Department of Defense and Fundamental Research

Remarks before “Impact of Export Controls on Higher Education & Scientific Institutions”
University of Pennsylvania
March 26-27, 2013

Dr. Robin Staffin
Director for Basic Research
Office of the Assistant Secretary of Defense for Research and Engineering
Department of Defense
• “In adjusting our strategy and attendant force size, the Department will make every effort to maintain an adequate industrial base and our investment in science and technology.”

• “To that end, the Department will both encourage a culture of change and be prudent with its “seed corn,” balancing reductions necessitated by resource pressures with the imperative to sustain key streams of innovation that may provide significant long-term payoffs.”

January 5, 2012
Why DoD Invests in Basic Research
(from the DSB Task Force Report on Basic Research)

• Basic research probes the limits of today’s technologies and discovers new phenomena and know-how that ultimately lead to future technologies.

• Basic research funding attracts some of the most creative minds to fields of critical DOD interest.

• Basic research funding creates a knowledgeable workforce by training students in fields of critical DOD interest.

• Basic research provides a broad perspective to prevent capability surprise by fostering a community of U.S. experts who are accessible to DoD, and who follow global progress in both relevant areas, as well as those that may not seem relevant — until they are.
DoD Basic Research by Component
FY13 President’s Budget Request

TOTAL
$2,117 M

Air Force
$516.0 M, 24%

DARPA
$348.7 M, 17%

Navy
$605.0 M, 29%

Army
$444.1 M, 21%

OSD
$107.4 M, 5%

Chem Bio
$50.6 M, 2%

DTRA
$45.1 M, 2%
DoD Basic Research 2013 PBR

Constant Dollars ($B) and % of RDT&E

Fiscal Year:
- 1984
- 1988
- 1992
- 1996
- 2000
- 2004
- 2008
- 2012
- 2016

Total RDT&E
$69.7B

- Basic Research $2.1B, 3%
- Applied Research, $4.5B, 6%
- Advanced Technology Development $5.3B, 8%
- System Development & Demonstration $14.7B, 21%
- Advanced Component Development & Prototypes $12.4B, 18%
- Operational Systems Development $26.4B, 38%
- RDT&E Management Support $4.3B, 6%
DoD Basic Research is 7% of Overall Federal Agency Support (2013 PBR)

Total
$30.6B

- DHHS 52%
- NSF 16%
- NASA 5%
- DOE 13%
- DOD 7%
- Veterans Affairs 1%
- Agriculture 3%
- Commerce 1%
- Smithsonian 1%
- Other 1%

$30.6B
Origins of NSDD 189

1980's: universities seen as possible points of technology leakages
- Dr. DeLauer formed Task Force of DSB to investigate

1982: NAS Corson Report
- Leakage of technology from universities found to be minimal
- Classified research at universities is only conducted off-campus facilities

1984: Dr. DeLauer’s DoD Memo
- Contract research performed off-campus that is not 6.1 generally will not be considered "fundamental"
- In case of disagreement, differences resolved by the funding agency

1985: NSDD 189 issued
- Defines “fundamental research”
- “maximum extent possible, the products of fundamental research remain unrestricted”

“Fundamental research’ means basic and applied research in science and engineering, the results of which ordinarily are published and shared broadly within the scientific community, as distinguished from proprietary research and from industrial development, design, production, and product utilization, the results of which ordinarily are restricted for proprietary or national security reasons.”

- NSDD 189
• 2008 Young Memo addresses contractual fundamental research
  – “Contracted Fundamental Research. Includes [research performed under] grants and contracts that are (a) funded by budget Category 6.1 (now “Basic Research”), whether performed by universities or industry or (b) funded by budget Category 6.2 (now “Applied Research”) and performed on-campus at a university...”
  – Addressed fundamental research awarded/contracted at universities

• 2010 Carter Memo addresses flow down
  – “... DoD must not place restrictions on subcontracted unclassified research that has been scoped, negotiated, and determined to be fundamental research within the definition of NSDD 189 according to the prime contractor and research performer and certified by the contracting component, except as provided in applicable federal statutes, regulations, or executive orders. Provisions shall be made to accommodate such subcontracts for fundamental research and to ensure DoD restrictions on the prime contract do not flow down to the performer(s) of such research.”
  – Addressed subcontracts and flow-down at universities
Carter Policy Memorandum

MEMORANDUM FOR SECRETARIES OF THE MILITARY DEPARTMENTS
ATTN: SERVICE ACQUISITION EXECUTIVES
CHAIRMAN OF THE JOINT CHIEFS OF STAFF
ATTN: COMMANDER U.S. SPECIAL OPERATIONS COMMAND
DIRECTORS OF THE DEFENSE AGENCIES

MAY 2 4 2010

SUBJECT: Fundamental Research

(b) DoD Instruction 5230.27, “Protection of DoD-Related Scientific and Technical Information,” October 6, 1997

The Department of Defense (DoD) fully supports free scientific exchanges and dissemination of research results to the greatest extent possible. Critical to enabling exchanges and dissemination is an understanding on the part of DoD acquisition personnel and the research community of the statutes, regulations, and policies governing restrictions that apply to DoD's basic and applied research, recognizing the necessarily open nature of fundamental research. Understanding will help guide DoD acquisition personnel and contract and grant managers in making policy and decisions that will affect performance of research under DoD awards and implementing measures that may be needed to comply with appropriate controls.

I have determined that additional clarifying guidance is required to ensure the DoD will not reveal or disclose the results of fundamental research, as herein defined, unless such research efforts are classified for reasons of national security or are otherwise required by applicable federal statutes, regulations, or executive orders. This memorandum supersedes earlier guidance (Attachment A) and addresses residual issues, and deals explicitly with additional facets of fundamental research. My intention is to ensure that the DoD grants, contracts, and negotiations with the research community for fundamental research are consistent across Components and fully compliant with National Security Decision Directive (NSDD) 189 (Attachment B).

NSDD 189 established the national policy for controlling the flow of scientific, technical, and engineering information produced in federally funded fundamental research at colleges, universities, and laboratories. The Directive defines fundamental research as follows:

“Fundamental research is creative and applied research in science and engineering, the results of which are not already established in the public domain, and that which establishes principles that can be applied to a range of scientific and technological problems or that develop or test new techniques in the specific research area. The research efforts are directed at increasing knowledge and understanding and not primarily toward development or production in the areas of national security.”

Direct award or contract or subcontract

Roles of:
- Prime Contractor
- Contracting Activity (e.g. Service)
- Contracting Officer
- Program Manager
- OSD

Determination of the nature of the subcontracted work

Application of May 10, 2010 Memo on Fundamental research

Other current guidance on flow down (e.g. 7000 clause)

Statutes and federal regulations, including export control laws.
Key Issues, Terms, Players

- **Direct award or contract or subcontract**
  - 6.1 or 6.2 on campus (“Contracted Fundamental Research”)
  - “Contracted Fundamental Research” -> “Fundamental Research”

- **Roles of:**
  - Prime Contractor
  - Contracting Activity (e.g. Service)
  - Contracting Officer
  - Program Manager
  - OSD for Policy Guidance

- **Determination of the nature of the subcontracted work**

- **Application of May 10, 2010 Memo on Fundamental research**

- **Other guidance on flow down**

- **Structured to be consistent with U.S. statutes, regulations, and executive orders, including export control laws.**