and issues with special forces had slowed completion of the ORD approval process for the CH-47F.

With regard to training asset requirements, the Director of Combat Developments staff stated that the July 2002 version of Change 3 did include a requirement for 13 CH-47Fs for training, however, the staff later determined that further analysis was needed to support a firm training asset requirement. As a result, the staff removed the training asset requirement from subsequent drafts. In discussions with audit staff in August 2003, the Director of Combat Developments staff stated that they had performed additional analysis of CH-47F training asset requirements

and planned to update Change 3 of the ORD to include a requirement for 10 CH-47Fs to support the CH-47F training requirement.

Effect of Delay in Updating the ORD

As a result of the delay in submitting Change 3 of the ORD for approval, the Project Manager cannot modify the LRIP contract to address the more specific interoperability requirements defined in the draft ORD. ORD approval and subsequent contract modification are needed to prevent the Army from producing and fielding CH-47F helicopters that do not fully meet planned Block I user requirements. The Army also needs an updated and approved ORD to enable the CH-47F program office to finalize other critical program documentation, including the Test and Evaluation Master Plan; the Command, Control, Communications, Computers, and Intelligence Support Plan; and training requirements.

Recommendations and Management Comments

A.1. We recommend that the Army Deputy Chief of Staff for Operations and Plans expedite the review and approval of the draft “Operational Requirements Document for the CH-47F Cargo Helicopter, Change 3” to allow for joint Flag-level staffing, Joint Chiefs of Staff Joint Requirements Oversight Council review, and final Army Chief of Staff approval.

Management Comments. The Army Deputy for Acquisition and Systems Management, Office of the Assistant Secretary of the Army (Acquisition, Logistics, and Technology), responding for the Army Deputy Chief of Staff for Operations and Plans, concurred, stating that the Army had expedited the ORD review and approval process, and that the Joint Requirements Oversight Council was scheduled to approve the draft ORD in January 2004.

A.2. We recommend that the Army Director of Combat Developments update the draft “Operational Requirements Document for the CH-47F Cargo Helicopter, Change 3” to include the number of CH-47F aircraft that are required for training in accordance with Chairman of the Joint Chiefs of Staff Instruction 3170.01B, “Requirements Generation System,” April 15, 2001.

Management Comments. The Army Deputy for Acquisition and Systems Management, responding for the Army Director of Combat Developments, concurred, stating that the Army had revised the draft ORD to include a requirement for 10 CH-47Fs to support training requirements.

B. Requesting a Waiver to Using Standards in the Joint Technical Architecture - Army

The Project Manager did not submit a waiver request to the Army Director, Enterprise Architecture Acquisition, as required, when becoming aware through a 1999 contractor study that the avionics for the CH-47F did not comply with 10 standards in the Joint Technical Architecture - Army (JTA-A). Additionally, the Project Manager did not direct the contractor to update the study to determine whether the additional avionics and software upgrades that the Army added to the CH-47F configuration complied with JTA-A standards. Those conditions occurred because the Project Manager did not comply with established JTA-A policy for submitting waiver requests when using or planning to use alternative standards to the JTA-A standards. As a result, the CH-47F Program will not fully meet the DoD objective for systems to have an open design that supports system interoperability and future block upgrades. Additionally, the Army Acquisition Executive was not made aware of the degree of system openness or provided information needed to better oversee plans for system upgrades in Blocks II and III of the evolutionary acquisition strategy for the CH-47F.

JTA-A Usage and Waiver Policy

The DoD Joint Technical Architecture (JTA) provides the baseline of standards with which Army information technology capabilities must conform. The Army Acquisition Executive, as the Army Technical Architect, develops and approves the Army specific refinements or extensions to the JTA. The JTA standards, plus the Army refinements and extensions, make up the JTA-A. Army program managers must follow policies that DoD and Army issued regarding use of and waiver from the interoperability standards included in the JTA-A.

DoD Policy. DoD introduced the requirement for program managers to use the JTA when developing weapon systems involving information technology capabilities, as well as provision for waiver, in the policy memorandum, "Implementation of the DoD Technical Architecture," August 22, 1996. The Offices of the Under Secretary of Defense for Acquisition, Technology and Logistics and the Assistant Secretary of Defense (Command, Control, Communications, and Intelligence) (renamed the Assistant Secretary of Defense [Networks and Information Integration]) (the JTA Policy Offices) issued the August 1996 memorandum to implement JTA Version 1.0 and to provide DoD Components and Component Acquisition Executives with the authority to grant waivers to program manager compliance with the JTA where warranted. The JTA Policy Offices (that now include the Staff Director for Command, Communications, and Computers, Joint Chiefs of Staff) provided additional waiver direction in the memorandum "DoD Joint Technical Architecture (JTA) Version 2.0," November 30, 1998, which required program managers to include

in the waiver requests the cost, schedule, and performance impacts that would occur if the DoD Component authority did not grant a waiver.

