REPORT
NO. 90-070 May 22, 1990

MEMORANDUM FOR DIRECTOR, DEFENSE MAPPING AGENCY

SUBJECT: Report on Mapping, Charting, and Geodesy Support Requirements to the Acquisition Process (Project No. 9RD-0068)

Introduction

This is the final report on the Audit of Mapping, Charting, and Geodesy Support Requirements to the Acquisition Process. The audit, requested by the former Director, Defense Mapping Agency, was made from August to December 1989. The objective was to determine whether DoD weapon system development and acquisition program offices (hereafter called program offices) were identifying and providing mapping, charting, and geodesy (MC&G) requirements to the Defense Mapping Agency (the Agency) in a timely manner. Specific audit objectives were to evaluate the factors involved in identifying and submitting these requirements to the Agency and to evaluate applicable internal controls to ensure that funding support was provided to the Agency by various organizations requesting MC&G support. The operating budget for the Agency in fiscal year 1989 was approximately $918 million, and the authorized staff was about 8,400 employees.

Scope of Audit

We performed the audit primarily at the Agency and at selected DoD Component program offices. The audit focused on the identification and timeliness of the program offices' MC&G requirements submissions to the Agency and the adequacy of funding provided to the Agency for MC&G support. To determine timeliness of MC&G requirements submissions, we selected seven weapon systems from the Military Departments: two from the Army, two from the Navy, and three from the Air Force. We reviewed relevant files and MC&G requirements data from 1983 through 1989 at both the Agency and the program offices to determine when the MC&G requirements were identified and provided to the Agency. Also, we obtained weapon system histories and milestone data for the same time period to ascertain the projected deployment date for each weapon system we evaluated. We then compared the date the MC&G requirements were provided to the Agency to the expected deployment date of the weapon system to determine the timeliness of MC&G submissions. We also identified management initiatives implemented since 1986 to

improve the efficiency of MC&G requirements submissions. Additionally, we evaluated internal controls at six program offices to determine whether adequate controls were in place to ensure that funds were made available to pay for new MC&G products and services.

This economy and efficiency audit was made in accordance with auditing standards issued by the Comptroller General of the United States, as implemented by the Inspector General, Department of Defense, and accordingly, included such tests of internal controls as were considered necessary. A list of activities visited or contacted is in Enclosure 3.

Internal Controls

The internal controls applicable to the timely identification and submission of MC&G requirements to the Agency were adequate and disclosed no apparent control deficiencies. In regard to internal controls applicable to funding support, we found that none of the program offices included in our audit provided funding to the Agency. Funding for MC&G products is required from program offices only when a new MC&G product is requested and when the anticipated cost of that product will exceed $1 million or result in 30 work years of effort. Because no new MC&G products were requested from the program offices in our audit, funding to the Agency was not required.

Background

The MC&G support and services provided by the Agency to requesting organizations consist of the dissemination of geodetic, geomagnetic (pertaining to the earth's magnetic field), aeronautical, topographical, hydrographical (nautical), and cultural data. The data may be presented in the form of topographic or relief maps and graphs, and nautical and aeronautical charts and publications. These data, in simulated, digital, or computerized formats, are used by the Military Departments in training, operating, and planning for the weapon systems, as well as for target positioning. To ensure that weapon systems meet scheduled deployment dates, sufficient lead time must be made available to allow the Agency to respond to the MC&G needs of program offices.

The Deputy Secretary of Defense directed in a memorandum dated June 6, 1986, that Military Departments and Defense agencies fund within their total obligating authority the cost of new MC&G requirements for new weapon systems. The memorandum,

which implemented the August 1985 Program Decision Memorandum to the Military Departments and Defense agencies, requires that, beginning in fiscal year 1988, funding be provided to the Agency when MC&G support exceeds $1 million or 30 work years of effort in any given fiscal year of the Five Year Defense Plan. The memorandum also directs that the Military Departments and Defense agencies discuss MC&G requirements at program initiation; ensure that as each weapon system enters full-scale development, the necessary funds for MC&G requirements are identified and programmed; and coordinate MC&G requirements and funding with the Agency.

In July 1987, the Director of the Agency met with the Assistant Inspector General for Auditing, Office of the Inspector General, DoD, and expressed concerns about the lack of coordination between program office managers for major weapon systems and the Agency. Specifically, the Director stated that requirements for digital intelligence were not provided to the Agency until weapon systems were ready for deployment. The situation, therefore, placed an undue burden on the Agency and could unnecessarily delay the deployment of the weapon systems until the Agency is able to provide the required digital MC&G intelligence.

Prior Audit Coverage

There have been no prior audits of MC&G support requirements to the acquisition process during the past 5 years.

