(a) *Scope of Agreement.* This Agreement defines the rights of the parties hereto regarding the allocation of rights in subject inventions made under contracts with the agency entered into after the execution of the Agreement except such contracts as may be specifically excluded by the Agency. (3)

(b) *Definitions.* (1) "Subject Invention" means any invention or discovery of the Institution or its contractors conceived or first actually reduced to practice in the course of or under a contract with the Agency, and includes any art, method, process, machine, manufacture, design, or composition of matter, or any new and useful improvement thereof, and any variety of plant, which is or may be patentable under the patent Laws of the United States of America or any foreign country.

(2) "Contract" means any contract (agreement, grant, or other arrangement) (d) or subcontract thereunder of the agency entered into with or for the benefit of the Government, where a purpose of the contract is the conduct of experimental, developmental, or research work.

(3) "States and domestic municipal governments" means the States of the United States, the District of Columbia, Puerto Rico, the Virgin Islands, American Samoa, Guam, and the Trust Territory of the Pacific Islands, and any political subdivision and agencies thereof.

(4) "To bring to the point of practical application" means to manufacture in the case of a composition or product, to practice in the case of a process, or to operate in the case of a machine and under such conditions as to establish that the invention is being worked and that its benefits are reasonably accessible to the public.

(5) "Made," when used in relation to any invention or discovery, means the conception or first actual reduction to practice of such invention in the course of or under a contract.

(c) *Allocation of principal rights.* (1) The Institution may retain the entire right, title, and interest throughout the world or in any country thereof in and to each Subject Invention disclosed pursuant to paragraph (e), below, subject to the provisions of this Agreement. The Institution shall include with each Subject Invention disclosure an election whether it will retain the entire right, title, and interest in the invention throughout the world or in any country thereof subject to the rights acquired by the Government in paragraph (d) of the Agreement; *Provided* That the Institution may request an extension of the time for election.

(2) The Institution agrees to convey to the Government, upon request, the entire domestic right, title, and interest in any Subject Invention when the Institution:

(i) Does not elect under paragraph (c)(1) to retain such rights; or

(ii) Fails to have a United States Patent Application filed on the invention in accordance with paragraph (f)(1), or decides not to continue prosecution of such application; or

(iii) At any time no longer desires to retain title.

(3) The Institution agrees to convey to the Government, upon request, the entire right, title, and interest in any Subject Invention when the Institution:

(i) Does not elect under paragraph (c)(1) to retain such rights in the country; or

(ii) Fails to have a patent application filed in the country on the invention in accordance with paragraph (f)(1) or decides not to continue prosecution of such application or to pay any maintenance fees covering the invention. To avoid forfeiture of the patent application or patent, the Institution shall notify the Agency not less than 60 days before the expiration period for any action required by the foreign patent office.

(4) A conveyance, requested pursuant to paragraphs (c)(2) or (3) of this Agreement, shall be made by delivering to the Agency duly executed instruments (prepared by the Agency) and such other papers as are deemed necessary to vest in the government the entire right, title, and interest to enable the Government to apply for and prosecute patent applications covering the invention in this or the foreign country, respectively, or otherwise establish Government ownership of such invention.

(d) *Minimum rights acquired by the Government.* (1) With respect to each Subject Invention to which the Institution retains principal or exclusive rights, the Institution:

(i) Hereby grants to the Government of the United States a nonexclusive, nontransferable, paid-up license to make, use, and sell each Subject Invention throughout the world by or on behalf of the Government of the United States (including any Government agency) and States and domestic municipal governments, unless the Agency determines after the invention has been identified that it would not be in the public interest to acquire the license for States and domestic municipal governments; and

(ii) Agrees, upon request of the Agency, to grant licenses to responsible applicants, on terms that are reasonable under the circumstances except;

(A) When the Institution, its licensee, or its assignee, demonstrates to the Government (1) that effective steps have been taken within 3 years after a patent issues on such invention to bring the invention to the point of practical application or (2) that the invention has been made available for licensing royalty-free or on terms that are reasonable in the circumstances, or can show cause why the principal or exclusive rights should be retained for a further period of time; or

(B) To the extent that the invention is required for public use by governmental regulations or as may be necessary to fulfill public health or safety needs, or for other public purposes stipulated in the applicable contract.

(2) Nothing contained in this paragraph (d) shall be deemed to grant to the Government any rights with respect to any invention other than a Subject Invention.

(e) *Invention identification, disclosures, and reports.* (1) The Institution shall furnish the Agency:

(i) A complete technical disclosure for each Subject Invention within 6 months after conception or first actual reduction to practice, whichever occurs first in the course of or under the contract, or within 6 months from the time a contractor of the Institution reports an invention to it pursuant to paragraph (h), but in any event prior to any on sale, public use, or publication of the invention known to the Institution. The disclosure shall identify the contract and inventor and shall be sufficiently complete in technical detail to convey to one skilled in the art to which the invention pertains a clear understanding of the nature, purpose, operation, and, to the extent known, the physical, chemical, biological, or electrical characteristics of the invention.

(ii) Interim reports (5) for each contract at least every 12 months from the date of the contract listing Subject Inventions for the period and certifying that all Subject Inventions have been disclosed or that there are no such inventions.

(iii) An acceptable final report within 3 months after completion of the work under contract, listing all Subject Inventions or certifying that there were no such inventions. (6)

(2) The Institution shall obtain patent agreements to effect the provisions of this Agreement, from all persons in its employ who perform any part of the work under any contract except nontechnical personnel, such as clerical employees and manual laborers.

(3) The Institution agrees that the Government may duplicate and disclose Subject Invention disclosures and, subject to paragraph (k), all other reports and papers furnished or required to be furnished pursuant to this Agreement. However, if the Institution is to file a patent application on a Subject Invention, the Agency agrees, upon written request of the Institution, to use its best efforts to withhold publication of such invention disclosures until a patent application is filed thereon, but in no event shall the Government or its employees be liable for any publication thereof.

(f) *Filing of domestic patent applications.* (1) With respect to each Subject Invention in which the Institution elects to retain domestic rights pursuant to paragraph (c)(1) of this Agreement, the Institution shall have a domestic patent application filed within 6 months after an election has been made pursuant to paragraph (c)(1) of this Agreement or such longer period as may be approved in writing by the Agency.

(2) For each Subject Invention on which a patent application is filed by or on behalf of the Institution, the Institution shall:

(i) Within 6 months after the filing, or within 6 months after submission of the invention disclosure if the patent application was filed prior to the contract, deliver to the Agency a duly executed and approved instrument on the form specified in Exhibit A which is attached hereto and made a part hereof;

(ii) Within 2 months after the filing, or within 2 months after submission of the invention disclosure if the patent application was filed prior to the contract, deliver to the Agency (A) a copy of the application as filed, including the filing date and serial number, and (B) a copy of an assignment from the inventor or inventors to the Institution of all right, title, and interest in the invention properly recorded in the United States Patent and Trademark Office;

(iii) Include the following statement, appropriately completed, in the second paragraph of the specification of the application and any patents issued on the Subject Invention, "The Government has rights in this invention pursuant to Contract(s) (or Grant(s)) No(s). ——— awarded by (identify the Agency or Agencies)";

(iv) Not less than 30 days before the expiration of the response period for any action required by the United States Patent and Trademark Office, notify the Agency of any decision not to continue the prosecution of the application and deliver to the Agency executed instruments granting the Government a power of attorney;

(v) Upon request, fully advise the Agency concerning all actions taken during the prosecution of any patent application and

furnish copies of any relevant documents as requested; and

(vi) Provide the Agency with a copy of the patent within 2 months after a patent issues on the application.

(3) For each Subject Invention in which the Institution initially elects not to retain rights or requests an extension of the election period, the Institution shall inform the Agency promptly in writing of the date and identity of any on sale, public use, or publication of the invention which may constitute a statutory bar under 35 U.S.C. 102, which was authorized by or known to the Institution or any contemplated action of this nature.

(g) *Filing of foreign patent applications.* (1) With respect to each Subject Invention in which the Institution elects to retain principal rights in a foreign country pursuant to paragraph (c)(1) of this Agreement, the Institution shall have a patent application filed on the invention in that country, in accordance with applicable statutes and regulations, and within one of the following periods:

(i) Eight months from the date of a corresponding United States application filed by or on behalf of the Institution; or if such an application is not filed, 6 months from the date the invention is submitted in a disclosure pursuant to paragraph (e)(1) of this Agreement;

(ii) Six months from the date a license is granted by the Commissioner of Patents and Trademarks to file foreign applications when such filing has been previously prohibited by security reasons; or

(iii) Such longer periods as may be approved by the Agency.

(2) The Institution shall notify the Agency of foreign applications filed and, upon request, shall furnish an English version of the application without additional compensation.

(h) *Subcontracts.* (1) The Institution shall include the following clause in any subcontract where a purpose of that subcontract is the conduct of experimental, developmental, or research work, except when the subcontractor holds an Institutional Patent Agreement with the Agency or the subcontractor refuses as provided in (2) of this paragraph (h).

PATENTS RIGHTS

[redacted]

assign all right, title, and interest in the invention to ———— (Institution) or its designee.

(c) In addition, the Contractor agrees to furnish the following materials, disclosures and reports:

(i) Upon request, such duly executed instruments (prepared by the ———— (Institution) or its designee) and such other papers as are deemed necessary to vest in the ———— (Institution) or its designee the rights granted under this clause and to enable the ———— (Institution) or its designee to apply for and prosecute any patent application, in any country, covering such invention.

(ii) A final report, prior to final settlement of this contract, listing all Subject Inventions or certifying that no inventions were conceived or first actually reduced to practice under the contract.

(d) The Contractor shall include in any subcontract a clause identical to this clause, if a purpose of the subcontract is experimental, developmental, or research work. If a Subcontractor refuses to accept this clause or if, in the opinion of the Contractor, this clause is inconsistent with the policy set forth in 41 CFR 1-9.107-3, the Contractor (i) shall promptly notify the Institution and (ii) shall not proceed with the subcontract without the written authorization of the Institution. It is understood that the Institution will seek direction from the (insert name of appropriate Agency).

(e) The contractor shall not be obligated to enforce the agreements of any Subcontractor hereunder relating to the obligations of the Subcontractor to the Government in regard to Subject Inventions.

[End of Clause]

[redacted]

by the Institution, and such other data and information as the Agency may reasonably specify. To the extent data or information supplied to this section is considered by a licensee to be privileged or confidential and is so marked, the Agency agrees that, to the extent permitted by law, it will not disclose such information to persons outside the Government.

(i) *Reporting of Policy and Administrative Changes.* The Institution shall promptly notify the Agency of any significant changes in the information submitted by it in support of its request for an Institutional Patent Agreement; particularly, changes in its patent policies or its administrative capabilities.

(m) *Termination.* This Agreement may be terminated by either party upon 30 days written notice. Disposition of rights in and administration of inventions made under contracts subject to this Agreement will not be affected by such a termination; except that, in the event the Government terminates this Agreement because of a failure or refusal by the Institution to comply with any of its obligations under sections (e)(1), (f), (i), and (j) of this Agreement, the Agency has the right to require that the Institution's entire right, title, and interest in and to the particular invention with respect to which the breach occurred be assigned to the United States of America, as represented by the Agency.

(n) *Communications.* (9) Requests for Agency approvals, extensions, or similar actions and other correspondence required by this Agreement should be addressed to ————. Except where specifically provided otherwise in this Agreement, the ———— or his designee shall act as the point of authority within the Agency to grant such approvals, extensions, or take such other Agency actions as may be authorized in this Agreement.

In witness whereof, each of the parties hereto has executed this Agreement as of the day and year below.

UNITED STATES OF AMERICA

By ————
Title ————
Date ————

(Corporate Seal.)

————
(Institution)
By ————
Title ————
Date ————

EXHIBIT A.—CONFIRMATORY INSTRUMENT

Application for: ———— (Title of Invention).
Inventor(s) ————.
Serial No. ———— Contract (Grant) No. ———— .
Filing Date: ————. Institution ————.

The invention identified above is a "Subject Invention" under ———— (identify Institutional Patent Agreement number) to which contract (grant) No. ———— with ———— (specify Government agency) was subject.

This document is confirmatory of the paid-up license granted to the Government under this contract (grant) in this invention, patent application, and any resulting patent, and of all other rights acquired by the Government by the referenced Agreement. (10)

It is understood and agreed that this document does not preclude the Government from asserting rights under the provisions of said Agreement or of any other agreement between the Government and the Contractor, or any other rights of the Government, with respect to the above-identified invention.

The Government is hereby granted an irrevocable power to inspect and make copies of the above-identified patent application.

Signed this —— day of ————, 19—.

————
(Institution)

————
(Signature)

————
(Print or type name)

————
(Official title)

(End of Agreement)

(1) Insert name of Agency.

(2) Insert reference to Institution's official policy statements.

(3) Some agencies may wish to have the agreement apply to all Subject Inventions reported after the execution of the agreement, even where the contract was entered into prior to the agreement. In such cases, the following language may be substituted:

"This Agreement defines the rights of the parties hereto regarding the allocation of rights in Subject Inventions reported after the execution of the Agreement, including contracts entered into prior to this Agreement, except such contracts as may be specifically excluded by the Agency."

Agencies using this language which wish to exclude any current contracts from the agreement should add a statement such as the following:

"This Agreement shall not apply to the following contracts: * * *"

(4) The bracketed language may be deleted but normally it is expected that Institutional Patent Agreements will apply to grants as well as contracts.

(5) Agencies may specify a form.

(6) Agencies may find it useful to include more detailed instructions here on the format of these reports and the persons to whom they should be supplied. The exact clause may have to be varied according to the agency's normal contract close-out procedures.

(7) If none are to be used, insert "none."

(8) Different dates may be substituted depending on the Agency's needs.

(9) Insert applicable addresses and officers.

(10) In accordance with Section (dX1) of the Agreement, if the Agency has determined that a license for State and domestic municipal governments will not be obtained, the following should be added to the Confirmatory Instrument:

"The license granted to the Government does not include State and domestic municipal governments."

Section 1-9.109-7 is added as follows:

§ 1-9.109-7 Negotiation of institutional patent agreements.

(a) Information to be submitted by nonprofit organization. A nonprofit organization desiring to enter into an Institutional Patent Agreement with an agency shall be required to provide the agency with the following information:

(1) General information concerning the organization including:

(i) A copy of the organization's Articles of Incorporation;

(ii) A statement of the organization's purpose and aims; and

(iii) A statement indicating the source of the organization's funds;

(2) A copy of the organization's established patent policy, together with the date and manner of its adoption;

(3) The name, title, address, and telephone number of the officer responsible for administration of patent and invention matters and a description of staffing in this area, including all offices which contribute to the organization's patent management capabilities;

(4) A description of the organization's procedures for (A) identifying and reporting inventions and (B) for the evaluation of such inventions for inclusion in the organization's promotional program;

(5) A copy of the agreement signed by employees engaged in research and development, indicating their obligation with regard to inventions conceived or for the first time reduced to practice in the course of their assigned duties;

(6) A copy of the invention report form or outline utilized for preparation of invention reports;

(7) A statement indicating whether the organization has an agreement with any patent management organizations or consultants and a copy of any such agreements;

(8) A description of the plans and intentions of the organization to bring inventions to the market place to which it retains title, including a description of the efforts typically undertaken by the organization to license its inventions;

(9) A description of the organization's past patent application and patent licensing activities, including the following:

(i) Number of inventions reported to the organization during each of the past 5 years;

(ii) Number of patent applications filed during each of the past 5 years;

(iii) Number of patents obtained during each of the past 5 years;

(iv) Number of exclusive licenses issued during each of the past 5 years;

(v) Number of nonexclusive licenses, other than those to sponsoring Federal agencies, issued during each of the past 5 years;

(vi) Gross royalty income during each of the past 5 years;

(vii) A general description of royalties charged, including minimum and maximum royalty rates;

(10) A list of subsidiary or affiliate organizations, which would be covered

by an agreement signed by the organization;

(11) If the organization is a subsidiary or affiliate organization, the name of the other organization and a description of the relationship;

(12) The amount of support from each Federal agency for research and development activities currently being administered by the organization;

(13) A statement of the organization's policies with respect to the sharing of royalties with employees; and

(14) A description of the uses made of any net income generated by the organization's patent management program.

(b) *Criteria for evaluation of a technology transfer program.* Before an Institutional Patent Agreement is entered into with a nonprofit organization, the organization shall have a technology transfer program which, as a minimum, shall include:

(1) An established patent policy which is consistent with the policy in § 1-9.107-3 and is administered on a continuous basis by an officer or an organization responsible to the organization;

(2) Agreements with employees requiring them to assign to the organization, its designee, or the Government any invention conceived or first actually reduced to practice in the course of or under Government contracts or assurance that such agreements will be obtained from employees prior to the assignment of employees to Government-supported research and development projects;

(3) Procedures for prompt invention identification and timely disclosure to the officer or organization administering the patent policy of the institution;

(4) [illegible]

rights in inventions made under the contract.

(Sec. 205(c), 63 Stat. 390; 40 U.S.C. 486(c).)

NOTE.—The General Services Administration has determined that this document does not contain a major proposal requiring preparation of an Inflationary Impact Statement under Executive Order 11821 and OMB Circular A-107.

Dated: January 20, 1978.

JAY SOLOMON,
Administrator of General Services.

[FR Doc. 78-2874 Filed 2-1-78; 8:45 am]

[6820-24]

Title 41—Public Contracts and Property Management

CHAPTER 1—FEDERAL PROCUREMENT REGULATIONS

[FPR Amdt. 187]

PART 1-9—PATENTS, DATA, AND COPYRIGHTS

Patents; Change of Effective Date

AGENCY: General Services Administration.

ACTION: Final rule: Change of effective date.

SUMMARY: The effective date of the Federal Procurement Regulations (FPR) Amendment 187 is changed from March 20, 1978, to July 18, 1978. FPR Amendment 187 was issued January 20, 1978, and was published in the FEDERAL REGISTER (43 FR 4424, February 2, 1978). The change of the effective date for the amendment is based on a request of the Administrator, Office of Federal Procurement Policy.

DATES: effective date of this document: April 11, 1978; Revised effective date for FPR Amendment 187: July 18, 1978.

FOR FURTHER INFORMATION CONTACT:

Philip G. Read, Director of Federal Procurement Regulations, 703-557-8947.

(Sec. 205(c), 63 Stat. 390; 40 U.S.C. 486(c).)

Dated: April 11, 1978.

JAY SOLOMON,
Administrator of General Services.

[FR Doc. 78-10830 Filed 4-20-78; 8:45 am]

aamc association of american medical colleges

June 22, 1978

Mr. Gerry Sturges
c/o Senator Gaylord Nelson
Russell Senate Office Building
Washington, D.C. 20510

Dear Gerry:

It was a real pleasure to see you again on Saturday evening. I particularly enjoyed talking with yon abont Institutional Patent Agreements. As I told you sometime ago, we received from NIH a sampling of university patent licensing programs which we were asked to assess in terms of their value to society. We had considerable difficulty arriving at a mechanism for assessing "social value", nevertheless we thought the exercise might have some merit. Accordingly, on April 25, 1978, we sent out the attached list of patents to approximately 20 of our constitutents who might be reasonably knowledgeable in the areas covered. Enclosed is a copy of the memorandum which was sent to these scientists of whom approximately 15 responded. Most of the scientists were unfamiliar with many of the patents; however, we were able to get some rating of almost all of the patents on our list. We used a four interval scale with 0 being "no value" and 3, "great value".

The results have now been tabulated and may be interesting to you. If you would be interested I can summarize this information in some form that might be useful to you or the Committee. In summary, however, it appears that most of the patents which have been reduced to successful application are of "moderate" value regardless of how much money has been invested in their development.

I am also enclosing a copy of our recent Supreme Court Amicus Curiae brief in the case of Chrysler vs. Brown. Joe Keyes thought it might be of interest to you because it deals with the confidentiality issue and specifically with exemption B (4) of the Freedom of Information Act. Also, at John Sherman's urging, I am enclosing a copy of a recent AAMC staff position paper on the problems facing the peer review system at NIH. You will note that the Privacy Act may have apparently added the "final overload to the system", in that investigators are using the Privacy Act to obtain confidential reviews ("pink sheets") prior to completion of action on their grant request.

John, Joe and I would be pleased to talk with you further about this or related issues and will follow with interest the progress of your IPA hearings.

Sincerely,

Thomas E. Morgan, M.D.
Director, Division of
Biomedical Research

Suite 200/One Dupont Circle, N.W./Washington, D.C. 20036/(202) 466-5100

aamc association of american medical colleges

April 25, 1978

MEMORANDUM

TO: Members of the CAS Administrative Board and CAS Public Affairs Representatives

FROM: Thomas E. Morgan, M.D.

SUBJECT: Evaluation of Certain Patented Inventions

The Department of Health, Education and Welfare is re-evaluating the Department's present policy toward institutional patent agreements (IPAs). The AAMC, working with the National Association of Land Grant Colleges and the Association of American Universities, is studying the problem. We hope to generate a position statement based on facts.

One of the factors in our appraisal of IPAs will be an assessment of how much value resides in those patents which have been brought to the marketplace. We would very much appreciate your taking a few mements to look over the enclosed list of patent awards for inventions arising out of biomedical research and noting, in the space provided, your assessment of the value of any of those inventions with which you are familiar.

We suggest you use the terms "great, moderate, minimal or none" to describe their actual or potential value. It is difficult to be specific about how to rate the term "value" but inventions might be judged on the basis of their economic, scientific and/or social or health care value. These appraisals should be made without regard to their economic return or impact but rather on their merit to, actual or potential, in patient care or scientific research.

If you have insufficient knowledge of any invention listed please so note. When you have completed the appraisal or if you cannot complete the form for any reason please fold, staple and return to us.

Suite 200/One Dupont Circle, N.W./Washington, D.C. 20036/(202) 466-510(

3 2 1 0
* GREAT, MODERATE, MINIMAL, NONE

SAMPLING OF UNIVERSITY PATENT LICENSING PROGRAMS

Inventor	University	Invention	Licensee	Approximate Investment	Value*	Number of Opinions Obtained
Walser	Johns Hopkins U.	Keto-Acid analogs of Amino Acids for treatment of uremia	Pfrimmer of Germany and Syntex of U.S.A	Millions - Clinical trials in process. Expected to be marketed in 6 mos. in Europe.	2.5	4
Wiktor	Wistar Institute	Rabies Vaccine	Wyeth Laboratories	On the market - millions	2.0	7
Kamen et al	Case Western Res.	Methotrexate Assay during Cancer Chemotherapy	Diamond Shamrock Corp.	Being test-marketed. Production scheduled for late 1977. Millions.	2.0	5
Lillehei/Kaster	U. of Minnesota	Pivoting Disc Heart Valve	Medical, Inc.	Being sold in world-wide market since 1971. Millions.	1.5	4
Blackshear et al	U. of Minnesota	Implantable Infusion Pump (Constant Infusion of Drugs for Treatment of Cancer, Diabetes, Pain, Morphine-addiction, etc.)	Metal Bellows Co.	Undergoing clinical trials. $750,000.	2.0	8
DeLuca	U. of Wisconsin	25-Hydroxycholecalciferol for treatment of Osteo-dystrophy with liver dysfunction	Rousel-Uclaf (Hoechst) and Upjohn	Have applied for equivalent of NDA in France. Approximately $5 million. About to apply for an NDA and an NADA. Will spend about $10 million.	1.5	4
DeLuca	U. of Wisconsin	1-Alpha Hydroxycholecalciferol for treatment of Osteo-dystrophy with Kidney Dysfunction	Leo Pharma-ceuticals	Applying for new drug applications in Denmark and Great Britain. May be marketed this year. Approx. $5,000,000.	1.7	4

SAMPLING OF UNIVERSITY PATENT LICENSING PROGRAMS

Inventor	University	Invention	Licensee	Approximate Investment	Value*	Opinions
DeLuca et al	U. of Wisconsin	1, 25-Dchydroxyergocalciferol for Treatment of Osteodystrophy with Kidney and Liver Dysfunction and Senile Osteodystrophy	Hoffman-LaRoche Inc.	About to apply for NDA. Will spend about $10 million.	1.5	4
Fox	Columbia U.	Silver Sulfadiazine used in Treatment of Burns	Marion Labs., Kansas City, Mo.	Now on market - Approx. $5,000,000	2.0	7
Heidelberger	U. of Wisconsin	Use of F_3TDR for Herpes Infections of the Eye	Burroughs Wellcome Co., Research Triangle Park, N.C.	Approx. $5,000,000 NDA expected by end of 1977.	2.0	6
Fischell	Johns Hopkins U.	Rechargeable Cardiac Pacemaker	Pacesetter Systems Sylmar, California.	On market since Feb. 1975 - Approx. $720,000	2.1	8
Holland	Tulane U.	Method of Reducing Intraocular Pressure in the Human Eyes (Glaucoma Treatment)	Cooper Labs., Bedford Hills, N.Y.	$2,000,000 - Development leading to DNA is in process and on schedule	2.4	5
Pressman	U. of Miami	Application of X-537A in the Cardiovascular System (for stimulation in cardiogenic shock, congestive heart failure, etc.)	Hoffman-LaRoche, Nutley, N.J.	$500,000 to $1,000,000 Clinical evaluations still in progress	2.0	3
Higley	Natl. Institute of Scientific Research	Polycarbonate Dialysis Membranes (kidney dialysis)	C. R. Bard Inc., Murray Hill, N.J.	Over $1,000,000. Market introduction expected imminently.	2.2	4
Talbot/Harrison	Johns Hopkins U.	Ballistocardiograph Apparatus	Royal Medical Corp. Huntsville, Ala.	Approx. $330,000. Now on market.	1.0	6

* GREAT, MODERATE, MINIMAL, NONE

SAMPLING OF UNIVERSITY PATENT LICENSING PROGRAMS

* GREAT, MODERATE, MINIMAL, NONE

Inventor	University	Invention	Licensee	Approximate Investment	Value*	Opinions
Plotkin	Wistar Institute	Rubella Vaccine	1) Wellcome Foundation 2) L'Institut Merieux 3) Swiss Serum and Vaccine Institute and others (Merck, an Italian firm, etc.)	Approx. millions - Now on market.	3.0	8
Schaffner/Mechlinski	Rutgers U.	Derivatives of Polyene Macrolide Antibiotics	E.R. Squibb of U. S. A. and Dumex of Denmark	Millions - Clinical trials progressing favorably	2.0	4
Zweig	Syracuse U.	Apparatus for Measuring and Controlling Cell Population Density in a Liquid Medium	New Brunswick Scientific Co., Inc., of New Jersy	Millions - On the market since 1973	1.5	4
Lovelock	Yale U.	Gas Analysis Method and Device for the Qualitative and Quantitative Analysis of Classes of Organic Vapors	Varian Associates, Palo Alto, Calif.	On the market	2.2	4
Fried	U. of Chicago	Prostoglandins for possible Treatment of Bronchial Asthma, Duodenal Ulcers, Inflammatory Conditions, etc.	Richardson-Merrell, New York, N.Y.	Several millions - In process of development and testing for marketing here and abroad	2.4	7
Leininger/Grotta et al	Battelle Memorial Institute	Preparation of Non-thrombogenic Surfaces and Materials	C. R. Bard, Inc., Billerica, Mass.; Sherwood Medical Industries, St. Louis Mo.; and American Hospital Supply Corp., Irvine, California.	$107,754 - Some products being marketed and others being tested.	1.8	7

* GREAT, MODERATE, MINIMAL, NONE

SAMPLING OF UNIVERSITY PATENT LICENSING PROGRAMS

Inventor	University	Invention	Licensee	Approximate Investment	Value*	Opinions
Merrifield	Rockefeller U.	Apparatus for the Automated Synthesis of Peptides	Beckman Instruments, Fullerton, California	Being marketed since 1973.	2.0	5
Smith/Kozoman	Duke U.	Apparatus and Method for Rapid Harvesting of Roller Culture Supernatant Fluid	Bellco Glass, Inc. Vineland, New Jersey	$25,000 - Being marketed since June 9, 1976	1.4	7
Zweng	Stanford U.	Laser Photocoagulator	Coherent Radiation, Palo Alto, Cal.	Approximately $500,000 Standard tool of ophthalmologists	2.3	8
Sweet et al	Stanford U.	Cell Sorter	Becton-Dickinson, Rutherford, New Jersey	Approx. $200,000. Important research tool	1.5	4
Boyd/Macovski	Stanford U.	Computerized Axial Tomography	S.A.I. Cupertino, Cal.	Approx. $300,000. Will be marketed soon.	2.7	7
Saxena	Cornell U.	Method for Testing for Pregnancy	Carter-Wallace	Approx. 1/2 million On market	2.6	6
Calnek/Hitchner	Cornell U.	Cell-free virus Preparation	Merck		2.2	4
Carlson	Iowa State	Respiratory Augmentor with Electronic Monitor and Control	Bourns, Inc.	On market since 1966; sales now in millions	2.1	6
Leake/Rappoport	Harbor General Hospital	Bone Induction in an Alloplastic Tray	Am. Hospital Supply	Data not available	—	—

1169

* GREAT, MODERATE, MINIMAL, NONE

SAMPLING OF UNIVERSITY PATENT LICENSING PROGRAMS

Inventor	University	Invention	Licensee	State of Development	Value*	Opinions
Bradford/ Williams	U. of Georgia	Protein Assay Reagent and Method	Bio-Rad Labs, Inc; Quantimetrix Corp.	On the market since April 1977	1.4	4
Tenckhoff	U. of Washington	Catheter Insertion Trocar	Sweden Freezer Mfg. Co; Cobe Labs; Physio-Control Corp;	On market	1.2	5
Leonard et al	U. of Illinois	Fluorescent Derivatives of Cytosine-Containing Compounds	PL Biochemicals	On market	1.0	1
Secrist et al	U. of Illinois	Fluorescent Derivatives of Adenine-Containing Compounds	PL Biochemicals	On market	1.0	1
Asgar	U. of Michigan	Partial Denture Alloy		On market	1.5	4
Carlson/Ward	U. of Washington	Coherent Biological Cell Analyzer	3M Company	Marketing development in progress.	1.6	3
Charlson/ Alhquist	U. of Washington	Integrating Nephelometer and Photon-Counting Integrating Nephelometer	Battelle Development	On market	2.0	3
Thomas	U. of Washington	Artery-Vein Shunt Applique	Battelle Development Corp.	Being marketed	1.6	3

1170

* GREAT, MODERATE, MINIMAL, NONE

SAMPLING OF UNIVERSITY PATENT LICENSING PROGRAMS

Inventor	University	Invention	Licensee	State of Development	Value*	Opinions
Holcomb	Yale University	Method and Apparatus for Stimulation of Body Tissue	Avery Labs, Inc.	On the market since 197	1.5	2
Dugan	Temple University	Novel Compositions for Radiotracer Localization of Deep Vein Thrombi	Rand Research & Development Corp.	Licensed in 1977.	1.2	5
Roelofs	Cornell University	Codling Moth Pheromone	Zoecon Corp.	On market since 1972.	2.0	1
Whitby	Univ. of Minnesota	Particle Counter	Name not available	On market since 1969	1.5	2
Backaner	Univ. of Minnesota	Method for Suppressing Ventricular Fibrillation	Burroughs Wellcome	About to be marketed	2.6	5
Whitby	Univ. of Minnesota	Aerosol Sampler	Not available	On market since 1969	1.0	1
Bradley	Univ. of Minnesota	Apparatus to Stimulate the Bladder	Two licenses, names not available	On market since 1972	1.7	5
Blackshear	Univ. of Minnesota	Implantable Infusion Pump	Metal Bellows Company	About to be marketed	2.5	8
Lillehei	Univ. of Minnesota	Pivoting Disc Heart Valve	Name not available	On market world-wide since 1971	1.7	4
Butler	Purdue Research Fdn.	Hydrophobic Noncovalent Binding of Proteins to Support Materials	Regis Chemical	On market since April 1	—	—
Rosenberg	Michigan State Univ.	Platinum Compounds as Anti-Tumor Agents	Possibly Adria, Bristol or Miles Labs.	On market in late 1977	2.5	5
Coller	Institute for Cancer Research	Process of Viral Diagnosis and Reagent (Radioimmuno-assay)	Abbot Labs.	Licensed in 1977 (Canada)	2.2	5

IN THE

Supreme Court of the United States

OCTOBER TERM, 1977

No. 77-922

CHRYSLER CORPORATION, *Petitioner*

v.

HAROLD BROWN, et al., *Respondents*

On Writ of Certiorari to the Court of Appeals for the Third Circuit

BRIEF AMICUS CURIAE ASSOCIATION OF AMERICAN MEDICAL COLLEGES

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OPINIONS BELOW

The opinion of the court of appeals is reprinted as Appendix A to the Petition for a Writ of Certiorari. The opinion of the district court is reported at 412 F. Supp. 171.

JURISDICTION

The jurisdiction of this Court rests on 28 U.S.C. § 1254 (1).

CONSENT TO FILE*

This Amicus Curiae brief is being filed with the consent of all the parties to the proceeding.

* Letters of consent of all parties to the case have been filed with the Clerk of the Court.

INTEREST OF AMICUS

The Association of American Medical Colleges is a voluntary, nonprofit, non-governmental corporation established under the laws of the State of Illinois, having its principal place of business in the District of Columbia. Its corporate purpose is the advancement of medical education. Its institutional membership includes all one hundred twenty one accredited and operating nonprofit medical schools and medical colleges in the United States. Its membership also includes over 400 teaching hospitals in which undergraduate and graduate medical education is conducted, and 63 academic and professional societies, the members of which are actively engaged in medical education and the conduct of biomedical research.

The members of the Association of American Medical Colleges (AAMC) conduct a substantial proportion of the nation's Federally supported biomedical research. Health related research and development is in large measure supported by the Federal Government; it provided nearly $2.8 billion for this purpose in 1975 out of a total national investment of more than $4.6 billion. Of this, $1.74 billion was expended in institutions of higher education. The National Institutes of Health, chief sponsor of medical research and development awarded $1.07 billion in Federal research grants and contracts to institutions of higher education of which $808 million was awarded to medical school members of the Association of American Medical Colleges and an additional $24.5 million to member hospitals.[1]

[1] Figures taken from Tables 2 and 21, Basic Data Relating to the National Institutes of Health, DHEW Publication No. (NIH) 77-1261, 1977.

Thus the institutions represented by *amicus* have a major role in the nation's system for conducting Federally sponsored research. Its interest in this case stems from the impact of the operation of the Freedom of Information Act (FOIA)[2] and the Federal Advisory Committee Act (FACA)[3] on that system. *Amicus* believes that a measure of confidentiality is a necessary feature of governmental review, evaluation and handling of research grant applications. Protection from premature disclosure of an investigator's ideas is necessary to assure that the full fruits of government funded research are available to the public and are essential to the preservation of important intellectual property rights.