Since DoD issued the policy memorandums, the JTA Policy Offices have formalized JTA implementation and waiver policy. CJCS Instruction 3170.01B states that the JTA provides DoD systems with the basis for the needed seamless interoperability and requires that program managers, for systems in development, comply with the JTA standards. DoD Instruction 4630.8, "Procedures for Interoperability and Supportability of Information Technology (IT) and National Security Systems (NSS)," May 2, 2002, provides that a DoD Component Acquisition Executive or cognizant official may grant a waiver from JTA use where the Component identifies the potential negative impacts to cost, schedule, or performance.

Army Policy. Army Regulation 25-1, "Army Information Management," May 31, 2002, defines responsibilities for information management within the Army and states that the Army Director of Information Systems for Command, Control, Communications, and Computers, will ensure program office compliance with the approved JTA-A. Additionally, Army Regulation 25-1 requires that all Army developers and program managers design systems within JTA-A constraints. It further states that the Army Technical Architect must approve all waivers requests to the JTA-A requirements.

Determining the Need for Waiver

The Project Manager directed Boeing to perform a JTA-A compliance analysis for the CH-47F avionics in 1999. The Boeing compliance analysis, D724-10030-1, "Improved Cargo Helicopter (ICH) Digitalization Trade Study - Joint Technical Architecture - Army (JTA-A) Baseline Version 5.0," February 18, 1999, focused on those sections of JTA-A version 5.0 that were applicable to the planned aircraft avionics in an agreement between the project management office; the Army Digitalization Office; Boeing Helicopters; and Rockwell Collins, the major subcontractor for the cockpit avionics. Although the Boeing study recognized the advantages of using common standards across systems and platforms, Boeing documented that the planned CH-47F avionics were not compliant with 10 JTA-A standards as detailed in Appendix C.

The study provided the following overall reasons for the noncompliances:

- some standards were not easily implemented due to the limitations of commercially available third-party development tools;
- aircraft avionics were commercial off-the-shelf and non-developmental items that the contractors (Boeing and Rockwell Collins) selected based on cost, capability, schedule, and risk and implementing JTA standards would adversely affect all of those selection factors; and
- the contractors had implemented some JTA-A standards in prototype designs or were evaluating them, but did not consider the standards to be mature enough for critical application.

Although Boeing completed the JTA-A compliance analysis for the planned CH-47F avionics in 1999, Army Enterprise Architecture staff stated that the Project Manager did not submit a waiver request to the Army Director, Enterprise Architecture Acquisition, as required in DoD Instruction 4630.8 and Army Regulation 25-1. Additionally, the Boeing compliance analysis needed to be updated because the Project Manager plans to upgrade CH-47F avionics and software to meet the additional performance requirements in the draft Change 3 of the ORD. As discussed in Finding A, the draft ORD included requirements for information exchange, an interoperability key performance parameter, and the Global Air Traffic Management capability.

Following Waiver Policy

The nonsubmission of the waiver requests to JTA-A requirements resulted from the Project Manager not complying with the requirements in DoD Instruction 4630.8 and Army Regulation 25-1. In July 2003, the Project Manager's staff provided the audit team with a statement that recognized the need to contract for a JTA-A compliance analysis and to submit any necessary waiver requests to the Army Director, Enterprise Architecture Acquisition.

Project Manager direction for Boeing to update the JTA-A Army compliance analysis for the CH-47F and the Project Manager's submission of a JTA-A waiver request to the Army Director, Enterprise Architecture Acquisition would help the Project Manager gain the Army Acquisition Executive's approval of the design baseline for Block I and facilitate the Project Manager and the Army Acquisition Executive in planning for the next acquisition blocks of the CH-47F Program.

