Model Cooperative Research and Development Agreement

This Cooperative Research and Development Agreement ("Agreement"), dated as of _____, is entered into by and between the ABX Company, Inc., a New York Corporation ("ABX"). and the XYZ Center, a laboratory of the X Agency ("XYZ").

A. Whereas, the Congress in enacting the Federal Technology Transfer Act of 1986, Public Law No. 99-502, October 20, 1986, has found that Federal laboratories' developments should be made accessible to private industry, state and local Governments, and has declared that one of the purposes of such Act is to improve the economic, environmental and social well being of the United States by stimulating the utilization of Federally-funded technology developments by such parties;

B. Whereas, the Federal Technology Transfer Act of 1986 among other technology transfer improvements has provided each Federal agency with the authority to permit the Director of Government-operated Federal laboratories to enter into cooperative research and development agreements (CRDA) with Federal or non-Federal entities including private firms and organizations for the purpose of providing to, or obtaining from, collaborating parties, personnel, services, property, facilities, equipment or other resources toward the conduct of specified research and development efforts which may include the disposition of patent rights in the inventions which may result from such collaboration;

Now, therefore, the parties hereto agree as follows:

Article 1. Definitions

As used in this Agreement, the following terms shall have the following meanings and such meanings should be equally applicable to both the singular and plural forms of the terms defined:

1.1 "Agreement" means this cooperative research and development agreement.

1.2 "Invention" means any invention or discovery which is or may be patentable under Title 35 of the United States Code.

1.3 "Made" in relation to any invention means the conception or first actual reduction to practice of such invention.

1.4 "Proprietary Information" means information which embodies trade secrets developed at private expense or which is confidential business or financial information provided that such information:

(i) Are not generally known or available from other sources without obligations concerning their confidentiality;

(ii) Have not been made available by the owners to others without obligation concerning its confidentiality; and

(iii) Are not already available to the Government without obligation concerning its confidentiality.

Dr. _____ who as principal investigator has the responsibility for the scientific and technical conduct of this project.

2.4 Scope Change. If at any time Dr. _____ determines that the research data dictates a substantial change in the direction of the work, XYZ shall promptly notify AEX and the parties shall make a good faith effort to agree on any necessary change to the SOW.

2.5 "An alternative" {To the extent that the conduct of sponsored research may require a joint technical effort of AEX and XYZ, the parties agree to establish a joint research and development team (the "Team") which shall conduct sponsored research in accordance with the SOW. Each party shall make available to the Team such unique resources, facilities, equipment, skills, know-how and information as it considers necessary and appropriate. Both parties pledge to support the Team in a mutually cooperative manner, on a best efforts basis, consistent with their respective policies, missions and requirements. The Team shall prepare and submit written reports to both parties, on a periodic basis, setting forth the technical progress made, identifying such problems as may have been encountered, and establishing goals and objectives requiring further effort. The Team's progress shall be prepared as an unwritten amendment to this Agreement and subsequently subject to the joint supervision of the parties, each of whom shall make their own independent judgment regarding the Team's progress and

${.2%} to be deposited 30 days prior to the beginning of the second budget period;

${.2X} to be deposited 30 days prior to the beginning of the third budget period; and,

${.2X} to be deposited 30 days prior to the beginning of the fourth budget period.

XYZ shall not be obligated to perform any of the research specified herein or to take any other action required by this Agreement if the agreed to funds are not deposited as required by this Article.

4.3 Insufficient and Excess Funds. XYZ shall not be required to continue its research and development activities under this Agreement if the funds provided by ABX are insufficient to cover XYZ's full cost for such continued activities. Funds not expended by XYZ shall be returned to AEX upon XYZ's submission of a final fiscal report to ABX.

4.4 Accounting Records. XYZ shall maintain separate and distinct current accounts, records, and other evidence supporting all its expenditures under this Agreement. XYZ shall provide ABX a semi-annual report accounting for the use of AEX's funds and a final fiscal report within _____ months after completing the SOW or ending its research activities under this Agreement and the completion of the research work. The accounts and records of XYZ shall be available for reasonable inspection and copying by ABX and its authorized representative.

such other rights as we specified in Article _____. Such nonexclusive license shall be evidenced by a confirmatory license agreement prepared by ABX in a form satisfactory to XYZ.

6.3 XYXZ Employee Invention. XYZ, on behalf of the U.S. Government shall have the initial option to retain title to each Subject Invention Made by its employees and in each Subject Invention Made jointly by an ABX and XYZ employee. In the event that the XYZ informs ABX that it elects to retain title to such joint Subject Invention, ABX agrees to assign whatever right, title and interest ABX has in and to such joint Subject Invention.

