

Audit



Report

OFFICE OF THE INSPECTOR GENERAL

**QUICK-REACTION REPORT ON THE PROCUREMENT
OF THE ARMY LIGHT AND SPECIAL DIVISION
INTERIM SENSOR**

Report Number 91-086

May 31, 1991

Department of Defense



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

REPORT NO. 91-086

May 31, 1991

MEMORANDUM FOR ASSISTANT SECRETARY OF THE ARMY (FINANCIAL
MANAGEMENT)

SUBJECT: Quick-Reaction Report on the Procurement of the Army
Light and Special Division Interim Sensor
(Project No. ORA-0064.01)

Introduction

This is our final quick-reaction report on the Procurement of the Army Light and Special Division Interim Sensor. The original draft of this report was issued on January 23, 1991. After the draft report was issued, a cease-fire was negotiated in the Middle East. Accordingly, the Operation Desert Storm urgency associated with this action is no longer applicable for procuring the Army's interim radar system, the Light and Special Division Interim Sensor (LSDIS). In addition, Army comments on the original draft emphasized the need for the LSDIS to interface with the Forward Area Air Defense Command, Control, and Intelligence (FAAD C2I). This requirement was not addressed in the original draft report because it was not supported in Army requirements documents. Due to the cease-fire and the Army's comments on the original draft report, the report was revised to focus on the need for the Army to contract for and fully test all operational requirements. The report was reissued in draft form on April 5, 1991.

During our audit of Pacific Theater Air Defense Activities, we became aware that the U.S. Army Missile Command is planning to award a contract for an Army interim lightweight radar system that is similar in capabilities to a system being procured by the Marine Corps. We identified the proposed procurement during audit fieldwork related to our audit objective to review documentation concerning the removal of the Forward Area Alerting Radar (FAAR) from the 2d Infantry Division, 8th U.S. Army. The Army designated the radar system requirement as an urgent procurement and submitted to Congress a request for supplemental Operation Desert Storm funds. As part of the Operation Desert Storm supplemental budget passed by the Congress in March 1991, the Army received \$10 million for 25 LSDIS units. The LSDIS is a new-start, Army procurement program.

Background

In March 1990, consistent with Defense Management Report Decision No. 927 (DMR No. 927), the U.S. Army Deputy Chief of Staff for Operations and Plans directed the removal of the FAAR from the Army inventory by the end of FY 1990. The withdrawal of the FAAR from inventory created a need for an early warning detection device for the U.S. Army Light Infantry Divisions.

In August 1990, the U.S. Army Assistant Deputy Chief of Staff for Operations and Plans (Force Development) waived the removal of the FAAR for the units deploying as part of Operation Desert Shield.

Discussion

Requirements. In March 1990, the Commandant of the U.S. Army Air Defense Artillery School stated in a memorandum to Headquarters, Training and Doctrine Command (TRADOC) that the Marine Corps Light Early Warning Detection Device (LEWDD) offers a solution to the Army's requirement for an interim air defense radar system. The Commandant recommended that the Army request a direct procurement to expedite the acquisition of the Marine Corps LEWDD by the first quarter of FY 1991. The Assistant Deputy Chief of Staff for Combat Developments at TRADOC stated in a May 21, 1990, memorandum to the U.S. Army Assistant Deputy Chief of Staff for Operations and Plans (Force Development) that the Marine Corps LEWDD will adequately satisfy the need for an interim air defense radar system. On June 22, 1990, the Army approved the Marine Corps requirements document to support Army needs. However, on the same date, the Army Acquisition Executive signed an LSDIS Decision Memorandum stating:

It is my decision that an Army competitive procurement is the most appropriate acquisition strategy to follow. The strategy must stress the requirement for interface with the FAAD C2 [Forward Area Air Defense Command and Control] program, to include a digital signal processor. This acquisition strategy will be executed by the issuance of a competitive solicitation using a "best value" evaluation procedure and require delivery of systems to meet the FAAD C2 IOT&E [Initial Operational Test and Evaluation] schedule.

LSDIS program documentation was not revised to reflect the new requirement to interface. In July 1990, the U.S. Army Assistant Deputy Chief of Staff for Operations and Plans (Force Development) directed a procurement of the LEWDD capability. The

procurement directive was the first document to state a requirement for the FAAD C2I interface. The interface capability was referred to as a "desired characteristic," not a technical requirement. The Army's Deputy Chief of Staff for Operations and Plans (Force Development) modified procurement documentation in August 1990 to add target location accuracy, but no other changes were made to system requirements documents.