QUESTIONS PRESENTED

The questions before the Court include whether Exemption 4 of the FOIA is permissive or mandatory; whether agency regulations promulgated pursuant to 5 U.S.C. § 301 constitute "authorization by law" within the meaning of 18 U.S.C. § 1905 for disclosure of private, confidential business information; whether a submitter of information is limited to judicial review of the agency record as his only recourse in the event of an agency determination adverse to interests he asserts are protected by Exemption 4 and/or 18 U.S.C. § 1905.

Reformulated in terms reflecting the perspective of *amicus*, the fundamental question is: May the Federal government, as possessor of valuable information as a

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[2] 81 Stat. 54, 5 U.S.C. § 552 (P.L. 90-23, 90th Congress, 1st Session (1967), as amended).

[3] 86 Stat. 770 (P.L. 92-463, 92nd Congress, 2nd Session (1972), as amended).

consequence of its offer to support research projects it deems to be in the public interest, at its discretion, effect a diminution of the value of the ideas to submitting investigators, foreclose the transformation of the ideas into commercially valuable intellectual property, and deprive the public of potential benefits from Federally funded research?

Amicus recognizes that the specific items of information giving rise to this case are conceded by the parties to fall within the scope and coverage of Exemption 4. Accordingly, it recognizes that arguments as to the merits of including information contained in EEOC reports, affirmative action plans and the like within the scope of Exemption 4 are not pertinent to this case. *Amicus* will, however, direct some discussion to issues related to the scope of Exemption 4 in order to illustrate to the Court the injury to the public interest that will result from any determination that the exemption is discretionary rather than mandatory.

SUMMARY OF THE ARGUMENT

Creative ideas are valuable to a research investigator as his stock-in-trade and to society as a means of facilitating solutions to important national problems. To the extent that it may result in product innovations, an investigator's work is both of commercial significance and of public benefit in making available useful materials, such as, for example, life saving drugs or medical devices. Preservation of these values, however, requires that the investigator's ideas and works not be given premature public disclosure.

The FOIA and the FACA affect the timing of disclosure and should be interpreted in a fashion to protect both the investigator's and the public interest. Such

an interpretation is consistent with sound public policy, with Congressional intent, and with Constitutional directives.

ARGUMENT

I. An Investigator's Ideas and Creative Work Are Valuable

A. To the investigator because:

The advancement, remuneration, professional recognition, and personal satisfaction of a scientist depend upon the soundness of his ideas and the skill with which the scientist applies them to a research problem. The problems selected by applicants in seeking Federal research support and the results of the research (in terms of contribution to science, recognition of the effort as an original product, being the first to publish the research findings, and the like) are thus of substantial "proprietary" interest to him and are traditionally treated in this regard by the scientific community and by the Federal granting authorities,[4] regardless of the locus of research.

B. To society at large for their contribution to the resolution of problems of public significance because:

1. They illuminate our understanding of human problems. Federal agencies support academic research

[4] One member of an NIH initial review group (Dr. Walter Eckhart of the Salk Institute) characterized the importance of an application to an applicant as follows: the 4 to 5 hours a primary reviewer may spend studying an application "is done not so much because of a sense of responsibility or what the other members may think of your presentation, but because one knows that for the applicant it's a matter of life or death". Quoted in Wade, "Peer Review System: How to Hand Out Money Fairly", 179 *Science* (No. 4069) 158, 159 (1973).

because of public recognition of the contributions such research may make to the solution of human problems. For example, the Department of Health, Education, and Welfare is authorized to "encourage, cooperate with, and render assistance to other appropriate public authorities, scientific institutions, and scientists in the conduct of, and [to] promote the coordination of research, investigations, experiments, demonstrations, and studies relating to the causes, diagnosis, treatment, control and prevention of physical and mental diseases and impairments of man . . ." 42 U.S.C. § 241. Specifically, the Department of Health, Education, and Welfare is authorized to make "grants-in-aid to universities, hospitals, laboratories, and other public or private institutions, and to individuals for such research projects." 42 U.S.C. § 241 (c).

The recognized preeminence of the United States in the field of biomedical research, the scientific capabilities of modern medicine, the advances made in alleviating or ameliorating previously devastating disease problems testify to the success of this approach. The continual increase in appropriations for the programs of the National Institutes of Health,[5] testify to the Congressional and public support of this as an appropriate public policy.

2. They are a source of innovations resulting in useful products.

> "From 1969 through the fall of 1974 estimates of the Department show that the intellectual property rights to 329 innovations either generated, en-

[5] NIH appropriations have increased from $34.8 *million* in 1950 to over $2.5 *billion* in 1977. Basic Data Relating to the National Institutes of Health, DHEW Publication No. (NIH) 77-1261, 1977, Table 12.

> hanced, or corroborated in the performance of Department [of Health Education and Welfare]—funded research were under control of university patent-management offices . . ." [6]

These innovations included drugs and therapeutic agents which promise great benefit in improving health and improving the quality of life of mankind.

II. An Investigator's Ideas, Properly Developed, Often Are Transformed Into Commercially Valuable Property.

It is clear from the preceding quotation that an investigator's ideas and research efforts often result in patentable innovations. It should also be apparent that when this work has matured from a concept to a patented innovation it is transformed into identifiable "intellectual property" and its owner acquires substantial protection under U.S. patent and property laws. Furthermore, an idea or innovation may be commercially valuable, even absent the protections of a patent, if it is managed in a manner suitable to acquiring and preserving the character of a trade secret.

Patented innovations are of little direct concern in this case because of their protection in law. Of direct and substantial concern to *amicus,* however, are those inchoate forms of intellectual property represented by an innovation which may be patentable, but is not yet at a stage where it can be patented, and those insights which may form the basis for a commercially valuable trade secret. The possibility of obtaining a patent is jeopardized and, in some cases foreclosed, by uncondi-

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[6] Report of the President's Biomedical Research Panel—Disclosure of Research Information, at 15. DHEW Publication No. (OS) 76-513, June 30, 1976.

tioned disclosure prior to the filing of the patent application. A trade secret loses its value upon disclosure to the public.

Patent laws of both the United States and foreign countries are drafted against the interest of those parties making or permitting publication of their innovation prior to the filing of a patent application. In the United States, publication of an unpatented invention initiates a one-year statutory period for filing a patent application on the innovation or valid patent protection is precluded. In most foreign countries valid protection is precluded if a patent application had not been filed *prior* to the date on which the information was *first* disclosed.

Within the patent laws, publication has been broadly defined as any *unconditional disclosure* by its owner of information on an innovation of interest. For example, even a thesis available on the shelves of a university library but not necessarily reviewed by any researcher has been deemed in the context of the patent laws, to be a publication of the innovation disclosed therein.[7]

III. Exemption 4 of the FOIA Is of Crucial Significance in the Protection of an Investigator's Ideas.

A. PREMATURE DISCLOSURE DIMINISHES AN INVESTIGATOR'S STOCK-IN-TRADE.

Traditionally, Federal granting agencies have recognized and protected a scientist's proprietary inter-

[7] Hamilton Laboratories v. Massengill, 111 F. 2d 584, 45 U.S.P.Q. 594 (6th Cir. 1940); Indiana General Corp. v. Lockheed Aircraft Corp., 249 F. Supp. 809, 148 U.S.P.Q. 312 (S.D. Cal. 1966); Gulliksen v. Halberg, 75 U.S.P.Q. 252 (Bd. App. 1937); *Ex parte* Hershberger, 96 U.S.P.Q. 54 (Bd. App. 1952).

est in his work. Applications submitted for funding and the research protocols they contained have been withheld from disclosure under the authority of Exemption 4. It was clearly recognized that making the preliminary research, research designs and protocols public at the time of application would violate the proprietary rights of applicants and greatly enhance the danger that the applicant's ideas (his stock-in-trade) will be appropriated by others. Another researcher might modify the original proposal, be awarded the grant and be the first to publish findings thereby not only causing loss of the research opportunity and grant to the initial applicant but also crediting the subsequent applicant with the idea.

These concerns of the research scientist are very real and highly important, and preoccupy them constantly. The essence of this concern was expressed by Dr. James Dewey Watson, Nobel laureate and Professor of Molecular Biology, Harvard University, when he candidly said that "we [scientists] all know too well that the types of jobs we eventually get are very much dependent upon how much we produce. There is little enthusiasm for those who always come in second."[8] Professor Watson, in observing that "success in generating new ideas usually being more than the simple combination of native intelligence and a good measure of luck", pointed out that "(a)ll too often science resembles playing poker for very high stakes, where re-

[8] Watson, "The Sharing of Unpublished Information," second Frank Nelson Doubleday Lecture for 1973-74, at the National Museum of History and Technology, January 29, 1974, prepared remarks at 4.

vealing one's hands prematurely makes sense only when you have all the low cards."[9]

This policy of governmental protection of a scientist's ideas was challenged by the Washington Research Project, Inc. when denied access to research protocols funded by the National Institutes of Mental Health.[10] The court concluded, in denying the use of the "trade secrets" exemption, that

> "It is clear enough that a noncommercial scientist's research design is not literally a trade secret or item of commercial information, for it defies common sense to pretend that the scientist is engaged in trade or commerce. This is not to say that the scientist may not have a preference for or an interest in nondisclosure of this research design, only that it is not of trade or commercial interest. . ."[11]

While the court allowed, in a footnote, that it might have reached a different result had there been a demonstration of the commercial character of the research projects at issue, *amicus* contends that this overly narrow reading of Exemption 4 focuses unduly on the nature and organizational locus of the submitter rath-

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[9] *Id.* at 3.

[10] Washington Research Project, Inc. v. Weinberger, 504 F.2d 238 (D.C. Cir. 1974), *cert. denied*, 421 U.S. 963 (1975).

[11] 504 F.2d at 241. The Court, in rejecting the "stock-in-trade" contention, did not take cognizance of the very extensive activities of many colleges and universities in licensing their inventions for commercial development. For example, the [University] of Wisconsin Alumni Research Foundation has, over a 51 year period, licensed inventions resulting in nearly $2 *billion* in sales and the return of substantial royalties utilized for university research. Hearings on the Business Record Exemption of the Freedom of Information Act before a Subcommittee of the House Committee on Government Operations, 95th Cong., 1st Sess. (1977), at 321.

er than the character of the information and the interests at stake. Certainly an argument can be made that protection, under law, of the intellectual property of investigators employed at universities and other nonprofit institutions ought to be equal to that protection accorded commercial firms. If Exemption 4 were considered to cover the information protectable under 18 U.S.C. § 1905, it seems clear that universities and nonprofit organizations would as a minimum occupy a position equal to commercial concerns under FOIA and FACA, since the protection anticipated by 18 U.S.C. § 1905 clearly extends to non-commercial organizations as well as to commercial enterprises. Further, such an approach would assure more predictable protection because 18 U.S.C. § 1905 contains a definitive identification of proprietary information and because Government officials would carefully adhere to this definition due to the penalties prescribed.

In the view of Representative John E. Moss, known as the "Father of FOIA," it was the Congressional intent that there be a close identification of 18 U.S.C. § 1905 and Exemption 4. In a summary of a November 10, 1975, meeting on FOIA with Representative Barry Goldwater, Jr.,:

> "Mr. Moss indicated that, as an original author of the Freedom of Information Act, it was his intent and understanding that exemption (b)(4) would authorize the withholding from disclosure under that Act of all 'confidential information' protected by 18 U.S.C. 1905 in the criminal code. He further indicated that 18 U.S.C. 1905 was not intended as the authority to withhold such information under the Freedom of Information Act, but rather it was to be the test for what information was authorized to be withheld under the authority in exemp-

tion (b)(4). He expressed disappointment that recent court holdings have not correctly interpreted this connection and often have held to the contrary that 18 U.S.C. 1905 information is not necessarily protected under (b)(4), based on the adoption by the courts of various other tests for exemption (b)(4) coverage."[12]

B. Premature Disclosure Destroys the Trade Secret Value and Potential Patentability of Innovations.

Notwithstanding the decision in *Washington Research Project,* and assuming *arguendo* that it correctly states the law with respect to funded applications where no specific showing of a commercial interest is made, there remains a basic and difficult problem regarding the treatment of inchoate intellectual property resulting from judicial interpretations of Exemption 4 and the administrative difficulties of agency compliance.

To the extent that FOIA requires disclosure prior to the funding of research projects, it is unrealistic to expect that investigators or their institutions would be able to protect their intellectual property rights by filing a patent application at this early stage of investigation. The clinical or other corroborating data necessary to support a patent claim would obviously be lacking. The filing of a patent application without such data, if possible at all, would be based on the uneconomic, speculative basis of possible future findings. The unfunded investigator with a research proposal before the Government would be foreclosed from

[12] 121 Cong. Rec. H 12379 (Dec. 11, 1975). The full Summary of the Nov. 10, 1975, meeting is attached as Appendix A.

the protection of his innovative ideas as trade secrets under the common law to the extent that disclosure is required under FOIA.[13]

FOIA would appear to require that unfunded research proposals be reviewed on an individual case basis as to whether they are exempt from disclosure under Exemption 4. However, it is difficult (if not impossible) to determine at the design phase of an experiment whether and to what extent it is exempt from disclosure under this authority. As to those portions that *might* be deemed exempt under Exemption 4, at that stage it is even more difficult to segregate data of potential commercial significance from those that do not have this value. In fact, the experiment itself, *if* funded, is conducted to answer these questions. This administrative quagmire demonstrates the practical difficulty of providing adequate protection for unfunded research proposals under the FOIA.

This difficulty is compounded by court interpretations of Exemption 4. The decision from the leading case on this exemption (*National Parks and Conservation Association* v. *Morton,* 498 F. 2d 765 (D.C. Cir. 1974)) states that the exemption applies if it can be shown that disclosure was likely either, first, to impair the Government's ability to obtain necessary infor-

[13] In other circumstances, an application for governmental assistance does not constitute a waiver of an innovator's claim to protection from disclosure of a trade secret. *See, e.g.,* Kewanee Oil Co. v. Bicron Corp., 416 U.S. 470 (1970) (the enactment of the U.S. patent laws do not deprive States of their ability to protect trade secrets); Sears v. Gottschalk, 357 F. Supp. 1327 (E.D. Va. 1973), aff'd. 502 F. 2d. 122 (4th Cir. 1974) (patent applications denied patent protection are nevertheless protected from disclosure under the FOIA by Exemption 4 as trade secrets).

mation, or second, to cause substantial harm to a competitive position of a person providing the information. The standard was further restricted in *Petkas* v. *Staats* (501 F. 2d 887 (1974)) where the court refused to accept a Government assurance of nondisclosure contained in a regulation requiring information. A corporation's reliance on this assurance, and the filing of the information conditioned on confidentiality, were not considered determinative and the court remanded the case for disposition in accordance with the test of the *National Parks* case noted above. Consequently, a pledge of confidentiality by the Government, in and of itself, may not prevent disclosure.

Further, Title 18 U.S.C. § 1905 appears to be given little effect in Freedom of Information Act suits. This statute, when applicable, imposes criminal penalties on Government officials who disclose proprietary information in the possession of the Government. It is a deterrent to unauthorized disclosure, although it takes effect only after the disclosure and the damage has been suffered by the owner. Title 18 U.S.C. § 1905 contains a general exemption, "unless otherwise provided by law", and has not been given effect by some courts in Freedom of Information Act suits. These courts have interpreted the quoted passage as permitting disclosure under the Freedom of Information Act, or as the court below, under agency disclosure regulations. The penalties specified in Section 1905, therefore, have not been applied to an official who disclosed proprietary information in response to a Freedom of Information request.

Since the Government controls the preponderance of the financial resources now supporting research at universities and non-profit organizations, especially

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in the area of biomedical research, it is clear in practice that a university or nonprofit organization investigator seeking Federal support to verify his innovative ideas will not be able to protect his inchoate or identified intellectual property under the first test of *National Parks* (impairment of government's ability to obtain material). If susceptability to disclosure is a condition of seeking Federal funding, investigators will not be in a position to refuse to submit their research proposals for funding because of the financial leverage possessed by the Government.

Even though commercial concerns might, with some difficulty, meet the second or "substantial harm to a competitive position" test of the *National Parks* case, universities and nonprofit organizations wishing to control access to their unfunded research proposals appear to have an even greater burden in meeting this test in light of *Washington Research Project, Inc.*[14]

C. The Withholding of a Research Proposal is Inadequately Provided for under Present Cases Covering the Fourth Exemption of FOIA.

In order to deny information, the Federal administrator handling the request must apply the *National Parks* test to the situation and provide to the Department Public Information Officer a written *prima facie* case for denial. (The case would need to include arguments on how a nonprofit organization could have a competitive position in order to overcome the negation of such possibility by the *National Parks* and *Washington Research Project, Inc.,* cases.) Before a *prima facie* case could be made to deny a disclosure request involving an idea, invention, or discovery, a prior art

[14] *Supra,* note 10.

review would need to be conducted indicating that such an idea, invention, or discovery is in fact novel in comparison to the "prior art". If novelty cannot be shown, it seems clear that the Government could not prevail in a suit to show that there will be "substantial harm to the owner's competitive position." It is worth asking whether a Federal administrator, even with the aid of the investigator whose idea is involved, can show, especially prior to the funding of a research proposal, that such proposal is novel compared to the prior art. The primary purpose of conducting the research is to demonstrate that the idea is indeed novel.

Even if the Federal administrator is able to make a *prima facie* case establishing that the research proposal falls within the fourth exemption, there is no guarantee that the Department Public Information Officer would accede to the recommended denial in light of the May 5, 1977, instructions from the Attorney General to the Agencies of the Executive Branch that

> "The government should not withhold documents unless it is important to the public interest to do so, even if there is some arguable legal basis for the withholding. In order to implement this view, the Justice Department will defend Freedom of Information Act suits only when disclosure is demonstrably harmful, even if the documents technically fall within the exemptions in the Act." [15]

The need to adequately protect these inchoate or identifiable rights prior to Government funding becomes more apparent when it is realized that only

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[15] Letter to Heads of all Federal Departments and Agencies *re*: "Freedom of Information Act" dated May 5, 1977, from Griffin B. Bell, Attorney General, copy attached as Appendix B.

approximately one-third of these proposals are in fact ultimately funded. Thus, if disclosure of these proposals on receipt by the Government becomes the rule rather than an exception, the intellectual property in the two-thirds of unfunded proposals will be forever destroyed without an offsetting benefit to the submitting investigator or the public. *Amicus* believes adequate safeguards for the protection of intellectual property rights of investigators with research proposals before the Federal Government is a matter of basic equity and sound policy. Protection of intellectual property is a right recognized by the Congress and the courts in implementing Article I, Section 8, Paragraph 8 of the Constitution and the common law protection afforded those who wish to maintain their innovative ideas as secrets. Moreover, the remarkably productive partnership between the Federal Government and the non-Federal research community is based in part on the principle of protection of the ideas of such investigators and is widely considered to be in the best interests of the American people.

IV. Harm to the Public Interest Results from Current Unpredictability of Protection from Disclosure.

Amicus believes it is possible to estimate, in a general sense, the potential harm that results if protection of individual intellectual property by Government agencies remains in its present state of unpredictability. *Amicus* has long been concerned with the problems of transfer of research progress, technology, and information from the "laboratory bench to the public."

A number of studies have yielded evidence of a clear link between the need to protect intellectual property rights and the successful transfer of research innova-

tions to the delivery of health care. In a 1968 report, "Problem Areas Affecting Usefulness of Results of Government-Sponsored Research in Medicinal Chemistry,"[16] the General Accounting Office pointed out that from 1962 to 1968 there was a virtual industry-wide boycott on the exploitation of drug research leads generated by research sponsored by the National Institutes of Health. This report forcefully concludes that where substantial private risk investment is needed, such as that required for premarket clearance of potential therapeutic agents and, now, of some classes of medical devices, there is an identified likelihood that transfer will not occur if the entrepreneur is not afforded some property protection in the innovation offered for development.

Since 1968 there have been specific efforts through the patent program of the Department of Health, Education, and Welfare to close the recognized gap between the discoveries made under research support and the willingness of private industrial developers to invest the funds necessary to deliver the innovations to the market place. The main thrust of the Department's patent policy has been to assure that the innovating group has the right to convey whatever intellectual property rights are necessary for possible licensing of industrial developers. Not all transfers of potentially marketable innovations from such organizations require an exchange of intellectual property rights in the innovation, but it is unpredictable in which transfers entrepreneurs will demand an exchange to guarantee their collaborative aid.

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[16] GAO Report No. B-164031 (2), 1968.

> "During the period from 1969-1974, 44 nonexclusive and 78 exclusive licenses had been negotiated under the patent applications filed through these university patent-management offices. According to the figures furnished by the Department, the 122 licenses negotiated have generated investments of around $100 million of private risk capital, in complete contrast to the period 1962 to 1968, during which there was almost no industry interest in research leads of Department-funded research. In the period 1969 to 1974, two licenses resulted in the marketing of two drugs, while a number of other licenses cover potential therapeutic agents in various stages of pre-market clearance. This record is even more impressive in view of the fairly lengthy period required to obtain approval to market a new drug." [17]

In the above context, it is apparent that the existence of a licensable patent right may be a primary factor in the successful transfer of a university innovation to industry and the marketplace. *Amicus* is concerned that the failure to protect and define such rights may fatally affect the transfer of major health innovations.

For this reason, *amicus* is seriously concerned about the unpredictability of Government protection for intellectual property rights, because of the uncontrolled and unconditioned disclosure of research information under current court interpretation of FOIA. This state of affairs is likely to stifle industry interest in developing potentially important research innovations. Without industry involvement, the transfer of research findings to clinical practice will be impeded.

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[17] Report of the President's Biomedical Research Panel, *supra* note 6 at 15.

In the judgment of *amicus,* there are strong reasons to conclude that the interface between research and health care delivery, an area of vital national interest, is likely to be impaired unless adequate protection is provided for intellectual property rights of investigators whose research is conducted with Federal financial support.

V. The FOIA Must Be Interpreted Consistent With Relevant Constitutional and Statutory Provisions and with the Public Interest.

The Freedom of Information Act contains no provision for according submitters of information due process of law in any decision to disclose information of value to the submitters. Nor does the Act contain a provision to compensate the submitter for the value of information destroyed by its disclosure to the public. As asserted above, the result of disclosure is a general harm to the long range public interest. These considerations argue forcefully that the Congress never intended a submitter of information to be disposessed of valuable property by operation of the FOIA. Instead, Congress intended, as stated by Mr. Moss, that Exemption 4 would preserve the confidentiality of such valuable information and that it would be read in conjunction with Section 1905 of Title 18. A contrary reading of Exemption 4 has the effect of subverting the Constitutional mandate that Congress promote the useful arts, Article I, Section 8, Paragraph 8, and would be violative of the clear mandate of the Fifth Amendment of the Constitution prohibiting the deprivation of property without due process of law. These considerations in turn lead to the conclusion that Exemption 4 constitutes a mandatory prohibition against the disclosure by government agencies of information described therein and in Section 1905 of Title 18.

CONCLUSION

It is the position of *amicus* that the public interest is served by a governmental policy which accords adequate recognition to the concept that the research investigator's ideas are valuable and constitute actual or inchoate intellectual property. Untimely disclosure or unrestricted access to materials contained in research grant applications through the operation of the FOIA will result in the destruction of valuable property rights, will undermine the effectiveness of the system for awarding grants on the basis of scientific merit, and will inhibit and in some cases preclude the transfer of technology from the "laboratory to the patient bed." These conclusions are supported by and reflected in the recommendations of two independent Congressionally commissioned studies of the implication of disclosure of information contained in research protocols, research hypotheses, and research designs obtained by the Secretary of Health Education and Welfare in connection with applications or proposals submitted to the Secretary for a grant, fellowship, or contract under the Public Health Service Act.[18]

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[18] Report of the President's Biomedical Research Panel—Disclosure of Research Information, DHEW Publication No. (OS) 76-513, June 30, 1976.

Disclosure of Research Information under the Freedom of Information Act—The National Commission for the Protection of Human Subjects of Biomedical and Behavioral Research, DHEW Publication No. (OS) 77-003, 1977.

While each of these reports conclude that new legislation will be required to assure these objectives, *amicus* contends that they will be achieved through a proper construction of Exemption 4 of the FOIA and 18 U.S.C. § 1905, by this Court.

1. Consequently, we conclude and urge this Court to hold that Exemption 4 of the FOIA must be interpreted as a mandatory prohibition of agency action to disclose information described therein or in Section 1905 of Title 18.

2. *Amicus* strongly supports petitioner's contention that 5 U.S.C. § 301 does not constitute authorization by law within 18 U.S.C. § 1905 for disclosure of private, confidential business information. This conclusion, is essential to prevent the evisceration of Exemption 4. Finally it is consistent with sound public policy to provide protection to information submitted to the Government by universities and nonprofit organizations on an equal footing with information submitted by commercial concerns.

3. *Amicus* further supports the petitioner's contention that persons supplying information believed to fall within the Exemption or the protection of 18 U.S.C. § 1905 are entitled to a trial *de novo* prior to disclosure of such information by the Government. *Amicus* believes that the Government's unilateral ability to release privately owned intellectual property, inchoate or identifiably patentable subject matter, or information protectable at common law as secret, is constitutionally suspect as a disposition of property without due process of law and thus requires adequate opportunity for the submitter to enjoin such release before irreparable damage occurs.

For the foregoing reasons, the decision of the circuit court should be reversed.

Respectfully submitted,

JOSEPH A. KEYES, JR.
Attorney for Amicus Curiae
Suite 200. One Dupont Circle, N.W.
Washington, D.C. 20036

June 5, 1978

CONGRESSIONAL RECORD—HOUSE

December 11, 1975 H 12379

Summary of Meeting of Representative John E. Moss with Representative Barry M. Goldwater, Jr., on the Freedom of Information Act, Nov. 10, 1975

1. We agreed that it is extremely important and in the national interest that ERDA have the full cooperation and participation of the private sector, particularly American industry, in the conduct of the national energy R&D effort. This cooperation and participation is essential to ensure the success of the national effort, by providing ERDA access to existing technology and access to past, present and future successes and failures in the private sector's energy R&D activities in order to most effectively manage the national effort.

2. We agreed that any lack of predictable protection of the private sector's proprietary information under the existing Freedom of Information Act exemption from mandatory disclosure for such information (5 U.S.C. 552(b)(4)) could seriously inhibit private sector cooperation and participation with ERDA to the detriment of the national energy research and demonstration program.

3. Mr. Moss acknowledged Mr. Goldwater's conclusion, based on an independent staff legal analysis, that protection under exemption (b)(4) is neither predictable nor adequate because of recent court interpretations of the exemption.

4. Mr. Moss indicated that, as an original author of the Freedom of Information Act, it was his intent and understanding that exemption (b)(4) would authorize the withholding from disclosure under that Act of all "confidential information" protected by 18 U.S.C. 1905 in the criminal code. He further indicated that 18 U.S.C. 1905 was not intended as the authority to withhold such information

under the Freedom of Information Act, but rather it was to be the test for what information was authorized to be withheld under the authority in exemption (b)(4). He expressed disappointment that recent court holdings have not correctly interpreted this connection and often have held to the contrary that 18 U.S.C. 1905 information is not necessarily protected under (b)(4), based on the adoption by the courts of various other tests for exemption (b)(4) coverage.

5. Mr. Moss indicated that exemption (b)(3), "specifically exempted from disclosure by statute" could be utilized to create a narrow statutory exemption in other statutes where Congress concluded that there was a legitimate national interest to be effectuated by withholding a class of information. In so concluding, Congress must strike a reasonable and acceptable balance between that national interest and the national interest in public access to Federal government information effectuated by the Freedom of Information Act.

6. We agreed that, in light of the apparent state of unpredictability of protection for proprietary information under exemption (b)(4) and the need for ERDA to provide such predictable protection in order to ensure the full cooperation and participation of the private sector, Congress could conclude that there was a legitimate national interest in ERDA's having the specific authority to predictably protect proprietary information. Further, Congress could strike a reasonable and acceptable balance of that national interest and the national interest in freedom of information and create a (b)(3) exemption for ERDA for that purpose.

7. Finally, we reviewed a draft of a provision to authorize such a (b)(3) exemption for ERDA. Mr. Moss did not comment on the specific language, but did indicate that in concept the approach of the provision was acceptable and in accordance with the preceding discussion and, further,

that he did not object to it. Subsequently, he indicated that the specific language could be improved, but again, that he had no fundamental objection to the approach represented by the draft provision. The statutory test for the class of information, consistent with basic FOIA principles, would, of course, be subject to judicial review under current FOIA procedure.

8. Mr. Moss emphasized that the proposed statutory language provides no authority to withhold information from Congress, or any committee or subcommittee of Congress. He also stated his belief that any Member of Congress should be able to have access to such information.

9. We agree that the above summary accurately reflects the substance of our meeting.

Signed,

JOHN E. MOSS,

BARRY M. GOLDWATER, JR.

APPENDIX B

Letter dated 5/5/77

OFFICE OF THE ATTORNEY GENERAL
WASHINGTON, D.C. 20530

LETTER TO HEADS OF ALL FEDERAL DEPARTMENTS AND AGENCIES

Re: *Freedom of Information Act*

I am writing in a matter of great mutual concern to seek your cooperation.

Freedom of Information Act litigation has increased in recent years to the point where there are over 600 cases now pending in federal courts. The actual cases represent only the "tip of the iceberg" and reflect a much larger volume of administrative disputes over access to documents. I am convinced that we should jointly seek to reduce these disputes through concerted action to impress upon all levels of government the requirements, and the spirit, of the Freedom of Information Act. The government should not withhold documents unless it is important to the public interest to do so, even if there is some arguable legal basis for the withholding. In order to implement this view, the Justice Department will defend Freedom of Information Act suits only when disclosure is demonstrably harmful, even if the documents technically fall within the exemptions in the Act. Let me assure you that we will certainly counsel and consult with your personnel in making the decision whether to defend. To perform our job adequately, however, we need full access to documents that you desire to withhold, as well as the earliest possible response to our information requests. In the past, we have often filed answers in court without having an adequate exchange with the agencies over the reasons and necessity for the withholding. I hope that this will not occur in the future.

In addition to setting these guidelines, I have requested Barbara Allen Babcock, Assistant Attorney General for the Civil Division, to conduct a review of all pending Freedom of Information Act litigation being handled by the Division. One result of that review may be to determine that litigation against your agency should no longer be continued and that information previously withheld should be released. In that event, I request that you ensure that your personnel work cooperatively with the Civil Division to bring the litigation to an end.

Please refer to 28 CFR 50.9 and accompanying March 9, 1976 memorandum from the Deputy Attorney General. These documents remain in effect, but the following new and additional elements are hereby prescribed:

In determining whether a suit against an agency under the Act challenging its deniel of access to requested records merits defense, consideration shall be given to four criteria:

(a) Whether the agency's denial seems to have a substantial legal basis,

(b) Whether defense of the agency's denial involves an acceptable risk of adverse impact on other agencies,

(c) Whether there is a sufficient prospect of actual harm to legitimate public or private interests if access to the requested records were to be granted to justify the defense of the suit, and

(d) Whether there is sufficient information about the controversy to support a reasonable judgment that the agency's denial merits defense under the three preceding criteria.

The criteria set forth above shall be considered both by the Freedom of Information Committee and by the litigating divisions. The Committee shall, so far as practical,

employ such criteria in its consultations with agencies prior to litigation and in its review of complaints thereafter. The litigating divisions shall promptly and independently consider these factors as to each suit filed.

Together I hope that we can enhance the spirit, appearance and reality of open government.

Yours sincerely,

/s/ GRIFFIN BELL
Griffin B. Bell
Attorney General

AMERICAN COUNCIL ON EDUCATION
ONE DUPONT CIRCLE
WASHINGTON, D. C. 20036

OFFICE OF GOVERNMENTAL RELATIONS

May 25, 1978

The Honorable Gaylord Nelson
Chairman, Subcommittee on Monopoly
and Anticompetitive Activities
Select Committee on Small Business
United States Senate
Washington, D.C. 20510

Dear Mr. Chairman:

On behalf of the American Council on Education, an association representing 1,490 colleges, universities, and education organizations, I would like to reaffirm our endorsement of testimony delivered by Vice President Jones of MIT before your subcommittee on May 23 and to convey our views concerning the awarding of patent rights developed by colleges and universities in the performance of federally funded research.

Colleges and universities unanimously support legislation that would permit contractors to retain exclusive rights to inventions subject to a nonexclusive, nontransferable, irrevocable paid up license in the government. We firmly believe that such uniform regulations will best achieve a policy of making inventions available to the public. We urge your support of such legislation. In the absence of support for this proposal the higher education community strongly favors the maintenance of the existing federal policy permitting diverse policies within the various federal agencies rather than vesting patent rights in the government or establishing a policy of deferred determinations.

The process of education at most colleges and universities embraces the conduct of basic research which may or may not develop a patentable item. The occurrence of an invention during the course of the research is virtually always incidental to the main objectives of the research agreement and only in rare instances provides financial benefits. An invention, when it occurs, is largely attributable to the personal creativity of the investigator buttressed by his years of professional training and experience, and to the scholarly environment and research resources provided by the university.

Since such inventions are generally developed in performance of basic research, they tend to be embryonic in nature and, therefore, usually require substantial investment of private risk capital for the further development necessary to introduction into the market. Accordingly, if university inventions are to be used, institutions must seek to interest industrial concerns who have the commercial capability the university lacks. Therefore, unless the university has the ability to grant exclusive licenses, such as those permitted under Institutional Patent Agreements, it may be unable to attract the necessary risk capital. When the government retains title, the patents are made available to all comers on a nonexclusive or even royalty free basis. This is tantamount to "dedication" of the invention to the public. In such cases, a commercial concern may often be dissuaded from investing the necessary development effort to make the product or process useful to the public.

Inventions resulting from research sponsored by Federal agencies involve equities of the government, the contractor, and the inventor. When a patentable invention is made by an investigator in an academic institution with the help of Federal funds, rarely, if ever are the Federal funds the sole or even the major factor contributing to the invention. The insight of the investigator, derived from his career working in a given field, is generally paramount. The university itself virtually always helps to finance the laboratories, equipment, and personnel contributing to the invention.

If you have any questions about our position, we would be pleased to discuss it with you or your staff at your convenience.

Very truly yours,

Sheldon Elliot Steinbach
Staff Counsel

cc: Members of the Subcommittee

AMERICAN COUNCIL ON EDUCATION
ONE DUPONT CIRCLE
WASHINGTON, D. C. 20036

OFFICE OF GOVERNMENTAL RELATIONS

January 13, 1978

The Honorable Gaylord Nelson
Chairman, Subcommittee on Monopoly
and Anticompetitive Activities
Select Committee on Small Business
United States Senate
Washington, D.C. 20510

Dear Mr. Chairman:

On behalf of the American Council on Education, an association of over 1,400 colleges, universities, and organizations in higher education, and the associations listed hereunder, I am forwarding herewith our statement for inclusion in the record of the hearings held on December 19-21, 1977, by the Senate Subcommittee on Monopoly and Anticompetitive Activities concerning rights to inventions developed under government-financed research.