Summary

As a result of not fully implementing JTA-A standards, the CH-47F Program may not meet the DoD objective for systems to have an open design that supports system interoperability requirements and future block upgrades. Specifically, the JTA-A provides program managers with the standards and specifications they need to enable system interoperability and to support an open system design approach, allowing less costly integration of system upgrades. The DoD and the Army established JTA waiver policy to provide acquisition decision makers with timely notification of instances where cost, schedule, or performance impacts may preclude program managers from using specific JTA standards. Through the Project Manager's submission of JTA-A waiver requests, the Army Acquisition Executive can be provided information concerning the degree of system openness and be in a better position to oversee Project Manager plans for Blocks 2 and 3 of the evolutionary acquisition strategy for CH-47F. Until the Project Manager updates the JTA-A compliance analysis and determines the cost, schedule, and performance impacts of correcting identified JTA-A noncompliances, the Project Manager cannot submit waiver requests as required in DoD Instruction 4630.8 to identify the affects, if any, on subsequent blocks of the CH-47F acquisition effort.

Recommendations and Management Comments

B. We recommend that the Project Manager, Cargo Helicopters:

1. Direct Boeing to update the Joint Technical Architecture - Army compliance analysis based on the latest planned avionics for the CH-47F aircraft and include a cost-benefit analysis of correcting any Joint Technical Architecture - Army noncompliances identified in the updated compliance analysis.

2. Use the cost-benefit analysis resulting from implementation of Recommendation B.1. to submit necessary waiver requests from Joint Technical Architecture - Army requirements to the Army Director, Enterprise Architecture Acquisition, as required in DoD Instruction 4630.8, "Procedures for Interoperability and Supportability of Information Technology (IT) and National Security Systems (NSS)," May 2, 2002.

Management Comments. The Army Deputy for Acquisition and Systems Management, Office of the Assistant Secretary of the Army (Acquisition, Logistics, and Technology), responding for the Project Manager for Cargo Helicopters, concurred, stating that the Project Manager would include a deliverable updating the matrix to reflect compliance with the latest approved JTA-A version, or compliance as directed by the Army Software Blocking requirements definition, in all subsequent contracting efforts impacting the software, system, or hardware architecture. He further stated that the Project Manager will address any JTA-A noncompliance in accordance with DoD Instruction 4630.8.

C. Validating the Cost-Benefit Analyses for System Components Selected for Recapitalization

The Project Manager for the CH-47F did not submit the cost-benefit analyses supporting his decision to recapitalize 103 system components to the Office of the Deputy Assistant Secretary of the Army for Cost and Economics for validation as required. As a result, the Office of the Deputy Assistant Secretary of the Army for Cost and Economics did not have cost information needed to validate whether it was more cost-effective for the CH-47F Project Office to remanufacture aging components or to purchase new components in developing the Army's total life-cycle cost estimate for the CH-47F Program. The CH-47F Project Office's recapitalization effort represented \$7.9 billion of the estimated \$13.6 billion in life-cycle costs for the CH-47F Program.

Army Recapitalization Policy

The Assistant Secretary of the Army (Acquisition, Logistics, and Technology) and the Acting Army Acquisition Executive issued policy to Army commands and activities on the objectives and procedures for implementing the Recapitalization Program.

In the memorandum "Recapitalization Policy," March 20, 2000, the Assistant Secretary states that Army recapitalization of fielded weapons systems is critical to maintaining operational readiness and addressing the rising operations and support costs associated with aging weapon systems. In the memorandum "Army Recapitalization Management Policy: Rebuild and Upgrade the Legacy Force to Ensure Operational Readiness," (the Recapitalization Management Policy), April 11, 2001, the Acting Army Acquisition Executive defines the objectives of recapitalization as:

- extending the service life of recapitalized systems;
- reducing the rate of growth of operation and support costs for recapitalized systems;
- improving reliability, maintainability, safety, and efficiency of recapitalized systems and reducing the logistics footprint; and
- enhancing warfighting capabilities in selected recapitalized systems where needed.

Additionally, in the Recapitalization Management Policy, the Acting Army Acquisition Executive defines the roles and responsibilities for implementing the Recapitalization Program. Specifically, the memorandum states that program managers are responsible for executing the recapitalization program for their designated systems, including planning, programming, budgeting, and execution

of all funding. Further, the policy requires the Army Cost and Economic Analysis Center (renamed the Office of the Deputy Assistant Secretary of the Army for Cost and Economics) to validate all cost activities, cost-benefit analyses, and cost trade-off analyses that program managers prepare to support their recapitalization decisions.

