



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

REPORT
NO. 90-031

January 25, 1990

MEMORANDUM FOR UNDER SECRETARY OF DEFENSE FOR ACQUISITION
COMPTROLLER OF THE DEPARTMENT OF DEFENSE
ASSISTANT SECRETARY OF THE ARMY (FINANCIAL
MANAGEMENT)
ASSISTANT SECRETARY OF THE NAVY (FINANCIAL
MANAGEMENT)
ASSISTANT SECRETARY OF THE AIR FORCE (FINANCIAL
MANAGEMENT AND COMPTROLLER)
DIRECTOR, DEFENSE ADVANCED RESEARCH
PROJECTS AGENCY

SUBJECT: Report on the Audit of Materials Technology
(Project No. 9AB-0058)

Introduction

We are providing this report on the Audit of Materials Technology for your information and use. No comments were required or received on the draft report. The audit was made from July through September 1989. The objectives of the audit were to evaluate the missions and functions assigned to DoD research and development activities involved in materials and structures technology, to determine whether research efforts are militarily related and are coordinated with other DoD activities to avoid duplication, and to evaluate the effectiveness of applicable internal controls. DoD's materials and structures technology research (materials research) programs received about \$349 million and \$399 million in FY's 1988 and 1989, respectively. These funds were allocated to 23 DoD research laboratories and activities.

Scope of Audit

We met with or contacted responsible officials at the Office of the Under Secretary of Defense for Acquisition; the Army Materiel Command; the Army Laboratory Command; the Air Force Office of Scientific Research; and the Defense Advanced Research Projects Agency. We judgmentally selected 5 of the 23 DoD laboratories and activities involved in managing or conducting materials research. The five DoD laboratories and activities we selected were: the Army Research Office, Research Triangle Park, North Carolina; the Army Materials Technology Laboratory, Watertown, Massachusetts; the Naval Air Development Center, Warminster, Pennsylvania; the Air Force Office of Scientific Research, Bolling Air Force Base, Washington, D.C.; and the Air

Force Materials Laboratory, Wright-Patterson Air Force Base, Ohio. Other activities visited or contacted are listed in Enclosure 1.

We judgmentally selected 50 research projects (also known as work units) from the largest three categories of materials research: ceramics, composites, and metals. We analyzed the work units' goals and objectives, and assessed their military relevance. Also, each of the selected work units was compared to all FY 1988 and 1989 work units at DoD materials technology laboratories and activities to determine if the work units duplicated prior materials research or materials research being conducted at the time of audit. We reviewed the missions and functions of the five selected laboratories and activities visited during the audit. We examined and tested their research coordination policies and procedures, and related internal controls. At the Army Materials Technology Laboratory we reviewed the implementation plans for base closure in accordance with the "Report of the Secretary of Defense's Commission on Base Realignment and Closure," December 29, 1988.

This economy and efficiency and compliance audit was made in accordance with auditing standards issued by the Comptroller General of the United States as implemented by the Inspector General, DoD, and accordingly included such tests of internal controls as were considered necessary.

Background

New materials technologies will, no doubt, be a determining factor in developing and maintaining adequate defense capabilities in the future as they have been in the past. The Government has had a direct effect on the development of advanced materials through funding basic research, demonstration programs and procurements. Advanced materials technologies have played a major role in the development of weapon systems such as stealth aircraft, cruise missiles, and modern tanks and ships. DoD allocated about \$399 million for materials research in FY 1989.

DoD Directive 5134.1, dated February 10, 1987, provides that the Under Secretary of Defense for Acquisition is the principal staff assistant and advisor to the Secretary of Defense for all matters relating to research and development. The Directive further provides that research should be coordinated within the research community and that research facilities be managed in such a way to avoid unnecessary duplication. DoD's materials research is carried out at, or managed by, about 23 DoD laboratories and activities, mainly focusing on current and future military needs.

Prior Audit Coverage


There has been no prior audit coverage of the issues discussed in this report in the last 5 years.