Our associations endorse a government policy which permits the contractor to retain exclusive rights to inventions subject to a nonexclusive, nontransferable, irrevocable, paid-up license in the government.

The process of education at most colleges and universities embraces the conduct of basic research which may or may not develop a patentable item. The occurrence of an invention during the course of the research is virtually always incidental to the main objectives of the research agreement. An invention, when it occurs, is largely attributable to the personal creativity of the investigator backed up by his years of professional training and experience, and to the scholarly environment and research resources provided by the university.

Since such inventions are generally developed in performance of basic research, they tend to be embryonic in nature and, therefore, usually require substantial investment of private risk capital for the further development necessary to introduction into the market. Accordingly, if university inventions are to be used, institutions must seek to interest industrial concerns who have the commercial capability the university lacks. Therefore, unless the university has the ability to grant exclusive licenses, it may be unable to attract the necessary risk capital. When the government retains title, the patents are made available to all comers on a nonexclusive or even royalty free basis. This is tantamount to "dedication" of the invention to the public. In such cases, a commercial concern will not have sufficient incentive to invest in the necessary development effort to make the product or process useful to the public.

Inventions resulting from research sponsored by Federal agencies involve equities of the government, the contractor, and the inventor. When a patentable invention is made by an investigator in an academic institution with the help of Federal funds, rarely, if ever are the Federal funds the sole or even the major factor contributing to the invention. The insight of the investigator, derived from his career working in a given field, is generally paramount. The university itself virtually always helps to finance the laboratories, equipment, and personnel contributing to the invention.

We strongly support H.R. 8596, the Uniform Federal Research and Development Utilization Act of 1977, as an enlightened government policy. We firmly believe that the uniform regulations provided for in the bill will achieve the government goal of making inventions available to the public. We urge your support of this bill.

We would be pleased to meet with you or your staff to discuss these issues further.

Very truly yours,

Sheldon Elliot Steinbach
Staff Counsel

The following associations join in this statement:

American Association of Community and Junior Colleges
American Association of State Colleges and Universities
American Council on Education
Association of American Universities
Association of Jesuit Colleges and Universities
National Association of College and University Business Officers
National Association of Independent Colleges and Universities
National Association of State Universities and Land-Grant Colleges
National Catholic Educational Association, College and University Department

STATEMENT

submitted to

SUBCOMMITTEE ON MONOPOLY AND ANTICOMPETITIVE ACTIVITIES
SELECT COMMITTEE ON SMALL BUSINESS

JANUARY 24, 1978

by

American Association of Community and Junior Colleges
American Association of State Colleges and Universities
American Council on Education
Association of American Universities
Association of Jesuit Colleges and Universities
National Association of College and University Business Officers
National Association of Independent Colleges and Universities
National Association of State Universities and Land-Grant Colleges
National Catholic Educational Association, College and University Department

Inventions resulting from federally funded research constitute a valuable national resource. The large amount of federal funds supporting research dictates the necessity of examining the government's patent policy in order to ensure that inventive results are being delivered to the public and that the equities of all parties involved are being protected. Because of their special mission, colleges and universities have unique patent concerns which warrant a detailed exploration, particularly with regard to ownership of patent rights developed on campus under federal contracts and grants.

The federal government sponsors research in universities to expand the boundaries of existing knowledge in areas or on problems deemed to be in the public interest or to be related to national goals. Universities are free to publish research results which are generally made available to all. The right to publish is normally preserved in the negotiation of grants and contracts, as is the sponsoring agency's right to receive agreedupon reports.

The generation of inventions is almost never the main objective of the research conducted with federal agency funds; rather, an invention generally is an incidental "byproduct" of the research activity, largely attributable to serendipity and/or the personal creativity of the investigator backed by his years of professional training and experience, and to the scholarly environment and research resources provided by the university. When patentable discoveries occur, the equities to be considered include those of the inventor, the university, and, very properly, the sponsors providing financial support for the particular research project most closely related to the discovery.

When a patentable invention is made by an investigator in an academic institution with the help of federal funds, rarely, if ever, are the federal funds the sole or even the major factor contributing to the invention. Beyond the critical

contribution of the investigator, the university itself virtually always helps to finance the laboratories, equipment and personnel contributing to an invention. It also provides a scholarly atmosphere, and often the infusion of funds obtained from nongovernment sources. Accordingly, each of the parties has a claim in equity.

A policy which assigns patent rights to the government for all federally supported research, however large or small the federal contribution, eliminates the universities' ability to recognize the equities of other sponsors who contributed to the discovery of the invention as well as the contributions of the institutions themselves.

Since inventions resulting from research sponsored by federal agencies involve equities of the government, the contractor (on his own behalf or as the result of intermingled funds derived from other than federal agency sources), and the inventor, many factors must be considered in making a decision as to where the primary right in such inventions should be vested. In making that decision only one consideration should be paramount, and that is in whose hands will the vestiture of primary rights serve to most quickly and economically transfer the invention technology to the public for its use and benefit.

Educational institutions are, of course, not organized either to manufacture or produce and market a patentable invention. Accordingly, if university-generated inventions are to be used, such institutions must seek to interest those in the industrial world who have the commercial capability for invention development and also, very importantly, market development, which the university lacks. This is often a difficult task, since few inventions coming out of university research offer readily recognizable prospects of a large market or a high return on investment. University-based inventions, since they most often correlate with the results of fundamental

research, tend to be, at best, in the early stages of development, and therefore require the investment of substantial private risk capital to develop the invention to the appropriate state for introduction into the market.

At the same time, universities are in a unique position to objectively seek the best qualified industrial developer and under appropriate licensing arrangements monitor the diligence of developmental efforts by such a developer. If universities cannot furnish, if appropriate, an exclusive license to developers for a limited period and thereby secure the investment of necessary capital, inventions resulting from government contracts are less likely to be developed to the point of marketability, and thus the public is less likely to receive the benefits from such inventions, or at least may not receive them as quickly as otherwise would be the case.

When the right to seek patents resides in universities, appropriate patent applications can be filed promptly and negotiations immediately commenced with prospective developerlicensees, with the active assistance of the inventor. When this right does not exist at the time of contracting, but must await a determination after the invention has been identified, substantial time is usually required to prepare the necessary documentation for the sponsoring agency and for the agency to make a determination. While awaiting the outcome of such administrative process, the invention lies dormant, with the attendant risks that the inventor's interest in assisting in the development becomes attenuated and that intervening rights of others may foreclose successful transfer of the invention to the public.

Since deadlines for domestic and foreign patent applications are affected by publication of patentable ideas in scientific journals, delays in determining the disposition of rights to an invention can result either in delay of publication of research results or risk of expiration of the time limit in which patent applications can be filed. Neither choice is beneficial to the public interest.

Although the university's primary motivation in filing and prosecuting applications for patents is the timely promotion of actual availability of new products or processes to the general public, if, in the course of such transfer, income to support further research at the institution can be generated, the public benefits a second time.

The public obtains the benefit of universitygenerated patents through the efforts of those sponsoring agencies which offer adequate inducement to those who can bring the fruits of basic research into a form useful to the consuming public. Mere exclusivity in patent rights does not ipso facto create artificially high prices for related products and royalties generally represent only a very small fraction of the retail price of marketed goods. Moreover, one must face the inescapable conclusion that the development of inventions under a reasonable government patent policy will benefit the public by making available products that would otherwise not have been available at any price.

Without exclusivity to some degree, private sources are unlikely to have sufficient incentive to invest in the effort necessary to develop an invention available to all into a product or process actually available to the public. Indeed, the investment required to bring a product or process to a marketable condition and to introduce it into the market is almost always far greater than the investment in original research from which the invention results.

To bring an invention to public use, further deveopment or engineering usually is required, such as testing or "screening" a prototype of the new product or process. Before the efforts and expenses incident to testing or screening are undertaken, investors need to know who has the title to or ownership of the invention (i.e., the right secured to inventors and their assignees or licensees, for limited times, as provided in the Constitution).

Sometimes prospective licensees have refused to undertake the testing, screening or development of inventions unless the licensor would grant an exclusive license for commerical sale or use. In some cases, no viable alternative has been available and, in the absence of an exclusive license, the use of the product, process or machine has been denied to the public.

Universities usually do not possess the resources, critical facilities, or controls necessary to bring drug products, for example, through the clinical testing stages to marketability. Thus, it is imperative that they be in a position to supply an incentive under appropriate licensing arrangements to those organizations which have those facilities and control capabilities.

Since government personnel would not be as intimately familiar with an invention as those that have developed it in a university, they would be in a much less favorable position to ascertain or pursue the commercial marketability of such an invention and it is feared that the time that would have to be invested in such activity could well cause a significant reduction in invention disclosures from university researchers, with a consequent reduction in public access to potential fruits of research.

Thus, the primary result of the economic stimuli afforded by a realistic licensing policy is a public benefit the production and introduction of a good or service that otherwise might not become available in the context of our free enterprise system.

Under the policies of some governmental agencies, the agency, on behalf of the government, normally asserts its rights to ownership of any inventions and patents generated in the course of research sponsored and funded by the agency but does have regulations under which such right can be waived to the contractor or grantee. If an institution desires to acquire title to a particular invention, it must request a waiver in accordance with the regulations of such agency. The granting of a waiver generally depends on a determination by the agency, based upon evidence submitted by the contractor or grantee, that the invention will be more adequately and quickly developed in the public interest if title to the

invention is waived to the contractor of grantee. Such waivers are given with a reservation of a license to the government to practice the invention for governmental purposes and with other provisions which adequately protect the public interest.

An alternative to the "waiver" approach is the "Institution Patent Agreement" approach, available since 1978. [1] This approach, endorsed by a 1968 GAO Report,[2] permits the grantee institution to retain title and to administer the principal ownership rights in inventions made under department grants and awards, clearly defines the rights of the parties with respect to such inventions, and sets forth general guidelines governing the licensing of inventions. It includes limitations on the duration of exclusive licenses to be granted, it reserves a royalty-free license to the government for governmental use, and it provides other appropriate safeguards to protect the public interest. These latter safeguards include a reservation to the government of the right to require the granting of additional licenses on royaltyfree basis or on other terms that are reasonable under the circumstances, where such licenses are necessary to fulfill public health, welfare or safety requirements.

With the active assistance of inventors, the universities are in a better position than the federal government to transfer technology to the public through the economy. A government "title" policy, however, would preclude the university from recognizing the equities of others, including inventors and nongovernmental sponsors, and would fail to acknowledge the benefits that now accrue to the taxpaying public for its contribution to the institutions' research efforts.

Consequently, qualified universities that have developed a technology transfer capability should be granted, with the award of a contract or grant, a first option to title in inventions generated on their respective campuses with federal funds with appropriate safeguards to prevent abuse of patent rights retained by any such institution and to minimize any anticompetitive effects.

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1. "Institutions Patent Agreement Governing Grants and Awards from the Department of Health, Education and Welfare" HEW Standard Form Rev. 8/26/68.

2. Report to the CongressProblem Areas Affecting Usefulness of Results of GovernmentSponsored Research in Medicinal Chemistry -Comptroller General of the United States -B 1640 31(2), 1968

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May 15, 1978

The Honorable Gaylord Nelson
United States Senate
Washington, D. C. 20510

Dear Senator Nelson:

Reference is made to a recent conversation between Mr. Gerald Sturgess of your staff and Ms. Dorothy Bomberger, Program Manager, United States Activity Board, of the Institute of Electrical and Electronic Engineers (IEEE) concerning hearings to be held by your Monopoly and Anti-competitive Activities Subcommittee on Amendment No. 187 to the GSA Federal Procurement Regulations. This letter is written in response to Mr. Sturgess' suggestion that the Institute submit its views on the rights of Universities in inventions made pursuant to research funded by the Federal Government.

The IEEE has become increasingly concerned in recent years with the decline in the technological growth of this country and its loss of pre-eminence in the field of science. The Institute has thus taken an increasingly active roll in supporting programs and policies which are calculated to restore a fertile climate for innovation in this country and which in fact will accelerate the pace at which technology is developed.

In support of this effort the Institute has supported programs that it believes will promote such goals as well as opposing programs believed to hamper them. The Institute believes that the source of all creativity is individuals, and that the individual will disclose and develope his or her inventions if he or she can benefit from such. Thus, the Institute supports programs that reward inventors for their inventions and which leave all avenues of financing open for development of their ideas. In this latter context, it is essential to destroy the myth that important inventions result substantially only from the efforts of big business and that the retention of rights by Government contractors in inventions made under Government contracts will only benefit such companies usually at the expense of the public. Such a philosophy in effect denies federal funding of inventions of individuals, universities and small business.

RIGHTS FOR INVENTIONS

As indicated above the Institute is concerned with increasing the rewards received by individual inventors as a result of their crestivity. This concern is shared by many highly placed individuals both in and out of Government. Reference is made to testimony by Admiral Rickover before the 87th Congress wherein he stated:

". . . one of the two major problems facing the patent system is how to increase incentives for employed inventors who get no benefit whatever out of the patent system as it has evolved. We might well consider whether we ought not to go back to the original intent of the Constitution and devise some reward for inventors whether they are government or industry employees."

If the Government acquires title to all inventions stemming from federally funded R & D, about $26 billion in 1978, a large segment of the Institute's members are henceforth denied any opportunity to "participate in the rewards of their inventiveness." The contractor receives no award for inventions so that nothing is available to pass on to the inventor. Both the inventor and the contractor lose interest in disclosing inventions. In this context it should be noted that over the period 1970 through 1976, total invention disclosures to Government agencies from Government contractors fell 30% from a high of 7,896 in 1970 to 5,537 in 1976. However, the invention disclosures in which the Government acquired only a license fell from 1279 in 1970 to 1115 in 1976, a decrease of only 15%.

It is a well known fact that the U. S. has fallen to sixth in the number of patent applications filed by its nationals on a per capita basis. The reasons for this phenomena are not fully understood but the decline in U.S. pre-eminence in technology is quite apparent. It is believed that closing the door on the hopes of the engineering and scientific community to acquire greater benefits from its labors will only further exacerbate an already potentially dangerous situation. Men have not, so far as this writer is concerned, changed their views concerning their rights in property since 1795 when Mr. Justice Patterson of the United States Supreme Court stated "Men have a sense of property . . . The preservation of property. . . is a primary object of the social compact."

THE PRIVATE INVENTOR - TECHNOLOGICAL BREAK THROUGHS

Much of the opposition to the Regulations results from the assumption that the policy inherent therein is good for big business and is detrimental to small business. The essence of this thesis is that (1) most important inventions are derived from big business and (2) small businesses do not contract with the Government. As to the first point, such recent major developments as xerography, instant pictures, optical character recognition, magnetic core memories, vacuum tubes, F.M. radio, lasers, penecillin, jet engines, pre-shrunk fabrics, zippers, color photography, bakelite, cellophane, foam rubber, cross-sectional X-ray imaging apparatus (CAT), mercury dry cells (later perfected under Government funds) to name a few, were the inventions of private individuals or universities. Many of the individuals founded small companies to develop their inventions. A large number of the above listed inventions were developed to some extent or another with the use of Government funds with the patents remaining with the contractors. Would these individuals have sought Government money if all of the resulting patents had been assigned to the Government? And if not, how many years would the public's benefit from the inventions been delayed?

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To deny any institution, company, group or individual, regardless of circumstances, the rights to their Government funded inventions is a drastic measure which will stultify the development of inventions. Regardless of statements to the contrary, the significant inventions are the work of small companies and individuals. The large corporations have abdicated this role to a great extent; they have publically stated that they no longer do research and only step in when a product has shown promise.

True, each of the aforementioned products has produced or ended up in a large corporation, but one must wonder what would have happened to those inventions if patent protection were not available. Would an individual dedicate five, ten or more years to a product if others could reap the benefits of his efforts and sacrifices. As a very recent example, the presently most effective oil slick pick-up apparatus is the work of one man who dedicated seven years of his life before he realized a profit.

As to other products actually developed and introduced by small companies, massaging showers were introduced to the market place by a very small company that developed considerable know-how in the field of fluid technology under government contracts. High powered machines for commercial irradiation of plastics and for sterilization of medical supplies were developed by a small company partly with government contract funds.

It is believed that the above facts go a long way to refute Admiral Rickover's statement to this subcommittee that "most of the major advances in technology in the past 20 years have come in areas where Government invested heavily, such as apace, defense, and nuclear energy". It would appear more appropriate to say that most of the advances in hardware, of the type in which essentially only the Government has any interest, has been funded by the Government. This is as it should be, but even then the Government usually buys its hardware from the contractor who did the R & D. Yet, much of the opposition to the Regulations on Capital Hill and elsewhere appears to stem from the belief that the Regulations go too far in the direction of allowing profit-making firms to benefit from federally funded research. However, only profit motivated companies will bring the results of such research to the general public. Well known instances of federally funded R & D benefiting the public through the auspices of the Government contractor are: Corning ware through Corning Glass, massaging showers, aircraft in general, airport ground control, computer industry through UNIVAC, atomic energy through Westinghouse, radio through RCA which started as a Government laboratory in World War I, magnetic seals on refrigerators and many, many more.

LICENSING

Numerous representations have been made for and against the necessity to grant exclusive licenses to insure the development of a product in this country. In the twenty-four years that this writer has been actively engaged in licensing inventions, he has encountered many instances where non-exclusive licenses were quite saleable and many others where only exclusive licenses could be sold. The type of license that can be sold in any given situation is determined by many factors, including the funds required to be invested in developing or marketing the product and the ease with which the product can be copied. The

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larger the monetary requirements and the more readily the product can be copied, the greater the pressure for exclusivity. Further, in such cases the cost of bringing the produce to the market place to the Company that did the ground work in the particular area involved may well be less than to others in the field. It would appear that the prime concern to the Government should be to have the invention reach the market place at the least posaible cost to the public which, afterall, pays all the bills in the long run.

BALANCE OF PAYMENTS

The above statements, as indicated, apply to the U. S. They do not apply, however, to foreign countries. Companies in Western Europe, in particular, require exclusivity. They want exclusive use of know-how and exclusive rights under patents. Without these they will for the most part go their own way which often includes using U. S. inventions not covered by foreign patents. With the balance of payments of the U. S. constantly running in the red, large losses of foreign source income resulting from reduced sale of technology abroad only adds to the problem. Foreign companies are willing to pay large sums for U. S. know-how and inventions. A very small company of which the writer is aware is presently engaged in preliminary discussions with a European company concerning transfer of exclusive rights to know-how and European patent rights for a single product having a sale price to the user of about $3,500. The payment for such rights will include an initial payment in the neighborhood of $2 million, plus a royalty on sales. Without the foreign patent rights this sale could not be consumated.

It is believed that by forever denying inventors, institutions and companies any opportunity to benefit from inventions made under Government contracts the U. S. decline in technology will be accelerated and one of this countries major exports will be seriously impaired. It must be remembered that if the U. S. is not exporting technology, it is importing it.

It is requested that this letter be spread on the record of the aforesaid hearings.

Howard L. Rose
Task Force Leader - Patents
United States Activity Board
IEEE

HLR/nap

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May 19, 1978

Mr. Gerald Sturgess
Room 424
Russel Senate Office Building
Washington, D. C. 20510

Dear Mr. Sturgess:

As promised, enclosed is material from the Department of Commerce on Agency Statistics on Patent Practices - Fiscal Years 1970 through 1976.

If I can be of any further assistance, please do not hesitate to contact me.

Sincerely yours,

Howard L. Rose

Enclosure

HLR/nap

TABLE I

AGENCY STATISTICS ON PATENT PRACTICES - FISCAL YEARS 1970 THROUGH 1976

		HEW	DOJ	USDA	CIA	POST SVC	NSF	VA	FCC	DOC	EPA	ACDA	HUD	TREAS	TVA	DOT	DOI	ERDA	NRC	NASA	ARMY	NAVY	AIR FORCE	TOTAL
I. INVENTION DISCLOSURES REPORTED																								
A. Total invention disclosures	FY 70	286	5	184	27	70	53	10	0	42	-	0	2	2	49	111	182	1420	-	3042	1708	2045	1591	10,829
	FY 71	279	0	162	23	66	56	18	0	87	-	0	0	0	53	162	154	1502	-	2475	1675	1954	1475	10,141
	FY 72	218	1	386	21	22	59	19	0	75	30	2	0	0	52	38	166	1129	-	2455	1444	1789	1383	9,289
	FY 73	230	2	143	15	87	84	23	0	117	62	2	0	0	51	47	146	1228	-	2147	1095	1577	1181	8,337
	FY 74	284	3	123	12	28	89	13	0	90	32	0	0	0	43	44	135	1170	-	1676	1061	1599	1259	7,661
	FY 75	260	2	131	8	18	157	16	11	63	23	0	1	0	32	104	134	1125	-	1130	998	1585	1033	6,839
	FY 76	340	3	194	5	25	186	28	10	86	58	0	0	0	58	43	162	1530	3	1676	1161	1908	950	8,426
1. Government employee disclosures	FY 70	24	5	151	11	31	0	10	0	36	-	0	2	2	49	12	87	12	-	410	850	994	247	2,933
	FY 71	60	0	152	15	31	0	18	0	75	-	0	0	0	53	32	76	19	-	350	843	960	204	2,888
	FY 72	35	0	139	14	17	0	15	0	62	9	0	0	0	52	28	85	20	-	256	842	976	214	2,764
	FY 73	27	1	141	7	28	0	19	0	57	5	0	0	0	51	16	70	6	-	283	584	898	143	2,336
	FY 74	24	1	118	4	16	0	8	0	69	4	0	0	0	43	22	71	8	-	261	572	896	126	2,244
	FY 75	39	0	127	2	6	0	14	11	38	3	0	0	0	32	17	72	35	-	259	639	898	146	2,318
	FY 76	50	0	191	5	21	0	25	10	69	12	0	0	0	58	26	100	29	3	333	771	998	188	2,889
2. Contractor disclosures	FY 70	262	0	33	16	39	53	0	0	6	-	0	0	0	0	99	95	1408	-	2632	858	1051	1344	7,886
	FY 71	219	0	10	8	35	56	0	0	12	-	0	0	0	0	130	78	1483	-	2125	832	984	1271	7,253
	FY 72	183	1	247	7	5	59	4	0	13	21	2	0	0	0	10	81	1109	-	2199	602	813	1169	6,525
	FY 73	203	1	2	8	59	84	4	0	60	57	2	0	0	0	31	76	1222	-	1864	511	679	1038	5,901
	FY 74	260	2	4	8	12	89	5	0	21	28	0	0	0	0	22	64	1162	-	1415	489	703	1133	5,417
	FY 75	221	2	4	6	12	157	2	0	25	20	0	1*	0	0	87	62	1090	-	879	379	687	887	4,521
	FY 76	290	3	3	0	4	186	3	0	17	46	0	0	0	0	17	62	1501	0	1343	390	910	762	5,537
II. EMPLOYEE INVENTION DISCLOSURES																								
A. Determination of Government Rights in U.S.																								
1. Total invention disclosures for which Government rights in U.S. have been determined	FY 70	37	2	146	11	19	0	4	0	23	-	0	2	2	49	7	87	8	-	181	431	525	137	1,671
	FY 71	25	0	143	15	24	0	5	0	42	-	0	0	0	53	27	76	19	-	159	439	575	134	1,736
	FY 72	33	0	131	14	11	0	10	0	26	7	0	0	0	52	19	85	9	-	167	442	565	126	1,697
	FY 73	34	1	136	7	25	0	8	0	27	4	0	0	0	51	10	70	29	-	144	399	417	155	1,517
	FY 74	24	3	131	4	16	0	8	0	37	3	0	0	0	43	14	71	10	-	108	324	569	102	1,467
	FY 75	36	1	138	2	6	0	6	11	19	4	0	0	0	32	21	72	4	-	99	402	541	100	1,494
	FY 76	43	0	195	5	21	0	13	10	31	3	0	0	0	58	19	100	18	0	147	351	656	108	1,778
(a) Government has title	FY 70	35	2	146	6	1	0	0	0	13	-	0	2	1	49	3	77	8	-	154	382	432	86	1,397
	FY 71	22	0	142	6	0	0	1	0	22	-	0	0	0	53	25	69	19	-	136	363	475	70	1,403
	FY 72	31	0	131	3	3	0	4	0	17	7	0	0	0	52	14	73	9	-	140	401	427	78	1,432
	FY 73	30	1	135	3	2	0	3	0	17	0	0	0	0	51	10	62	22	-	120	345	363	106	1,287
	FY 74	24	3	124	1	12	0	1	0	16	1	0	0	0	43	12	63	10	-	96	302	489	65	1,262
	FY 75	33	1	129	1	6	0	0	11	13	4	0	0	0	32	21	56	4	-	84	343	488	53	1,289
	FY 76	43	0	190	1	4	0	4	10	14	3	0	0	0	58	15	92	18	0	128	291	584	76	1,531
(b) Government has license	FY 70	1	0	0	2	1	0	3	0	4	-	0	0	1	0	2	5	0	-	17	32	89	49	206
	FY 71	0	0	1	4	0	0	3	0	7	-	0	0	0	0	0	2	0	-	15	50	91	55	228
	FY 72	2	0	0	7	0	0	5	0	0	0	0	0	0	0	1	2	0	-	11	23	81	45	177
	FY 73	2	0	0	3	5	0	4	0	5	1	0	0	0	0	0	5	0	-	8	38	49	37	157
	FY 74	0	0	1	1	0	0	5	0	5	0	0	0	0	0	2	2	0	-	8	9	70	22	125
	FY 75	0	0	3	-	0	0	3	0	4	0	0	0	0	0	0	2	0	-	11	36	51	33	143
	FY 76	0	0	0	2	3	0	7	0	2	0	0	0	0	0	4	4	0	0	12	41	62	20	157
(c) Government has no rights	FY 70	1	0	0	3	17	0	1	0	6	-	0	0	0	0	2	5	0	-	10	17	4	2	68
	FY 71	3	0	0	5	24	0	1	0	13	-	0	0	0	0	2	5	0	-	8	26	9	9	105
	FY 72	0	0	0	4	8	0	1	0	9	0	0	0	0	0	4	10	0	-	16	18	7	11	86
	FY 73	2	0	1	1	18	0	1	0	5	3	0	0	0	0	0	3	0	-	6	16	5	12	73
	FY 74	0	0	6	2	4	0	2	0	16	2	0	0	0	0	0	6	0	-	4	13	10	15	80
	FY 75	3	0	6	1	0	0	3	0	2	0	0	0	0	0	0	4	0	-	4	23	2	14	62
	FY 76	0	0	5	2	14	0	2	0	15	0	0	0	0	0	0	4	0	0	7	19	10	12	90

NOTE: Dash Mark (-) indicates no data available.

* In review

			HEW	DOJ	USDA	CIA	POST SVC	NSF	VA	FCC	DOC	EPA	ACDA	HUD	TREAS	TVA	DOT	DOI	ERDA	NRC	NASA	ARMY	NAVY	AIR FORCE	TOTAL
II.	EMPLOYEE INVENTION DISCLOSURES (Continued)																								
B.	Patent Protection																								
1.	Total patents [U.S. & foreign] issued on Government-filed patent applications	FY 70	9	1	92	1	0	0	1	0	9	-	0	0	0	6	1	44	1	-	173	477	492	135	1,442
		FY 71	12	0	119	1	0	0	0	0	5	-	0	0	0	11	3	39	5	-	239	433	478	127	1,471
		FY 72	6	0	120	0	0	0	0	0	6	1	0	0	0	2	1	51	10	-	213	444	545	129	1,528
		FY 73	10	0	112	1	0	0	0	0	1	3	0	0	0	5	0	50	11	-	146	455	577	126	1,497
		FY 74	25	0	125	0	0	0	0	0	3	0	0	0	0	4*	8	57	6	-	207	422	531	113	1,501
		FY 75	21	0	130	7	0	0	1	0	5	0	0	0	0	4**	9	57	7	-	104	312	474	86	1,217
		FY 76	33	0	196	1	0	0	0	1	16	4	0	0	0	11***	16	42	7	0	158	446	773	120	1,824
	(a) U.S. patents	FY 70	9	1	92	1	0	0	1	0	9	-	0	0	0	6	1	43	1	-	155	321	477	135	1,252
		FY 71	11	0	119	0	0	0	0	0	5	-	0	0	0	11	3	29	4	-	218	319	450	127	1,296
		FY 72	6	0	120	0	0	0	0	0	6	1	0	0	0	2	1	51	3	-	182	346	526	129	1,373
		FY 73	10	0	112	1	0	0	0	0	1	3	0	0	0	5	0	49	3	-	126	361	554	126	1,341
		FY 74	24	0	125	0	0	0	0	0	3	0	0	0	0	4	8	57	2	-	175	410	527	113	1,448
		FY 75	20	0	130	7	0	0	1	0	5	0	0	0	0	4	9	57	3	-	80	303	442	86	1,147
		FY 76	24	0	196	1	0	0	0	1	16	4	0	0	0	11	16	42	3	0	119	444	730	120	1,727
	(i) Issued to agency [Government has title)	FY 70	9	1	92	0	0	0	0	0	8	-	0	0	0	6	1	41	1	-	140	284	388	93	1,064
		FY 71	11	0	119	0	0	0	0	0	5	-	0	0	0	11	3	29	4	-	208	296	361	84	1,131
		FY 72	6	0	120	0	0	0	0	0	5	1	0	0	0	2	1	51	3	-	179	307	443	90	1,208
		FY 73	10	0	112	1	0	0	0	0	1	3	0	0	0	5	0	48	3	-	110	333	482	101	1,209
		FY 74	24	0	125	0	0	0	0	0	3	0	0	0	0	4	7	57	2	-	168	369	457	83	1,299
		FY 75	20	0	130	4	0	0	1	0	5	0	0	0	0	4	7	56	3	-	76	272	379	62	1,019
		FY 76	24	0	196	0	0	0	0	1	15	4	0	0	0	11	16	41	3	0	109	407	653	84	1,564
	(ii) Issued to employee [Government has license]	FY 70	0	0	0	1	0	0	0	0	1	-	0	0	0	0	0	2	0	-	15	37	89	42	187
		FY 71	0	0	0	0	0	0	0	0	0	-	0	0	0	0	0	0	0	-	10	23	89	43	165
		FY 72	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	-	3	39	83	39	165
		FY 73	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	-	6	28	72	25	132
		FY 74	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	-	7	41	70	30	149
		FY 75	0	0	0	1	0	0	0	0	0	0	0	0	0	0	2	1	-	-	4	31	63	24	128
		FY 76	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	1	0	0	10	37	77	36	163
	(b) Total foreign patents granted to agency	FY 70	0	0	0	0	0	0	0	0	0	-	0	0	0	0	0	1	0	-	14	156	15	0	186
		FY 71	0	0	0	1	0	0	0	0	0	-	0	0	0	0	0	10	1	-	21	114	28	0	175
		FY 72	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7	-	31	98	19	0	155
		FY 73	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	8	-	30	94	23	0	156
		FY 74	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	-	32	12	4	0	53
		FY 75	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	4	-	24	9	32	0	70
		FY 76	9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0	39	2	43	0	97
	(i) Number of inventions covered by these foreign patents	FY 70	0	0	0	0	0	0	0	0	0	-	0	0	0	0	0	1	0	-	11	156	15	0	183
		FY 71	0	0	0	1	0	0	0	0	0	-	0	0	0	0	0	6	1	-	12	114	28	0	162
		FY 72	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	-	19	98	19	0	140
		FY 73	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	4	-	17	94	23	0	139
		FY 74	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	-	18	12	4	0	39
		FY 75	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	3	-	15	9	32	-	60
		FY 76	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	25	2	43	0	77
2.	Total U.S. patent applications filed by agency	FY 70	9	2	154	1	0	0	1	0	7	-	0	2	1	8	8	44	2	-	158	375	521	112	1,405
		FY 71	16	0	144	2	0	0	0	0	2	-	0	0	0	18	0	56	2	-	143	391	566	111	1,451
		FY 72	15	0	172	2	0	0	0	0	2	8	0	0	0	17	7	31	2	-	151	351	558	114	1,430
		FY 73	15	0	149	5	0	0	1	0	4	9	0	0	0	14	5	28	8	-	138	298	412	127	1,213
		FY 74	14	0	128	1	1	0	1	0	4	2	0	0	0	14	17	27	7	-	104	285	561	99	1,265
		FY 75	18	0	144	0	1	0	0	2	10	4	0	0	0	12	13	46	4	-	95	347	541	83	1,320
		FY 76	28	0	169	0	1	0	5	10	10	3	0	0	0	14	12	48	13	0	140	432	584	118	1,587
	(a) Government has title	FY 70	9	2	154	0	0	0	0	0	7	-	0	2	1	8	8	44	2	-	154	341	432	58	1,222
		FY 71	16	0	144	2	0	0	0	0	2	-	0	0	0	18	0	55	2	-	136	347	475	62	1,259
		FY 72	15	0	172	2	0	0	0	0	2	8	0	0	0	17	7	31	2	-	140	310	477	64	1,267
		FY 73	15	0	149	3	0	0	1	0	3	7	0	0	0	14	4	27	8	-	130	274	363	91	1,089
		FY 74	14	0	128	0	1	0	1	0	4	2	0	0	0	14	15	27	7	-	96	261	489	65	1,124
		FY 75	18	0	144	0	1	0	0	2	9	4	0	0	0	12	13	46	4	-	84	316	488	53	1,194
		FY 76	28	0	169	0	0	0	5	10	10	3	0	0	0	14	11	45	13	0	128	377	522	76	1,411

NOTE: Dash Mark (-) indicates no data available.

* 6 P.O. Defensive Publications made additionally.
** 2 P.O. Defensive Publications made additionally.
*** 9 P.O. Defensive Publications made additionally.