The Acquisition Plan for the LSDIS, dated June 27, 1990, and the subsequent request for proposal also refer to the FAAD C2I interface capability as a "desired characteristic." Two responsive bidders proposed to provide the FAAD C2I interface capability. On November 13, 1990, Lockheed Sanders, Inc., won the competitive source selection bid.

The need for the Army to better document its requirements is evidenced by an Army General Counsel memorandum of July 31, 1990, to the Secretary of the Army (Research, Development and Acquisition) office. The memorandum states:

It was our understanding that the Army Acquisition Executive (AAE) had directed that the system be able to interface with the FAAD C2I. At present, the Acquisition Plan does not require this capability. We raised this issue in our review of the Acquisition Plan. DCSOPS [Deputy Chief of Staff Operations and Plans] responded stating it was not a requirement for the interim sensor and, therefore, felt it was unnecessary to amend the Acquisition Plan. Although the decision as to the Army's requirements is a DCSOPS call, we would recommend that it be consistent with the AAE direction.

Testing. The request for proposal for the LSDIS requires the first article test item to be delivered 2 months after contract award. The first production unit is scheduled for delivery 13 months after contract award. Operation Desert Storm would have required expedited delivery. The Army planned to modify the LSDIS contract shortly after award to expedite deliveries. The Army anticipated that expediting the LSDIS contract would allow delivery of the LSDIS for Operation Desert Storm to begin 1 month after contract award with a total of 16 units delivered 6 months after contract award. The Army's estimate was based on an optimistic production and testing schedule.

The LSDIS Test and Evaluation Master Plan (TEMP), dated August 15, 1990, does not require testing LSDIS to interface

with FAAD C2I. The TEMP references the interface capability as a "desired characteristic" with follow-on testing required. The TEMP states:

Information from the sensors will be passed to the forward area air defense fire units by voice radio using manual short-range air defense control system (MSCS) techniques. At some future time, provision may be made for LSDIS to interface with the FAAD C2 system for automated correlation and integration with command and control information, but the LSDIS as initially fielded will support only MSCS over combat net radios.

The Army's program documents should include a requirement to test for full interface capability. In addition, the LSDIS contract should include the interface requirement and appropriate testing provisions.

To meet time constraints for Operation Desert Storm, testing was to have occurred concurrent with the fielding of the system. The draft First Article Test Plan states that the first category of tests included limited testing needed for a conditional release decision to immediately field the LSDIS to Operation Desert Storm. Under these provisions, there would be no assurance that the system could have met all operational requirements when fielded to the troops in the Middle East. FAAD C2I interface with LSDIS is not addressed in these preliminary tests. The second category of tests would address all operational issues and criteria in the First Article Test Plan to support a decision to field up to 60 systems. These tests require a digital interface with the FAAD C2I system; however, there is no planned testing of all critical components^{1/} necessary for the operation of the interface. The Army stated in its response to the draft report, issued April 5, 1991, that full FAAD C2I interface testing cannot occur during first article testing due to the timing of the FAAD C2I program. However, we believe that full interface testing should occur prior to fielding of the LSDIS. The Army also stated that the LSDIS will have demonstrated full FAAD C2I interface capability during Production Qualification Testing.

Summary. The LEWDD initially met Army requirements and would have provided a solution to the Army lightweight radar requirement. However, the Army Acquisition Executive has

^{1/} FAAD C2I Concepts of Operations, X and Y velocities, and track quality.

determined that the Army system must interface with FAAD C2I, making the Marine Corps analog LEWDD unacceptable. The Army should adequately document the FAAD C2I requirement, contract for the capability, and fully test the FAAD C2I interface requirement.

Recommendations for Corrective Action

We recommend that the Secretary of the Army:

1. Modify the Test and Evaluation Master Plan for the Light and Special Division Interim Sensor to require the Forward Area Air Defense Command, Control, and Intelligence interface capability.

2. Contract for the Forward Area Air Defense Command, Control, and Intelligence interface capability for all Light and Special Division Interim Sensor units including the first article test item.

3. Test the Light and Special Division Interim Sensor first article test item for interface compatibility with the Forward Area Air Defense Command, Control, and Intelligence.

Management Comments and Audit Response

The Army concurred with the draft report. The comments are summarized below, and the complete text of the comments is in Enclosure 1. The Army agreed to implement Recommendations 1. and 2; however, no completion dates were provided. Therefore, we request that the Army provide estimated dates of completion for implementing the two recommendations in response to the final report. The Army suggested that Recommendation 3., to test the LSDIS first article test item for full interface, be revised to "Test the LSDIS FAT [first article test] item for basic interface compatibility. . . ."