6.4 Filing of Patent Applications. The party having the right to retain title and file patent applications on a specific Subject Invention may elect not to file patent applications thereon provided it so advises the other party within 90 days from the date it reports the Subject Invention to the other party. Thereafter, the other party may elect to file patent applications on such Subject Invention and the party initially reporting such Subject Invention agrees to assign its right title and interest in such Subject Invention to the other party and cooperate with such party in the preparation and filing of patent applications thereon. The assignment of the entire right title and interest to the other party pursuant to this paragraph shall be subject to the retention by the party assigning title of a nonexclusive, irrevocable, paid-up license to practice, or have practiced, the Subject Invention throughout the world.

____ months from the date the U.S. Patent Application is so filed. {The reasonable royalty rate for each exclusive license shall be based upon a portion of the selling price of the {item} attributable to the presence of claimed subject matter where such {item} is a machine, article of manufacture, product made by a process, or composition of matter as defined by the claims of the patents. Where the claimed subject matter relates to a process or method to be practiced under the claims of the patent, the royalty will be based upon the net savings attributable to the implementation of said process or method.}

6.6.3 Extension of Exclusive Licenses. The term for each exclusive license acquired by ABX pursuant to 6.6.2 above shall extend from the issuance date of the U.S. patent on the Subject Invention. Requests by ABX for extensions of an exclusive license may be filed at any time prior to the expiration of the exclusive license and must be supported by a factual showing that such a renewal is necessary to permit ABX to recapture its investment and make a reasonable profit. The decision to extend an exclusive license shall be within the sole discretion of XYZ.

Article 7. Data and Publication

7.1 Rights. Subject Data which is required to be delivered to ABX under this Agreement shall be the property of ABX. ABX shall, upon request, have the right to review all Subject Data first produced under this Agreement which has not been delivered to ABX, except to the extent that such Subject Data is subject to a claim of confidence or privilege by a third party.

Article 8. Representations and Warranties

8.1 Representations and Warranties of XYZ. XYZ hereby represents and warrants to AEX as follows:

8.1.1 Organization. XYZ is a Federal laboratory of the X Agency and is wholly owned {or leased} by the U.S. Government of the United States whose substantial purpose is the performance of research, development, or engineering by employees of said Government;

8.1.2 Mission. The performance of the activities specified by this Agreement are consistent with the mission of XYZ.

8.1.3 Authority. 8.2.1 (1) All prior reviews and approvals required by regulations or law have been obtained by XYZ prior to the execution of this Agreement. The XYZ official executing this Agreement has the requisite authority to do so.

8.1.4 Statutory Compliance. XYZ's Laboratory Director, prior to entering into this Agreement, has given special consideration to the entering into CRDAs with small business firms and consortia involving small business firms.

8.2 Representations and Warranties of ABX. ABX hereby represents and warrants to XYZ as follows:

8.2.1 Corporate Organization. AEX, as of the date hereof, is a corporation duly organized, validly existing and in good standing under the laws of the State of {New York}, and is a wholly owned subsidiary of Y, Inc., a Delaware corporation.

9.2.1 Written Notice. Either party may unilaterally terminate this entire Agreement at any time by giving the other party written notice, not less than 30 days prior to the desired termination date. If ABX unilaterally terminates this Agreement, any exclusive license entered into by the parties shall be simultaneously terminated unless the parties agree to retain such exclusive license.

9.2.2 New Commitments. XYZ shall make no new commitments after receipt of a written termination notice from AEX and shall, to the extent feasible, cancel all outstanding commitments and contracts by the termination date.

9.3 Termination Costs. Within 90 days following termination of this Agreement, XYZ shall submit a statement of all costs incurred prior to the date of termination and for all termination costs. Any unspent funds provided to XYZ by AEX shall be used to fund termination costs. In the event such funds are insufficient to cover all the termination costs, AEX agrees to promptly meet with XYZ to reach a settlement agreement regarding the payment of the remaining termination costs.

Article 10. Disputes

10.1 Settlement. Any dispute arising under this Agreement which is not disposed of by agreement of the { } shall be submitted jointly to the signatories of this Agreement. A joint decision of the signatories or their designees shall be the disposition of such dispute.

payment of all claims for loss of property, personal injury or death, or otherwise arising out of any act or omission of its employees in connection with the performance of work under this Agreement.