		HEW	DOJ	USDA	CIA	POST SVC	NSF	VA	FCC	DOC	EPA	ACDA	HUD	TREAS	TVA	DOT	DOI	ERDA	NRC	NASA	ARMY	NAVY	AIR FORCE	TOTAL
II. EMPLOYEE INVENTION DISCLOSURES (Continued)																								
B. Patent Protection (Continued)																								
2. Total U.S. patent applications filed by agency (continued)																								
(b) Government has license	FY 70	0	0	0	1	0	0	1	0	0	-	0	0	0	0	0	0	0	-	4	34	89	54	183
	FY 71	0	0	0	0	0	0	0	0	0	-	0	0	0	0	0	1	0	-	7	44	91	49	192
	FY 72	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	11	41	82	30	163
	FY 73	0	0	0	2	0	0	0	0	1	2	0	0	0	0	1	1	0	-	8	24	49	36	124
	FY 74	0	0	0	1	0	0	0	0	0	0	0	0	0	0	2	0	0	-	8	24	72	34	141
	FY 75	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	-	0	-	11	31	53	30	126
	FY 76	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1	3	0	0	12	55	62	42	176
3. Total foreign patent applications filed by or on behalf of agency	FY 70	0	0	0	5	0	0	0	0	0	-	0	0	0	0	0	0	0	-	43	89	22	0	167
	FY 71	0	0	0	0	0	0	0	0	0	-	0	0	0	0	0	0	27	-	26	39	12	0	104
	FY 72	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	-	57	3	39	0	103
	FY 73	9	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	15	-	152	7	31	0	222
	FY 74	26	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	-	62	1	7	0	97
	FY 75	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	27	1	2**	0	33
	FY 76	22	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	19	0	49	0	0	0	90
(a) Number of inventions covered by these foreign applications	FY 70	0	0	0	5	0	0	0	0	0	0	-	0	0	0	0	0	0	1	-	7	89	22	0	124
	FY 71	0	0	0	0	0	0	0	0	0	0	-	0	0	0	0	0	0	5	-	4	39	12	0	60
	FY 72	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	6	3	39	0	49
	FY 73	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	-	21	7	31	0	64
	FY 74	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	9	1	7	0	20
	FY 75	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	4	1	1	-	7
	FY 76	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0	10	0	0	0	17
4. Invention disclosures for which a determination was made not to file a patent application but to publish instead	FY 70	21	0	7	0	0	0	0	0	1	-	0	0	0	14	1	0	3	-	0	0	0	0	47
	FY 71	7	0	11	0	0	0	0	0	15	-	0	0	0	12	3	0	2	-	0	0	0	0	50
	FY 72	7	0	6	0	0	0	0	0	7	0	0	0	0	20	0	0	1	-	0	0	0	0	41
	FY 73	9	0	6	0	0	0	1	0	9	20	0	0	0	26	1	0	1	-	0	0	0	0	73
	FY 74	9	3	25	1	0	0	0	0	3	0	0	0	0	25	0	0	3	-	0	2	0	0	71
	FY 75	11	1	29	0	0	0	1	0	7	2	0	0	0	20	0	-	0	-	0	2	0	0	73
	FY 76	10	0	19	0	0	0	0	0	6	4	0	0	0	47	0	-	5	0	0	5	62	0	158
5. Invention disclosures for which a decision was made that no U.S. patent application will be filed by the Government (Includes 4. above)	FY 70	23	0	11	6	18	0	9	0	23	-	0	0	0	14	5	52	6	-	358	329	473	131	1,458
	FY 71	11	0	13	8	24	0	0	0	59	-	0	0	0	12	21	51	6	-	279	355	391	93	1,323
	FY 72	7	0	8	10	0	0	2	0	35	0	0	0	0	20	11	42	6	-	198	523	418	100	1,380
	FY 73	9	0	6	2	0	0	1	0	58	20	0	0	0	26	7	79	22	-	304	452	486	16	1,488
	FY 74	9	3	36	0	9	0	0	0	41	2	0	0	0	25	8	52	3	-	111	294	335	29	957
	FY 75	11	1	38	0	4	0	11	0	31	2	0	0	0	20	5	28	0	-	180	346	357	41	1,075
	FY 76	10	0	24	3	18	0	15	0	51	11	0	0	0	45	3	66	5	0	307	252	314	81	1,205
III. CONTRACTOR INVENTION DISCLOSURES																								
A. Government Rights in U.S.																								
1. Total invention disclosures for which the Government has acquired title	FY 70	127	0	33	0	0	0	0	0	5	-	0	0	0	0	2	92	1408	-	2573	4358/	869	798a/	6,334
	FY 71	125	0	10	2	0	0	0	0	2	-	0	0	0	0	10	78	1448	-	2101	5260/	760	881a/	5,943
	FY 72	150	0	247	1	5	5	4	0	3	12	0	0	0	0	2	81	1109	-	2130	383	588	788	5,508
	FY 73	122	1	2	2	5	4	3	0	38	57	0	0	0	0	31	76	1459	-	1864	316	538	611	5,129
	FY 74	118	3	4	0	3	7*	5	0	12	28	0	0	0	0	7	64	1162	-	1415	283	515	507	4,133
	FY 75	146	1	4	0	12	9	2	0	6	15	0	0	0	0	87	62	666	-	879	225	502	426	3,042
	FY 76	157	1	3	2	4	8	3	0	4	46	0	0	0	0	17	27	1196	0	1343	228	664	400	4,103
(a) Invention disclosures for which the Government has acquired title pursuant to a contract clause following Section 1(a) of the Presidential Policy	FY 70	127	0	0	0	0	0	0	0	3	-	0	0	0	0	2	28	0	-	0	36	36	51	283
	FY 71	125	0	0	2	0	0	0	0	0	-	0	0	0	0	10	19	0	-	0	15	35	57	263
	FY 72	150	0	0	1	0	0	4	0	0	12	0	0	0	0	2	20	0	-	0	24	30	32	275
	FY 73	122	1	0	2	0	0	3	0	8	57	0	0	0	0	31	19	0	-	0	14	55	16	328
	FY 74	118	3	0	0	0	0	5	0	8	28	0	0	0	0	7	16	0	-	0	24	51	41	301
	FY 75	146	1	0	0	0	5	2	0	1	15	0	0	0	0	87	29	0	-	0	6	28	10	330
	FY 76	157	0	0	0	0	4	3	0	3	46	0	0	0	0	17	26	0	0	0	7	27	30	320

a/ Substantially all of these disclosures were turned over to the Government pursuant to contract clauses which gave the contractors the option to retain title by filing a patent application and the contractors elected not to do so [III.A.1. - Army, Air Force, 1970-1971.]

NOTE: Dash Mark (-) indicates no data available.

* Transferred to Other Agencies at their request.
** Filed by NTIS for Navy.

			HEW	DOJ	USDA	CIA	POST SVC	NSF	VA	FCC	DOC	EPA	ACDA	HUD	TREAS	TVA	DOT	DOI	ERDA	NRC	NASA	ARMY	NAVY	AIR FORCE	TOTAL
III.	CONTRACTOR INVENTION DISCLOSURES (Continued)																								
A.	Government Rights in U.S. (continued)																								
1.	Total invention disclosures for which the Government has acquired title (continued)																								
	(b) Invention disclosures for which contractor had the right to retain title but elected not to do so following Section 1(b) of the Presidential Policy	FY 70	0	0	0	0	0	0	0	0	1	-	0	0	0	0	0	0	0	-	0	383	762	735	1,881
		FY 71	0	0	0	0	0	0	0	0	0	-	0	0	0	0	0	0	0	-	0	485	660	817	1,962
		FY 72	0	0	0	0	3	0	0	0	3	0	0	0	0	0	0	0	0	-	0	350	513	751	1,620
		FY 73	0	0	0	0	5	0	0	0	24	0	0	0	0	0	0	0	0	-	0	266	442	591	1,328
		FY 74	0	0	0	0	1	0	0	0	4	0	0	0	0	0	0	0	0	-	0	236	431	465	1,139
		FY 75	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	-	0	174	435	416	1,026
		FY 76	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	173	556	370	1,100
	(c) Invention disclosures for which the Government has acquired title pursuant to a contract clause following Section 1(c) of the Presidential Policy	FY 70	0	0	0	0	0	0	0	1	-	0	0	0	0	0	0	0	0	-	0	16	71	4	92
		FY 71	0	0	0	0	0	0	0	2	-	0	0	0	0	0	0	0	0	-	0	26	65	7	100
		FY 72	0	0	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	-	0	9	45	5	64
		FY 73	0	0	0	0	4	0	0	5	0	0	0	0	0	0	0	0	0	-	0	36	41	4	91
		FY 74	0	0	0	0	0	7*	0	0	0	0	0	0	0	0	0	0	0	-	0	23	33	1	64
		FY 75	0	0	0	0	12	4	0	0	4	0	0	0	0	0	0	0	0	-	0	45	39	0	104
		FY 76	0	1	0	2	4	4	0	0	1	0	0	0	0	0	0	0	0	0	0	48	81	0	141
	(d) Invention disclosures for which the Government has acquired title pursuant to statute	FY 70	0	0	33	0	0	0	0	0	0	-	0	0	0	0	0	0	64	1409	-	2573	0	0	0	4,078
		FY 71	0	0	10	0	0	0	0	0	0	-	0	0	0	0	0	0	59	1448	-	2101	0	0	0	3,618
		FY 72	0	0	247	0	2	0	0	0	0	0	0	0	0	0	0	0	61	1109	-	2130	0	0	0	3,549
		FY 73	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	57	1459	-	1864	0	0	0	3,382
		FY 74	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	48	1162	-	1415	0	0	0	2,629
		FY 75	0	0	4	6	0	0	0	0	0	0	0	0	0	0	0	0	33	666	-	879	0	0	0	1,582
		FY 76	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1196	0	1343	0	0	0	2,542
2.	Total invention disclosures for which the Government has acquired a license	FY 70	38	0	0	15	39	15	0	0	0	-	0	0	0	0	86	3	35	-	59	435	182	372	1,279
		FY 71	48	0	0	7	35	3	0	0	1	-	0	0	0	0	111	0	35	-	75	298	241	390	1,244
		FY 72	53	0	0	6	14	2	0	0	0	0	0	0	0	0	1	0	6	-	69	268	232	381	1,034
		FY 73	47	0	0	6	16	11	0	0	21	2	0	0	0	0	0	0	0	-	45	185	146	485	964
		FY 74	77	0	0	8	15	14	0	0	7	0	0	0	0	0	5	0	0	-	46	231	192	481	1,076
		FY 75	77	0	0	1	0	22	0	1	14	0	0	0	0	0	0	0	0	-	38	206	189	451	1,009
		FY 76	131	0	0	5	0	32	0	0	8	0	0	0	0	0	0	0	-	-	0	73	246	258	362	1,115
	(a) Invention disclosures for which the Government has acquired a license pursuant to a contract clause following Section 1(a) of the Presidential Policy	FY 70	38	0	0	0	0	0	0	0	0	-	0	0	0	0	86	0	0	-	0	8	0	5	137
		FY 71	48	0	0	0	0	0	0	0	0	-	0	0	0	0	111	0	0	-	0	6	1	1	167
		FY 72	53	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	0	0	0	0	53
		FY 73	47	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	8	2	1	2	52
		FY 74	77	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	-	0	0	0	0	82
		FY 75	77	0	0	0	0	5	0	1	0	0	0	0	0	0	0	0	0	-	0	0	1	0	84
		FY 76	131	0	0	0	0	20	0	0	0	0	0	0	0	0	0	0	-	-	0	0	0	4	0	155

* Transferred to other agencies at their request.

NOTE: Dash Mark (-) indicates no data available.

			HEW	DOJ	USDA	CIA	POST SVC	NSF	VA	FCC	DOC	EPA	ACDA	HUD	TREAS	TVA	DOT	DOI	ERDA	NRC	NASA	ARMY	NAVY	AIR FORCE	TOTAL
III. CONTRACTOR INVENTION DISCLOSURES																									
A. Government Rights in U.S. (continued)																									
2. Total invention disclosures for which the Government has acquired a license (continued)																									
(b) Invention disclosures for which the Government has acquired a license pursuant to a contract clause following Section 1(b) of the Presidential Policy		FY 70	0	0	0	15	39	0	0	0	0	-	0	0	0	0	0	0	0	-	0	424	175	353	1,006
		FY 71	0	0	0	7	35	0	0	0	1	-	0	0	0	0	0	0	0	-	0	289	234	389	955
		FY 72	0	0	0	6	14	0	0	0	0	0	0	0	0	0	2	0	0	-	0	262	225	376	885
		FY 73	0	0	0	6	16	0	0	0	20	0	0	0	0	0	0	0	0	-	0	191	141	483	847
		FY 74	0	0	0	8	15	0	0	0	7	0	0	0	0	0	0	0	0	-	0	229	188	478	925
		FY 75	0	0	0	1	0	0	0	0	7	0	0	0	0	0	0	0	0	-	0	206	185	457	856
		FY 76	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	-	-	0	244	246	358	851
(c) Invention disclosures for which the Government has acquired a license pursuant to a contract clause following Section 1(c) of the Presidential Policy		FY 70	0	0	0	0	0	15	0	0	0	-	0	0	0	0	0	1	35	-	0	3	5	14	75
		FY 71	0	0	0	0	0	3	0	0	0	-	0	0	0	0	0	0	35	-	0	3	6	0	47
		FY 72	0	0	0	0	0	2	0	0	0	0	0	0	0	0	1	0	6	-	0	6	7	5	27
		FY 73	0	0	0	0	0	11	0	0	1	2	0	0	0	0	0	0	0	-	0	2	4	0	20
		FY 74	0	0	0	0	0	14	0	0	0	0	0	0	0	0	0	0	0	-	0	2	4	3	23
		FY 75	0	0	0	0	0	17	0	0	7	0	0	0	0	0	0	0	0	-	0	0	3	4	31
		FY 76	0	0	0	5	0	12	0	0	5	0	0	0	0	0	0	0	-	-	0	2	8	4	36
(d) Invention disclosures for which the Government has acquired title pursuant to statute but subsequently waived title to contractor		FY 70	0	0	0	0	0	0	0	0	0	-	0	0	0	0	0	0	0	-	59	0	0	0	59
		FY 71	0	0	0	0	0	0	0	0	0	-	0	0	0	0	0	0	0	-	75	0	0	0	75
		FY 72	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	69	0	0	0	69
		FY 73	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	45	0	0	0	45
		FY 74	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	46	0	0	0	46
		FY 75	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	38	0	0	0	38
		FY 76	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	-	73	0	0	0	73
B. Patent Protection																									
1. Total U.S. patents issued		FY 70	42	0	4	6	4	4	1	0	0	-	0	0	0	0	17	10	250	-	186	-	-	-	-
		FY 71	41	0	9	3	0	3	2	0	1	-	0	0	0	0	1	20	307	-	219	-	-	-	-
		FY 72	34	0	13	0	0	9	1	0	4	0	0	0	0	0	9	30	385	-	182	-	-	-	-
		FY 73	13	0	0	0	0	2	0	0	2	3	0	0	0	0	6	13	251	-	104	151	-	-	-
		FY 74	27	0	2	0	0	4	0	0	4	12	0	0	0	0	5	24	282	-	135	111	-	-	-
		FY 75	22	0	2	0	4	8	4	0	5	6	0	0	0	0	1	0	252	-	77	86	-	77	544
		FY 76	39	0	1	0	1	40	1	0	4	7	0	0	0	0	6	2	333	0	127	139	-	122	822
(a) Government has title		FY 70	41	0	4	0	0	0	1	0	0	-	0	0	0	0	2	9	237	-	109	105	171	98	777
		FY 71	30	0	9	0	0	1	2	0	1	-	0	0	0	0	1	18	271	-	195	79	189	107	904
		FY 72	24	0	13	0	0	2	1	0	3	1	0	0	0	0	9	29	354	-	145	88	205	110	984
		FY 73	10	0	0	0	0	0	0	0	2	3	0	0	0	0	3	13	223	-	84	123	162	79	702
		FY 74	18	0	2	0	0	2	0	0	0	12	0	0	0	0	3	24	274	-	126	96	159	87	803
		FY 75	15	0	2	0	1	2	4	0	0	6	0	0	0	0	1	0	240	-	76	76	156	77	656
		FY 76	26	0	1	0	1	2	1	0	0	7	0	0	0	0	6	2	333	0	105	85	220	122	911
(b) Government has a license		FY 70	1	0	0	6	4	4	0	0	0	-	0	0	0	0	15	1	13	+	77	-	-	-	-
		FY 71	11	0	0	3	0	2	0	0	0	-	0	0	0	0	0	1	36	-	24	-	-	-	-
		FY 72	10	0	0	0	0	7	0	0	1	0	0	0	0	0	0	1	31	-	37	-	-	-	-
		FY 73	3	0	0	0	0	2	0	0	0	0	0	0	0	0	3	0	28	-	20	28	-	-	-
		FY 74	9	0	0	0	0	2	0	0	4	0	0	0	0	0	2	0	8	-	9	15	-	-	-
		FY 75	7	0	0	0	3	6	0	0	5	0	0	0	0	0	0	0	12	-	1	10	-	-	-
		FY 76	13	0	0	1	0	38	0	0	4	0	0	0	0	0	0	0	0	0	22	54	-	-	132

NOTE: Dash Mark (-) indicates no data available.

			HEW	DOJ	USDA	CIA	POST SVC	NSF	VA	FCC	DOC	EPA	ACDA	HUD	TREAS	TVA	DOT	DOI	ERDA	NRC	NASA	ARMY	NAVY	AIR FORCE	TOTAL
III.	CONTRACTOR INVENTION DISCLOSURES (Continued)																								
B.	Patent Protection (continued)																								
	2. Total foreign patents granted	FY 70	1	0	0	0	0	0	0	0	0	-	0	0	0	0	0	0	416	-	33	-	-	-	-
		FY 71	1	0	0	0	0	0	0	0	0	-	0	0	0	0	0	0	480	-	12	-	-	-	-
		FY 72	0	0	0	0	0	0	0	0	0	-	0	0	0	0	0	-	355	-	14	-	-	-	-
		FY 73	0	0	0	0	0	-	0	0	0	0	0	0	0	0	0	2	301	-	17	15	0	0	335
		FY 74	0	0	0	0	0	0	0	0	2	-	0	0	0	0	0	0	255	-	6	2	0	-	265
		FY 75	10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	209	-	13	4	0	-	236
		FY 76	6	0	0	0	0	4	0	0	0	0	0	0	0	0	0	0	246	0	102	-	0	-	358
	(a) Government has title	FY 70	0	0	0	0	0	0	0	0	0	-	0	0	0	0	0	0	401	-	4	35	3	0	445
		FY 71	0	0	0	0	0	0	0	0	0	-	0	0	0	0	0	0	461	-	3	22	8	0	494
		FY 72	0	0	0	0	0	0	0	0	0	-	0	0	0	0	0	-	327	-	4	16	0	0	347
		FY 73	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	294	-	3	15	0	0	314
		FY 74	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	254	-	5	2	0	0	261
		FY 75	10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	204	-	13	2	0	0	229
		FY 76	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	246	0	24	-	0	0	276
	(b) Government has a license	FY 70	1	0	0	0	0	0	0	0	0	-	0	0	0	0	0	0	13	-	29	-	-	-	-
		FY 71	1	0	0	0	0	0	0	0	0	-	0	0	0	0	0	0	19	-	9	-	-	-	-
		FY 72	0	0	0	0	0	0	0	0	0	-	0	-	0	0	0	-	28	-	10	-	-	-	-
		FY 73	0	0	0	0	0	-	0	0	0	0	0	0	0	0	0	0	7	-	14	-	0	0	21
		FY 74	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	1	-	1	-	0	0	4
		FY 75	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	-	0	2	0	-	7
		FY 76	0	0	0	0	0	4	0	0	0	0	0	0	0	0	0	0	78	0	78	-	0	-	86
	1. Total U.S. patent applications filed	FY 70	66	0	2	7	14	6	0	0	2	-	0	0	0	0	0	21	26	300	-	164	409	372	502	1,891
		FY 71	73	0	6	7	5	2	0	0	1	-	0	0	0	0	0	5	17	243	-	193	307	417	485	1,761
		FY 72	82	0	2	8	2	4	1	0	0	1	0	0	0	0	0	1	26	263	-	170	305	384	474	1,723
		FY 73	64	0	0	6	1	8	2	0	0	4	3	0	0	0	0	2	25	295	-	136	174	282	354	1,356
		FY 74	94	0	4	7	4	17	1	0	7	6	0	0	0	0	0	8	24	306	-	142	189	353	366	1,528
		FY 75	98	0	2	0	1	40	0	1	4	11	0	0	0	0	0	6	10	275	-	103	217	332	372	1,472
		FY 76	131	1	2	1	1	58	3	0	3	13	0	0	0	0	0	5	12	359	0	142	267	409	452	1,869
	(a) Applications filed by agency (Government has title)	FY 70	31	0	2	0	0	0	0	0	2	-	0	0	0	0	0	5	26	290	-	137	102	190	130	895
		FY 71	22	0	6	0	0	0	0	0	1	-	0	0	0	0	0	0	17	243	-	126	77	183	95	770
		FY 72	32	0	2	2	0	0	1	0	0	1	0	0	0	0	0	0	18	254	-	105	81	159	93	748
		FY 73	20	0	0	0	0	0	0	0	0	3	0	0	0	0	0	2	25	292	-	91	61	141	86	721
		FY 74	18	0	1	0	1	0	0	0	0	6	0	0	0	0	0	4	24	305	-	86	55	165	87	765
		FY 75	28	0	2	0	0	0	0	0	0	11	0	0	0	0	0	3	10	273	-	103	76	147	105	758
		FY 76	13	0	2	0	1	1	3	0	0	11	0	0	0	0	0	5	11	359	0	113	88	163	138	908
	(b) Applications filed or caused to be filed by contractors (Government has license)	FY 70	35	0	0	7	14	6	0	0	0	-	0	0	0	0	0	16	0	10	-	47	307	182	372	996
		FY 71	51	0	0	7	5	2	0	0	0	0	0	0	0	0	0	5	0	0	-	67	230	234	390	991
		FY 72	50	0	0	6	2	4	0	0	0	0	0	0	0	0	0	1	8	9	-	65	224	225	381	975
		FY 73	44	0	0	6	1	8	2	0	4	0	0	0	0	0	0	0	0	3	-	45	113	141	268	635
		FY 74	76	0	0	7	3	17	1	0	7	0	0	0	0	0	0	4	0	1	-	46	134	188	279	763
		FY 75	70	0	0	0	1	40	0	1	4	0	0	0	0	0	0	2*	0	2	-	0	141	185	267	713
		FY 76	118	1	0	1	0	67	0	0	3	2**	0	0	0	0	0	1	1	0	0	29	179	246	314	962
	4. Total foreign patent applications filed	FY 70	101	0	0	0	0	1	0	0	0	-	0	0	0	0	0	22	0	588	-	72	-	-	-	-
		FY 71	112	0	0	0	1	0	0	0	0	-	0	0	0	0	0	0	-	325	-	49	-	-	-	-
		FY 72	154	0	0	0	0	0	0	0	0	-	0	0	0	0	0	0	-	332	-	101	-	-	-	-
		FY 73	143	0	0	0	0	-	0	0	16	-	0	0	0	0	0	0	7	449	-	121	8	12	0	766
		FY 74	174	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	385	-	66	-	15	-	-
		FY 75	100	0	0	0	0	5	0	0	0	0	0	0	0	0	0	0	0	441	-	225	-	59	-	839
		FY 76	58	0	0	0	0	4	0	0	0	-***	0	0	0	0	0	0	0	433	0	78	-	4	-	577
	(a) Applications filed by or on behalf of agency (Government has title)	FY 70	0	0	0	0	0	0	0	0	0	-	0	0	0	0	0	0	0	515	-	0	25	1	0	541
		FY 71	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	285	-	0	4	0	0	289
		FY 72	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	311	-	32	2	0	0	345
		FY 73	34	0	0	0	0	0	0	0	0	-	0	0	0	0	0	0	7	435	-	54	7	0	0	537
		FY 74	42	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	379	-	56	-	0	0	477
		FY 75	18	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	360	-	133	-	0	0	531
		FY 76	20	0	0	0	0	0	0	0	0	-	0	0	0	0	0	0	0	433	0	38	-	0	0	491

NOTE: Dash Mark (-) indicates no data available.

*Government has title [1]
**Waiver requests pending
***Do not keep records

		NEW	DOJ	USDA	CIA	POST SVC	NSF	VA	FCC	DOC	EPA	ACDA	HUD	TREAS	TVA	DOT	DOI	ERDA	NRC	NASA	ARMY	NAVY	AIR FORCE	TOTAL
III. CONTRACTOR INVENTION DISCLOSURES (Continued)																								
B. Patent Protection (continued)																								
4. Total foreign patent applications filed (continued)																								
(a) Applications filed by or on behalf of agency (Government has title) (continued)																								
(i) Number of inventions covered by these foreign applications	FY 70	0	0	0	0	0	0	0	0	0	-	0	0	0	0	0	0	69	-	0	25	1	0	95
	FY 71	0	0	0	0	0	0	0	0	0	-	0	0	0	0	0	0	56	-	0	4	0	0	60
	FY 72	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	59	-	3	2	0	0	64
	FY 73	3	0	0	0	0	0	0	0	0	-	0	0	0	0	0	1	69	-	8	-	0	0	81
	FY 74	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	56	-	8	-	0	0	68
	FY 75	2	0	0	0	1	0	0	0	0	0	0	0	0	0	0	-	59	-	18	-	0	-	80
	FY 76	4	0	0	0	0	0	0	0	0	-	0	0	0	0	0	0	69	0	10	-	0	0	83
(b) Applications filed or caused to be filed by other than Government	FY 70	101	0	0	0	0	1	0	0	0	-	0	0	0	0	22	0	73	-	72	-	-	-	-
	FY 71	112	0	0	0	1	0	0	0	0	-	0	0	0	0	0	-	40	-	49	-	-	-	-
	FY 72	154	0	0	0	0	0	0	0	0	-	0	0	0	0	0	-	21	-	69	-	-	-	-
	FY 73	109	0	0	0	-	0	0	16	0	-	0	0	0	0	0	0	14	-	77	1	12	0	229
	FY 74	112	0	0	0	3	0	0	0	0	-	0	0	0	0	0	0	6	-	10	-	15	-	166
	FY 75	82	0	0	0	9	5	0	0	0	0	0	0	0	0	0	-	61	-	92	-	59	-	308
	FY 76	38	0	0	0	0	4	0	0	0	-	0	0	0	0	0	0	-	0	45	-	4	-	91
(i) Number of inventions covered by these foreign applications	FY 70	11	0	0	0	0	1	0	0	0	-	0	0	0	0	7	0	7	-	12	-	-	-	-
	FY 71	15	0	0	0	1	0	0	0	0	-	0	0	0	0	0	-	10	-	9	-	-	-	-
	FY 72	16	0	0	0	0	0	0	0	0	-	0	0	0	0	0	-	4	-	14	-	-	-	-
	FY 73	13	0	0	0	-	0	0	4	0	-	0	0	0	0	0	0	2	-	22	-	3	0	44
	FY 74	15	0	0	0	0	3	0	0	0	-	0	0	0	0	0	0	1	-	2	-	2	-	23
	FY 75	12	0	0	0	1	5	0	0	0	0	0	0	0	0	0	-	0	-	8	-	7	-	42
	FY 76	8	0	0	0	0	4	0	0	0	-	0	0	0	0	0	0	-	0	11	-	1	-	24
5. Invention disclosures for which a determination was made not to file a patent application but to publish instead	FY 70	152	0	5	0	25	20	0	0	1	-	0	0	0	0	9	0	29	-	0	0	0	0	241
	FY 71	110	0	2	0	11	28	0	0	5	-	0	0	0	0	0	0	24	-	0	0	0	0	180
	FY 72	117	0	3	0	5	22	1	0	8	0	0	0	0	0	0	0	37	-	0	0	0	0	193
	FY 73	100	1	2	0	26	19	0	0	11	20	0	0	0	0	0	0	111	-	0	0	0	0	290
	FY 74	103	3	2	0	0	36	0	0	0	24	0	0	0	0	0	0	159	-	0	-	0	-	327
	FY 75	123	1	1	0	0	18	0	0	3	26	0	0	0	0	0	17	51	-	0	-	0	-	240
	FY 76	111	0	0	0	0	10	0	0	4	18	0	0	0	0	0	0	57	0	0	-	30	-	230
6. Invention disclosures for which a decision was made that no U.S. patent application will be filed by the Government (Includes 5. above)	FY 70	157	0	5	0	25	20	0	0	4	-	0	0	0	0	76	89	882	-	2693	280	679	659	5,569
	FY 71	113	0	3	2	30	28	0	0	11	-	0	0	0	0	94	58	929	-	1932	440	577	786	5,003
	FY 72	122	0	247	1	0	22	1	0	8	0	0	0	0	0	10	56	1043	-	1875	226	429	695	4,735
	FY 73	100	1	2	2	11	36	0	0	17	20	2	0	0	0	1	51	919	-	2049	200	397	684	4,482
	FY 74	103	3	3	1	10	36	0	0	9	24	0	0	0	0	12	40	981	-	1372	283	350	546	3,773
	FY 75	123	1	1	6	-	18	0	0	20	26	0	0	0	0	6	17	534	-	716	174	355	460	2,457
	FY 76	111	0	0	0	-	10	0	0	4	18	0	0	0	0	2	28	784	0	1151	265	501	468	3,342

NOTE: Dash Mark (-) indicates no data available.

			HEW	DOJ	USDA	CIA	POST SVC	NSF	VA	FCC	DOC	EPA	ACDA	HUD	TREAS	TVA	DOT	DOT	ERDA	NRC	NASA	ARMY	NAVY	AIR FORCE	TOTAL
IV.	OPERATION UNDER PRESIDENTIAL PATENT POLICY																								
A.	Total number of R&D contract actions[b]/containing a patent rights clause[c]/made effective during fiscal year (sum of 1, 2, and 3 below)	FY 70	1,665	24	132	-	78	5	1	0	29	-	2	111	0	0	310	533	272	-	1,272	1,352	2,132	3,351	11,269.
			(10,325)	(92)	(7)	(-)	(0)	(3,600)	(0)	(0)	(2)	(-)	(0)	(6)	(0)	(0)	(0)	(493)	(0)	(-)	(333)	(168)	(0)	(406)	(15,432.
		FY 71	1,964	19	151	-	67	18	3	0	35	-	14	67	0	0	382	258	220	-	1,281	1,424	2,223	3,591	11,717.
			(10,231)	(58)	(0)	(-)	(0)	(4,400)	(0)	(0)	(31)	(0)	(0)	(0)	(0)	(0)	(0)	(241)	(0)	(-)	(336)	(212)	(3)	(378)	(15,890).
		FY 72	3,410	24	246	-	44	30	1	0	40	374	3	54	0	0	526	289	197	-	1,262	1,663	2,674	3,470	14,307.
			(12,861)	(32)	(1)	(-)	(0)	(5,680)	(0)	(0)	(76)	(757)	(0)	(3)	(0)	(0)	(0)	(257)	(0)	(-)	(293)	(265)	(0)	(270)	(20,495).
		FY 73	1,771	64	137	-	54	20	7	1	86	473	0	51	0	0	383	496	150	-	834	2,826	2,553	3,225	13,131.
			(6,401)	(58)	(39)	(-)	(0)	(4,155)	(0)	(0)	(89)	(385)	(0)	(12)	(0)	(0)	(0)	(85)	(0)	(-)	(278)	(201)	(0)	(123)	(11,818).
		FY 74	1,829	15	68	-	35	117	5	0	25	458	0	91	0	0	318	544	141	-	1,244	2,325	2,177	2,980	12,372.
			(10,350)	(0)	(50)	(-)	(0)	(6,571)	(0)	(0)	(86)	(513)	(0)	(3)	(0)	(0)	(0)	(203)	(0)	(-)	(462)	(207)	(0)	(112)	(18,557).
		FY 75	4,230	37	63	-	38	53	1	1	66	527	0	86	0	0	361	505	204	-	1,447	2,458	2,569	2,277	14,923.
			(14,639)	(62)	(57)	(-)	(0)	(6,994)	(0)	(0)	(175)	(612)	(0)	(8)	(0)	(0)	(0)	(269)	(0)	(-)	(422)	(211)	(0)	(127)	(23,577).
		FY 76	6,270	16	120	775	12	83	1	1	66	1702	0	265	0	0	494	-	1456	124	1,544	2,674	3,168	2,494	21,265-
			(17,065)	(0)	(61)	(0)	(0)	(10,298)	(0)	(0)	(126)	(1095)	(0)	(0)	(0)	(0)	(0)	(-)	(0)	(0)	(486)	(349)	(7)	(231)	(29,718).
1.	Number of R&D contract actions having clauses under which the Government acquires or may acquire principal or exclusive rights to inventions	FY 70	1,663	0	132	-	9	1	1	0	28	-	2	111	0	0	278	522	260	-	1,261	112	133	48	4,553.
			(9,429)	(0)	(7)	(-)	(0)	(0)	(0)	(0)	(2)	(-)	(0)	(6)	(0)	(0)	(0)	(493)	(0)	(-)	(333)	(0)	(0)	(8)	(10,269).
		FY 71	1,963	0	151	-	4	1	3	0	18	-	14	67	0	0	164	238[d]/	207	-	1,265	129	119	42	4,385.
			(8,841)	(0)	(0)	(-)	(0)	(0)	(0)	(0)	(31)	(-)	(0)	(0)	(0)	(0)	(0)	(241)	(0)	(-)	(336)	(0)	(3)	(0)	(9,452.
		FY 72	3,409	0	246	-	29	1	1	0	26	373	3	54	0	0	392	264	194	-	1,247	202	134	30	6,605-
			(11,458)	(0)	(1)	(-)	(0)	(0)	(0)	(0)	(44)	(757)	(0)	(3)	(0)	(0)	(0)	(255)	(0)	(-)	(293)	(0)	(0)	(0)	(12,811).
		FY 73	1,761	31	137	-	17	0	7	0	81	472	0	51	0	0	328	495	129	-	829	881	123	31	5,395.
			(5,547)	(50)	(39)	(-)	(0)	(0)	(0)	(0)	(31)	(385)	(0)	(12)	(0)	(0)	(0)	(85)	(0)	(-)	(278)	(0)	(0)	(0)	(6,427).
		FY 74	1,824	0	68	-	27	3	5	0	13	457	0	91	0	0	309	543	138	-	1,225	633	73	65	5,474.
			(8,383)	(0)	(50)	(-)	(0)	(0)	(0)	(0)	(27)	(513)	(0)	(3)	(0)	(0)	(0)	(203)	(0)	(-)	(462)	(0)	(0)	(1)	(9,642).
		FY 75	4,226	0	63	-	38	1	1	1	42	525	0	86*	0	0	349	318	197	-	1,426	988	110	87	8,458.
			(11,609)	(0)	(57)	(-)	(0)	(0)	(0)	(0)	(33)	(612)	(0)	(8)	(0)	(0)	(0)	(230)	(0)	(-)	(422)	(0)	(0)	(2)	(12,969).
		FY 76	6,269	1	120	0	12	0	1	0	19	1700	0	265*	0	0	462	-	1405	124	1,519	753	117	31	12,798-
			(14,348)	(0)	(61)	(0)	(0)	(0)	(0)	(0)	(32)	(1095)	(0)	(0)	(0)	(0)	(0)	(-)	(0)	(0)	(486)	(0)	(5)	(0)	(16,027).
	(a) Because a principal purpose of the contract was to create, develop, or improve products, processes, or methods which are intended for commercial use or which will be required for use by governmental regulation (Section 1(a)(1) of Presidential Policy)	FY 70	0	0	0	-	0	0	0	0	17	-	0	0	0	0	229	321	0	-	0	0	0	3	570.
			(0)	(0)	(0)	(-)	(0)	(0)	(0)	(0)	(0)	(-)	(0)	(0)	(0)	(0)	(0)	(273)	(0)	(-)	(0)	(0)	(0)	(0)	(273.
		FY 71	0	0	0	-	0	0	0	0	4	-	0	33	0	0	29	12	0	-	0	1	1	0	80.
			(0)	(0)	(0)	(-)	(0)	(0)	(0)	(0)	(13)	(-)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(-)	(0)	(0)	(0)	(0)	(13.
		FY 72	0	0	0	-	15	0	0	0	20	0	0	12	0	0	153	17	0	-	0	2	0	0	219.
			(0)	(0)	(0)	(-)	(0)	(0)	(0)	(0)	(11)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(-)	(0)	(0)	(0)	(0)	(11.
		FY 73	0	0	0	-	17	0	0	0	60	472	0	4	0	0	193	327	0	-	0	3	2	0	1,078.
			(0)	(0)	(0)	(-)	(0)	(0)	(0)	(0)	(10)	(385)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(-)	(0)	(0)	(0)	(0)	(395.
		FY 74	0	0	0	-	8	0	0	0	10	0	0	11	0	0	150	380	0	-	0	1	0	1	561.
			(0)	(0)	(0)	(-)	(0)	(0)	(0)	(0)	(4)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(-)	(0)	(0)	(0)	(0)	(4).
		FY 75	0	0	0	-	0	0	0	1	40	525	0	6	0	0	132	148	0	-	0	0	1	0	853.
			(0)	(0)	(0)	(-)	(0)	(0)	(0)	(0)	(1)	(612)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(-)	(0)	(0)	(0)	(0)	(613).
		FY 76	0	0	0	0	0	0	0	0	8	1700**	0	0	0	0	227**	-	0	0	0	5	3	0	1,943.
			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(2)	(1095)	(0)	(0)	(0)	(0)	(0)	(-)	(0)	(0)	(0)	(0)	(0)	(0)	(1,097).

b/Statistics for contracts and for grants are indicated separately, grants being in parentheses. [IV.A. Text].

c/Modifications, amendments, renewals or continuations to contracts and/or grants were not counted, unless a new determination was made as to the type of patent rights clause to be used in the modification, amendment, renewal or continuation. [IV.A. Text].

d/Decrease in 1971 data reflects transfer of Bureau of Commercial Fisheries to Department of Commerce and Federal Water Quality Administration to Environmental Protection Agency. [IV.A.1. - Interior, 1971.]