Preparing and Submitting Cost-Benefit Analyses

On February 27, 2001, the Project Manager established a contract requirement for Southwest Research Institute to perform a cost-benefit analysis on selected CH-47F components for recapitalization. Although the contractor documented the analyses, the Project Manager did not provide the Office of the Deputy Assistant Secretary of the Army for Cost and Economics with the cost-benefit analyses of the 103 components selected for recapitalization for validation.

In the second quarter of FY 2001, the Vice Chief of Staff of the Army approved the recapitalization plan for the Chinook Program. The CH-47F Program was one of four recapitalization initiatives that the Army was implementing as part of the Chinook Recapitalization Program. The other three Components of the Chinook Recapitalization Program included the CH-47D Rebuild and Sustainment Program, the T55-GA-714A Engine Upgrade Program, and the CH-47D and F Depot Level Repairables Program. In June 2002, the Cargo Helicopter Program Management Office submitted the overall Chinook recapitalization plan in the, "CH-47 Recapitalization Program Baseline: Rebuild and Upgrade the Legacy Force to Ensure Operational Readiness," through the Assistant Secretary of the Army for Acquisition, Logistics, and Technology to the Office of the Deputy Assistant Secretary of the Army for Cost and Economics. However, the CH-47 Recapitalization Program Baseline did not include details of the cost-benefit analysis performed in support of the Program Baseline.

Adherence to Recapitalization Policy

The Project Manager did not submit the cost-benefit analyses supporting his decision to recapitalize 103 system components to the Office of the Deputy Assistant Secretary of the Army for Cost and Economics for validation because he did not comply with requirements in the Army Recapitalization Management Policy. Specifically, the Project Manager did not believe that the cost-benefit analyses were of value to the Office of the Deputy Assistant Secretary of the Army for Cost and Economics. In the Project Manager's opinion, the cost-benefit data were only of value to the CH-47F component engineers who performed the trade-off analyses to select the most cost-effective components to recapitalize without compromising system operational capabilities.

Need for Validation of Recapitalization Cost-benefit Analysis

Without having the cost-benefit analysis performed for the 103 components that the Project Manager selected for recapitalization, the Office of the Deputy Assistant Secretary of the Army for Cost and Economics did not have information

necessary to validate whether it was more cost-effective for the CH-47F Program Office to remanufacture the aging components or to purchase new components when developing the Army's total life-cycle cost estimate for the CH-47F Program. Because the CH-47F is a remanufacture program, the recapitalization of system components is an integral operation of the program and represented \$7.9 billion of the estimated \$13.6 billion in life-cycle costs for the CH-47F Program.

Recommendation and Management Comments

C. We recommend that the Project Manager, Cargo Helicopter submit the cost-benefit analyses for the selected 103 recapitalization components to the Office of the Deputy Assistant Secretary of the Army for Cost and Economics for review and validation in accordance with “Army Recapitalization Management Policy: Rebuild and Upgrade the Legacy Force to Ensure Operational Readiness,” April 11, 2000.

Management Comments. The Army Deputy for Acquisition and Systems Management, Office of the Assistant Secretary of the Army (Acquisition, Logistics, and Technology), responding for the Project Manager for Cargo Helicopters, concurred, stating that although the CH-47F Program Management Office believed a program level Recapitalization Program Baseline document, which it had submitted to the Deputy Assistant Secretary of the Army for Cost and Economics for validation, provided a more accurate view of the cost-benefits of recapitalizing the selected 103 aircraft components, the Program Office had also submitted a component level analysis to the Deputy Assistant Secretary for validation, as recommended.

Appendix A. Scope and Methodology

We evaluated whether the Project Manager for the CH-47F was effectively developing and preparing the program for full-rate production. Consequently, we focused our review on the areas of requirements generation, design, test and evaluation, and the cost-benefit analysis prepared for the Army Recapitalization Program.

To evaluate whether the Army was effectively managing the CH-47F Program, we examined CJCS Instruction 3170.01B, "Requirements Generation System," April 15, 2001; CJCS Instruction 3170.01C, "Joint Capabilities Integration and Development System," June 24, 2003; Army "Guide for Development of Army Operational Requirements Documents (ORDs)," November 16, 2001; DoD Instruction 4630.8, "Procedures for Interoperability and Supportability of Information Technology and National Security Systems," May 2, 2002; DoD Directive 5000.1, "The Defense Acquisition System," May 12, 2003; DoD Instruction 5000.2, "Operation of the Defense Acquisition System," May 12, 2003; "Interim Defense Acquisition Guidebook," October 30, 2002; CJCS Instruction 6212.01B, "Interoperability and Supportability of National Security Systems, and Information Technology Systems," May 8, 2000; "Army Recapitalization Management Policy: Rebuild and Upgrade the Legacy Force to Ensure Operational Readiness," April 11, 2000; and the Assistant Secretary of the Army memorandum, "Recapitalization Policy," March 20, 2000.