11.3 No Warranty. Except as specifically stated in Article 8, XYZ makes no express or implied warranty as to any matter whatsoever, including the conditions of the research or any invention or product, whether tangible or intangible, made, or developed under this Agreement, or the ownership, merchantability, or fitness for a particular purpose of the research or any invention or product.

11.4 Indemnification. AEX holds the U.S. Government harmless and indemnifies the Government for all liabilities, demands, damages, expenses and losses arising out of the use by AEX, or any party acting on its behalf or under its authorization, of XYZ's research and technical developments or out of any use, sale or other disposition by AEX, or others acting on its behalf or with its authorization, of products made by the use of XYZ's technical developments. This provision shall survive termination of this Agreement.

11.5 Force Majeure. Neither party shall be liable for any unforeseeable event beyond its reasonable control not caused by the fault or negligence of such party, which causes such party to be unable to perform its obligations under this Agreement (and which it has been unable to overcome by the exercise of due diligence), including, but not limited to, flood, drought,

12.4 Headings. Titles and headings of the Sections and Subsections of this Agreement are for the convenience of references only and do not form a part of this Agreement and shall in no way affect the interpretation thereof.

12.5 Waivers. None of the provisions of this Agreement shall be considered waived by any party hereto unless such waiver is given in writing to all other parties. The failure of any party to insist upon strict performance of any of the terms and conditions hereof, or failure or delay to exercise any rights provided herein or by law, shall not be deemed a waiver of any rights of any party hereto.

12.6 Severability. The illegality or invalidity of any provisions of this Agreement shall not impair, affect or invalidate the other provisions of this Agreement.

12.7 Amendments. If either party desires a modification in this Agreement, the parties shall, upon reasonable notice of the proposed modification by the party desiring the change, confer in good faith to determine the desirability of such modification. Such modification shall not be effective until a written amendment is signed by all the parties hereto by their representatives duly authorized to execute such amendment.

12.8 Assignment. Neither this Agreement nor any rights or obligations of any party hereunder shall be assigned or otherwise transferred by either party without the prior written consent of the other party except that ABX may assign this Agreement to the

12.11 Use of Name or Endorsements. (a) AEX shall not use the name of the XYZ or X Agency on any product or service which is directly or indirectly related to either this Agreement or any patent license or assignment agreement which implements this Agreement without the prior approval of XYZ. (b) By entering into this Agreement XYZ does not directly or indirectly endorse any product or service provided, or to be provided, by AEX, its successors, assignees, or licensees. AEX shall not in any way imply that this Agreement is an endorsement of any such product or service.

Article 13. Duration of Agreement and Effective Date

13.1 It is mutually recognized that the development program, cannot be rigidly defined in advance, and that the contemplated time periods for completionof each phase are good faith guidelines subject to adjustment by mutual agreement, to fit circumstances as the development program proceeds. In no case will this Agreement extend beyond, unless it is revised in accordance with Article 12 of this Agreement.

The provisions of Article 6, _____ shall survive the termination of this Agreement.

13.2 Effective Date.

This Agreement shall enter into force as of the date of the last signature of the parties.

Problems of Having the Government as a Client

By Ruth Marcus
Washington Post Staff Writer

Although corporations have beefed up their in-house legal staffs in recent years, they routinely call on outside law firms to handle much of their legal work. The federal government, with more than 20,000 in-house attorneys, also spends millions of dollars annually to hire private lawyers.

No one in the government knows the size of the annual bills for outside legal work, but the National Law Journal reported in 1985 that 18 federal agencies and departments had paid private lawyers a total of about $50 million during the two previous years.

Likewise, although some agencies have guidelines for retaining private lawyers—particularly the bank regulatory agencies that do most of the outside hiring—many others have no rules on such issues as whether the hiring should be done through competitive bidding and how to deal with conflicts of interest.

The Administrative Conference of the United States, an independent agency that tries to improve governmental procedures, recently completed a study of the matter. It found, according to David Pritzker, a lawyer on the staff of the conference chairman, "Nobody seems to have much of an idea of who's doing it or when or why . . . .

"What we found that concerned us is that there seemed to be no overall scheme for this," he added. For many agencies, he said, "They needed someone, well, they went out and got someone. Sometimes there were competitive procedures, sometimes there were not. Sometimes they just picked somebody who they knew who they thought would do the job. Sometimes there was a great deal of concern for avoiding conflicts of interest; sometimes they didn't think about it."