NOTE: Dash Mark (-) indicates no data available.

*Clause included in all HUD contracts - part of General Provision form.
**No distinction made between 1(a)(1) and 1(a)(2).

			HEW	DOJ	USDA	CIA	POST SVC	NSF	VA	FCC	DOC	EPA	ACDA	HUD	TREAS	TVA	DOT	DOI	ERDA	NRC	NASA	ARMY	NAVY	AIR FORCE	TOTAL
IV.	OPERATION UNDER PRESIDENTIAL PATENT POLICY (Continued)																								
A.	Total number of R&D contract actions b/ containing a patent rights clause c/ made effective during fiscal year (continued)																								
	1. Number of R&D contract actions having clauses under which Government acquires or may acquire principal or exclusive rights to inventions (continued)																								
	(b) Because a principal purpose of the contract is for exploration into fields which directly concern public health, public safety, or public welfare (Section 1(a)(2) of Presidential Policy)	FY 70	1,663	0	0	-	0	0	1	0	0	-	0	0	0	0	39	30	0	-	0	91	67	2	1,893-
			(9,429)	(0)	(0)	(-)	(0)	(0)	(0)	(0)	(1)	(-)	(0)	(0)	(0)	(0)	(0)	(24)	(0)	(-)	(0)	(0)	(0)	(0)	(9,454)-
		FY 71	1,963	0	0	-	0	0	3	0	3	-	0	8	0	0	92	84	0	-	0	111	65	1	2,330-
			(8,841)	(0)	(0)	(-)	(0)	(0)	(0)	(0)	(0)	(-)	(0)	(0)	(0)	(0)	(0)	(37)	(0)	(-)	(0)	(0)	(3)	(0)	(8,881)-
		FY 72	3,405	0	0	-	0	0	1	0	0	373	0	31	0	0	185	76	0	-	0	187	65	4	4,331-
			(11,458)	(0)	(0)	(-)	(0)	(0)	(0)	(0)	(32)	(757)	(0)	(2)	(0)	(0)	(0)	(26)	(0)	(-)	(0)	(0)	(0)	(1)	(12,275)-
		FY 73	1,763	31	0	-	0	0	7	0	0	0	0	42	0	0	135	0	0	-	0	869	56	0	2,903-
			(5,547)	(50)	(0)	(-)	(0)	(0)	(0)	(0)	(10)	(0)	(0)	(12)	(0)	(0)	(0)	(0)	(0)	(-)	(0)	(0)	(0)	(0)	(5,619)-
		FY 74	1,824	0	0	-	0	0	5	0	2	457	0	40	0	0	259	0	0	-	0	621	22	5	3,135-
			(8,383)	(0)	(0)	(-)	(0)	(0)	(0)	(0)	(41)	(513)	(0)	(31)	(0)	(0)	(0)	(0)	(0)	(-)	(0)	(0)	(0)	(0)	(8,903)-
		FY 75	4,226	0	0	-	0	0	1	0	2	0	0	40	0	0	216	38	0	-	0	986	40	0	5,549-
			(11,605)	(0)	(0)	(-)	(0)	(0)	(0)	(0)	(28)	(0)	(0)	(8)	(0)	(0)	(0)	(48)	(0)	(-)	(0)	(0)	(0)	(0)	(11,689)-
		FY 76	6,269	0	0	0	0	0	1	0	9	-**	0	265	0	0	250**	-	0	0	0	709	58	8	7,561-
			(14,348)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(24)	(-)	(0)	(0)	(0)	(0)	(0)	(-)	(0)	(0)	(0)	(0)	(5)	(0)	(14,377)-
	(c) Because the contract is in a field of science or technology in which there has been little significant experience outside of work funded by the Government, or where the Government has been the principal developer of the field, and the retention of exclusive rights might confer on the contractor a preferred or dominant position (Section 1(a)(3) of Presidential Policy)	FY 70	0	0	0	-	0	0	0	0	0	-	0	0	0	0	10	69	260	-	0	15	41	26	421-
			(0)	(0)	(0)	(-)	(0)	(0)	(0)	(0)	(0)	(-)	(0)	(0)	(0)	(0)	(0)	(3)	(0)	(-)	(0)	(0)	(0)	(0)	(31)
		FY 71	0	0	0	-	0	0	0	0	8	-	0	2	0	0	28	44	207	-	0	14	37	33	373-
			(0)	(0)	(0)	(-)	(0)	(0)	(0)	(0)	(18)	(-)	(0)	(0)	(0)	(0)	(0)	(9)	(0)	(-)	(0)	(0)	(0)	(0)	(18)-
		FY 72	0	0	0	-	14	0	0	0	0	0	0	11	0	0	106	41	194	-	0	11	41	18	436-
			(0)	(0)	(0)	(-)	(0)	(0)	(0)	(0)	(1)	(0)	(0)	(1)	(0)	(0)	(0)	(9)	(0)	(-)	(0)	(0)	(0)	(0)	(11)-
		FY 73	0	0	0	-	20	0	0	0	0	0	0	5	0	0	0	0	129	-	0	6	47	17	224-
			(0)	(0)	(0)	(-)	(0)	(0)	(0)	(0)	(11)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(-)	(0)	(0)	(0)	(0)	(11)-
		FY 74	0	0	0	-	19	0	0	0	1	0	0	40	0	0	0	0	138	-	0	9	35	35	277-
			(0)	(0)	(0)	(-)	(0)	(0)	(0)	(0)	(19)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(-)	(0)	(0)	(0)	(1)	(20)-
		FY 75	0	0	0	-	0	0	0	0	0	0	0	40	0	0	0	115	0	-	0	0	61	80	296-
			(0)	(0)	(0)	(-)	(0)	(0)	(0)	(0)	(4)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(-)	(0)	(0)	(0)	(2)	(6)
		FY 76	0	1	0	0	0	0	0	0	1	0	0	0	0	0	0	-	0	124	0	39	53	13	231-
			(0)	(0)	(0)	(0)	(0)	(0)	(*)	(0)	(6)	(0)	(0)	(0)	(0)	(0)	(0)	(-)	(0)	(0)	(0)	(0)	(0)	(0)	(6)-

**No distinction made between 1(a)(1) and 1(a)(2).

b/ Statistics for contracts and for grants are indicated separately, grants being in parentheses. [IV.A. - Text].

c/ Modifications, amendments, renewals or continuations to contracts and/or grants were not counted; unless a new determination was made as to the type of patent rights clause to be used in the modification, amendment, renewal or continuation. [IV.A. - Text].

NOTE: Dash Mark (-) indicates no data available.

IV. OPERATION UNDER PRESIDENTIAL PATENT POLICY (Continued)

A. Total number of R&D contract actions[b/] containing a patent rights clause[c/] made effective during fiscal year (continued)

1. Number of R&D contract actions having clauses under which Government acquires or may acquire principal or exclusive rights to inventions (continued)

		HEW	DOJ	USDA	CIA	EVC	POST NSF	VA	FCC	DOC	EPA	ACDA	HUD	TREAS	TVA	DOT	DOI	ERDA	NRC	NASA	ARMY	NAVY	AIR FORCE	TOTAL
(d) Because the services of the contract are for:																								
(i) the operation of a Government-owned research or production facility (Section 1(a)(4)(i) of Presidential Policy); or	FY 70	0 (0)	0 (0)	0 (0)	- (-)	0 (0)	1 (0)	0 (0)	0 (0)	0 (0)	- (-)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	- (-)	0 (0)	6 (0)	3 (0)	8 (0)	18 (0)
	FY 71	0 (0)	0 (0)	0 (0)	- (-)	0 (0)	1 (0)	0 (0)	0 (0)	0 (0)	- (-)	0 (0)	18 (0)	0 (0)	0 (0)	1 (0)	0 (0)	0 (0)	- (-)	0 (0)	3 (0)	0 (0)	2 (0)	25 (0)
	FY 72	0 (0)	0 (0)	0 (0)	- (-)	0 (0)	1 (0)	0 (0)	0 (0)	0 (0)	- (-)	0 (0)	0 (0)	0 (0)	0 (0)	1 (0)	0 (0)	0 (0)	- (-)	0 (0)	1 (0)	1 (0)	2 (0)	5 (0)
	FY 73	0 (0)	0 (0)	0 (0)	- (-)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	- (-)	0 (0)	2 (0)	4 (0)	3 (0)	9 (0)
	FY 74	0 (0)	0 (0)	0 (0)	- (-)	0 (0)	3 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	- (-)	0 (0)	2 (0)	1 (0)	22 (0)	28 (0)
	FY 75	0 (0)	0 (0)	0 (0)	- (-)	0 (0)	1 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	- (-)	0 (0)	2 (0)	0 (0)	5 (0)	8 (0)
	FY 76	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	5 (0)	0 (0)	0 (0)	0 (0)	1 (0)	9 (0)	15 (0)
(ii) coordinating the work of others (Section 1(a)(4) (ii) of Presidential Policy)	FY 70	0 (0)	0 (0)	0 (0)	- (-)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	- (-)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	- (-)	0 (0)	0 (0)	9 (0)	4 (0)	13 (0)
	FY 71	0 (0)	0 (0)	0 (0)	- (-)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	- (-)	0 (0)	5 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	- (-)	0 (0)	0 (0)	6 (0)	5 (0)	17 (0)
	FY 72	0 (0)	0 (0)	0 (0)	- (-)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	- (-)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	- (-)	0 (0)	0 (0)	8 (0)	5 (0)	13 (0)
	FY 73	0 (0)	0 (0)	0 (0)	- (-)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	- (-)	0 (0)	0 (0)	12 (0)	8 (0)	20 (0)
	FY 74	0 (0)	0 (0)	0 (0)	- (-)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	- (-)	0 (0)	0 (0)	11 (0)	1 (0)	12 (0)
	FY 75	0 (0)	0 (0)	0 (0)	- (-)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	- (-)	0 (0)	0 (0)	3 (0)	1 (0)	4 (0)
	FY 76	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	- (-)	0 (0)	0 (0)	2 (0)	6 (0)	8 (0)
(e) Because the contractor's willingness to grant principal or exclusive rights to the Government pursuant to Section 1(d) of the Presidential Policy	FY 70	0 (0)	0 (0)	0 (0)	- (-)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	- (-)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	- (-)	0 (0)	0 (0)	11 (0)	0 (0)	11 (0)
	FY 71	0 (0)	0 (0)	0 (0)	- (-)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	- (-)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	- (-)	0 (0)	0 (0)	6 (0)	0 (0)	6 (0)
	FY 72	0 (0)	0 (0)	0 (0)	- (-)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	- (-)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	- (-)	0 (0)	1 (0)	0 (0)	0 (0)	1 (0)
	FY 73	0 (0)	0 (0)	0 (0)	- (-)	0 (0)	0 (0)	0 (0)	0 (0)	12 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	- (-)	0 (0)	0 (0)	0 (0)	0 (0)	12 (0)
	FY 74	0 (0)	0 (0)	0 (0)	- (-)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	- (-)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)
	FY 75	0 (0)	0 (0)	0 (0)	- (-)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	- (-)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)
	FY 76	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	1 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	- (-)	0 (0)	0 (0)	0 (0)	0 (0)	1 (0)

b/ Statistics for contracts and for grants are indicated separately, grants being in parentheses. [IV.A. - Text].

c/ Modifications, amendments, renewals or continuations to contracts and/or grants were not counted; unless a new determination was made as to the type of patent rights clause to be used in the modification, amendment, renewal or continuation. [IV.A. - Text].

NOTE: Dash Mark (-) indicates no data available.

		HEW	DOJ	USDA	CIA	POST SVC	NSF	VA	FCC	DOC	EPA	ACDA	HUD	TREAS	TVA	DOT	DOI	ERDA	NRC	NASA	ARMY	NAVY	AIR FORCE	TOTAL
IV. OPERATION UNDER PRESIDENTIAL PATENT POLICY (Continued)																								
A. Total number of R&D contract actions[b/] containing a patent rights clause[c/] made effective during fiscal year (continued)																								
1. Number of R&D contract actions having clauses under which Government acquires or may acquire principal or exclusive rights to inventions (continued)																								
(f) Because of governing statutory requirements	FY 70	0	0	132	-	0	0	0	0	0	-	2	111	0	0	0	182	0	-	1,261	0	2	0	1,610-
		(0)	(0)	(7)	(-)	(0)	(0)	(0)	(0)	(0)	(-)	(0)	(6)	(0)	(0)	(0)	(193)	(0)	(-)	(333)	(0)	(0)	(0)	(539).
	FY 71	0	0	151	-	0	0	0	0	0	-	14	0	0	0	14	98	0	-	1,265	0	4	0	1,546-
		(0)	(0)	(0)	(-)	(0)	(0)	(0)	(0)	(0)	(-)	(0)	(0)	(0)	(0)	(0)	(204)	(0)	(-)	(336)	(0)	(0)	(0)	(540).
	FY 72	0	0	246	-	0	0	0	0	0	0	3	0	0	0	0	129	0	-	1,247	0	12	0	1,637-
		(0)	(0)	(11)	(-)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(220)	(0)	(0)	(293)	(0)	(0)	(0)	(514).
	FY 73	0	8	137	-	0	0	0	0	0	0	0	0	0	0	0	168	0	-	829	1	2	0	1,137-
		(0)	(0)	(39)	(-)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(85)	(0)	(-)	(278)	(0)	(0)	(0)	(402).
	FY 74	0	0	68	-	0	0	0	0	0	0	0	0	0	0	0	163	0	-	1,225	0	4	0	1,460-
		(0)	(0)	(50)	(-)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(203)	(0)	(-)	(462)	(0)	(0)	(0)	(715).
	FY 75	0	0	63	-	38	0	0	0	0	0	0	0	0	0	1	17	197	-	1,426	0	5	0	1,747-
		(0)	(0)	(57)	(-)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(182)	(0)	(-)	(422)	(0)	(0)	(0)	(661).
	FY 76	0	0	120	0	12	0	0	0	0	0	0	0	0	0	0	-	1,400	0	1,519	0	0	0	3,051-
		(0)	(0)	(61)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(-)	(0)	(0)	(486)	(0)	(0)	(0)	(547).
(g) Because of other reasons	FY 70	0	0	0	-	9	0	0	0	3	-	0	0	0	0	0	0	0	-	0	0	0	5	17.
		(0)	(0)	(0)	(-)	(0)	(0)	(0)	(0)	(0)	(-)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0).
	FY 71	0	0	0	-	4	0	0	0	3	-	0	0	0	0	0	0	0	-	0	0	0	1	8.
		(0)	(0)	(0)	(-)	(0)	(0)	(0)	(0)	(0)	(-)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0).
	FY 72	0	0	0	-	0	0	0	0	6	0	0	0	0	0	0	0	0	-	0	0	7	1	14.
		(0)	(0)	(0)	(-)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0).
	FY 73	0	0	0	-	0	0	0	0	9	0	0	0	0	0	0	0	0	-	0	0	0	3	12.
		(0)	(0)	(0)	(-)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0).
	FY 74	0	0	0	-	0	0	0	0	0	0	0	0	0	0	0	0	0	-	0	0	0	1*	1.
		(0)	(0)	(0)	(-)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0).
	FY 75	0	0	0	-	0	0	0	0	0	0	0	0	0	0	0	0	0	-	0	0	0	1*	1.
		(0)	(0)	(0)	(-)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0).
	FY 76	0	0	0	-	0	0	0	0	0	0	0	0	0	0	0	-	0	0	0	0	0	3	3.
		(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(-)	(0)	(0)	(0)	(0)	(0)	(0)	(0).
2. Number of R&D contract actions having clauses under which the contractor retains or has the right to retain principal or exclusive rights to inventions	FY 70	2	0	0	-	69	0	0	0	5	-	0	0	0	29	0	129/	-	11	1,025	1,574	2,960	5,687.
		(896)	(0)	(0)	(-)	(0)	(0)	(0)	(0)	(0)	(-)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(168)	(0)	(216)	(1,280).
	FY 71	1	0	0	-	63	0	0	0	7	-	0	0	0	94	0	138/	-	16	1,042	1,657	3,283	6,176.
		(1,398)	(0)	(0)	(-)	(0)	(0)	(0)	(0)	(0)	(-)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(209)	(0)	(204)	(1,803).
	FY 72	1	0	0	-	13	1	0	0	9	1	0	0	0	0	65	13	35/	-	15	1,231	1,952	3,267	6,561.
		(1,403)	(0)	(0)	(-)	(8)	(0)	(0)	(0)	(3)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(263)	(0)	(118)	(1,787).
	FY 73	8	1	0	-	17	1	0	0	2	1	0	0	0	0	45	1	219/	-	5	1,555	1,968	3,018	6,543.
		(854)	(0)	(0)	(-)	(0)	(4)	(0)	(0)	(10)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(201)	(0)	(69)	(1,138).
	FY 74	5	0	0	-	8	1	0	0	7	1	0	0	0	0	8	1	25/	-	19	1,297	1,615	2,762	5,726.
		(1,967)	(0)	(0)	(-)	(0)	(140)	(0)	(0)	(3)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(78)	(2,194).
	FY 75	4	0	0	-	0	0	0	0	3	2	0	0	0	0	12	187	75/	-	21	1,170	1,833	2,026	5,265.
		(3,034)	(0)	(0)	(-)	(0)	(1,160)	(0)	(0)	(34)	(0)	(0)	(0)	(0)	(0)	(0)	(39)	(0)	(-)	(0)	(0)	(0)	(63)	(4,330).
	FY 76	1	0	0	112	0	0	0	1	2	2	0	0	0	0	20	-	515/	0	25	1,455	1,882	2,167	5,718.
		(2,717)	(0)	(0)	(0)	(0)	(1,747)	(0)	(0)	(3)	(0)	(0)	(0)	(0)	(0)	(0)	(-)	(0)	(0)	(0)	(0)	(0)	(57)	(4,524).

b/Statistics for contracts and for grants are indicated separately, grants being in parentheses. [IV.A. - Text].

c/Modifications, amendments, renewal or continuations to contracts and/or grants were not counted; unless a new determination was made as to the type of patent rights clause to be used in the modification, amendment, renewal or continuation. [IV.A. - Text].

e/The contractor has option in nonatomic areas only. [IV.A.2. - AEC, now ERDA, 1970-1974.]

NOTE: Dash Mark (-) indicates no data available.

*Classified nuclear research

			HEW	DOJ	USDA	CIA	POST SVC	NSF	VA	FCC	DOC	EPA	ACDA	EUD	TREAS	TVA	DOT	DOI	ERDA	NRC	NASA	ARMY	NAVY	AIR FORCE	TOTAL
IV.	OPERATION UNDER PRESIDENTIAL PATENT POLICY (Continued)																								
A.	Total number of R&D contract actions[b/] containing a patent rights clause[c/] made effective during fiscal year (continued)																								
	2. Number of R&D contract actions having clauses under which the contractor retains or has the right to retain principal or exclusive rights to inventions (continued)																								
	(a) Because the principal purpose of the contract was to build upon existing knowledge or technology to develop information, products or processes for use by the Government, and the work called for by the contract is in a field of technology in which the contractor has acquired technical competence directly related to an area in which he has established a non-governmental, commercial position (Section 1(b) of Presidential Policy)	FY 70	0 (0)	0 (0)	0 (0)	- (-)	69 (0)	0 (0)	0 (0)	0 (0)	5 (0)	- (-)	0 (0)	0 (0)	0 (0)	0 (0)	29 (0)	0 (0)	129/ (0)	- (-)	11 (0)	926 (0)	1,392 (0)	2,895 (0)	5,330 (0)
		FY 71	0 (0)	0 (0)	0 (0)	- (-)	63 (0)	0 (0)	0 (0)	0 (0)	7 (0)	- (-)	0 (0)	0 (0)	0 (0)	0 (0)	94 (0)	0 (0)	135/ (0)	- (-)	16 (0)	939 (0)	1,434 (0)	3,173 (0)	5,739 (0)
		FY 72	0 (0)	0 (0)	0 (0)	- (-)	13 (0)	0 (0)	0 (0)	0 (0)	8 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	65 (0)	3 (0)	39/ (0)	- (-)	15 (0)	1,148 (0)	1,694 (0)	3,242 (0)	6,191 (0)
		FY 73	0 (0)	1 (0)	0 (0)	- (-)	17 (0)	0 (0)	0 (0)	1 (0)	1 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	43 (0)	1 (0)	215/ (0)	- (-)	5 (0)	1,497 (0)	1,685 (0)	2,998 (5)	6,270 (5)
		FY 74	0 (0)	0 (0)	0 (0)	- (-)	8 (0)	0 (0)	0 (0)	0 (0)	7 (9)	1 (0)	0 (0)	0 (0)	0 (0)	0 (0)	8 (0)	1 (0)	25/ (0)	- (-)	19 (0)	1,242 (0)	1,493 (0)	2,740 (1)	5,521 (1)
		FY 75	0 (0)	0 (0)	0 (0)	- (-)	8 (0)	0 (0)	0 (0)	0 (0)	3 (34)	1 (0)	0 (0)	0 (0)	0 (0)	0 (0)	12 (0)	187 (39)	09/ (0)	- (-)	18 (0)	1,132 (0)	1,498 (0)	1,943 (0)	4,794 (73)
		FY 76	0 (0)	0 (0)	0 (0)	112 (0)	0 (0)	0 (0)	0 (0)	1 (0)	1 (21)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	20 (0)	- (-)	09/ (0)	0 (0)	20 (0)	1,423 (0)	1,763 (0)	2,121 (21)	5,461 (23)
	(b) Because of exceptional circumstances, including the situations involving an Institutional Patent Agreement, which justified excluding the use of the clause granting principal or exclusive rights to the Government (Section 1(a) of Presidential Policy)	FY 70	2 (896)	0 (0)	0 (0)	- (-)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	- (-)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	- (-)	0 (0)	0 (0)	10 (0)	15 (0)	27 (896)
		FY 71	1 (1,390)	0 (0)	0 (0)	- (-)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	- (-)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	- (-)	0 (0)	0 (0)	8 (0)	27 (0)	36 (1,390)
		FY 72	1 (1,403)	0 (0)	0 (0)	- (-)	0 (0)	1 (0)	0 (0)	0 (0)	1 (0)	1 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	- (-)	0 (0)	0 (0)	4 (0)	1 (0)	9 (1,403)
		FY 73	0 (854)	0 (0)	0 (0)	- (-)	0 (0)	0 (0)	0 (0)	0 (0)	1 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	- (-)	0 (0)	0 (0)	0 (0)	0 (0)	0 (855)
		FY 74	3* (1,967)	0 (0)	0 (0)	- (-)	0 (0)	1 (4)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	- (-)	0 (0)	0 (0)	2 (0)	0 (0)	6 (1,971)
		FY 75	4 (3,034)	0 (0)	0 (0)	- (-)	0 (0)	0 (5)	0 (0)	0 (0)	1 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	- (-)	0 (0)	0 (0)	0 (0)	0 (0)	4 (3,039)
		FY 76	1 (2,717)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	1 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	- (-)	51 (0)	0 (0)	3 (0)	15 (0)	4 (0)	36 (0)	113 (2,716)

* Figure "3" is correct even though total is shown as "5" (per HEW representative).

b/ Statistics for contracts and for grants are indicated separately, grants being in parentheses. [IV.A. - Text]

c/ Modifications, amendments, renewals or continuations to contracts and/or grants were not counted; unless a new determination was made as to the type of patent rights clause to be used in the modification, amendment, renewal or continuation. [IV.A. - Text].

g/ The contractor has option in nonatomic areas only. [IV.A.2.(a). - AEC, now ERDA, - 1970-1971].

		HEW	DOI	USDA	CIA	POST SVC	NSF	VA	FCC	DOC	EPA	ACDA	HUD	TREAS	TVA	DOT	DOI	ERDA	NRC	NASA	ARMY	NAVY	AIR FORCE	TOTAL
IV. OPERATION UNDER PRESIDENTIAL PATENT POLICY (Continued)																								
A. Total number of R&D contract actions[b/] containing a patent rights clause[c/] made effective during fiscal year (continued)																								
2. Number of R&D contract actions having clauses under which the contractor retains or has the right to retain principal or exclusive rights to inventions (continued)																								
(c) Because of special situations which justified excluding the use of the clause deferring allocation of invention rights (Section 1(c) of Presidential Policy)	FY 70	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	0	-	0	99	172	50	321
		(0)	(0)	(0)	(-)	(0)	(0)	(0)	(0)	(0)	(-)	(0)	(0)	(0)	(0)	(0)	(0)	(-)	(0)	(168)	(0)	(216)	(384)
	FY 71	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	0	-	0	103	215	81	401
		(0)	(0)	(0)	(-)	(0)	(0)	(0)	(0)	(0)	(-)	(0)	(0)	(0)	(0)	(0)	(0)	(-)	(0)	(289)	(0)	(204)	(493)
	FY 72	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	0	-	0	83	254	24	361
		(0)	(0)	(0)	(-)	(0)	(0)	(0)	(0)	(0)	(-)	(0)	(0)	(0)	(0)	(0)	(0)	(-)	(0)	(263)	(0)	(118)	(381)
	FY 73	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	0	-	0	38	172	20	231
		(0)	(0)	(0)	(-)	(0)	(4)	(0)	(0)	(0)	(-)	(0)	(0)	(0)	(0)	(0)	(0)	(-)	(0)	(201)	(0)	(64)	(269)
	FY 74	0	0	0	-	0	8	0	0	0	-	0	0	0	0	0	0	-	0	55	120	22	197
		(0)	(0)	(0)	(-)	(0)	(136)	(0)	(0)	(0)	(-)	(0)	(0)	(0)	(0)	(0)	(0)	(-)	(0)	(0)	(0)	(77)	(213)
	FY 75	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	0	-	1	31	314	24	370
		(0)	(0)	(0)	(-)	(0)	(1,155)	(0)	(0)	(0)	(-)	(0)	(0)	(0)	(0)	(0)	(0)	(-)	(0)	(0)	(0)	(63)	(1,218)
	FY 76	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	-	0	2	17	115	10	144
		(0)	(0)	(0)	(0)	(0)	(1,747)	(0)	(0)	(0)	(-)	(0)	(0)	(0)	(0)	(0)	(0)	(-)	(0)	(0)	(0)	(36)	(1,783)
3. Number of R&D contract actions having clauses under which the allocation of invention rights is deferred until inventions are identified (Section 1(c) of Presidential Policy)	FY 70	0	24	0	-	0	4	0	0	4	-	0	0	0	0	3	11	0	-	0	215	425	343	1,029
		(0)	(92)	(0)	(-)	(0)	(3,600)	(0)	(0)	(1)	(-)	(0)	(0)	(0)	(0)	(0)	(0)	(-)	(0)	(0)	(0)	(190)	(3,883)
	FY 71	0	19	0	-	0	17	0	0	10	-	0	0	0	0	124	20	0	-	0	253	447	266	1,156
		(0)	(58)	(0)	(-)	(0)	(4,400)	(0)	(0)	(0)	(-)	(0)	(0)	(0)	(0)	(0)	(0)	(-)	(0)	(3)	(0)	(174)	(4,635)
	FY 72	0	24	0	-	2	28	0	0	5	-	0	0	0	0	69	22	0	-	0	230	588	173	1,141
		(0)	(32)	(0)	(-)	(0)	(5,680)	(0)	(0)	(29)	(-)	(0)	(0)	(0)	(0)	(0)	(2)	(-)	(0)	(21)	(0)	(152)	(5,897)
	FY 73	0	32	0	-	0	19	0	0	3	-	0	0	0	0	10	0	-	0	398	562	176	1,192
		(0)	(0)	(0)	(-)	(0)	(4,151)	(0)	(0)	(48)	(-)	(0)	(0)	(0)	(0)	(0)	(0)	(-)	(0)	(0)	(0)	(54)	(4,253)
	FY 74	0	15	0	-	0	113	0	0	5	-	0	0	0	0	1	0	1	-	0	395	489	153	1,172
		(0)	(0)	(0)	(-)	(0)	(6,431)	(0)	(0)	(50)	(-)	(0)	(0)	(0)	(0)	(0)	(0)	(-)	(0)	(207)	(0)	(33)	(6,721)
	FY 75	0	17	0	-	0	52	0	0	21	-	0	0	0	0	0	0	-	0	300	626	164	1,208
		(0)	(63)	(0)	(-)	(0)	(5,834)	(0)	(0)	(108)	(-)	(0)	(0)	(0)	(0)	(0)	(0)	(-)	(0)	(211)	(0)	(62)	(6,278)
	FY 76	0	15	0	663	0	83	0	0	45	-	0	0	0	0	12	-	-	0	466	1169	296	2,749
		(0)	(0)	(0)	(0)	(0)	(8,551)	(0)	(0)	(91)	(-)	(0)	(0)	(0)	(0)	(0)	(0)	(-)	(0)	(349)	(2)	(174)	(9,167)
V. CONTRACTORS' REQUESTS FOR RETENTION OF GREATER RIGHTS																								
A. Under Section 1(a) of the Presidential Policy																								
1. Requests by contractors for retention of greater rights at the time of contracting and based on exceptional circumstances	FY 70	1,665	0	0	0	0	0	0	0	0	-	0	0	0	0	1	4	0	-	0	0	0	0	1,670
	FY 71	1,391	0	0	0	0	0	0	0	1	-	0	0	0	0	3	5	0	-	0	0	0	0	1,408
	FY 72	1,404	0	0	0	0	1	0	0	3	2	0	0	0	0	1	1	0	-	0	1	0	0	1,413
	FY 73	862	0	0	0	0	2	0	0	5	2	0	0	0	0	5	0	0	-	2	4	0	0	882
	FY 74	1,972	0	0	1	0	9	0	0	1	2*	0	0	0	0	0	1	0	-	0	0	0	0	1,986
	FY 75	3,037	0	0	0	0	6	0	0	1	2	0	0	0	0	0	0	0	-	0	9	0	0	3,055
	FY 76	2,718	0	0	0	0	0	0	0	2	6	0	0	0	0	0	3	0	0	0	16	0	0	2,745
(a) Requests approved	FY 70	1,665	0	0	0	0	0	0	0	0	-	0	0	0	0	1	3	0	-	0	0	0	0	1,669
	FY 71	1,391	0	0	0	0	0	0	0	0	-	0	0	0	0	1	0	0	-	0	0	0	0	1,392
	FY 72	1,404	0	0	0	0	1	0	0	3	1	0	0	0	0	0	0	0	-	0	0	0	0	1,409
	FY 73	862	0	0	0	0	1	0	0	5	1	0	0	0	0	2	0	0	-	0	0	0	0	871
	FY 74	1,972	0	0	1	0	5	0	0	1	0	0	0	0	0	0	0	0	-	0	0	0	0	1,979
	FY 75	3,037	0	0	0	0	5	0	0	0	1	0	0	0	0	0	0	0	-	0	5	0	0	3,048
	FY 76	2,718	0	0	0	0	0	0	0	2	2	0	0	0	0	0	1	0	0	0	12	0	0	2,735

* Decisions pending no determination as of August 1974.

b/ Statistics for contracts and for grants are indicated separately, grants being in parentheses. [IV.A. - Text].

c/ Modifications, amendments, renewals or continuations to contracts and/or grants were not counted; unless a new determination was made as to the type of patent rights clause to be used in the modification, amendment, renewal or continuation. [IV.A. - Text].

NOTE: Dash Mark (-) indicates no data available.