We reviewed documentation dated from November 1997 to September 2003 that we obtained from the CH-47F Program Office, Redstone Arsenal, Alabama; the Technical Applications Program Office, Fort Eustis, Virginia; the U.S. Army Aviation Center, Fort Rucker, Alabama; and the Defense Contract Management Agency - Boeing, Philadelphia, Pennsylvania.

We performed this audit from February through October 2003 in accordance with generally accepted government auditing standards.

Use of Computer-Processed Data. We did not use computer-processed data to perform this audit.

Use of Technical Assistance. Two electrical engineers from the Electronics Engineering Branch, Technical Assessment Division of the Audit Followup and Technical Support Directorate, Office of the Inspector General of the Department of Defense, assisted in the audit. The electrical engineers assisted the audit team by analyzing the system design effort for the CH-47F Program.

General Accounting Office High-Risk Area. The General Accounting Office has identified several high-risk areas in DoD. This report provides coverage of the DoD Weapons Systems Acquisition high-risk area.

Management Control Program Review

DoD Directive 5010.38, "Management Control (MC) Program," August 26, 1996, and DoD Instruction 5010.40, "Management Control (MC) Program Procedures," August 28, 1996, require DoD organizations to implement a comprehensive system of management controls that provides reasonable assurance that programs are efficiently and effectively carried out in accordance with applicable law and to evaluate the adequacy of the controls.

Scope of the Review of the Management Control Program. In accordance with DoD Directive 5000.1, acquisition managers are to use program cost, schedule, and performance parameters as control objectives to implement the requirements of DoD Directive 5010.38. Accordingly, we limited our review to management controls that the Army Acquisition Executive established directly related to requirements generation, design, acquisition planning, program assessments and decision reviews, contracting, and test and evaluation for the CH-47F Program.

Adequacy of Management Controls. We identified material management control weaknesses as defined by DoD Instruction 5010.40. The management controls were not adequate to ensure that the Project Manager successfully designed CH-47F avionics in compliance with the JTA-A to support interoperability requirements and received required validation of his economic analysis supporting recapitalizing selected system components. Recommendations B.1., B.2., and C., if implemented, will ensure adherence to regulatory requirements. We will provide a copy of the report to the senior official responsible for management controls in the Office of the Assistant Secretary of the Army (Financial Management and Comptroller).

Adequacy of Management Self-Evaluation. The Army Program Executive Officer, Aviation required the Project Manager for Cargo Helicopters, one of his eight management control assessable units, to perform annual reviews of the programs under the Project Manager's control to satisfy the management control requirement for self-evaluation. In his annual statement of assurance to the Army Program Executive Officer, the Project Manager stated that the actions supporting his statement included, but were not limited to, consideration of audit, inspection, and other independent reviews and assurances from his subordinate product managers and directors. However, in the self-evaluation, the Project Manager did not identify the specific management control weaknesses that the audit identified because the Army Program Executive Officer had not required the Project Manager to review those areas as part of his self-evaluation.

Prior Coverage

No prior coverage has been conducted on CH-47F Improved Cargo Helicopter during the last 5 years.

Appendix B. Corrective Actions Taken During the Course of the Audit

The Army and USSOCOM initiated corrective actions during the audit to address audit issues on updating and approving a draft MOA between the Project Manager, Cargo Helicopters, and the USSOCOM Product Manager, Technology Application Program Office. An updated MOA was needed to enable the managers to better coordinate the development and production of the CH-47F and MH-47G. Also, the Project Manager and his staff, met with contracting staff to emphasize the need for prompt communication of critical information between his procurement contracting office and the administrative contracting office supporting the Army.

Updating and Approving Draft MOA. The Army Project Manager and the USSOCOM Product Manager revised the draft “Memorandum of Agreement Between the Project Manager - The Technology Applications Program Office and the Project Manager - Improved Cargo Helicopter (ICH) Program Office,” September 27, 2002, to:

- specify the new aircraft production profile that Program Decision Memorandum-1 mandated,
- require Army to provide 30 aircraft to USSOCOM in support of the new production profile,
- define the induction strategy (aircraft configuration and induction schedule) for the 30 aircraft that Army will give up to USSOCOM.