The Army further stated that first article test results will enable it to consider contractual actions that will guarantee all requirements, not just the FAAD C2I interface requirement, are met prior to fielding. We interpret the Army response to mean that although the first article will not be tested for full interface compatibility, the LSDIS will not be fielded until the interface has been fully tested. Based on this assumption, we revised Recommendation 3. accordingly. We request that the Army comment on our stated assumption and revised Recommendation 3. in response to the final report. DoD Directive 7650.3 requires that all audit recommendations be resolved promptly. Accordingly, final comments on Recommendation 3. should be provided within 30 days of the date of this memorandum. This report claims no monetary benefits, but other benefits are listed in Enclosure 2.

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The courtesies extended to the audit staff are appreciated. If you have any questions on this report, please contact Mr. Michael Joseph at (703) 693-0138 (DSN 223-0138) or Ms. Evelyn Klemstine at (703) 693-0171 (DSN 223-0171). A list of activities visited or contacted is in Enclosure 3, and the audit team members are listed in Enclosure 4. Copies of this report are being provided to the activities listed in Enclosure 5.



Robert J. Lieberman
Assistant Inspector General
for Auditing

cc:
Commandant of the Marine Corps
Comptroller of the Department of Defense
Director, Joint Staff



REPLY TO
ATTENTION OF

DEPARTMENT OF THE ARMY
OFFICE OF THE ASSISTANT SECRETARY
WASHINGTON, DC 20310-0103



24 APR 1991

SARD-ZS

MEMORANDUM FOR ASSISTANT INSPECTOR GENERAL, DOD (AUDITING),
400 ARMY-NAVY DRIVE, ARLINGTON, VA 22202-2884

SUBJECT: Revised Draft Quick-Reaction Report on the
Procurement of the Army Light and Special Division Interim
Sensor (Project No. ORA-0064.01)

1. The Army concurs with subject revised report and provides
the following comments:

a. The Army will modify the LSDIS Test and Evaluation
Master Plan (TEMP) to require the Forward Area Air Defense
Command, Control, and Intelligence (FAAD C2I) interface
capability. The TEMP update is a planned event that will take
place after contract award and as part of the program's
continuous evaluation process. This agrees with the DODIG's
first recommendation.

b. The Army will comply with the DODIG's recommendation to
contract for the FAAD C2I interface to include the First
Article Test (FAT) unit. The FAT unit will be brought up to
production configuration upon completion of Production
Qualification Testing (PQT) and before fielding. This
configuration would have demonstrated its full FAAD C2I
interface capability during PQT.

c. The Army suggests the DODIG rewrite its third
recommendation to "Test the LSDIS FAT item for full interface
compatibility ..." to read "Test the LSDIS FAT item for basic
interface compatibility ...". The Army LSDIS program was
designed to meet an urgent need created by the removal of the
Forward Area Alerting Radar. The aggressive nature of the
program in conjunction with its Non-Developmental Item
acquisition strategy does not allow the Army or the contractor
to comply with or test all technical and operational FAAD C2I
interface requirements during FAT. The purpose of the LSDIS
FAT is to verify the contractor's capability to furnish a
product that meets established contractual and technical
criteria. At the same time, this activity will allow both the
Army and contractor to adjust their programs to minimize risks.
The FAT results will enable the Army to consider contractual
actions that will guarantee all requirements, not just the FAAD
C2I interface requirement, are met prior to fielding. The
LSDIS capability to interface with FAAD C2I will again be
evaluated during PQT and during the FAAD C2I integration test.

The FAAD C2I program integration test, scheduled for January 1992, will fully exercise the LSDIS technical and operational capabilities in a C2I environment. LSDIS support of this test will be the final determinant of the LSDIS full FAAD C2I compatibility. Because of this rationale, it makes little sense to test for full FAAD C2I interface compatibility during FAT.

2. Point of contact for this action is Mr. Luis A. Villalobos, ext. 48747.

Encl
PM LSDIS cmts.


RICHARD D. BELTSON
MG, GS
Deputy for Systems Management

CF:
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Light and Special Division Interim Sensor (LSDIS) System

Manager Comments:

DODIG Recommendation 1: Modify the Test and Evaluation Master Plan (TEMP) for the LSDIS to require the Forward Area Air Defense Command, Control, and Intelligence (FAAD C2I) interface capability.

Army Position: Concur with comment. Paragraphs 2.1.3., 2.3., and 3.3.1. of the TEMP provides for testing of LSDIS performance against contractual requirements. The contractual requirements contained in the Model contract #DAAH01-91-C-0031 are firm requirements. They are:

Attachment 2 paragraph 2.2.7.1. First Article Test C2I interface:

"The sensor shall report target range and azimuth data to the FAAD C2I subsystem over hardwired RS-232 digital interface. This capability shall be available for First Article Test (FAT)."