V. CONTRACTORS' REQUESTS FOR RETENTION OF GREATER RIGHTS (continued).

		HEW	DOJ	USDA	CIA	POST SVC	NSF	VA	FCC	DOC	EPA	ACDA	HUD	TREAS	TVA	DOT	DOI	NASA	NRC	NASA	ARMY	NAVY	AIR FORCE	TOTAL
A. Under Section 1(a) of the Presidential Policy (continued)																								
1. Requests by contractors for retention of greater rights at the time of contracting and based on exceptional circumstances (continued)																								
(b) Requests denied	FY 70	0	0	0	0	0	0	0	0	0	-	0	0	0	0	0	1	0	-	0	0	0	0	1.
	FY 71	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	5	0	-	0	0	0	0	7.
	FY 72	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	-	0	1	0	0	2.
	FY 73	0	0	0	0	0	1	0	0	0	1	0	0	0	0	3	0	0	-	0	2	0	0	7.
	FY 74	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	-	0	0	0	0	1.
	FY 75	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	-	0	4	0	0	5.
	FY 76	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	4	0	0	6.
2. Requests by contractors for the retention of greater rights in an invention after it had been identified	FY 70	30	0	0	0	0	0	0	0	0	-	0	0	0	0	1	1	0	-	0	0	0	0	32.
	FY 71	28	0	0	0	0	0	0	0	0	-	0	0	0	0	1	0	0	-	0	1	0	0	31.
	FY 72	24	0	0	2	0	0	0	0	0	0	0	0	0	0	0	1	0	-	0	5	0	0	32.
	FY 73	28	0	0	0	0	5	0	0	0	11	0	0	0	0	0	0	0	-	0	9	1	1	55.
	FY 74	30	0	0	0	0	3	0	0	0	4	0	0	0	0	0	0	0	-	0	2	0	1	40.
	FY 75	37	0	0	0	0	9	0	0	0	5	1	0	0	0	0	1	0	-	0	5	2	0	60.
	FY 76	17	0	0	0	0	10	0	0	0	0	8	0	0	0	0	5	1	0	0	6	0	1	48.
(a) Requests approved	FY 70	30	0	0	0	0	0	0	0	0	-	0	0	0	0	0	1	0	-	0	2	0	0	33.
	FY 71	28	0	0	0	0	0	0	0	0	-	0	0	0	0	0	1	0	-	0	1	1	0	30.
	FY 72	24	0	0	2	0	0	0	0	0	0	0	0	0	0	0	1	0	-	0	1	0	0	28.
	FY 73	26	0	0	0	0	1	0	0	0	11	0	0	0	0	0	0	0	-	0	8	1	1	37.
	FY 74	29	0	0	0	0	2	0	0	0	1	0	0	0	0	0	0	0	-	0	1	0	1	34.
	FY 75	37	0	0	0	0	5	0	0	0	4	0	0	0	0	2	1	0	-	0	1	2	0	52.
	FY 76	17	0	0	0	0	9	0	0	0	0	0	0	0	0	5	0	0	0	0	4	0	1	36.
(b) Requests denied	FY 70	0	0	0	0	0	0	0	0	0	-	0	0	0	0	0	0	0	-	0	0	0	0	0.
	FY 71	0	0	0	0	0	0	0	0	0	-	0	0	0	0	0	0	0	-	0	0	0	0	0.
	FY 72	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	0	0	0	0	0.
	FY 73	2	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	-	0	1	0	0	3.
	FY 74	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	0	1	0	0	2.
	FY 75	0	0	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	-	0	4	0	0	9.
	FY 76	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	2.
B. Under Section 1(c) of the Presidential Policy																								
1. Requests by contractors for retention of greater rights at the time of contracting and based on Agency regulations covering special situations	FY 70	0	0	0	0	0	0	0	0	0	-	0	0	0	0	0	0	0	-	0	0	-	0	-
	FY 71	0	0	0	0	0	0	0	0	0	-	0	0	0	0	0	9	0	-	0	0	0	0	9.
	FY 72	0	0	0	0	0	12	0	0	0	0	0	0	0	0	0	2	0	-	0	0	0	0	2.
	FY 73	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	0	0	0	0	2.
	FY 74	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	0	0	0	0	0.
	FY 75	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	0	0	0	0	0.
	FY 76	0	0	0	112	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	112.
(a) Requests approved	FY 70	0	0	0	0	0	0	0	0	0	-	0	0	0	0	0	0	0	-	0	4	-	0	-
	FY 71	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0	0	-	0	0	0	0	4.
	FY 72	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	0	0	0	0	0.
	FY 73	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	0	0	0	0	0.
	FY 74	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	0	0	0	0	0.
	FY 75	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	0	0	0	0	0.
	FY 76	0	0	0	112	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	112.
(b) Requests denied	FY 70	0	0	0	0	0	0	0	0	0	-	0	0	0	0	0	0	0	-	0	0	-	0	-
	FY 71	0	0	0	0	0	0	0	0	0	-	0	0	0	0	5	0	0	-	0	0	0	0	5.
	FY 72	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	-	0	0	0	0	1.
	FY 73	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	0	0	0	0	2.
	FY 74	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	0	0	0	0	0.
	FY 75	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	0	0	0	0	0.
	FY 76	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.

NOTE: Dash Mark (-) indicates no data available.

		HEW	DOJ	USDA	CIA	POST SVC	NSF	VA	FCC	DOC	EPA	ACDA	HUD	TREAS	TVA	DOT	DOI	ERDA	NRC	NASA	ARMY	NAVY	AIR FORCE	TOTAL
V. CONTRACTORS' REQUESTS FOR RETENTION OF GREATER RIGHTS (continued)																								
B. Under Section 1(c) of the Presidential Policy (continued)																								
2. Requests by contractors for retention of greater rights in an invention after it had been identified	FY 70	0	0	0	0	0	14	0	0	0	-	0	0	0	0	0	0	0	-	0	3	5	1	23
	FY 71	0	0	0	0	0	10	0	0	1	-	0	0	0	0	0	0	7	-	0	8	8	0	34
	FY 72	0	0	0	0	0	18	0	0	0	-	0	0	0	0	0	0	1	-	0	1	10	8	38
	FY 73	0	0	0	0	0	25	0	0	1	0	0	0	0	0	0	0	7	-	0	2	4	17	56
	FY 74	0	0	0	0	0	29	0	0	0	0	0	0	0	0	0	0	0	-	0	2	6	4	41
	FY 75	0	0	0	0	0	17	0	0	7	0	0	0	0	0	0	0	0	-	0	0	13	10	47
	FY 76	0	0	0	2	0	12	0	0	7	0	0	0	0	0	0	0	0	0	0	1	10	2	34
(a) Requests approved	FY 70	0	0	0	0	0	6	0	0	0	-	0	0	0	0	0	0	0	-	0	0	5	1	12
	FY 71	0	0	0	0	0	10	0	0	0	0	0	0	0	0	0	0	6	-	0	5	6	0	27
	FY 72	0	0	0	0	0	12	0	0	0	0	0	0	0	0	0	0	0	-	0	1	8	8	29
	FY 73	0	0	0	0	0	7	0	0	0	0	0	0	0	0	0	0	7	-	0	2	4	11	31
	FY 74	0	0	0	0	0	12	0	0	0	0	0	0	0	0	0	0	0	-	0	2	4	3	21
	FY 75	0	0	0	0	0	17	0	0	6	0	0	0	0	0	0	0	0	-	0	0	9	10	42
	FY 76	0	0	0	2	0	12	0	0	4	0	0	0	0	0	0	0	0	0	0	1	10	2	31
(b) Requests denied	FY 70	0	0	0	0	0	3	0	0	0	-	0	0	0	0	0	0	0	-	0	0	0	0	3
	FY 71	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	-	0	3	2	0	6
	FY 72	0	0	0	0	0	6	0	0	0	0	0	0	0	0	0	0	1	-	0	0	2	0	9
	FY 73	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	0	0	0	6	6
	FY 74	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	-	0	0	2	1	5
	FY 75	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	0	0	4	0	4
	FY 76	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
C. Under Statute																								
1. Requests by contractors for waiver at the time of contracting or within 60 days of the time of contracting	FY 70	0	0	0	0	0	0	0	0	0	-	0	0	0	0	0	0	0	-	34	0	0	0	34
	FY 71	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	42	0	0	0	42
	FY 72	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	38	0	0	0	38
	FY 73	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	17	0	0	0	17
	FY 74	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	33*	0	0	0	33
	FY 75	0	0	0	0	0	0	0	0	0	-	0	0	0	0	0	0	2	-	43	0	0	0	45
	FY 76	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	0	106	0	70	0	0	0	176
(a) Requests approved	FY 70	0	0	0	0	0	0	0	0	0	-	0	0	0	0	0	0	0	-	20	0	0	0	20
	FY 71	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	24	0	0	0	24
	FY 72	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	25	0	0	0	25
	FY 73	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	9	0	0	0	9
	FY 74	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	22	0	0	0	22
	FY 75	0	0	0	0	0	0	0	0	0	-	0	0	0	0	0	0	2	-	24	0	0	0	26
	FY 76	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	0	51	0	34	0	0	0	85
(b) Requests denied	FY 70	0	0	0	0	0	0	0	0	0	-	0	0	0	0	0	0	0	-	2	0	0	0	2
	FY 71	0	0	0	0	0	0	0	0	0	-	0	0	0	0	0	0	0	-	10	0	0	0	10
	FY 72	0	0	0	0	0	0	0	0	0	-	0	0	0	0	0	0	0	-	9	0	0	0	9
	FY 73	0	0	0	0	0	0	0	0	0	-	0	0	0	0	0	0	0	-	4	0	0	0	4
	FY 74	0	0	0	0	0	0	0	0	0	-	0	0	0	0	0	0	0	-	8	0	0	0	8
	FY 75	0	0	0	0	0	0	0	0	0	-	0	0	0	0	0	0	0	-	12	0	0	0	12
	FY 76	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	0	10	0	27	0	0	0	37
2. Requests by contractors for waiver after the invention has been identified	FY 70	0	0	1	0	0	0	0	0	0	-	0	0	0	0	0	0	0	-	89	0	0	0	90
	FY 71	0	0	0	0	0	0	0	0	0	-	0	0	0	0	0	0	0	-	89	0	0	0	89
	FY 72	0	0	0	0	0	0	0	0	0	-	0	0	0	0	0	0	0	-	78	0	0	0	78
	FY 73	0	0	0	0	0	0	0	0	0	-	0	0	0	0	0	0	0	-	58	0	0	0	58
	FY 74	0	0	0	0	0	0	0	0	0	-	0	0	0	0	0	0	0	-	65	0	0	0	65
	FY 75	0	0	0	0	0	0	0	0	0	-	0	0	0	0	0	0	6	-	80	0	0	0	86
	FY 76	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	0	30	0	92	0	0	0	122
(a) Requests approved	FY 70	0	0	0	0	0	0	0	0	0	-	0	0	0	0	0	0	0	-	55	0	0	0	55
	FY 71	0	0	0	0	0	0	0	0	0	-	0	0	0	0	0	0	0	-	75	0	0	0	75
	FY 72	0	0	0	0	0	0	0	0	0	-	0	0	0	0	0	0	0	-	69	0	0	0	69
	FY 73	0	0	0	0	0	0	0	0	0	-	0	0	0	0	0	0	0	-	45	0	0	0	45
	FY 74	0	0	0	0	0	0	0	0	0	-	0	0	0	0	0	0	0	-	59	0	0	0	59
	FY 75	0	0	0	0	0	0	0	0	0	-	0	0	0	0	0	0	5	-	39	0	0	0	44
	FY 76	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	0	5	0	61	0	0	0	66

* For NASA, time is 30 days.

NOTE: Dash Mark (-) indicates no data available.

		HEW	DOJ	USDA	CIA	POST SVC	NSF	VA	FCC	DOC	EPA	ACDA	HUD	TREAS	TVA	DOT	DOI	ERDA	NRC	NASA	ARMY	NAVY	AIR FORCE	TOTAL
V.	CONTRACTORS' REQUESTS FOR RETENTION OF GREATER RIGHTS (continued)																							
	C. Under Statute (continued)																							
	2. Requests by contractors for waiver after the invention has been identified (continued)																							
	(b) Requests denied	FY 70	0	0	1	0	0	0	0	0	0	-	0	0	0	0	0	0	0	-	4	0	0	0	5
		FY 71	0	0	0	0	0	0	0	0	0	-	0	0	0	0	0	0	0	-	5	0	0	0	5
		FY 72	0	0	0	0	0	0	0	0	0	-	0	0	0	0	0	0	0	-	5	0	0	0	5
		FY 73	0	0	0	0	0	0	0	0	0	-	0	0	0	0	0	0	0	-	2	0	0	0	2
		FY 74	0	0	0	0	0	0	0	0	0	-	0	0	0	0	0	0	0	-	7	0	0	0	7
		FY 75	0	0	0	0	0	0	0	0	0	-	0	0	0	0	0	0	0	-	0	0	0	0	0
		FY 76	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	0	0	0	11	0	0	0	11
VI.	LICENSING OF GOVERNMENT-OWNED INVENTIONS[f]																							
	A. U. S. Patents and Patent Applications																							
	1. Unexpired patents available for licensing as of end of fiscal year	FY 70	131	0	1337	1	0	0	10	0	255	-	0	0	0	88	42	328	4259	-	1176	3890	7570	1641	20,728
		FY 71	153	0	1371	0	0	0	12	0	253	-	0	0	0	99	45	355	4389	-	1579	3962	7950	1685	21,853
		FY 72	175	0	1444	0	0	0	13	0	251	6	0	0	0	97	55	415	4623	-	1903	4226	8372	1821	23,401
		FY 73	203	0	1573	0	0	9	13	0	235	2	0	0	0	96	58	504	4609	-	2470**	4400	8726	1929	24,827
		FY 74	267	0	1635	0	23***	13	13	0	215	25	0	0	0	98	68	558	4609	-	2653**	4533	8993	2477	26,172
		FY 75	300	0	1685	5	1	16	18	0	200	31	0	0	0	101	75	593	4603	-	2842**	5426	9149	2528	27,573
		FY 76	325	0	1780	5	1	17	18	1	183	42	0	0	0	107	65	675	4114	0	3056**	5551	9521	2560	28,021
	2. Total number of unexpired patents licensed as of end of fiscal year	FY 70	20	0	704	0	0	0	1	0	32	-	0	0	0	25	0	55	498	-	91	105	62	32	1,625
		FY 71	26	0	743	0	0	0	1	0	31	-	0	0	0	26	0	60	534	-	80	104	65	31	1,701
		FY 72	45*	0	786	0	0	0	1	0	34	0	0	0	0	26	0	64	560**	-	107**	110	73	32	1,238
		FY 73	42	0	833	0	0	0	1	0	33	0	0	0	0	27	0	41	462	-	101**	108	72	34	1,754
		FY 74	49	0	198	0	0	0	1	0	31	0	0	0	0	28	0	39	445	-	121**	171	73	34	1,190
		FY 75	63	0	197	0	0	0	1	0	27	0	0	0	0	23	0	52	496	-	117**	170	71	34	1,251
		FY 76	75*	0	174	0	0	0	0	0	27	0	0	0	0	25	0	90	456	0	123**	167	81****	34	1,252
	(a) Nonexclusive licenses	FY 70	20	0	704	0	0	0	1	0	32	-	0	0	0	25	0	57	961	-	197	105	62	32	2,196
		FY 71	25	0	743	0	0	0	1	0	31	-	0	0	0	26	0	63	980	-	91	104	65	31	2,160
		FY 72	57	0	786	0	0	0	1	0	34	0	0	0	0	26	0	67	998	-	102	110	73	32	1,688
		FY 73	83*	0	833	0	0	0	3	0	33	0	0	0	0	27	0	41	978	-	95**	108	72	34	2,307
		FY 74	93	0	543	0	0	0	1	0	31	0	0	0	0	28	0	39	980	-	109**	171	73	34	2,102
		FY 75	98	0	542	0	0	0	3	0	27	0	0	0	0	23	0	52	1050	-	107**	170	71	32	2,167
		FY 76	93	0	520	0	0	0	0	0	27	0	0	0	0	25	0	90	1050	0	112**	167	81	37	2,202
	(b) Exclusive licenses	FY 70	0	0	0	0	0	0	0	0	0	-	0	0	0	0	0	0	0	-	3	0	0	0	3
		FY 71	1	0	0	0	0	0	0	0	0	-	0	0	0	0	0	0	0	-	3	0	0	0	4
		FY 72	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	5	0	0	0	6
		FY 73	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	6	0	0	0	7
		FY 74	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	12	0	0	0	15
		FY 75	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	10	-	0	0	16
		FY 76	19*	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	11	0	0	0	31
	3.(a) Total number of unexpired patents licensed during fiscal year	FY 70	2	0	27	0	0	0	0	0	1	-	0	0	0	2	0	8	37	-	17	5	8	0	107
		FY 71	8	0	39	0	0	0	0	0	1	-	0	0	0	1	0	5	61	-	24	4	7	1	158
		FY 72	15*	0	24	0	0	0	0	0	8	0	0	0	0	0	0	4	52**	-	21**	11	13	1	150
		FY 73	10	0	32	0	0	0	0	0	0	0	0	0	0	0	0	1	46	-	17	5	2	2	115
		FY 74	11	0	9	0	0	0	0	0	4	0	0	0	0	1	0	1	29	-	32**	5	1	1	94
		FY 75	8	0	20	0	0	0	0	0	4	0	0	0	0	2	0	13	51	-	13	4	3	7	125
		FY 76	9	0	26	0	0	0	0	0	4	0	0	0	0	2	0	5	28	0	16	10	8	4	112

* Includes patent applications licensed
** Includes patents and patent applications
*** Includes 2 patents issued in earlier fiscal years but not reported at that time.
**** Includes patent applications licensed during this reporting period, and which issued as patents during the same period.

f/These figures do not include licenses reserved or accorded to contractors under their contracts. [VI. - Title]

NOTE: Dash Mark (-) indicates no data available.

VI. LICENSING OF GOVERNMENT-OWNED INVENTIONS[f/] (continued)

A. U. S. Patents and Patent Applications (continued)

		HEW	DOJ	USDA	CIA	POST SVC	NSF	VA	FCC	DOC	EPA	ACDA	HUD	TREAS	TVA	DOT	DOI	ERDA	NRC	NASA	ARMY	NAVY	AIR FORCE	TOTAL
3.(a) Total number of unexpired patents licensed during fiscal year (continued)																								
(i) Nonexclusive licenses	FY 70	2	0	27	0	0	0	0	0	3	-	0	0	0	2	0	8	127	-	18	4	8	0	199.
	FY 71	7	0	39	0	0	0	0	0	1	-	0	0	0	1	0	6	102	-	29	4	7	1	197.
	FY 72	24	0	24	0	0	0	0	0	8	0	0	0	0	0	0	4	66	-	19	11	13	1	170.
	FY 73	19	0	32	0	0	0	0	0	0	0	0	0	0	0	0	1	56	-	16	5	2	2	133.
	FY 74	12	0	19	0	0	0	0	0	4	0	0	0	0	1	0	1	38	-	25	5	1	1	107
	FY 75	4	0	26	0	0	0	0	0	4	0	0	0	0	2	0	13	70	-	13	4	3	8	147.
	FY 76	5	0	43	0	0	0	0	0	4	0	0	0	0	2	0	5	31	0	14	10	6	4	126.
(ii) Exclusive licenses	FY 70	0	0	0	0	0	0	0	0	0	-	0	0	0	0	0	0	0	-	1	0	0	0	1.
	FY 71	1	0	0	0	0	0	0	0	0	-	0	0	0	0	0	0	0	-	0	0	0	0	1.
	FY 72	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	2	0	0	0	2.
	FY 73	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	1	0	0	0	1.
	FY 74	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	7	0	0	0	9.
	FY 75	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	0	-	0	0	4.
	FY 76	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	2	-	0	0	7.
(b) Total number of patent applications licensed during fiscal year[b/]	FY 70	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	FY 71	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	FY 72	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	FY 73	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	FY 74	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	FY 75	8	0	6	0	0	0	0	0	1	0	0	0	0	0	0	0	4	-	6	-	3	1	29.
	FY 76	5	0	3	0	0	0	0	0	1	0	0	0	0	1	0	4	4	0	0	0	8	2	28.
(i) Nonexclusive licenses	FY 70	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	FY 71	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	FY 72	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	FY 73	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	FY 74	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	FY 75	3	0	12	0	0	0	0	0	1	0	0	0	0	0	0	0	4	-	6	-	3	1	30.
	FY 76	1	0	3	0	0	0	0	0	1	0	0	0	0	0	0	4	4	0	0	0	8	2	24.
(ii) Exclusive licenses	FY 70	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	FY 71	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	FY 72	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	FY 73	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	FY 74	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	FY 75	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	0	-	0	0	5.
	FY 76	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4.
B. Foreign Patents																								
1. Unexpired patents available for licensing as of end of fiscal year	FY 70	0	0	0	0	0	0	0	0	0	-	0	0	0	0	0	7	3260	-	134	436g/	203g/	0	4,040.
	FY 71	0	0	0	0	0	0	0	0	0	-	0	0	0	0	0	25	3426	-	233	258g/	239g/	0	4,181.
	FY 72	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	25	3535	-	277	152g/	279g/	0	4,268.
	FY 73	34**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	39	3503	-	400**	90g/	292g/	0	4,358.
	FY 74	81**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	39	3057	-	487**	34g/	296g/	0	3,994.
	FY 75	102**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	42	2448	-	596**	113g/	156g/	0	3,451.
	FY 76	161**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2300*	0	648	18f/	199g/	0	3,326.
(a) Number of inventions covered by these patents	FY 70	0	0	0	0	0	0	0	0	0	-	0	0	0	0	0	6	725	-	40	-	203	0	-
	FY 71	0	0	0	0	0	0	0	0	0	-	0	0	0	0	0	7	785	-	64	-	239	0	-
	FY 72	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7	788	-	54	-	279	0	-
	FY 73	5**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8	700	-	75	-	292	0	-
	FY 74	14**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8	569	-	90	-	296	0	-
	FY 75	19**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	9	466	-	109	113	156	0	872.
	FY 76	31**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8	450*	0	129	18	199	0	827.

** Includes patents and patent applications

*Estimated

f/ These figures do not include licenses reserved or accorded to contractors under their contracts. [VI - Title]

g/ In substantially all of these cases the patent application was filed by a foreign government in return for a nonexclusive license. [VI.B.1. - Army, Navy, Air Force - 1970 - 1976]

h/ These statistics were not collected prior to FY 1975. [Section VI.A.3.(b)]

NOTE: Dash Mark (-) indicates no data available.

VI. LICENSING OF GOVERNMENT-OWNED INVENTIONS[f] (continued)

B. Foreign Patents (continued)

		HEW	DOJ	USDA	CIA	POST SVC	NSF	VA	FCC	DOC	EPA	ACDA	HUD	TREAS	TVA	DOT	DOI	ERDA	NRC	NASA	ARMY	NAVY	AIR FORCE	TOTAL
2. Total number of unexpired patents licensed as of end of fiscal year	FY 70	0	0	0	0	0	0	0	0	0	0	-	0	0	0	0	4	27	-	1	0	10	0	42.
	FY 71	0	0	0	0	0	0	0	0	0	0	-	0	0	0	0	4	35	-	34	0	10	0	83.
	FY 72	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	87**	-	34**	0	10	0	135.
	FY 73	1**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	237	-	34**	0	10	0	286.
	FY 74	2**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	160	-	34**	0	0	0	200.
	FY 75	2**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	687	-	41**	-	0	0	730.
	FY 76	2**	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	698	0	52**	0	0	0	743.
(a) Nonexclusive licenses	FY 70	0	0	0	0	0	0	0	0	0	0	-	0	0	0	0	4	9	-	0	0	10	0	23.
	FY 71	0	0	0	0	0	0	0	0	0	0	-	0	0	0	0	4	9	-	0	0	10	0	23.
	FY 72	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	61	-	0	0	10	0	75.
	FY 73	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	195	-	0	0	10	0	210.
	FY 74	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	132	-	0	0	0	0	140.
	FY 75	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	654	-	0	-	0	0	658.
	FY 76	4	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	666	0	0	0	0	0	672.
(i) Number of inventions covered by these patents	FY 70	0	0	0	0	0	0	0	0	0	0	-	0	0	0	0	4	2	-	0	0	10	0	16.
	FY 71	0	0	0	0	0	0	0	0	0	0	-	0	0	0	0	4	2	-	0	0	10	0	16.
	FY 72	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	9	-	0	0	10	0	23.
	FY 73	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	18	-	0	0	10	0	33.
	FY 74	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	20	-	0	0	0	0	26.
	FY 75	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	26	-	0	-	0	0	28.
	FY 76	2	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	31	0	0	0	0	0	34.
(b) Exclusive licenses	FY 70	0	0	0	0	0	0	0	0	0	0	-	0	0	0	0	0	18	-	1	0	0	0	19.
	FY 71	0	0	0	0	0	0	0	0	0	0	-	0	0	0	0	0	26	-	34	0	0	0	60.
	FY 72	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	26	-	34	0	0	0	60.
	FY 73	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	42	-	34	0	0	0	76.
	FY 74	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	28	-	34**	0	0	0	62.
	FY 75	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	33	-	41**	-	0	0	74.
	FY 76	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	52**	0	0	0	54.
(i) Number of inventions covered by these patents	FY 70	0	0	0	0	0	0	0	0	0	0	-	0	0	0	0	0	3	-	1	0	0	0	4.
	FY 71	0	0	0	0	0	0	0	0	0	0	-	0	0	0	0	0	4	-	5	0	0	0	9.
	FY 72	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	-	5	0	0	0	9.
	FY 73	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	-	5	0	0	0	11.
	FY 74	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	-	5	0	0	0	8.
	FY 75	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	-	6	-	0	0	10.
	FY 76	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	17	0	0	0	19.
3.(a) Total number of unexpired patents licensed during fiscal year	FY 70	0	0	0	0	0	0	0	0	0	0	-	0	0	0	0	0	8	-	0	0	3	0	11.
	FY 71	0	0	0	0	0	0	0	0	0	0	-	0	0	0	0	0	8	-	33	0	0	0	41.
	FY 72	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	52	-	0	0	0	0	52.
	FY 73	1**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	146	-	0	0	0	0	147.
	FY 74	1**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	41	-	0	0	0	0	42.
	FY 75	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	377	-	0	-	0	0	377.
	FY 76	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	12	0	1	0	0	0	14.
(i) Nonexclusive licenses	FY 70	0	0	0	0	0	0	0	0	0	0	-	0	0	0	0	0	8	-	0	0	3	0	11.
	FY 71	0	0	0	0	0	0	0	0	0	0	-	0	0	0	0	0	0	-	0	0	0	0	0.
	FY 72	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	52	-	0	0	0	0	52.
	FY 73	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	130	-	0	0	0	0	131.
	FY 74	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	29	-	0	0	0	0	31.
	FY 75	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	376	-	0	-	0	0	376.
	FY 76	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	12	0	0	0	0	0	14.
(A) Number of inventions covered by these patents	FY 70	0	0	0	0	0	0	0	0	0	0	-	0	0	0	0	0	1	-	0	0	3	0	4.
	FY 71	0	0	0	0	0	0	0	0	0	0	-	0	0	0	0	0	0	-	0	0	0	0	0.
	FY 72	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7	-	0	0	0	0	7.
	FY 73	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	-	0	0	0	0	7.
	FY 74	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	11	-	0	0	0	0	12.
	FY 75	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	21	-	0	-	0	0	21.
	FY 76	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	8	0	0	0	0	0	9.

** Includes patents and patent applications.

f/ These figures do not include licenses reserved or accorded to contractors under their contracts.
[VI. - Title]

NOTE: Dash Mark (-) indicates no data available.

			HEW	DOJ	USDA	CIA	POST SVC	NSF	VA	FCC	DOC	EPA	ACDA	HUD	TREAS	TVA	DOT	DOI	ERDA	NRC	NASA	ARMY	NAVY	AIR FORCE	TOTAL
VI.	LICENSING OF GOVERNMENT-OWNED INVENTIONS[f] (continued)																								
B.	Foreign Patents (continued)																								
3.(a)	Total number of unexpired patents licensed during fiscal year (continued)																								
(ii)	Exclusive licenses	FY 70	0	0	0	0	0	0	0	0	0	-	0	0	0	0	0	0	0	-	0	0	0	0	0
		FY 71	0	0	0	0	0	0	0	0	0	-	0	0	0	0	0	0	8	-	33	0	0	0	41
		FY 72	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	0	0	0	0	0
		FY 73	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	16	-	0	0	0	0	16
		FY 74	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	12	-	0	0	0	0	12
		FY 75	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	-	0	0	0	0	1
		FY 76	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1
(A)	Number of inventions covered by these patents	FY 70	0	0	0	0	0	0	1	0	0	-	0	0	0	0	0	0	0	-	1	0	0	0	1
		FY 71	0	0	0	0	0	0	0	0	0	-	0	0	0	0	0	0	1	-	4	0	0	0	5
		FY 72	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	0	0	0	0	0
		FY 73	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	-	0	0	0	0	2
		FY 74	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	-	0	0	0	0	1
		FY 75	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	-	0	0	0	0	1
		FY 76	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1
(b)	Total number of patent applications licensed during fiscal year[g]	FY 70	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		FY 71	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		FY 72	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		FY 73	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		FY 74	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		FY 75	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	7	0	0	0	7
		FY 76	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0*	0	10	0	0	0	10
(i)	Nonexclusive licenses	FY 70	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		FY 71	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		FY 72	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		FY 73	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		FY 74	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		FY 75	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	0	0	0	0	0
		FY 76	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0*	0	0	0	0	0	0
(A)	Number of inventions covered by these patent applications	FY 70	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		FY 71	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		FY 72	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		FY 73	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		FY 74	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		FY 75	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	0	0	0	0	0
		FY 76	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0*	0	0	0	0	0	0
(ii)	Exclusive licenses	FY 70	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		FY 71	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		FY 72	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		FY 73	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		FY 74	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		FY 75	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	7	0	0	0	7
		FY 76	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0*	0	10	0	0	0	10
(A)	Number of inventions covered by these patent applications	FY 70	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		FY 71	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		FY 72	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		FY 73	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		FY 74	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		FY 75	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	1	0	0	0	1
		FY 76	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0*	0	10	0	0	0	10

f/These figures do not include licenses reserved or accorded to contractors under their contracts. [VI. Title]

*Included in 3(a)

g/These statistics were not collected prior to FY 1975. [Sections VI.A.3.(a) and (b)]

NOTE: Dash Mark (-) indicates no data available.

		HEW	DOJ	USDA	CIA	POST SVC	TSP	VA	FCC	DOC	EPA	ACDA	HUD	TREAS	TVA	DOT	DOI	ERDA	NRC	NASA	ARMY	NAVY	AIR FORCE	TOTAL
VII. ACTIONS TAKEN BY THE GOVERNMENT DURING THE FISCAL YEAR																								
A. Number of Government-owned inventions on which a non-exclusive domestic license has been granted and on which the following information was subsequently obtained	FY 70	0	0	15	0	0	0	1	0	0	-	0	0	0	25	0	0	3	-	45	5	8	0	101
	FY 71	0	0	0	0	0	0	1	0	0	-	0	0	0	26	0	5	30	-	109	4	7	0	182
	FY 72	-	0	35	0	0	0	1	0	0	0	0	0	0	26	0	0	11	-	8	12	8	0	93
	FY 73	-	0	0	0	0	0	0	0	0	0	0	0	0	27	0	0	0	-	205	5	0	0	237
	FY 74	-	0	18	0	0	0	0	0	2	0	0	0	0	28	0	0	19	-	0	5	0	0	64
	FY 75	-	0	14	0	0	0	0	0	0	0	0	0	0	28	0	0	37	-	108	4	0	0	191
	FY 76	-	0	54	0	0	0	1	0	0	-	0	0	0	25	0	17	22	0	10	10	0	0	139
1. Public use or sale	FY 70	0	0	0	0	0	0	1	0	0	-	0	0	0	12	0	0	0	-	10	0	0	0	23
	FY 71	0	0	0	0	0	0	1	0	0	-	0	0	0	13	0	5	0	-	25	0	0	0	44
	FY 72	-	0	0	0	0	0	1	0	0	0	0	0	0	13	0	0	0	-	5	4	0	0	23
	FY 73	-	0	0	0	0	0	0	0	0	0	0	0	0	13	0	0	0	-	54	1	0	0	68
	FY 74	-	0	2	0	0	0	0	0	2	0	0	0	0	14	0	0	9	-	0	0	0	0	27
	FY 75	-	0	3	0	0	0	0	0	0	-	0	0	0	14	0	0	11	-	43	-	0	0	71
	FY 76	-	0	19	0	0	0	1	0	0	-	0	0	0	11	0	10	9	0	3	9	0	0	53
2. Intended public use or sale	FY 70	0	0	15	0	0	0	0	0	0	-	0	0	0	8	0	0	3	-	22	6	8	0	54
	FY 71	0	0	0	0	0	0	0	0	0	-	0	0	0	8	0	0	0	-	48	4	7	0	59
	FY 72	-	0	2	0	0	0	0	0	0	0	0	0	0	8	0	0	0	-	0	8	0	0	10
	FY 73	-	0	0	0	0	0	0	0	0	0	0	0	0	8	0	0	0	-	95	4	0	0	99
	FY 74	-	0	7	0	0	0	0	0	0	0	0	0	0	8	0	0	14	-	0	5	0	0	26
	FY 75	-	0	9	0	0	0	0	0	0	-	0	0	0	8	0	0	19	-	40	4	0	0	72
	FY 76	-	0	27	0	0	0	0	1	0	0	0	0	0	8	0	2	3	0	2	10	0	0	45
3. No present or intended public use or sale	FY 70	0	0	0	0	0	0	0	0	0	-	0	0	0	13	0	0	0	-	13	0	0	0	26
	FY 71	0	0	0	0	0	0	0	0	0	-	0	0	0	13	0	0	30	-	36	0	0	0	79
	FY 72	-	0	0	0	0	0	0	0	0	0	0	0	0	13	0	0	11	-	3	0	0	0	27
	FY 73	-	0	0	0	0	0	0	0	0	0	0	0	0	14	0	0	0	-	56	0	0	0	70
	FY 74	-	0	1	0	0	0	0	0	0	0	0	0	0	14	0	0	5	-	0	0	0	0	20
	FY 75	-	0	2	0	0	0	0	0	0	-	0	0	0	14	0	0	7	-	25	-	0	0	48
	FY 76	-	0	8	0	0	0	0	0	0	-	0	0	0	14	0	5	10	0	5	0	0	0	42
B. Number of domestic nonexclusive licenses revoked	FY 70	0	0	0	0	0	0	0	0	0	-	0	0	0	0	0	0	1	-	13	0	0	0	16
	FY 71	0	0	0	0	0	0	0	0	0	-	0	0	0	0	0	0	30	-	42	0	0	0	72
	FY 72	-	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	11	-	3	0	0	0	14
	FY 73	-	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	56	0	0	0	56
	FY 74	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	4	0	0	0	4
	FY 75	0	0	0	0	0	0	0	0	0	-	0	0	0	0	0	0	2	-	6	-	0	0	8
	FY 76	0	0	0	0	0	0	0	0	0	-	0	0	0	0	0	0	0	0	5	0	0	0	5
C. Number of Government-owned inventions on which an exclusive domestic license has been granted and on which the following information was subsequently obtained	FY 70	0	0	0	0	0	0	0	0	0	-	0	0	0	0	0	0	1	-	3	0	0	0	4
	FY 71	0	0	0	0	0	0	0	0	0	-	0	0	0	0	0	0	0	-	3	0	0	0	3
	FY 72	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	-	5	0	0	0	6
	FY 73	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	4	0	0	0	5
	FY 74	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	8	0	0	0	9
	FY 75	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	10	-	0	0	15
	FY 76	9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	10	0	0	0	20
1. Public use or sale	FY 70	0	0	0	0	0	0	0	0	0	-	0	0	0	0	0	0	0	-	1	0	0	0	1
	FY 71	0	0	0	0	0	0	0	0	0	-	0	0	0	0	0	0	0	-	1	0	0	0	1
	FY 72	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	2	0	0	0	2
	FY 73	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	3	0	0	0	3
	FY 74	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	1	0	0	0	2
	FY 75	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	5	-	0	0	7
	FY 76	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	8
2. Intended public use or sale	FY 70	0	0	0	0	0	0	0	0	0	-	0	0	0	0	0	0	0	-	2	0	0	0	2
	FY 71	0	0	0	0	0	0	0	0	0	-	0	0	0	0	0	0	0	-	2	0	0	0	2
	FY 72	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	-	3	0	0	0	4
	FY 73	-	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	2	0	0	0	2
	FY 74	-	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	6	0	0	0	6
	FY 75	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	3	-	0	0	5
	FY 76	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	3	0	0	0	10
3. No present or intended public use or sale	FY 70	0	0	0	0	0	0	0	0	0	-	0	0	0	0	0	0	1	-	0	0	0	0	1
	FY 71	0	0	0	0	0	0	0	0	0	-	0	0	0	0	0	0	0	-	0	0	0	0	0
	FY 72	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	0	0	0	0	0
	FY 73	-	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	0	0	0	0	0
	FY 74	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	1	0	0	0	1
	FY 75	0	0	0	0	0	0	0	0	0	-	0	0	0	0	0	0	0	-	1	-	0	0	1
	FY 76	0	0	0	0	0	0	0	0	0	-	0	0	0	0	0	0	0	0	2	0	0	0	2

NOTE: Dash Mark (-) indicates no data available.