Last week, the conference released draft guidelines on the subject of outside legal help. The nonbinding recommendations include having agencies:

- Generally use their own lawyers to do their legal work and expand in-house staff if there is a continuing need for outside help.
- Employ "appropriate competitive procedures that reduce or eliminate the appearance of favoritism and help assure that the requisite quality of service is obtained at a reasonable price."
- Publish guidelines detailing criteria and procedures for retaining outside lawyers and issue annual reports listing what lawyers were hired, for what price, and why.
- Require that outside lawyers fully disclose any potential conflicts of interest and refrain from representing clients in other matters before the agency that has hired them.

"Suppose an agency hires a lawyer to do any kind of legal business for the agency," Pritzker said. "If that lawyer at the same time is representing people with claims against that agency, that's a problem. People applying for licenses, say at the Federal Communications Commission or the Nuclear Regulatory Commission, that's not quite the same thing, but we think that too isn't right."

The draft recommendations, prepared by the Committee on Governmental Processes, did not include setting a governmentwide hourly cap on the rates that outside lawyers could be paid. "Our feeling is that it is much more cost-effective to have an expert who may charge a large fee do the work quickly and efficiently than it is to get cut-rate legal talent," Pritzker said. "When you're talking about setting a low cap, you're undoubtedly going to be assigned junior, less-experienced attorneys."

The committee ducked one of the juiciest and most timely questions about hiring outside legal help: whether lawyers working as independent counsels or on their staffs must stop representing clients in other cases before the government.

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BIOGRAPHY OF

RICHARD SUMMEROUR

A native of Marietta, Georgia, Mr. Summerour graduated from Emory University in Atlanta, in 1968, with a Bachelor of Arts degree in Economics. He received a Master of Science degree in Business Management from Georgia College in 1976.

From 1969-1972, Mr. Summerour served in the U. S. Air Force as a Vietnamese linguist. During this period, he worked as an interpreter for the Military Assistance Command Viet Nam (MACV).

Mr. Summerour began his contracting career in 1974 as a buyer for the Air Force at Warner Robins Air Logistics Center, Robins AFB, GA. In 1977, he transferred to Aeronautical Systems Division at Wright-Patterson AFB, OH, where he served first as a buyer in the F-16 System Program Office and later as a Contracting Officer in the Strategic Systems Program Office.

In August of 1984, Mr. Summerour moved to the Washington area, taking a position as Procurement Analyst with Headquarters Air Force Systems Command at Andrews AFB. Since February 1986, he has been a Procurement Analyst with the Air Staff at the Pentagon. He assumed chairmanship of the DAR Council Technical Data Committee in September 1986.

Sheldon Kanars is the Assistant Chief Counsel for Intellectual Property Law for the Communications-Electronics Command, part of AMC.

Mr. Kanars has been Patent Counsel at Fort Monmouth since 1971. Before that he was dual-hatted as Acting Chief Patent Counsel for the Munitions Command and Patent Counsel at Frankford Arsenal.

Mr. Kanars received a B.S. in Physics from the City College of New York in 1956, an LLB from Brooklyn Law School in 1958 and a Masters Degree in Public Administration from the University of Virginia in 1985 when he wrote a thesis entitled "Managing for Innovation."

Currently he is organizing the office automation initiative in the CECOM Legal Office and has been working on the AMC Office Automation Committee on behalf of the Chairman.

BIOGRAPHY

Full Name: Norman J. Latker

Title: Director, Federal Technology Management Policy Division

Education: B.S.C.E. - 1953 from the University of Illinois
L.L.D. - 1956 from the University of Illinois
Honorary Doctor of Laws - 1985 from the University of Illinois

Patent Counsel - National Institute of Health - 1963 - 1969

Patent Counsel - Department of Health, Education and Welfare - 1969 - 1979

Assistant Chief Counsel for Patents, Research and Development - Small Business Admin. - 1979 - 1981

Assignment:

Mr. Latker is responsible for the management and supervision of the Government patent and technical data policy program.

The program identifies intellectual property problems that would affect the utilization of technology resulting from Federally-funded research. Administrative, legislative, or regulatory positions are then developed as suggested solutions to problems.

Some recent office initiatives include:

- Drafting the February 18, 1983 Presidential Memorandum on Patent Policy, which extends the right of contractor ownership of inventions as far as possible under existing statutes.

- Assisting in rewriting the patent section of the new Government-wide Federal Acquisition Regulation (FAR) to make it conform with statutes and the Presidential Memorandum.

- