Audit Report

OFFICE OF THE INSPECTOR GENERAL

NETWORK ENGINEERING ASSESSMENT FACILITY

Report No. 96-138 June 3, 1996

Department of Defense

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Acronyms

CFSE	Center for Systems Engineering
DISA	Defense Information Systems Agency
NEAF	Network Engineering Assessment Facility

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

June 3, 1996

MEMORANDUM FOR DIRECTOR, DEFENSE INFORMATION SYSTEMS AGENCY

SUBJECT: Audit of the Network Engineering Assessment Facility (Report No. 96-138)

Introduction

We are providing this report for your information and use. The audit was performed in response to your request for assistance in reviewing the operations of the Defense Information Systems Agency (DISA) Network Engineering Assessment Facility (NEAF), a subordinate organization of the DISA Center for Systems Engineering (CFSE). The report discusses the operations at the NEAF in Reston, Virginia.

Audit Results

The NEAF is a cost-effective and functionally efficient facility that enables the CFSE to achieve its mission objectives of providing technical support for the development of command centers and automated data processing engineering. The management controls we reviewed were effective in that no material management control weakness was identified.

Audit Objectives

The overall audit objective was to evaluate the efficiency and effectiveness of the operations at the NEAF. Specifically, we determined the amount and source of funding for NEAF operations and evaluated staffing levels and the management control program as it applied to the overall audit objective.

Scope and Methodology

Scope and Methodology. We evaluated the missions and functions of the NEAF and evaluated applicable policies, procedures, and guidelines relating to the operations at NEAF. We reviewed documentation dated from January 1994 through April 1996. Specifically, we reviewed and analyzed:

- the NEAF Management Plan and Baseline Configuration Description;
- inventory records and controls;
- equipment and visitor logs; and
- monthly status reports, contracting documents, and personnel descriptions.

Also, we performed tests to verify whether management control techniques were in place and effective to safeguard assets from loss, impairment, or misuse.

Audit Period, Standards, and Locations. We performed this economy and efficiency audit from March through April 1996. The audit was performed in accordance with auditing standards issued by the Comptroller General of the United States as implemented by the Inspector General, DoD, and included tests of management controls considered necessary. We relied on computer-processed data for information, but did not rely on the computer-processed data to develop audit conclusions. We did not use statistical sampling procedures to perform the audit. A list of organizations visited or contacted is in Enclosure 2.

Management Control Program

DoD Directive 5010.38, "Internal Management Control Program," April 14, 1987, requires DoD organizations to implement a comprehensive system of management controls that provides reasonable assurance that programs are operating as intended and to evaluate the adequacy of the controls.

Scope of Review of the Management Control Program. We reviewed the management controls related to the organizational elements of the NEAF. We evaluated the procedures involved in the overall management of the NEAF. Specifically, we evaluated NEAF compliance with DoD policies on documentation, property, and security. Because we did not identify a material weakness, we did not assess management's self-evaluation.

Adequacy of Management Controls. Overall, controls were in place and working as designed. We identified no material management control weaknesses.

Prior Audits and Other Reviews

There have been no published reports, prior audits, or other reviews of the NEAF during the last 5 years.

Audit Background

The DISA Joint Interoperability and Engineering Organization is responsible for identifying and correcting communications network deficiencies and for assessing state-of-the-art technologies that may be used in the Defense Information System Network. The CFSE (a subordinate organization of the Joint Interoperability and Engineering Organization) provides development, evaluation, and applications engineering for technologies and products used in the Defense Information System Network. The CFSE provides technical support for the development of command centers and automated data processing engineering. The CFSE also provides an engineering center for the development, evaluation, and applications engineering of technologies and products used in the Defense Information System Network. The CFSE tasks the NEAF to perform engineering evaluations and assessments of emerging technologies.