Discussion

The five DoD research laboratories and activities we visited had clear and distinct missions and functions. Also, these activities had policies and procedures for coordinating research projects within the host activity and among other Government and private research activities. Based on our review, tests, and analyses of the operating policies and procedures, there was no indication of overlap or unnecessary duplication of missions and functions. In addition, the Army Materials Technology Laboratory base closure plans were in compliance with the "Report of the Secretary of Defense's Commission on Base Realignment and Closure." Based on our review and analyses of the 50 selected work units, there was no indication of unnecessary duplication of materials research. Moreover, the research goals and objectives of the 50 work units addressed current and future military needs and objectives. The audit disclosed no material internal control weaknesses as defined by Public Law 97-255, Office of Management and Budget Circular A-123, and DoD Directive 5010.38 at the five DoD laboratories and activities we visited.

Because the draft report contained no findings or recommendations, written management comments were neither required nor received. Therefore, no comments are required for this final report. The final report distribution is in Enclosure 3.

We appreciate the cooperation and courtesies extended to the staff during the audit. The audit team members are listed in Enclosure 2. If you have any questions concerning this report, please contact Mr. Raymond A. Spencer, Program Director, at (202) 694-3995 (AUTOVON 224-3995), or Mr. Julian E. Swittenberg, Project Manager, at (202) 693-0355 (AUTOVON 223-0355).


Stephen A. Trodden
Assistant Inspector General
for Auditing

Enclosures

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

ACTIVITIES VISITED OR CONTACTED

Office of the Secretary of Defense

Office of the Under Secretary of Defense (Acquisition),
Washington, DC
Office of the Comptroller of the Department of Defense,
Washington, DC
Defense Secretary's Commission on Base
Realignment and Closure, Washington, DC

Department of the Army

Headquarters, Department of the Army, Washington, DC
U.S. Army Materiel Command, Alexandria, VA
U.S. Army Laboratory Command, Adelphi, MD
U.S. Army Research Office, Research Triangle Park, NC
U.S. Army Materials Technology Laboratory, Watertown, MA

Department of the Navy

Office of Naval Research, Arlington, VA
Naval Audit Service, Arlington, VA
Naval Air Development Center, Warminster, PA

Department of the Air Force

Office of the Assistant Secretary of the Air Force (Acquisition),
Washington, DC
Air Force Systems Command, Andrews Air Force Base, MD
Air Force Office of Scientific Research, Bolling Air Force Base,
Washington, DC
Air Force Materials Laboratory, Wright-Patterson
Air Force Base, OH

Defense Agency

Defense Advanced Research Projects Agency, Arlington, VA

AUDIT TEAM MEMBERS

David A. Brinkman, Director, Acquisition Management Directorate
Raymond A. Spencer, Program Director
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FINAL REPORT DISTRIBUTION

Office of the Secretary of Defense

Under Secretary of Defense for Acquisition
Deputy Under Secretary of Defense (Acquisition) for Research
and Advanced Technology
Comptroller of the Department of Defense
Assistant Secretary of Defense (Public Affairs)

Department of the Army

Secretary of the Army
Assistant Secretary of the Army (Financial Management)
Assistant Secretary of the Army (Research, Development and
Acquisition)
Headquarters, Department of the Army
U.S. Army Materiel Command
U.S. Army Laboratory Command
U.S. Army Research Office
U.S. Army Materials Technology Laboratory

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Naval Air Development Center
Naval Audit Service

Department of the Air Force

Secretary of the Air Force
Assistant Secretary of the Air Force (Financial Management and
Comptroller)
Air Force Systems Command
Air Force Office of Scientific Research
Air Force Materials Laboratory

Defense Agency

Defense Advanced Research Projects Agency, Arlington, VA
Defense Logistics Studies Information Exchange

FINAL REPORT DISTRIBUTION (CONTINUED)

Non-DoD Activities

Office of Management and Budget

Congressional Committees:

Senate Subcommittee on Defense, Committee on Appropriations

Senate Committee on Armed Services

Senate Committee on Governmental Affairs

Senate Ranking Minority Member, Committee on Armed Services

House Committee on Appropriations

House Subcommittee on Defense, Committee on Appropriations

House Ranking Minority Member, Committee on Appropriations

House Committee on Armed Services

House Committee on Government Operations

House Subcommittee on Legislation and National Security,

Committee on Government Operations

U.S. General Accounting Office