The revisions to the MOA will enhance coordination between the project offices and their supporting organizations and contractors, and help the Army and USSOCOM better plan for managing the schedule, technical, and cost risks associated with their programs.

Communicating Critical Contract Related Information. In April 2003, the USSOCOM procurement contracting office experienced a month delay in receiving notification from the Army administrative contracting office about a contract modification for a month delay in inducting four of the seven CH-47D aircraft for upgrade to the CH-47F and MH-47G configuration. Consequently, according to USSOCOM contracting office staff, the Project Manager met with contracting staff to emphasize the need for prompt communication of critical information between his procurement contracting office and the administrative contracting office supporting the Army. Because the CH-47F and MH-47G Programs will share the same contractor production line, the Project Manager stated that it is critical for the administrative contracting offices to promptly relay important contract related information.

Appendix C. Results of Contractor Joint Technical Architecture - Army Compliance Analysis

The Boeing compliance analysis on, “Improved Cargo Helicopter (ICH) Digitalization Trade Study - Joint Technical Architecture - Army (JTA-A) Baseline Version 5.0,” February 11, 1999, showed that the planned CH-47F avionics were non-compliant with standards in the following JTA-A Sections:

<u>JTA-A Section</u>	<u>Standard Title</u>
2.2.1	Defense Information Infrastructure Common Operating Environment Integration and Runtime Specification version 2.0, October 1995
2.2.2.1.1.2	Language Bindings and Object Linking
2.2.2.1.4.3	Geospatial Data Interchange, Military Standard - 2407, Vector Product Format
2.2.2.1.7	Operating System Services
2.3.1	Defense Information Infrastructure Common Operating Environment
2.3.2	Service Area Standards for Software Engineering
2.3.2	Service Area Standards for Operating Systems
4.2.6	Calendar Date Data Format
4.3.2	Data Modeling Standard for Object Oriented Programming
5.2.2.2	DoD Human Computer Interface Style Guide Standard for Tactical System Common Features

Appendix D. Report Distribution

Office of the Secretary of Defense

Under Secretary of Defense for Acquisition, Technology, and Logistics
Under Secretary of Defense (Comptroller)/Chief Financial Officer
Deputy Chief Financial Officer
Deputy Comptroller (Program/Budget)

Joint Staff

Director, Joint Staff

Department of the Army

Assistant Secretary of the Army (Acquisition, Logistics, and Technology)
Assistant Secretary of the Army (Financial Management and Comptroller)
Deputy Chief of Staff for Operations Plans
Auditor General, Department of the Army
Project Manager for Cargo Helicopters
Product Manager for the CH-47F

Department of the Navy

Naval Inspector General
Auditor General, Department of the Navy

Department of the Air Force

Auditor General, Department of the Air Force

Unified Command

Inspector General, U.S. Joint Forces Command

Other Defense Organization

Director, Defense Contract Management Agency

Non-Defense Federal Organization

Office of Management and Budget

Congressional Committees and Subcommittees, Chairman and Ranking Minority Member

Senate Committee on Appropriations
Senate Subcommittee on Defense, Committee on Appropriations
Senate Committee on Armed Services
Senate Committee on Governmental Affairs
House Committee on Appropriations
House Subcommittee on Defense, Committee on Appropriations
House Committee on Armed Services
House Committee on Government Reform
House Subcommittee on Government Efficiency and Financial Management, Committee on Government Reform
House Subcommittee on National Security, Emerging Threats, and International Relations, Committee on Government Reform
House Subcommittee on Technology, Information Policy, Intergovernmental Relations, and the Census, Committee on Government Reform

Department of the Army Comments



DEPARTMENT OF THE ARMY
OFFICE OF THE ASSISTANT SECRETARY OF THE ARMY
ACQUISITION LOGISTICS AND TECHNOLOGY
103 ARMY PENTAGON
WASHINGTON DC 20310-0103

19 DEC 2003

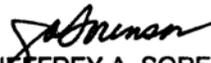
SAAL-SAI

MEMORANDUM THRU AUDITOR GENERAL, DEPARTMENT OF THE ARMY
FOR PROGRAM DIRECTOR, PROGRAM MANAGEMENT DIRECTORATE,
INSPECTOR GENERAL, DEPARTMENT OF DEFENSE

SUBJECT: Report on the Acquisition of the CH-47F Improved Cargo Helicopter
(Project No. D2003AE-0069)

We appreciate the opportunity to comment on the subject report. The Army concurs with the draft report with comment. The comments are detailed in the enclosure to this memorandum.