Discussion

The NEAF Mission. The NEAF is an 11,252-square-foot testing and assessment facility located within the CFSE facility in Reston, Virginia. The mission of the NEAF is to provide a facility in which CFSE personnel can assess, evaluate, and demonstrate CFSE initiated and sponsored research on new telecommunications technology. The CFSE engineers use the NEAF to assess potential and/or theoretical telecommunications connectivity, from end to end, as it is seen from the user's point of view. The equipment in the NEAF can be used in various configurations to simulate much larger telecommunications networks to determine problem areas. Further, CFSE engineers can use the NEAF as a test bed for new or innovative telecommunications technology.

Policies and Procedures. A contractor, the Automation Research Systems, Limited, prepared the NEAF Management Plan on December 29, 1995. The plan establishes procedures to assist CFSE personnel in conducting engineering assessments and demonstrations. Prospective customers of the NEAF use the plan for initial familiarization and as a guide during an assessment or demonstration. The plan contains 11 sections describing categories of assessments, configuration management of the NEAF, personnel and property management, security procedures, and NEAF standard operating procedures. We determined that generally, the users are following the guidelines in the management plan.

The draft Baseline Configuration Description, April 15, 1996, prepared by a contractor (Logicon), provides additional details on the capabilities and equipment associated with various projects within the NEAF. The baseline configuration is intended to support most assessment requirements with little configuration changes to the NEAF. The draft document is an update to the 1995 baseline configuration description prepared by Automation Research Systems, Limited, and when approved, will provide users a basis to evaluate whether their assessment requirements can be met at the NEAF facility.

NEAF Operations. CFSE personnel determine the projects to be researched, assessed, evaluated, and demonstrated. The CFSE engineers coordinate with the NEAF Operations Officer and the NEAF Manager to reserve space and to schedule projects. Scheduling is important to avoid conflicts because the NEAF can support several simultaneous assessments. The CFSE funds the cost of necessary equipment and personnel to conduct research, assessments, and demonstrations, while the NEAF provides general-use equipment for CFSE projects. As of May 1996, that equipment was valued at $108,094.

The NEAF Manager's coordination and support of assessment activities begins when user requirements are defined, continues during the assessments planning and execution, and ends when the final assessment reports are written.

For fiscal years 1994 through 1996, about 64 CFSE engineers used the NEAF to perform an estimated average of 16 projects annually, performing multiple tests, simulations, and assessments.

Some examples of those CFSE projects follow.

o Asynchronous Transfer Mode. This assessment will demonstrate intrinsic interoperability of Asynchronous Transfer Mode and router-based[1] networks and will demonstrate the ability to support existing services as Asynchronous Transfer Mode technology matures.

o Defense Message System. The assessment will demonstrate and evaluate Defense Message System-related technology, operational service, and policy and procedures without affecting the operation of the Defense Message System.

[1]A system-level function that directs a call to an application.

o Classified VAX[2] System. The system is part of the Defense Satellite Communications Operational Support System. The classified VAX system provides network planning and centralized management functions. The assessment models theoretical network configurations to predict and compare performance.

o Defense Simulation Internet. This assessment evaluates the objectives of the simulated internet to support high-speed networking research and to provide connectivity among academic and Government sites, supporting applications with varying delay, throughput, and reliability requirements.

o Tactical/Wireless Network. The NEAF Tactical/Wireless assessment provides a controlled laboratory environment for testing communications equipment and associated network interfaces for tactical/wireless applications.

o Voice Network. The NEAF provides equipment to emulate both the Defense Switched Network and the commercial Public Switched Network to support assessments related to trunks,[3] signals, and dial plan facilities. Facilities simulating the two networks are available to switches[4] in the NEAF.

NEAF Personnel. Specific CFSE personnel oversee the operations of the NEAF. The Chief, Defense Information Infrastructure Engineering Department, CFSE, has the overall management responsibility for the NEAF. He is assisted by the NEAF Operations Officer who exercises overall responsibility for the day-to-day operations of the NEAF. The Operations Officer establishes NEAF policy, provides management control, performs operations control, and leads decision making for the NEAF. Staffing for the NEAF is commensurate with mission objectives.