			HEW	DOJ	USDA	CIA	POST SVC	NSF	VA	FCC	DOC	EPA	ACDA	HUD	TREAS	TVA	DOT	DOI	ERDA	NRC	NASA	ARMY	NAVY	AIR FORCE	TOTAL
VII.	ACTIONS TAKEN BY THE GOVERNMENT DURING THE FISCAL YEAR (Continued)																								
D.	Number of inventions on which a domestic exclusive license was revoked	FY 70	0	0	0	6	0	0	0	0	0	-	0	0	0	0	0	0	0	-	1	0	0	0	7·
		FY 71	0	0	0	0	0	0	0	0	0	-	0	0	0	0	0	0	0	-	0	0	0	0	0·
		FY 72	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	0	0	0	0	0·
		FY 73	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	0	0	0	0	0·
		FY 74	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	0	0	0	0	0·
		FY 75	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	1	-	0	0	1·
		FY 76	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	1	0	0	0	1·
E.	Number of inventions to which principal or exclusive rights have been retained by the contractor and on which the following information has been obtained pursuant to Section 1(e) of the Presidential Policy Statement	FY 70	0	0	0	0	0	0	0	0	0	-	0	0	0	0	0	0	5	-	180	0	0	0	186·
		FY 71	0	0	0	0	0	0	0	0	0	-	0	0	0	0	0	0	0	-	223	0	0	14	237·
		FY 72	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	37	-	130	0	55	0	233·
		FY 73	394*	0	0	0	0	29	0	0	0	0	2	0	0	0	0	0	1	-	649	0	24	1	1,102·
		FY 74	467*	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	-	695	0	14	0	1,180·
		FY 75	573*	0	0	0	0	55	0	0	0	0	0	0	0	0	0	0	5	-	748**	-	7	0	1,388.
		FY 76	687*	0	0	-	0	73	0	0	0	0	0	0	0	0	0	0	0	0	562	0	4	0	1,326.
	1. Commercially used	FY 70	0	0	0	0	0	0	0	0	0	-	0	0	0	0	0	0	0	-	37	0	0	0	37·
		FY 71	0	0	0	0	0	0	0	0	0	-	0	0	0	0	0	0	0	-	12	0	0	6	18·
		FY 72	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	10	0	1	0	17·
		FY 73	0	0	0	0	0	13	0	0	0	0	0	0	0	0	0	0	0	-	124	0	1	1	139·
		FY 74	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	148	0	0	0	148·
		FY 75	0	0	0	0	0	18	0	0	0	0	0	0	0	0	0	0	1	-	153**	-	0	0	172.
		FY 76	0	0	0	-	0	16	0	0	0	0	0	0	0	0	0	0	0	0	186	-	1	0	203·
	(a) By public use or sale	FY 70	0	0	0	0	0	0	0	0	0	-	0	0	0	0	0	0	0	-	37	0	0	0	37·
		FY 71	0	0	0	0	0	0	0	0	0	-	0	0	0	0	0	0	0	-	12	0	0	5	17·
		FY 72	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	10	0	0	0	10·
		FY 73	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	-	122	0	1	0	125·
		FY 74	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	142	0	0	0	142·
		FY 75	0	0	0	0	0	8	0	0	0	0	0	0	0	0	0	0	0	-	147**	-	0	0	155.
		FY 76	0	0	0	-	0	2	0	0	0	0	0	0	0	0	0	0	0	0	176	-	1	0	179·
	(b) By licensing without public use or sale	FY 70	0	0	0	0	0	0	0	0	0	-	0	0	0	0	0	0	0	-	0	0	0	0	0.
		FY 71	0	0	0	0	0	0	0	0	0	-	0	0	0	0	0	0	0	-	0	0	0	1	1.
		FY 72	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	0	0	1	0	1.
		FY 73	0	0	0	0	0	11	0	0	0	0	0	0	0	0	0	0	0	-	2	0	0	1	14·
		FY 74	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	6	0	0	0	6.
		FY 75	0	0	0	0	0	10	0	0	0	0	0	0	0	0	0	0	1	-	6**	-	0	0	17·
		FY 76	0	0	0	-	0	14	0	0	0	0	0	0	0	0	0	0	0	0	10	-	0	0	24.
	2. Commercial use intended	FY 70	0	0	0	0	0	0	0	0	0	-	0	0	0	0	0	0	0	-	87	0	0	0	87·
		FY 71	0	0	0	0	0	0	0	0	0	-	0	0	0	0	0	0	0	-	210	0	0	8	218·
		FY 72	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	12	-	140	0	58	0	171.
		FY 73	0	0	0	0	0	9	0	0	0	0	0	0	0	0	0	0	1	-	410	0	22	0	442·
		FY 74	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	-	444	0	13	0	458·
		FY 75	0	0	0	0	0	21	0	0	0	0	0	0	0	0	0	0	4	-	482**	-	3	0	510.
		FY 76	0	0	0	-	0	46	0	0	0	0	0	0	0	0	0	0	0	0	198	-	1	0	245·
	(a) By public use or sale	FY 70	0	0	0	0	0	0	0	0	0	-	0	0	0	0	0	0	0	-	87	0	0	0	87·
		FY 71	0	0	0	0	0	0	0	0	0	-	0	0	0	0	0	0	0	-	210	0	0	0	210·
		FY 72	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	11	-	100	0	0	0	112·
		FY 73	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	-	307	0	2	0	310·
		FY 74	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	-	331	0	2	0	334·
		FY 75	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	-	359	-	3	0	366·
		FY 76	0	0	0	-	0	0	0	0	0	0	0	0	0	0	0	0	0	0	108	-	1	0	109·
	(b) By licensing	FY 70	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	0	0	0	0	0·
		FY 71	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	0	0	0	8	8·
		FY 72	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	-	0	0	3	0	4·
		FY 73	0	0	0	0	0	9	0	0	0	0	0	0	0	0	0	0	0	-	103	0	20	0	132·
		FY 74	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	113	0	11	0	124·
		FY 75	0	0	0	0	0	21	0	0	0	0	0	0	0	0	0	0	0	-	123	-	0	0	144·
		FY 76	0	0	0	-	0	46	0	0	0	0	0	0	0	0	0	0	0	0	90	-	0	0	136·

* HEW does not divide use reports into categories. However, figures submitted to show that use reports are obtained.

** Cumulative

1 Sampling taken in FY 1971 of all waivers granted in 1969 and first half of 1970, and of selected other waivers wherein earlier reports indicated likely commercial use in 1969. [VII.E. - NASA - 1971]

NOTE: Dash Mark (-) indicates no data available.

		HEW	DOJ	USDA	CIA	POST SVC	NSF	VA	FCC	DOC	EPA	ACDA	HUD	TRSAS	TVA	DOT	DOI	ERDA	NRC	NASA	ARMY	NAVY	AIR FORCE	TOTAL
VII. ACTIONS TAKEN BY THE GOVERNMENT DURING THE FISCAL YEAR (Continued)																								
E. Number of inventions to which principal or exclusive rights have been retained by the contractor and on which the following information has been obtained pursuant to Section 1(e) of the Presidential Policy Statement (continued)																								
3. No present or intended commercial use	FY 70	0	0	0	0	0	0	0	0	0	-	0	0	0	0	0	0	6	-	56	0	0	0	62
	FY 71	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	-	1	0	0	0	1
	FY 72	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	19	-	20	0	0	0	39
	FY 73	0	0	0	0	0	7	0	0	0	0	2	0	0	0	0	0	2	-	115	0	1	0	127
	FY 74	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	-	103	0	1	0	107
	FY 75	0	0	0	0	0	16	0	0	0	0	0	0	0	0	0	0	0	-	113	1	4	0	133
	FY 76	0	0	0	-	0	11	0	0	0	0	0	0	0	0	0	0	0	-	228	2	0	0	241
F. Number and identification of inventions where the Government required the contractor to license a third party pursuant to Section 1(f) of the Presidential Policy	FY 70	0	0	0	0	0	0	0	0	0	-	0	0	0	0	0	0	0	-	0	0	0	0	0
	FY 71	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	0	0	0	0	0
	FY 72	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	0	0	0	0	0
	FY 73	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	0	0	0	0	0
	FY 74	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	0	0	0	0	0
	FY 75	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	0	0	0	0	0
	FY 76	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	0	0	0	0	0
G. Number and identification of inventions where the contractor was required to license a third party pursuant to Section 1(g) of Presidential Policy	FY 70	0	0	0	0	0	0	0	0	0	-	0	0	0	0	0	0	0	-	0	0	0	0	0
	FY 71	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	0	0	0	0	0
	FY 72	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	0	0	0	0	0
	FY 73	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	0	0	0	0	0
	FY 74	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	0	0	0	0	0
	FY 75	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	0	0	0	0	0
	FY 76	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	0	0	0	0	0

NOTE: Dash Mark (-) indicates no data available.

			HEW	DOJ	USDA	CIA	POST SVC	NSF	VA	FCC	DOC	EPA	ACDA	HUD	TREAS	TVA	DOT	DOI	ERDA	NRC	NASA	ARMY	NAVY	AIR FORCE	TOTAL
VIII.	FUNDS FOR RESEARCH AND DEVELOPMENT																								
A.	Total funds obligated for R&D (millions of dollars)	FY 70	1360.4	22.8	275.9	-	37.5	317.0	58.5	1.4	94.1	-	6.4	32.1	.6	8.8	258.5	207.0	1428.8	-	3792.7	1911.6	2269.3	3729.2	15,812.6
		FY 71	1442.7	27.3	294.1	-	51.7	364.0	59.1	1.0	97.6	-	4.3	60.2	.8	9.6	480.8	245.1	1319.4	-	3272.5	1801.6	2244.7	3070.9	14,847.4
		FY 72	1635.3	23.9	314.0	-	76.3	494.4	62.1	.9	101.6	144.3	3.4	48.9	.9	10.2	483.2	204.3	1251.4	-	3188.5	2071.5	2515.4	3209.2	15,919.7
		FY 73	1957.3	27.9	361.4	-	74.3	525.6	75.6	.8	228.3	185.5	2.2	62.9	1.0	12.3	380.9	256.0	1374.6	-	3274.9	2135.4	2752.9	3343.6	17,033.4
		FY 74	2232.7	53.3	405.9	-	*	653.2	94.0	1.6	262.4	342.5	1.5	76.4	1.5	18.4	386.6	557.4	1703.8	-	3071.1	2067.9	3296.4	3700.2	18,937.2
		FY 75	2403.7	64.1	423.4	-	*	620.6	98.3	1.9	210.0	286.6	1.3	63.8	1.6	16.4	370.3	305.0	1906.5	55.5	3065.4	1871.5	3121.3	3346.3	18,233.5
		FY 76	2602.0	61.8	478.5	-	*	623.0	101.3	2.0	238.9	311.1	1.6	68.2	1.9	19.6	372.3	330.0	2804.0	101.2	3448.1	2067.2	3386.3	3815.7	20,835.3
	1. R&D funds obligated for domestic intramural use	FY 70	260.6	1.8	200.5	-	9.5	13.1	57.3	.4	61.0	-	4.2	5.2	.6	8.7	71.0	129.5	16.3	-	800.2	716.1	691.2	568.7	3,615.9
		FY 71	308.3	3.0	212.9	-	13.6	28.7	57.7	.6	68.4	-	3.0	5.7	.8	9.5	65.5	146.1	15.2	-	805.9	650.7	650.7	494.1	3,540.4
		FY 72	311.0	2.4	227.4	-	14.6	27.1	60.3	.7	130.6	43.8	2.2	5.5	.9	10.1	87.9	114.6	14.3	-	887.2	741.2	791.1	477.7	3,930.6
		FY 73	369.8	3.8	248.2	-	12.0	19.9	73.0	.6	122.6	71.2	.7	10.7	1.0	12.1	117.8	142.1	16.2	-	898.7	694.5	816.3	765.9	4,397.1
		FY 74	453.7	6.7	294.7	-	*	11.0	91.5	1.1	140.4	86.0	.4	18.3	1.5	13.5	69.5	220.2	19.5	-	1024.0	769.3	932.3	892.0	5,044.6
		FY 75	466.6	7.2	309.0	-	*	71.1	95.9	1.0	134.1	96.2	.2	13.8	1.6	7.6	70.7	195.4	57.1	1.2	1036.3	696.5	981.9	833.6	5,078.0
		FY 76	494.1	8.5	347.0	-	*	52.2	98.9	1.1	160.0	155.4	.3	19.1	1.5	8.7	74.3	201.0	108.1	6.3	1181.3	798.3	1003.5	927.2	5,646.8
	2. R&D funds obligated for domestic extramural use	FY 70	1071.0	21.0	66.3	-	28.0	303.4	1.2	1.0	32.1	-	2.2	26.9	0	.1	187.5	77.5	1421.4	-	2992.3	1192.9	1575.7	3157.6	12,148.1
		FY 71	1094.1	24.3	75.2	-	37.3	335.1	1.4	.4	28.2	-	1.3	54.5	0	.1	415.1	99.0	1303.1	-	2465.7	1149.7	1588.6	2574.6	11,247.9
		FY 72	1284.5	21.5	87.4	-	61.2	465.2	1.8	.2	49.8	95.9	1.2	41.4	0	.1	395.3	89.2	1235.9	-	2299.8	1329.2	1730.8	2711.8	11,918.7
		FY 73	1545.5	24.1	92.8	-	62.2	500.7	2.6	.2	104.5	107.5	1.5	52.2	-	.2	263.1	112.9	1357.2	-	2375.3	1439.7	1929.9	2575.8	12,547.9
		FY 74	1747.4	46.2	101.2	-	*	637.9	2.5	.5	120.8	252.0	1.1	58.1	-	5.9	326.6	336.7	1683.9	-	2047.0	1297.5	2357.0	2806.8	13,829.1
		FY 75	1908.4	56.9	106.4	-	*	544.0	2.4	.9	75.6	187.5	1.1	50.0	-	8.8	298.6	108.2	1848.9	54.1	2028.3	1172.9	2134.5	2511.3	13,096.8
		FY 76	2071.7	53.3	123.4	-	*	565.3	2.4	.9	78.8	152.0	1.3	49.1	.4	10.9	297.7	127.2	2687.5	94.3	2265.5	1265.8	2377.2	2886.9	15,111.6
	(a) Profit organizations	FY 70	63.4	4.4	.9	-	27.0	1.4	.4	1.0	13.8	-	.9	7.6	0	0	125.5	38.4	781.5	-	2766.2	1078.0	1401.7	2886.3	9,198.4
		FY 71	89.1	5.9	.7	-	36.4	2.0	.4	.4	23.8	-	.6	31.9	0	0	363.6	50.8	705.6	-	2251.6	1058.2	1432.5	2347.3	8,402.8
		FY 72	101.7	6.4	.6	-	60.5	7.0	.4	.2	35.0	61.8	.5	37.6	0	0	344.8	47.8	703.5	-	2011.8	1227.9	1567.0	2502.8	8,717.3
		FY 73	94.0	8.5	1.9	-	61.0	9.8	.7	.2	51.2	70.2	1.1	37.1	-	-	182.4	65.6	771.9	-	2072.0	1347.8	1763.1	2336.6	8,891.0
		FY 74	113.0	5.8	1.2	-	*	47.3	.4	.5	45.6	201.7	.8	20.8	-	-	217.5	252.4	968.4	-	1856.7	1222.9	2143.6	2564.3	9,658.9
		FY 75	150.5	11.9	.8	-	*	30.2	.4	.9	48.0	121.0	.5	19.3	-	-	191.5	73.8	1065.4	42.7	1814.2	1121.3	1924.3	2275.8	8,882.5
		FY 76	167.6	3.2	1.2	-	*	21.1	.3	.9	31.1	79.3	.9	25.1	.4	-	200.5	89.4	1705.6	74.2	2045.5	1191.5	2175.1	2649.2	10,462.1
	(b) Educational institutions	FY 70	734.2	11.3	65.0	-	.2	277.8	.5	0	7.7	-	.7	2.2	0	.1	23.3	25.9	561.7	-	207.5	87.2	165.9	112.5	2,283.7
		FY 71	721.0	8.5	73.3	-	.2	310.4	.7	0	3.3	-	.2	1.3	0	.1	22.6	27.3	528.0	-	197.6	56.0	145.4	94.1	2,190.0
		FY 72	841.4	5.1	73.9	-	.1	418.7	.8	0	6.9	23.0	.1	1.9	0	.1	11.1	27.3	510.4	-	263.8	58.6	156.6	79.3	2,479.1
		FY 73	1011.1	4.9	90.0	-	.1	473.4	1.2	-	41.5	19.8	.1	1.8	-	.2	27.0	30.3	556.2	-	276.2	48.2	158.6	87.4	2,827.2
		FY 74	1159.7	5.8	99.3	-	*	549.0	1.3	-	26.5	19.3	.1	2.4	-	.1	28.8	44.2	673.2	-	170.7	52.0	158.2	106.0	3,096.6
		FY 75	1238.4	4.4	104.6	-	*	468.4	1.5	-	23.6	27.6	-	2.3	-	.1	79.4	25.2	695.3	6.3	194.0	44.0	155.2	102.8	3,123.1
		FY 76	1386.9	13.9	121.6	-	*	501.8	1.5	-	25.1	36.0	-	2.7	-	.2	26.3	36.4	892.3	13.6	188.5	56.4	141.8	105.5	3,550.5
	(c) Other nonprofit organizations	FY 70	216.2	.1	.4	-	.8	24.1	0	0	6.3	-	.6	13.8	0	0	17.4	4.0	68.0	-	18.6	26.8	8.1	158.8	564.0
		FY 71	208.8	.4	1.1	-	.7	22.7	0	0	.8	-	.5	7.0	0	0	13.1	6.9	69.3	-	14.5	34.6	10.7	133.2	524.3
		FY 72	267.5	1.3	.9	-	.6	30.0	.1	-	1.7	8.6	.6	3.1	0	0	14.8	3.6	21.9	-	24.2	38.5	15.2	148.2	580.8
		FY 73	322.0	1.2	.4	-	1.1	12.4	.5	-	3.2	2.2	.3	5.3	-	-	7.6	5.6	22.0	-	22.1	43.6	8.2	151.8	609.5
		FY 74	381.7	19.3	.1	-	*	38.5	.8	-	41.0	26.0	.2	22.4	-	5.8	22.3	24.0	42.2	-	19.3	22.6	57.2	136.5	850.3
		FY 75	401.5	39.9	.4	-	*	41.8	.5	-	2.9	21.9	.6	15.2	-	8.7	19.2	-	87.5	5.1	20.0	17.5	55.0	132.7	870.4
		FY 76	386.7	33.9	.1	-	*	39.4	.6	-	9.3	19.7	.4	14.5	-	10.7	18.7	.6	85.7	6.5	31.1	17.9	60.3	132.2	868.3
	(d) Other	FY 70	57.2	5.2	0	-	0	.1	.3	0	4.3	-	0	3.3	0	0	21.3	9.2	.2	-	0	.9	0	0	102.0
		FY 71	75.4	9.5	.1	-	0	0	.3	0	.3	-	0	14.3	0	0	15.8	14.0	.2	-	0	.9	0	0	130.8
		FY 72	73.9	8.7	0	-	0	9.5	.5	0	6.2	2.6	0	.8	0	0	24.6	10.5	.1	-	0	4.2	0	0	141.5
		FY 73	118.4	9.5	.5	-	*	12.4	.5	-	8.6	15.3	-	8.8	-	-	42.1	15.5	.2	-	-	.1	-	-	237.8
		FY 74	93.0	17.3	.6	-	*	2.7	-	-	7.7	15.0	-	12.5	-	-	58.0	16.1	.1	-	.3	-	-	-	221.3
		FY 75	115.9	.7	.6	-	*	3.6	-	-	1.4	17.0	-	13.2	-	-	58.8	8.7	.7	-	.1	.1	-	-	220.8
		FY 76	130.5	2.3	.5	-	*	3.0	-	-	13.3	17.0	-	6.8	-	-	52.2	.8	3.9	-	.4	-	-	-	230.7
	3/ Foreign	FY 70	28.8	0	9.1	-	0	.5	0	0	1.0	-	0	0	0	0	0	0	1.1	-	.2	2.6	2.4	2.9	48.6
		FY 71	40.1	0	6.0	-	.8	.2	0	0	1.0	-	0	0	0	0	.2	0	1.1	-	.9	1.2	5.4	2.2	59.1
		FY 72	39.8	0	11.2	-	.5	2.1	0	0	1.2	4.6	0	0	0	0	0	.5	1.2	-	1.5	1.1	5.5	1.2	70.4
		FY 73	42.0	-	20.4	-	.1	5.0	-	-	1.2	6.8	-	-	-	-	-	1.0	1.2	-	.9	1.2	6.7	1.9	88.4
		FY 74	31.6	.4	10.0	-	*	4.3	-	-	1.6	4.5	-	-	-	-	.5	.5	.4	-	.1	1.1	7.1	1.4	63.5
		FY 75	30.7	-	8.0	-	*	5.5	-	-	.3	2.9	-	-	-	-	1.0	.4	.5	.2	.8	2.1	4.9	1.4	58.7
		FY 76	36.8	-	8.1	-	*	5.5	-	-	.1	4.3	-	-	-	-	.3	1.8	8.4	.6	1.3	3.1	5.6	1.6	77.5

* Postal Service was created August 12, 1970 by Public Law 91-375, and is no longer a Government agency.

1/ Totals do not include CIA figures. [VIII.A.; VIII.A.1 and 2; VIII.A.2.(a), (b), (c) and (d); VIII.A.3. - Totals]

TABLE II

COMPARISON AND ANALYSIS OF STATISTICS ON AGENCY PATENT PRACTICES
(All figures derived from Table I are totals for FY 70-76)

	HEW	DOJ	USDA	CIA	POST SVC	NSF	VA	FCC	DOC	EPA	ACDA	HUD	TREAS	TVA	DOT	DOI	ERDA	NRC	NASA	ARMY	NAVY	AIR FORCE	TOTAL
I. Allocation of Rights to Employee Invention Disclosures																							
A. Number of Invention Disclosures received (Table I, Row I.A.1.)	259	7	1020	58	150	0	109	21	406	33	0	2	2	338	153	561	129	3	2152	5081	6620	1268	10,372
B. Number of Rights Determinations made (Table I, Row II.A.1.)	232	7	1020	58	122	0	54	21	285	21	0	2	2	338	117	561	97	0	1085	2788	3848	862	11,360
C. Number of Invention Disclosures determined to be under Government ownership (Table I, Row II.A.1.(a).)	218	7	997	21	28	0	13	21	112	15	0	2	1	338	100	502	97	0	868	2427	3308	526	9,601
D. Number of Invention Disclosures under which Government has license (Table I, Row II.A.1.(b).)	5	0	5	19	9	0	30	0	27	1	0	0	1	0	9	22	0	0	82	229	493	261	1,193
II. Allocation of Rights to Contractor Invention Disclosures																							
A. Number of Invention Disclosures received (Table I, Row I.A.2.)	1638	9	303	53	166	684	18	0	154	172	4	1	0	0	396	518	8975	0	12457	4061	5837	7604	43,050
B. Number of Rights Determinations made (Table I, Rows III.A.1. + III.A.2.)	1416	6	303	55	148	132	17	1	121	160	0	0	0	0	361	483	8524	0	12710	4265	5876	7335	41,913
C. Number of Invention Disclosures to which Government acquired title (Table I, Row III.A.1.)	945	6	303	7	29	33	17	0	70	158	0	0	0	0	156	479	8448	0	12305	2396	4436	4403	34,191
III. Actions on Invention Disclosures																							
A. Total number of Invention Disclosures on which Government made rights determinations and could have filed applications (Table II, Rows I.C.+I.D.+II.C.)	1168	13	1305	47	66	33	60	21	209	174	0	2	2	338	265	1003	8545	0	13255	5052	8237	5190	44,985
1. Government has title (Table II, Rows I.C.+ II.C.)	1163	13	1300	28	57	33	30	21	182	173	0	2	1	338	256	981	8545	0	13173	4823	7744	4929	43,792
2. Government has license (Table II, Row I.D.)	5	0	5	19	9	0	30	0	27	1	0	0	1	0	9	22	0	0	82	229	493	261	1,193
B. Total number of Patent Applications filed by Government (Table I, Rows II.B.2. + III.B.3.(a).)	279	2	1078	13	5	1	12	12	42	58	0	2	1	97	81	411	2054	0	1680	3019	4891	1498	15,236
1. Government has title (Table I, Rows II.B.2.(a). + III.B.3.(a).)	279	2	1078	9	4	1	11	12	40	56	0	2	1	97	77	406	2054	0	1619	2786	4394	1223	14,131

	HEW	DOJ	USDA	CIA	POST SVC	NSF	VA	FCC	DOC	EPA	ACDA	HUD	TREAS	TVA	DOT	DOI	ERDA	NRC	NASA	ARMY	NAVY	AIR FORCE	TOTAL
III. Actions on Invention Disclosures (Continued)																							
B. Total number of Patent Applications filed by Government (Table I, Rows II.B.2. + III.B.3.(a).) (continued)																							
2. Government has license (Table I, Row II.B.2.(b).)	0	0	0	4	1	0	1	0	2	2	0	0	0	0	4	5	0	0	61	253	497	275	1,105
C. Percentage of Invention Disclosures received on which Patent Applications were filed (Table I, Rows II.B.2. + III.B.3./Row I.A.)	38%	19%	81%	42%	10%	21%	11%	61%	11%	29%	0%	67%	50%	34%	20%	39%	23%	0%	14%	48%	51%	42%	35%
1. Percentage of employee disclosures (Table I, Row II.B.2./Row I.A.1.)	44%	29%	100%	19%	2%	0	6%	60%	10%	80%	0%	100%	50%	29%	41%	50%	29%	0%	43%	49%	57%	60%	53%
2. Percentage of contractor invention disclosures (Table I, Row III.B.3./Row I.A.2.)	37%	11%	6%	68%	17%	21%	40%	0%	13%	20%	0%	0%	0%	0%	12%	27%	23%	0%	8%	46%	44%	39%	27%
D. Number of Invention Disclosures for which a Determination was made to publish rather than patent (Table I, Rows II.B.4. + III.B.5.)	890	9	118	1	67	153	3	0	80	114	0	0	0	164	14	17	483	0	0	13	92	0	2,218.
E. Number of Invention Disclosures on which no protection was sought (Table I, Rows II.B.5. + III.B.6. minus II.B.4. minus III.B.5.)	19	0	279	40	72	17	36	0	291	9	2	0	0	115	247	692	5637	0	13525	4406	5970	4789	36,146.

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United States Senate

COMMITTEE ON THE JUDICIARY
SUBCOMMITTEE ON THE CONSTITUTION
WASHINGTON, D.C. 20510

June 21, 1978

The Honorable Gaylord Nelson
United States Senate
Washington, D. C. 20510

Dear Gaylord:

I have shared your interest in the proposals for revising the federal government's patent policy and have been interested in the hearings that you are conducting before the Senate Select Committee on Small Business.

Of particular concern to me is the need to formulate a new approach to patent policy with respect to discoveries and inventions arising from government-financed research in our colleges and universities. In all of our patent policy we must put foremost the ultimate best interests of the American public in benefitting from new developments. Our policy must both provide incentives for such developments and assure their application and availability. Both considerations must be present in our patent policy concerning government-financed university research. Dr. F. N. Andrews, the very highly respected Vice President for Research and Dean of the Graduate School at Purdue University, has compiled the enclosed materials which I believe reflect the considered thinking of many of our colleges and universities regarding government patent policy. I share much of the concern expressed in these materials, and I would greatly appreciate it if you would make them a part of the hearing record in the hearings you are continuing today.

I look forward to learning of the conclusions of your hearings and working with you to formulate a policy that will protect the legitimate needs of the government and insure that new discoveries and inventions resulting from this research are fully utilized.

Sincerely,

Birch

Birch Bayh
United States Senator

Gaylord - Andrews is a very sharp guy! Birch

Encls.

Enclosure #1

Publicly supported academic institutions have long had an objective to encourage the development of new knowledge and new ways of putting knowledge to practical use by publication, oral presentations and patents. We firmly believe that such information must accrue to public benefit. Many of these benefits can only accrue through the patent system.

Most academic institutions receiving federal funds for support of research have a well-defined patent policy which (1) stimulates creativity, (2) encourages industry to invest risk capital to bring technology to the market place for public benefit, and (3) protects the public interest.

The vast majority of inventions at academic institutions are embryonic in nature. Without risk capital to bring these inventions to the market place, said inventions will never accrue benefits to the public. Without proprietary protection, no company can justify investing millions of dollars in an embryonic invention to get the technology to the market for public benefit. Neither the academic institution nor the federal government is likely to invest the resources necessary to develop the invention to a marketable product or process. A government policy of taking title to inventions and non-exclusively licensing to one and all has not and will not attract risk capital. Consequently, not the government nor the academic institutions, but the public, whose money was invested in the research, will be the major loser.

At the end of FY 1975, the United States Government already had title to over 27,000 patents with only about 1300 (approximately 5%) licensed. Therefore, approximately ninety-five percent (95%) were not contributing to the health, technology, and general welfare of the country. It is questionable if the best interest of the country is served by vesting title to inventions in the federal government.

A recent survey of forty-eight (48) academic institutions by the Society of University Patent Administrators showed that fifty percent (50%) of the patents titled to those institutions were licensed. This is a marked contrast to those titled to the United States Government. An invention made with public funds only benefits the public if used. No benefits accrue if the patent is only a statistic in the Government archives.

Any action or legislation affecting government patent policy should have only one group in mind - the public that has paid for the research. Any action taken should maximize the public benefit.

In my time remaining, I would like to share with you some examples of the results of a patent policy that we have here at Purdue University which (1) stimulates creativity, (2) encourages industry to invest risk capital to bring technology to the market place for public benefit and (3) protects the public interest.

CASE I

In 1969 a graduate student at Purdue, working with a heat transfer problem, conceived what he thought to be a new design for a compressor that would have cooling applications in the automotive industry. The new design was thought to be inefficient for automotive uses. Nevertheless, Purdue Research Foundation agreed to provide limited funds for further work at Purdue, and to patent this device if the inventor could prove that it worked.

To make a very long story short, the device did work, basic United States Patent Number 3,686,893 was obtained on the device by Purdue Research Foundation. We contacted over 75 companies, both large and small, and no one was interested in licensing the technology. Finally, an exclusive license was granted the inventor and he formed his own company, to see if he could attract the necessary venture capital to perfect the device and to bring it to market.

At the present time, this company is marketing prototypes of the device and it has raised over $10,000,000 in venture capital based on its package of technology which is protected by the basic patent mentioned plus patented improvements.

The only real protection this small company has from a raid and possible technology takeover by a large corporation is the company's patent position and exclusive license agreement with Purdue Research Foundation.

One of the concerns of the risk capital venturers in the company stock from the beginning has been the strength of its patent position and the licensing arrangement with Purdue Research Foundation.

CASE II

One of our staff members in Horticulture, Professor Philip Nelson, is a student of the tomato industry. Phil realized that one of the problems of the small producer was that product sales predictions had to be made in the fall within two or three weeks of the harvest for the entire year ahead. The reason for the decision is that no small producer could afford huge refrigerated product storage facilities for the tomato product in bulk, and hence the product was canned at harvest into catsup, paste, juice or what have you and so the entire pack was always committed for the coming season - the packer could only hope that he had enough catsup and not too much juice, and the small packer was almost never right - the big producers weren't either but they could better afford to be wrong.

So what did Phil Nelson do? He teamed up with another staff member, Professor Glenn Sullivan, an expert in agricultural economics, and they decided after market analysis, that partially processed tomato product could be stored economically in unrefrigerated tanks. This assumed that an efficient valving and sterilization system could be created that would permit unrefrigerated storage of tomato product, which would then make the economics acceptable to the smaller packers.

At this point, they approached Purdue Research Foundation and, again to make a very long story short, funding was obtained for a research grant for them from Bishopric, a medium-sized company in Cincinnati, Ohio, that had the know-how to fiberglass line tanks which was a necessary part of the system they knew they would need. Such support was possible because we were able to assure Bishopric an exclusive license to practice any technology developed.

Technology was perfected, patents were obtained and assigned to Purdue Research Foundation and as part of the agreement, the technology was licensed exclusively to Bishopric.

In 1976 the Institute of Food Technologists Achievement Award was made jointly to Bishopric Products Company and Purdue University by the food industry for their significant contribution. This was the first time this prestigious award had been made to a university.

CASE III

Not all of our staff and student inventors create new industries.

But many do make some significant scientific contributions that probably would not result in any useful product if we could not patent these inventions and license them to industry.

For example, Randy Hall worked for Purdue as an Assistant Professor in 1973 and in the course of his work he became dissatisfied with the results he obtained from the standard gas chromatographic electrolytic detector at that time.

Randy worked on an improvement, and he approached Purdue Research Foundation about a patent. The Foundation contacted SYSCOR, whose instruments Randy had been using, and they agreed to pay for patenting costs and to give some further research support if they could have an exclusive license on the device when, and if, it was perfected - at that point there was no assurance that it would be.

However, I am happy to report that the scientific community now has a new detector commercially available, it is called the

Hall Detector and it is protected by various U. S. Patents, issued in the name of Randy Hall, and assigned to Purdue Research Foundation.

CASE IV

Now we are confronted with new challenges, especially in the energy field.

One of our scientists, Dr. George Tsao has apparently come up with a highly efficient process for conversion of a wide range of plant materials into glucose, and then easily into alcohol.

One of the plant materials that can be so converted is corn, another is sugar cane, and even crop residues can be converted by this new process.