Discussion

Overall, the program offices identified and provided MC&G requirements to the Defense Mapping Agency in a timely manner. No established criteria exist to determine whether MC&G requirements were provided to the Agency in a timely manner; therefore, we requested responsible Agency personnel to give us an estimate of a reasonable amount of time needed to satisfy a clearly identified MC&G requirement, but they could not. Consequently, we used our best judgment and concluded that 2 years would be a reasonable gauge to measure timeliness. During the audit, we reviewed seven weapon systems and performed tests at six of the seven program offices to determine the timeliness of MC&G submissions to the Agency. For the seven weapon systems audited, only one program office submitted untimely MC&G requirements. Specifically, for three weapon systems requiring MC&G support, the requirements were identified and submitted in a timely manner; previously developed MC&G

products were used on one aircraft weapon system, hence, we determined the submission to be timely; two weapon systems required no MC&G support from the Agency; and one weapon system required MC&G support, but the program office provided no requirements submission to the Agency. Results of the timeliness of MC&G submissions are at Enclosure 1.

We attribute the program offices' timely submissions of MC&G requirements to the Agency primarily to the aggressive management initiatives taken by OSD, the Agency, and the Military Departments. A synopsis of these initiatives and their effects follows.

Implementation of OSD Memorandum. The most significant action taken to improve timeliness of MC&G requirements submissions was the implementation of the Deputy Secretary of Defense memorandum of June 6, 1986. The memorandum required program offices to consult with the Agency on MC&G issues throughout the development of weapon systems. Thus, program offices must coordinate with the Agency from program initiation and maintain a continuous dialog with the Agency on MC&G requirements throughout the acquisition cycle. This requirement for close coordination with the Agency commencing at program initiation did not exist before the Deputy Secretary's memorandum was implemented. Additionally, the memorandum resulted in program offices using many existing standard Agency products, because program offices were required by the memorandum to provide funds to the Agency when the cost of developing a new product will exceed $1 million or 30 work years of effort. The requirement avoids the creation of new, more costly products. The program offices' use of standard products allows the Agency to be more responsive in meeting the users' MC&G needs.

Regulatory Guidance. DoD Directive 5000.2, "Defense Acquisition Program Procedures," September 1, 1987, was revised to require that MC&G issues be addressed at program initiation and at critical milestone decision reviews throughout the development phases of a weapon system. Specifically, the Directive requires MC&G issues to be discussed in the Mission Need Statement, the System Concept Paper, and the Decision Coordinating Paper, which support critical milestone decision reviews. Also, draft DoD Instruction, "Programming Unique Mapping, Charting, and Geodesy Product Requirements for Developing Systems," was being staffed at the time of the audit. This Instruction will establish policy and procedures for the identification and funding of new MC&G products required by weapon systems being developed or upgraded. Lastly, Army Regulation 70-1, "Systems Acquisition Policy and Procedures," dated October 10, 1988; and Office of the Chief of Naval Operations Instruction 3140.55, "Submission of Requirements For Mapping, Charting, and Geodesy (MC&G) Products and Services," dated March 5, 1987, implemented the intent of the Deputy

Secretary's memorandum. The draft Air Force Regulation 96-3, "MC&G Ordering, Stocking, and Identifying Requirements for Cartographic/Geodetic Products and Services," should also satisfy the intent of the draft DoD Directive. These actions resulted in a major beneficial change in DoD policy relating to how MC&G requirements would be considered during the acquisition process.

OSD Review Group. An outgrowth of the Deputy Secretary's memorandum was the creation in October 1985, of the DoD Mapping, Charting, and Geodesy Requirements and Program Review Group. The Group was established as a forum in which the Joint Staff, the Defense Mapping Agency, the Military Departments, and other Government activities could provide guidance, support, and recommendations to the Assistant Secretary of Defense (Command, Control, Communications and Intelligence) on MC&G concerns. The forum resulted in the elevation of MC&G concerns to top level DoD managers and senior military commanders.

Agency Changes. In 1987, the Agency created liaison officer positions for the Army, Navy, Air Force, and the Strategic Defense Initiative Organization. The liaison officers provide a communications link on MC&G matters between the Agency and the supported Components. Further, in 1987, the Agency formed the Advanced Weapons and Systems Division to coordinate requirements for new research and development initiatives, to identify user needs for MC&G products, and to focus on weapon systems needing new products. These Agency organizational changes have resulted in additional inter- and intra-Service awareness of MC&G issues.