In addition to the CFSE personnel, Logicon provides two contractor employees for the NEAF who support the NEAF Operations Officer in performing daily operations. The Operations Officer delegates authority to the Logicon employees, designated as the NEAF Manager and Assistant Manager, to ensure that NEAF standards and policies are enforced. The contracted employees are responsible for assessment and configuration management of the NEAF, maintenance of the SL-100 telephone switch, property management of all property brought into the NEAF, and administration of the NEAF.

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[2]A line of minicomputers made by Digital Equipment Corporation.

[3]A communication line between two switching systems.

[4]An electronic device that completes or breaks an electrical path.

NEAF Funding/Expenditures. The NEAF does not have a separate line of funding. The funding for equipment, upgrades, and building costs are paid from the CFSE budget. Costs specifically designated as NEAF related are the contract costs for the NEAF Manager and Assistant Manager. Contract costs for FYs 1994 through 1996 are shown in the table below.

NEAF Contract Costs

FY	Costs
1994	$247,120
1995	$189,280
1996	$184,105

Program Operational and Cost-Effectiveness

The NEAF is functionally effective because the facility is on-site and easily accessible. Also, because multiple assessments are conducted at one location, CFSE engineers can effectively test projects for interoperability by linking the assessments. Without the NEAF, CFSE engineers would have to conduct assessments in multiple steps at various locations and the benefits of interoperability testing would be lost. Further, travel costs, equipment shipping costs, and labor costs would increase significantly.

Resolution of Minor Weaknesses at the NEAF

During interviews with management officials at the NEAF, we discussed minor weaknesses in asset protection controls and contractor billing and certification processes. Those weaknesses were resolved by NEAF management during the audit.

Conclusion

Management officials at CFSE, DISA, have developed and documented policies and procedures for the administration and operations of the NEAF. Those policies and procedures have been implemented and followed by CFSE and NEAF personnel. The use of alternative sites for research and assessments conducted at the NEAF would increase costs for travel, equipment, shipping, and labor and would delay project milestones. In addition,

cross-project testing would be difficult, and engineering synergy arising from multiple expertise would be lost. The NEAF is a cost-effective and functionally efficient facility that enables the CFSE to achieve its mission objectives.

Management Comments

We provided a draft of this report to you on May 13, 1996. Although no comments were required, DISA responded to the draft report on May 22, 1996. See Enclosure 1 for the full text of the comments.

We appreciate the courtesies extended to the audit staff. For additional information on the audit, please contact Mr. Robert M. Murrell, Audit Program Director, at (703) 604-9507 (DSN 664-9507) or Mr. Eric B. Edwards, Audit Project Manager, at (703) 604-9515 (DSN 664-9515). Enclosure 3 lists the distribution of this report. The audit team members are listed inside the back cover.

Robert J. Lieberman
Assistant Inspector General
for Auditing

Enclosures

Defense Information Systems Agency

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IN REPLY REFER TO Inspector General

22 May 96

MEMORANDUM FOR DIRECTOR, DEPARTMENT OF DEFENSE, INSPECTOR GENERAL
Director, Readiness and Operational Support Directorate

SUBJECT: Agency Comments to DODIG Draft Report, Network Engineering Assessment Facility (Project No. 6RD-6016.01), dated 13 May 96

We have reviewed the subject draft report and concur with the finding. We would like to thank the DODIG for their prompt response to our request for audit. The positive report and valuable feedback on the policies and procedures of the NEAF provide our management with assurance that our NEAF is a cost effective and efficient facility.

RICHARD T. RACE
Inspector General

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Organizations Visited or Contacted

Defense Information Systems Agency, Arlington, VA
Joint Interoperability and Engineering Organization
Center for Systems Engineering, Reston, VA
Network Engineering Assessment Facility, Reston, VA

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Audit Team Members

This report was prepared by the Readiness and Operational Support Directorate, Office of the Assistant Inspector General for Auditing, DoD.

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