At this time I have directed the Foundation to give Dr. Tsao whatever assistance is necessary to bring this new process to commercial realization in the shortest possible time. The usual questions will be asked of the Foundation, what does the process do, will it work, is it economically feasible, and what's in it for us?

Gentlemen, the last question is the heart of the free enterprise system and the one to which every innovator must respond if he hopes to see his dream become reality.

I do not know at this time if the United States Government wants to fund the massive research and commercial effort that will be required to commercially utilize the Tsao process, I don't even know if it will ever prove economically feasible to do so. I don't know if it would be a good risk for the United States taxpayer to fund the entire research effort on the Tsao technology. But if they don't, and if we ever want to give this new process a chance to succeed in the foreseeable future, we must make the hard decisions in concert with one or more industrial sponsors who are willing to risk their funds, and perhaps even their corporate futures, on an enterprise of this magnitude. If we are successful with this process, we could have one of the many partial solutions to our energy crisis of the future. If not, then somebody is going

to lose a lot of what can only be called "venture capital". And remember, all the other inventions I have mentioned were just as speculative in the early stages of their development as the Tsao process is now.

Should the public bear all of these costs of technology implementation, or should we continue to let these costs be borne by free enterprise as has largely been done in the past, with the assistance of a viable U. S. Patent system?

Enclosure #2

GAYLORD NELSON, WIS., CHAIRMAN
THOMAS J. MCINTYRE, N.H. — LOWELL P. WEICKER, JR., CONN.
SAM NUNN, GA. — DEWEY F. BARTLETT, OKLA.
WILLIAM D. HATHAWAY, MAINE — BOB PACKWOOD, OREG.
FLOYD K. HASKELL, COLO.
JOHN C. CULVER, IOWA

WILLIAM B. CHERKASKY, EXECUTIVE DIRECTOR
HERBERT L. SPIRA, CHIEF COUNSEL
ROBERT J. DOTCHIN, MINORITY STAFF DIRECTOR

United States Senate
SELECT COMMITTEE ON SMALL BUSINESS
WASHINGTON, D.C. 20510

March 24, 1978

F. N. Andrews
Vice President for Research &
Dea of the Graduate School
Purdue University
Graduate House East, Ste 160
West Lafayette, Indiana 47907

Dear Mr. Andrews:

Thank you for expressing your interest in the study of Government patent policy undertaken by the Monopoly Subcommittee of the Senate Committee on Small Business.

To indicate the progress of the study, I am enclosing a recent press release announcing that the Office of Management and Budget has granted my request for a stay in the effective date of a procurement regulation which would permit wide use of an Institutional Patent Agreement giving universities and nonprofit organizations first option to own the rights to inventions resulting from Government-sponsored research.

The stay of 120 days will allow the subcommittee to hold hearings on the history, legal basis and implications of the Institutional Patent Agreement as an implement of Government patent policy.

Hearing dates have not yet been set. If you wish to be kept informed of the progress of the hearings, please let me know.

Also, I am interested in your mention of two new small businesses having been formed within the last two years from patents licensed by Purdue University. If you could supply information on your licensing process and the formation of these businesses, it would be most helpful.

Sincerely,

Gaylord Nelson

GAYLORD NELSON
Chairman

GN/gsy
Encl.

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PURDUE UNIVERSITY
OFFICE OF THE VICE PRESIDENT FOR RESEARCH
AND DEAN OF THE GRADUATE SCHOOL

April 20, 1978

Senator Gaylord Nelson
Chairman
Select Committee on Small Business
United States Senate
Washington, D. C. 20510

Dear Senator Nelson:

Thank you for the opportunity to present case histories of some small businesses that have been fostered by a transfer of Purdue technology.

First, it seems appropriate to state the general overview of Purdue University as it relates to technology in general.

Our institution, as well as many other publicly supported academic institutions, has long had the dual purpose of development of new knowledge and implementation of such knowledge in a practical way, which implementation may be accomplished by publications, seminars, extension services, and all of the many other ways in which the University disseminates knowledge, including the use of the patent system.

The mission of our University, as it pertains to research, is directed more to the acquisition of basic knowledge than it is to the developmental side of research.

However, sometimes in the discovery of basic knowledge and application of it to practical problems, embryonic patentable inventions appear. It is not the University mission to invest venture capital to bring these inventions to the marketplace, which in reality is the only form where such inventions will ever benefit the public. According to the Society of University Patent Administrators, at the end of fiscal year 1975, the United States government had title to over 27,000 patents, of which only about 1,300 were licensed.

On the other hand, a survey of 48 academic institutions by the same

Graduate House East
Suite 160
West Lafayette, Indiana 47907

Society showed that 50% of the patents titled to those institutions were licensed. The difference in licensing practice between the U. S. government and the typical academic institution may provide part of the explanation for the large difference.

The government typically offers licenses to all comers on a royalty free, non-exclusive basis. Universities such as Purdue, through its agent Purdue Research Foundation, typically offer exclusive licenses to those companies or individuals who are willing to invest sufficient venture capital to bring the patented idea into the marketplace for the benefit of the consumer.

Undeniably Purdue University has licensed much technology to some of the largest corporations in America, but, on the other hand, many small companies have also been licensed, many times companies formed by the inventors themselves for the sole purpose of bringing the embryonic technology developed and fostered here at the University to commercial practicality. Some such case histories follow:

SYNCHROM -- Dr. Fred Regnier, a Purdue staff member, is an expert in enzyme immobilization, and he has done outstanding basic work in this field. With the assistance of Purdue Research Foundation, he was granted United States Patent No. 3,983,299, entitled "Bonded Carbohydrate Stationary Phases for Chromatography," which was assigned to Purdue Research Foundation, and then Dr. Regnier and his colleague, Dr. Shung-ho Chang, also were granted United States Patent No. 4,029,583, entitled "Chromatographic Supports and Methods and Apparatus for Preparing the Same."

The Foundation, as the licensing agent for Purdue University, sought licensees for the new technology described in these patents. Eventually a lab assistant of Dr. Regnier, Karen Gooding, and her husband, David Gooding, requested a license under the above technology which they would use to start their own business. Karen and Dave formed their own new corporation which they named "SynChrom," accepted a license on the above technology for a certain field of use for a product they expected to sell, and have since built a small manufacturing facility (about 20 feet by 20 feet) and have started to sell a product which embodies the licensed technology.

We believe that, without patent protection, this fledgling business would have very little chance of success because of the threat of a large corporation taking over their product line once they have demonstrated commercial success. As long as these patents remain viable, the business may be expected to flourish.

ROVAC -- In 1969 a graduate student at Purdue, working with a heat transfer problem, conceived what he thought to be a new design for a compressor that would have cooling applications in the automotive industry. The new design was thought to be inefficient for automotive uses. Nevertheless, Purdue Research Foundation agreed to provide limited funds for further work at Purdue, and to patent this device if the inventor could prove that it worked.

To make a very long story short, the device did work, basic United States Patent No. 3,686,893 was obtained on the device by Purdue Research Foundation. We contacted over 75 companies, both large and small, and no one was interested in licensing the technology. Finally, an exclusive license was granted the inventor and he formed his own company, to see if he could attract the necessary venture capital to perfect the device and to bring it to market.

At the present time, this company is marketing prototypes of the device, and it has raised over $10,000,000 in venture capital based on its package of technology which is protected by the basic patent mentioned plus patented improvements.

The only real protection this small company has from a raid and possible technology takeover by a large corporation is the company's patent position and exclusive license agreement with Purdue Research Foundation.

One of the concerns of the risk capital venturers in the company stock from the beginning has been the strength of its patent position and the licensing arrangement with Purdue Research Foundation.

A copy of an article in the August, 1977, Forbes magazine about Dr. Edwards and ROVAC is attached to this letter, as well as a copy of the corporation's latest annual report.

AMOS -- One of our staff members, Dr. L. Steven Beckham, invented a new device called "Adjustable Unit for Spiral Separator Seed Processing Machine," upon which a patent is pending filed by Purdue Research Foundation. Dr. Beckham thought his device had great potential and, since the work required was more developmental than basic, the proper avenue for performance of his work seemed to be outside the University. Therefore, he incorporated Ag-Machinery & Safety, took in some other investors to raise the necessary venture capital, once he was sure that he would have a license from the Foundation to practice the invention, and proceeded to have the device manufactured, and he has been selling this grain separator.

We have been advised that the venture has been a commercial success, and Dr. Beckham has also licensed other University technology, entitled "Ducted Grain or Material Ladder for Top Unloading of Storages and Vessels," upon which the Foundation has filed for a patent, which grain ladder may be used both in conjunction with the spiral separator or as a separate item of commerce. We feel that Dr. Beckham's company's ability to obtain venture capital related, at least in part, to his company's position as the exclusive licensee of Purdue Research Foundation. Both the spiral separator and the grain ladder are fairly simple to construct and would not be difficult for a competitor to copy.

Again we feel that the patent position established by the Foundation, and the position of Dr. Beckham's company as an exclusive licensee for the technology, helps assure his continued commercial viability in a highly competitive market.

A sample of Dr. Beckham's advertising literature is attached simply to illustrate the type of product being sold under exclusive license from Purdue Research Foundation.

In conclusion, I hope that this response will illustrate the fact that embryonic technology developed at the University has been brought to commercial use by the technology transfer program administered by Purdue Research Foundation on behalf of Purdue University, and it should be pointed out that if a government-wide institutional patent agreement were adopted such as proposed in the Federal Register, the technology transfer mission of the University would be greatly simplified and more technology would probably be brought to the consuming public at an earlier time than might otherwise be the case when petitions for greater rights, requests for transfer of title, and the like must be dealt with agency by agency under existing patent statutes, regulations, and policies.

It should be pointed out that none of the three small businesses described above are licensed under technology that arose at the University out of research done with U. S. government funds, but the principle is the same, and the technology transfer program would be the same, but for the many disabling strings referred to above that must be dealt with on an agency by agency basis whenever federal funding is involved. It should also be noted that we do have other examples of government funded research that has produced patentable inventions that have been licensed both to large and small corporations, with notable exceptions being those agencies that have a strict title reservation policy, and inventions that come out of that type of research usually end up

being among those 27,000 U. S. government patents referred to above.

We hope this response will be beneficial for your Committee in its deliberations.

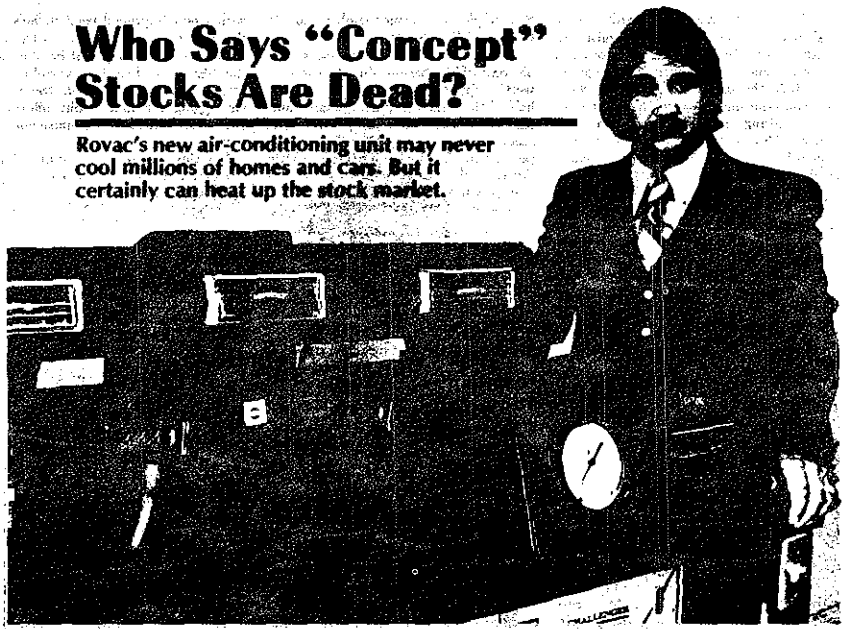
Respectfully yours,

F. N. Andrews
Vice President for Research, and
Dean of the Graduate School

FNA:JRN:d
Encs.

Who Says "Concept" Stocks Are Dead?

Rovac's new air-conditioning unit may never cool millions of homes and cars. But it certainly can heat up the stock market.



Déjà Vu: Tom Edwards and his new air conditioner add up to a hot concept stock—just like the good old go-go days.

By PHYLLIS BERMAN

IN the brand-new headquarters of Rovac Corp. in Rockledge, Fla., there is one empty office. One day—maybe—it will be occupied by the marketing director.

Why is it empty now? Because Rovac, one of the few hot-concept companies to come down the pike since the go-go days of the Sixties, hasn't a marketing director and has yet to market a single product—or even, it appears, to identify its market. Yet its stock, book value 56 cents, sells for about $20 and the company's total market value is nearly $100 million.

Rovac is having a lot of trouble even getting its product to work well, and it has already had troubles with the Securities & Exchange Commission over its money-raising tactics.

A concept it has, though. In brief, it is this: Rovac has the technology for an air conditioner that uses air and water rather than Freon as a refrigerant. Freon, of course, has been damned by the National Academy of Sciences as a threat to the ozone layer. That's the reason the Environmental Protection Agency has proposed banning some Freon aerosol propellants. Freon is also the cooling agent in most existing air conditioners. So, if Freon-propelled shaving cream is out today, the reasoning goes, Freon air conditioners could be gone tomorrow. And Rovac's air conditioner is the only feasible non-Freon one on the horizon.

There is just one hitch in this happy story: The Feds may have no intention of banning Freon as a refrigerant. Says an EPA chemist, "I don't think it will ever come to that." Rovac contends that even so, its system is more efficient and cheaper than conventional models. But without the aid of law, Rovac may never get off the ground.

It's a long way from a concept, no matter how brilliantly conceived and salable, to a product that can be mass-produced. So far, Rovac has produced only a dozen air-conditioning machines, all of them by hand.

So what makes it, as a company, worth $100 million? A *story*, that's what. Remember what a hard time Chester Carlson had until Haloid (now Xerox) bought him out? How much money has been lost chasing the will-o'-the-wisp of "another Xerox"?

The Rovac "circulator" is the brainchild of Thomas C. Edwards, 34, the company's president and founder, an amiable and enthusiastic mechanical engineer. Like all mechanical cooling systems, the machine works by compression. But Edwards uses air and water—rather than Freon in the pipes over which the air passes—as the actual cooling medium (using some of the same principles in air-cooled aircraft engines).

Edwards developed his device that is the heart of his technology for a high school science fair project 17 years ago. Ten years later he used it for his PhD thesis at Purdue University. Then he put it aside for three years to teach college, but couldn't get it out of his mind; so he obtained $15,000 in 1972 and set up Rovac (for Rotary Vane Air Cycle).

Touring the East Coast with a slide show, Edwards was able to raise another $500,000. It was hardly enough to perfect and manufacture his design, so in 1974 the brash little company went public—no mean feat in that bear market—raising another $2 million. The price: $5 a unit. "How did *they* do it?" asks Edwards' first underwriter, Stanley Morgenstern of New York City-based Bond, Richman & Co. "The question is how did *I* do it? It was a hard sell, believe me."

That was enough money for Edwards to deliver prototypes to General Motors, Ford, Fiat, Chrysler, the Army and the Air Force. They made an unbearable noise and were too heavy. To debug them, Edwards needed more money.

Enter Allen & Co., the wheeler-dealer investment bankers famed as the sponsor of another hot-technology company, Syntex. The pioneer in hormones for use in contraceptives, Syntex was a spectacular growth stock of the Sixties. Allen offered a private placement in February for Rovac that will bring it up to $3.5 million, enough to produce 1,000 units a month.

Bernard Stein, the Allen vice president who handled the deal, says: "What we were looking for was another Syntex. We told our investors, 'It's a great crap shoot. You could lose everything...[but] theoretically you could invest $4.50 and get back $1,000.'" Among the people who took a chance at $4.50 for a go at $1,000 were people like movie producer Ray Stark and former ambassador to Cuba Earl E.T. Smith.

Meanwhile, Tom Edwards was selling off some of his shares—almost $1 million worth. He still has slightly more than half of the nearly 5 million shares outstanding. That's $1 million in his bank account and another $50 million on paper. Exults Edwards: "I'm very certain this is another Xerox or Polaroid."

Hardly less enthusiastic is E.E. (Buzz) Geduld of Jersey City's Herzog, Heine & Co., which makes a market in Rovac stock. "It's a concept," he says, "and

"... 'Concepts move stocks. It's not technical. [Anyone] can understand it' ..."

concepts move stocks. It's not highly technical. You can understand it. I can understand it. That's why the little guy buys it."

What is the "little guy" buying?

A stock with a book value of just 56 cents a share.

No sales. No earnings. No products.

No clear marketing plan for applications. (Inventor Edwards has tackled the original-auto-equipment market, the truck-cab food refrigeration market and the housing market. Now he's tackling the auto market again—only this time with a new improved version, he's after the consumers, not the pros in Detroit.)

Add to this a couple of brushes with the SEC—the first for overselling the original private placement, the second for rigging the first public offering in 1974, both settled by a promise not to do it again.

In a single hour last December Rovac dropped from $30.50 a share to $13.50 for no apparent reason. The stock recovered the same day to $20, about where it stands today.

Meanwhile, Rovac is about to go back to the well for more money. Edwards says he favors a public offering. Allen & Co. says it would prefer a loan, to avoid further diluting the equity.

Rovac could be another Xerox. On the other hand, whenever we hear about stocks selling at fancy prices when the company doesn't even have a marketable product yet, we are reminded of the one about the farmer who bought a barrel of oysters for an irresistible $2. "What's that you got?" asked a friend. "Oysters, got 'em for $2 the barrel," said the farmer. "That's a fine price. I'll give you $4 for 'em," said the friend. And so it went, until the oysters finally changed hands for $40. When the purchaser opened the barrel, he found the oysters were inedible. Mad as hell, he pursued the chain right back to the original seller, who turned out to be a canny old sailor in a seaport.

"Them weren't *eating* oysters," explained the sailor. "Them are *selling* oysters." ■

Enclosure #3

WISCONSIN ALUMNI RESEARCH FOUNDATION

POST OFFICE BOX 7305 • MADISON, WIS. 53707 • TELEPHONE (608) 263-2600

March 1, 1978 263-2831

Mr. Stuart E. Eizenstat
Assistant to the President
for Domestic Affairs & Policy
The White House
Washington, D. C. 20500

Dear Mr. Eizenstat:

Having actively participated in the meeting of January 17, 1978 between, on the one hand, the President of the Universities of Minnesota, Purdue, Rochester and Virginia representing the Association of American Universities, representatives for the American Council for Education, and the Committee on Governmental Relations, National Association of College and University Business Officers and, on the other hand, Mr. Malson of the Domestic Policy Staff and Mr. Hartke of OSTP, I was cognizant of the concerns of the Administration in espousing a particular Federal patent policy.

As the newly elected President of the Society of University Patent Administrators (SUPA) I conveyed those concerns to the members of our Society and, on behalf of the Society, desire at this time to endorse the position of the University sector which was set forth in the recent communication to you from the American Council for Education and sister organizations.

Since that position paper did not analyze in detail some of the fundamental reasons for reaching the conclusions expressed, and since SUPA believes that such an analysis is an important element for use and for the record in the current deliberations on Federal patent policy and may, as well, be enlightening to those who are less familiar with intellectual property and the transfer of technology, you will find in the enclosed paper a discussion of the analytical basis for the position of the University sector and its support of the Thornton Bill, H. R. 8596.

Although all of the conclusions that have been reached in the attached paper are not documented by statistical evidence, or with all the data that might be desirable, we are also fully aware that the proponents of the title-in-the-government position are also not bolstered by any such data. Where, in the analysis, reference has been made to certain studies which have been conducted we firmly believe that those studies uniformly support the H.R. 8596 approach. In addition, the analysis reflects the experience of persons who have been extensively involved in the technology transfer process and comports with my personal views which have been generated over a period in excess of 17 years as Patent Counsel for the Wisconsin Alumni Research Foundation, the patent administration and technology transfer agent for the University of Wisconsin. Above all, my personal experience has indicated that the title-in-the-government approach is a tremendous disincentive to the successful transfer of technology to the public for its benefit and, in fact, functions to stifle the development of new technology.

In addition to the attached paper we call your attention to a recent article in the February 20, 1978 edition of Business Week by Rimmer de Vries which points out that the fundamental problem with the depreciated dollar is the need for a national export policy and specifically states "We have to develop new technology and go out and sell the stuff." A recent article in the American Bar Association Journal by Sheila McLean is also of interest since it focuses upon the various arrangements which, through the patent system, can serve the public interest. Copies of each of these are also attached.

We strongly urge you to give your close and careful attention to the enclosed analysis, which we believe is objectively presented, and particular regard to our reasoned concern that there is a strong probability that maintenance of the "status quo" is likely to ultimately result in Government patent policy moving further in the direction of title-in-the-government. It is the studied conclusion and strong belief of SUPA and its individual members that if such policy becomes prevalent the industrial sector's effectiveness in sensing the needs of our society and introducing new technology to meet such needs would be severely and adversely impacted and start our country on the road to mediocrity.

Very truly yours,

Howard W. Bremer
President, Society of University
Patent Administrators

HWB:rw



Four by Five, Inc.

Recent negotiations between nonprofit, "public sector" institutions and commercial, "private sector" firms concerning patent arrangements exemplify how the patent system can serve the public interest. Experiences of the Population Council and the Ford Foundation in negotiating patent rights for contraceptive developments under grants they made are interesting precedents for further collaboration.

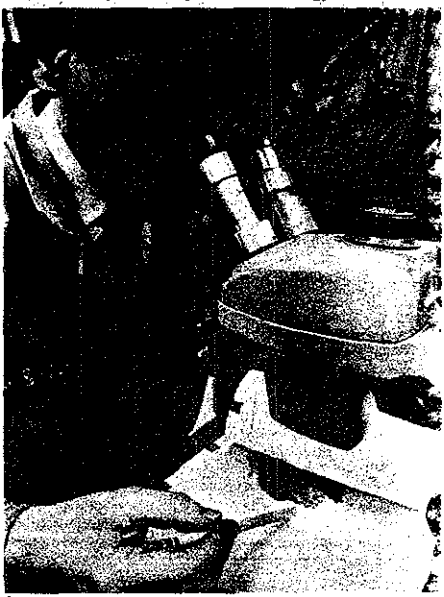
By Sheila Avrin McLean

IN RECENT years the patent system in the United States has been the subject of frequent, critical examination. T.L. Bowes's December, 1975, *American Bar Association Journal* article, "Patents and the Public Interest" (61 A.B.A.J. 1521), usefully summarizes this controversy surrounding our patent system and concludes that the system has served the public interest by helping "this nation become a pre-eminent developer of technology." Some recent negotiations between nonprofit, "public sector" institutions and commercial, "private sector" firms concerning patent arrangements provide an instructive new model of how the patent system can serve the public interest by catalyzing the further development of nonprofit-based research and technology.

It is important to recognize that collaboration between the private and public sectors is increasingly essential to the development of products that are ultimately useful to the public. Carl Djerassi, a founder of Syntex and now a Stanford professor, forcefully pointed out seven years ago in *Science* that while many basic discoveries and important steps leading to technological developments are made by researchers based in the nonprofit or public sector, pharmaceutical firms—private sector firms—"play an indispensible role in the development of any drug." His observations have been reinforced by a 1974 report prepared for the Federal Council for Science and Technology, which reflects the obvious point that universities and nonprofit hospitals do not engage in direct manufacture. Thus, industry must bring university inventions to the market place.

Since collaboration is so essential, consideration of new arrangements for bringing the private and public sectors together for their mutual benefit may be helpful to lawyers advising either sector. Some experiences of the Population Council and the Ford Foundation in negotiating patent rights for contraceptive developments under grants they had made serve as interesting precedents for further collaboration in that and other areas.

Inventions in the field of contraceptive research illustrate the way in which patented technology is often



Candida Photo

AUTHOR'S NOTE: This article is based on a report prepared for the Reproductive Biology and Contraceptive Development project under the direction of Roy O. Greep, Laboratory of Human Reproduction and Reproductive Biology, Harvard School of Medicine, which was sponsored by the Ford Foundation. The views expressed in this article are those of the author and do not represent an official policy of the Ford Foundation.

developed. Individual university-based researchers may conceive of new ideas for fertility-regulating drugs or devices or combinations thereof. Through their universities, they receive initial "seed" funding from governmental or philanthropic agencies. But to some extent the invention and to a greater extent the necessary initial research are done at organized laboratories by teams of professionals associated with medical schools, research hospitals, or nonprofit research institutions. The inventor-professor usually is required by employment arrangements to convey patent rights to the employer-university, at least in part. The work in the nonprofit sector typically does not result in a product that can be distributed to the public. Additional research and much of the necessary development is done by specially trained teams at well-equipped laboratories, frequently those maintained by profit-oriented pharmaceutical firms. This is particularly the case when development of the invention requires the Food and Drug Administration's approval, necessitating extensive and costly clinical testing.

In these cases there is a potential for conflict between the public and private sectors in the differing philosophies underlying the funding of research by public sector organizations, the availability of patent protection for new inventions, and the further funding provided by the pharmaceutical firm. The public sector donor proceeds on the premise that its reward for helping to finance an invention will be public access to the results of the supported research at minimum expense. The patent laws, on the other hand, are based on the philosophy of encouraging the development of new ideas by giving the inventor the right under a patent for a limited period to profit from the invention—either by use of the patent or through royalty arrangements with others. Because an inventor may choose to obtain patent protection in more than one country, it is possible to obtain virtually worldwide patent rights for an invention, albeit for limited periods of time.

Marketing Creates Interest in Royalties

Simply stated, if a patented invention is marketed, several parties involved in its development—the university or hospital where the original research was conducted, the investigator (inventor) in whose name the patent was prosecuted, and the pharmaceutical firm where further research and development are carried on—become interested in royalties under the patent and in the exclusive right to control the manufacture and sale of the product.

The public sector donor (for example, the Population Council, the United States Agency for International Development, or the Ford Foundation) usually retains some form of license—usually a royalty-free, nonexclusive license to make, use, and sell the invention—but it is usually impractical for these funding agencies to consider exercising this license. Not being in the business of manufacturing and not typically in the business of distributing drugs or devices, they must develop alternatives to safeguard their original purpose of public sector access, at low cost, to the patented invention they helped to finance.

Experience has shown that in exchange for providing venture capital and other support for further necessary research and development, pharmaceutical firms are likely to require an exclusive license under the patent—the exclusive right to make, use, and sell the new invention. Sometimes working together, and sometimes separately, the Population Council and the Ford Foundation have developed with pharmaceutical firms an interesting and innovative approach to this aspect of patents under research grants. At the stage when a grant for research is made, the grantee institution (usually a university) and the principal investigator enter into a patent agreement with the foundation or council under which the institution or investigator is responsible for obtaining patents on inventions and may grant only nonexclusive licenses of any patentable invention resulting from the sponsored research. The agreement requires the foundation's or council's consent before the institution or investigator may permit an exclusive license of the patent. Drug companies interested in further development and marketing of the invention usually do request the foundation's or council's consent to exclusive licenses before they will make the substantial investment to develop, test, and market the drug or device.

Royalties Can Be Fed Back into Research

The foundation and council have made an initial decision not to demand royalties in return for their consent to an exclusive license, even though it might be simpler to negotiate standard royalty arrangements with pharmaceutical firms. The donor agencies could then feed these royalties back into further research. The Population Council, for one, has considered and rejected this approach on the ground that its objectivity in advising on the use of contraceptives might be impugned if it were viewed as having a financial stake in a particular product.

Instead they take steps in their agreements with the drug companies to assure that the public sector will be able to purchase the new contraceptive devices at a price lower than that which the drug company would charge the private sector (for example, commercial suppliers to private physicians). The key issues forming the basis of these agreements are (a) definition of the "public sector," (b) pricing formulas, and (c) guaranty of supply to the public sector. "Public sector" is defined, for example, as national and voluntary family planning programs. A pricing formula for the public sector, for example, may take into account the cost of the product to the pharmaceutical firm but not give any profit to the firm from public sector purchasers. The guaranty-of-supply provisions attempt to assure

that public sector agencies that order the product at the special public sector price will have it supplied to them.

The details vary with circumstances, such as the sums of money the various parties have contributed, or will have to contribute, to research and development. Negotiating these arrangements can be extremely complex and time consuming, and the legal fees can be substantial. There are at least four parties—the donor agency, the hospital or university in which the inventor works, the inventor, and the drug company. The interests of the various parties are not, of course, identical. The hospital and inventor usually work out royalty arrangements at the same time the donor agencies negotiate the special public sector pricing formula. But if the parties approach the negotiations in good faith, and with a sense of humor, their agreement can be a workable model for collaboration between philanthropy and industry.



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Justice Department Issues Position

The Justice Department has recently announced its position on a patent licensing arrangement between a nonprofit, public sector organization and several private sector pharmaceutical firms. The public sector concern is the Salk Institute for Biological Studies, a publicly supported, nonprofit organization in California that performs biological research. Salk outlined to the Justice Department a proposed licensing arrangement of patents for a drug (Somastostatin) intended to treat diabetes. Salk would grant world-wide, nonexclusive patent licenses to five pharmaceutical firms and would also agree not to grant additional licenses for a period of three years after the first sale of the drug. At the end of three years Salk would again be free to grant additional nonexclusive licenses. In return, the pharmaceutical firm licensees would pay the institute royalties and would commit themselves to clinical testing necessary to obtaining the Food and Drug Administration's approval to distribute the drug.

In February, 1975, the Antitrust Division of the Justice Deparument issued an unfavorable business review letter with respect to these proposed arrangements. But in December, 1975, the division reversed its earlier position. In the December letter, it found that temporary limitation of the number of licensees appeared reasonable because Salk had been unable to obtain license agreements with qualified and interested firms without such a limitation. In addition, the division found that the terms in Salk's licensing agreement were designed to minimize the anticompetitive consequences of that limitation.

This discussion of patents has focused on public access to patented inventions initially funded by the public sector. It is important to remember that the life of patents is limited in the United States for seventeen years. Indeed, some of the patents on contraceptives invented in the late 1950s and early 1960s have expired or are about to expire. For example, Syntex's patent on Norethindrone and Searle's patent on Norethynodrel expired in 1972. Once the patent expires, the invention, including all the data related to it contained in the patent application, is dedicatad to the public.

In certain cases the patent holder and those with licenses to make the invention will have a large head start in developing technical know-how and market acceptance for the product, and their market position may not be affected adversely by the expiration of the patent. This may be true for patented devices such as intrauterine devices carrying releasing compounds. On the other hand, replication of available contraceptive compounds used for the female contraceptive pill is relatively simple and inexpensive. The end of patent protection on these products will almost certainly invite competition and reduce the monopoly profits assured by the patent.

Life of a Patent May Be Extended

Because the Food and Drug Administration and other regulatory requirements demand a lengthy period of testing before a patented product can be approved for general use, Carl Djerassi has suggested that the life of a patent be extended for a specified number of years after a contraceptive product has been approved by the regulatory agency. Congressional consideration might be given to granting these extensions, by amending the patent law, in return for a quid pro quo benefiting the public, as, for example, a stipulation that the product be made available at a special low price (at "cost") to nonprofit or governmental programs distributing the product (nonprofit government sponsored family planning programs).

As indicated by these examples, imaginative use of patent arrangements can facilitate the development and marketing of public sector inventions by collaboration between the private and public sectors despite the differing interests of the parties involved. The suggested model may encourage other public funding agencies, universities, nonprofit research institutes, and private, profit-oriented companies—and their legal counsel—to look at their negotiations over patent rights as a helpful tool for mutually beneficial collaboration. ▲

INTERNATIONAL MONEY MANAGEMENT



Interview with
Rimmer de Vries

THE NEED FOR A POLICY TO BUILD EXPORTS

From his post as vice-president and chief international economist for Morgan Guaranty Trust Co. and as editor of its monthly newsletter, *World Financial Markets*, Rimmer de Vries was one of the first observers to connect the decline of the U.S. dollar to huge and continuing oil imports. While the Administration was ignoring the problem of the dollar for months, de Vries was calling for major changes in our energy policies. Now he believes that the U.S. must go beyond energy to build a national export policy in order to revive our international competitiveness. Until that happens, he warns, dollar crises will recur with regularity.

As we enter 1978, what are the major economic and financial problems confronting the world and how well are we solving them?

We have four big problems: the international payments surplus of OPEC, the payments deficits of the less developed countries (LDCs), the U.S. deficit, and Japan's surplus. On OPEC, we are optimistic. The oil glut has brought about stability in the oil price. A few months ago we were forecasting an OPEC surplus of $28 billion in 1978. Now we see a surplus of $25 billion. In 1977 it was $66 billion, and last year it was $35 billion.

On the LDCs, it is really amazing what the 10 or 15 top LDCs have been doing in their growth, fighting inflation and developing their exports. The fear of a worldwide breakdown on the debt has certainly diminished.

That leaves really the problems of the U.S. and Japan. It's somewhat paradoxical that it seems harder to make headway on these problems than with OPEC and the LDCs.

How well has the U.S. stabilized the dollar through its recent intervention?

The markets are very fragile. The timing of the U.S. intervention was probably pretty good. We had a good depreciation of the dollar last fall. The steps by the U.S. came at a time when the market needed direction.

How do the foreign exchange markets see the dollar today after the U.S. intervention?

The market is still bearish on the dollar because of the basics—mainly because of U.S. inflation, energy, and the trade deficit. There are no pluses for the dollar yet. Confidence remains very fragile.

What else should the U.S. be doing to help stabilize the dollar?

The best we can do is work on confidence. It gets back to the basic causes of the U.S. trade deficit. Even if we get an energy policy, it won't erase the balance-of-payments deficit. The best thing this country can do is get a positive national policy to increase exports. We have to fight inflation as well. We need to have a competitive product. We do not take inflation seriously enough. We have to check the projected 7% rate of inflation in wholesale prices of manufacturers—in the areas where it really counts for exports. In contrast, for Japan and Germany, we are projecting only a 1% to 2½% inflation in wholesale prices.

How much further can the dollar fall before there are major repercussions overseas?

We are probably beginning to reach a limit on how far you can devalue the dollar. No matter what the free markets may say, the Germans may begin to put controls on their trade and economy if the mark goes up to 50%. The other European countries may develop duties to offset the changes in the exchange rate.

> We need a national export policy to refurbish and strengthen our industry. We have to . . . go out and sell the stuff.

Are there any dangers in relying solely on the foreign exchange system to remedy all of the world's trade problems?

If you really want to do it all through the exchange system, you have to have a much bigger devaluation of the dollar than we have seen. It is one thing to overdevalue the Icelandic krona, but it's another thing to overdevalue the U.S. dollar. It is the basic currency of the world, with hundreds of billions of dollars of assets denominated in it. You are dealing with confidence here. You can upset the whole framework of international finance if you really overplay the dollar.

What effect would the oil producers' denomination their oil sales in Special Drawing Rights (SDRs) instead of dollars have?

There are two aspects to this stock question. One is simply