My point of contact for this action is Mr. Brian Craddock, 703-604-7066,
brian.craddock@saalt.army.mil.


JEFFREY A. SORENSON
Brigadier General, GS
Deputy for Acquisition and Systems
Management

Enclosure

Objective: Evaluate the overall management of the Army CH-47F Improved Cargo Helicopter (ICH) Program. Because the program was in the LRIP Phase, the DoD IG evaluated management's preparation of the program for the full-rate production phase of the acquisition process.

IG FINDING A. DEFINING SYSTEM REQUIREMENTS

- The Army Director of Combat Developments and the Deputy Chief of Staff for Operations and Plans (DCSOPS) had not finalized a revision of the 1997 ORD.

IG RECOMMENDATION: Army Deputy Chief of Staff for Operations and Plans Expedite review and approval process of the draft ORD, Change 3.

ARMY COMMENTS: Concur. ORD review and approval process has been expedited. JROC tentatively scheduled for January 2004.

- The Army Director of Combat Developments did not define the estimated number of CH-47Fs that the Army required for training in draft Change 3 of the ORD.

IG RECOMMENDATION: The Army Director of Combat Developments update the draft ORD, Change 3, to include the number of CH-47F aircraft that are required for training.

ARMY COMMENTS: Concur. Current version of the CH-47F ORD, Change 3, being staffed contains requirement for 10 CH-47Fs to support the CH-47F training requirement.

IG FINDING B. REQUESTING A WAIVER TO USING STANDARDS IN THE JOINT TECHNICAL ARCHITECTURE- ARMY

- Project Manager did not comply with established JTA-A policy for submitting waiver requests when using or planning to use alternative standards to the JTA-A standards.

IG RECOMMENDATION: The PM direct Boeing to update the JTA-A compliance analysis based on the latest planned avionics for the CH-47F aircraft and include a cost-benefit analysis of correcting any Joint Technical Architecture- Army non compliances identified in the updated compliance analysis. Utilizing data from Boeing update, submit necessary waiver requests.

ARMY COMMENTS: Concur. At the time the EMD contract was let JTA-A Version 5.0 was the most current version and was referenced in our contract. Since then the JTA-A has gone through numerous revisions, however CH-47F has not fielded a version of SW since and is still on a JTA-A V5.0 baseline. As recommended, the PM will include in all subsequent contracting efforts impacting the

software, system, or hardware architecture a deliverable updating the matrix to reflect compliance with the approved JTA-A version at time of contract award or as directed by Army Software Blocking requirements definition. Any noncompliance will be addressed IAW DoD Instruction 4630.8, dated May 2, 2002.

IG FINDING C. VALIDATING THE COST-BENEFIT ANALYSES FOR SYSTEM COMPONENTS SELECTED FOR RECAPITALIZATION

- Program Manager did not submit the cost-benefit analyses supporting decision to recapitalize system components to the Office of the Deputy Assistant Secretary of the Army for Cost and Economics (CEAC) for validation.

IG RECOMMENDATION: CH-47 Program Office submit the cost-benefit analyses for the selected recapitalization components to CEAC for review and validation.

ARMY COMMENTS: Concur. The CH-47 PMO provided the CH-47 Recapitalization Program Baseline document to CEAC for validation. This document included a program level analysis of costs and benefits with an estimated average increase in repair cost of 18% over current overhaul costs and a corresponding average increase in mean time between repair (MTBR) of 18% for the suite of 103 components. The Program Office felt that this program level analysis provided a more accurate view of the costs and benefits of the program than the component level analysis. Thus the baseline document was submitted for validation. However, component level analysis has since been completed and provided to CEAC for validation.

Team Members

The Acquisition Management Directorate, Office of the Assistant Inspector General for Auditing of the Department of Defense prepared this report. Personnel of the Office of the Inspector General of the Department of Defense who contributed to the report are listed below.

John E. Meling
Harold C. James
Patrick E. Mchale
Bradford C. Green
Vilma R. Sacco
Jamie Bobbio
Wei Chang
Ann A. Ferrante