Attachment 2 paragraph 2.2.7.2. Production Qualification Test (PQT) C2I interface:

"The sensor shall provide an interface to the FAAD C2I data link in compliance with MIS-36264B, CONOPS mode of operation. X & Y velocities and track quality shall be provided with the PQT and subsequent units. The sensor shall also provide this interface via an RS-232 interface connection. This capability shall be available for PQT and all subsequent production units."

The TEMP will be updated to clearly state the requirements for FAAD C2I interface.

DODIG Recommendation 2: Contract for the FAAD C2I interface capability for all LSDIS units including the FAT item.

Army position: Concur with comment. Firm contractual requirements exist for all sensors to contain the FAAD C2I interface capability. The FAT unit will first be delivered with the limited capability as stated in Model Contract DAAH01-91-C-0031, Attachment 2 paragraph 2.2.7.1.

"This unit will be upgraded to the full FAAD C2I interface capability (Model Contract #DAAH01-91-0031 Attachment 2, paragraph 2.2.7.2.) per Contract Line Item Number (CLIN) 11 and attachment 1, paragraph 3.5.8. of Model Contract DAAH01-91-0031 after FAT."

DODIG Recommendation 3: Test the LSDIS FAT item for full interface compatibility with the FAAD C2I.

Army position: Concur with suggested rewrite to read "... item for basic interface compatibility ...". The Model Contract is presently set up to test the FAT unit to ensure it reports target range and azimuth data to the FAAD C2I subsystem via a hardwired RS-232 digital interface. The first production unit to undergo Production Qualification Testing (PQT) will contain the FAAD C2I interface capability (adding X and Y velocity and target quality capabilities, through a software change). This two step approach was adopted to meet the urgent fielding requirements and allow the selected contractor, additional time to refine the software capability in coordination with the FAAD C2I program. Fielding will not occur until PQT is completed and its objectives met.

SUMMARY OF POTENTIAL
BENEFITS RESULTING FROM AUDIT

<u>Recommendation Reference</u>	<u>Description of Benefit</u>	<u>Type of Benefit</u>
1., 2., and 3.	Internal Control. Revision of testing documentation, and contracting and testing of Forward Area Air Defense Command, Control, and Intelligence interface will ensure the Light and Special Division Interim Sensor meets requirements.	Nonmonetary

ACTIVITIES VISITED OR CONTACTED

Office of the Secretary of Defense

Director, Defense Research and Engineering, Washington, DC
Assistant Secretary of Defense (Command, Control, Communications
and Intelligence), Washington, DC
Assistant Secretary of Defense (Production and Logistics),
Washington, DC
Director, Program and Financial Control, Office of the
Comptroller of the Department of Defense, Washington, DC

Department of the Army

Assistant Secretary of the Army (Research, Development and
Acquisition), Washington, DC
U.S. Army Deputy Chief of Staff for Operations and Plans (Force
Development), Washington, DC
U.S. Army Training and Doctrine Command, Office of the Deputy
Chief of Staff for Combat Developments, Fort Monroe, VA
U.S. Army Air Defense Artillery School, Fort Bliss, TX
U.S. Army Missile Command, Program Executive Office, Air Defense,
Redstone Arsenal, AL
U.S. Forces Korea, Office of the Assistant Chief of Staff for
Operations, Seoul, Korea

Department of the Navy

Naval Surface Warfare Center, White Oaks Laboratory,
Silver Spring, MD
U.S. Marine Corps Research, Development, and Acquisition
Command, Aviation Command and Control Program Management
Office, Quantico, VA

TEAM MEMBERS

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Directorate

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Secretary of the Army
Assistant Secretary of the Army (Financial Management)
Assistant Secretary of the Army (Research, Development and
Acquisition)
U.S. Army Deputy Chief of Staff for Operations and Plans (Force
Development)

Department of the Navy

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Defense Activities

Director, Joint Staff
Defense Logistics Studies Information Exchange

Non-Defense Activities

Office of Management and Budget
U.S. General Accounting Office, NSIAD Technical Information
Center

Congressional Committees:

Senate Committee on Appropriations
Senate Subcommittee on Defense, Committee on Appropriations
Senate Committee on Armed Services
Senate Subcommittee on Readiness, Sustainability, and Support,
Committee on Armed Services
Senate Committee on Budget
Senate Committee on Governmental Affairs
Senate Subcommittee on Oversight of Government Management,
Committee on Governmental Affairs
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House Committee on Appropriations

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