Military Departments' Organizational Changes. The Military Departments have implemented organizational changes that foster MC&G awareness. In 1987, the Digital Concepts and Analysis Center of the U.S. Army Engineer Topographic Laboratories was formed to serve as the Army focal point for MC&G definition, distribution, and evaluation, which ensure centralized control of MC&G requirements. The Space and Naval Warfare Systems Command was given the responsibility to review MC&G requirements for naval weapon systems being developed. The Mapping, Charting, and Geodesy Division of the Air Force Office of the Assistant Chief of Staff for Intelligence was given the responsibility for formulating and validating MC&G requirements. These activities provide necessary technical assistance and render valuable guidance to the Military Departments on MC&G matters.

We provided a draft of this report to the Director, Defense Mapping Agency, on February 21, 1990. Because there were no recommendations, no comments were required of management. However, the Agency did provide written comments in which it concurred in the report. We are providing the Agency's comments in Enclosure 2. If you wish to comment on this final report,

please provide comments within 60 days of the date of this memorandum. The team members who contributed to this report are listed in Enclosure 4. Copies of the final report will be distributed to the activities listed in Enclosure 5.

The courtesies extended to the audit staff are appreciated. If you have any questions on this audit, please contact Mr. John A. Gannon on 202-693-0113 (AUTOVON 223-0113) or Mr. Ernest L. Eigenbrode on 202-693-0073 (AUTOVON 223-0073).

Edward R. Jones
Deputy Assistant Inspector General
for Auditing

Enclosures

cc:
Secretary of the Army
Secretary of the Navy
Secretary of the Air Force

RESULTS OF TIMELINESS OF MAPPING, CHARTING AND GEODESY SUBMISSIONS

Weapon System	Program Initiation Date	Date Requirements Submitted	Date of IOC 1/
U.S. Army:			
Follow-on to LANCE	Aug. 1988	None 2/	Aug. 1995
Light Helicopter Program	Aug. 1983	May 1987	Nov. 1996
U.S. Navy:			
AV-8B HARRIER	July 1983	Nov. 1985	May 1990
V-22A OSPREY	Dec. 1981	None 3/	1992 and 1994 4/
U.S. Air Force:			
Joint Surveillance Target Attack Radar System	Aug. 1984	Sept. 1987	FY 1996
Survivable Base Recovery After Attack Communication System	Mar. 1987	None 5/	June 1992
Communication Center Evaluation System	Mar. 1987	None 2/	Mar. 1987

1/ Initial Operational Capability (IOC) is the first date that a weapon system is effectively employed by a military unit.

2/ System had no Mapping, Charting and Geodesy (MC&G) requirements, thus no MC&G submission.

3/ No MC&G requirements submitted; MC&G requirements satisfied by AV-8B HARRIER requirements.

4/ U.S. Marine Corps anticipated an IOC date in 1992. U.S. Air Force anticipated an IOC date in 1994.

5/ No requirements submitted.

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U-4713/CMM

MEMORANDUM FOR THE ASSISTANT INSPECTOR GENERAL FOR AUDITING
ATTN: Director, Readiness and Operational Support Directorate

SUBJECT: Draft Audit on Mapping, Charting, and Geodesy Support Requirements to the Acquisition Process, Project No. 9RD-0068

Reference: DoDIG audit report, 21 February 1990, subject as above.

The Defense Mapping Agency concurs with the subject report. If you have any questions regarding this matter, please contact Mrs. Alice Mathis, telephone (703) 285-9216.

FOR THE DIRECTOR:

JOHN R. VAUGHN
Comptroller

cc:
PR
RE

ENCLOSURE 2

ACTIVITIES VISITED OR CONTACTED

Office of the Secretary of Defense

Assistant Secretary of Defense (Command, Control, Communications and Intelligence) Washington, DC

Department of the Army

U.S. Army Engineer Topographic Laboratories, Ft. Belvoir, VA
Light Helicopter Program Office, U.S. Army Aviation Systems Command, St. Louis, MO

Department of the Navy

Comptroller of the Navy, Washington, DC
Oceanographer of the Navy, Washington, DC
  Naval Oceanography Command, Stennis Space Center, MS
Naval Air Systems Command, Washington, DC
Space and Naval Warfare Systems Command, Washington, DC
Naval Oceanography and Atmospheric Research Laboratory, Chief of Naval Research, Stennis Space Center, MS

Department of the Air Force

Air Force Systems Command, Andrews Air Force Base, MD
  Rome Air Development Center, Griffiss Air Force Base, NY
  Aeronautical Systems Division, Wright-Patterson Air Force Base, OH
  Electronic Systems Division, Hanscom Air Force Base, MA
Air Force Intelligence Service, Assistant Chief of Staff for Intelligence, Washington, DC

Defense Mapping Agency

Headquarters, Defense Mapping Agency, Fairfax, VA
Defense Mapping School, Ft. Belvoir, VA

AUDIT TEAM MEMBERS

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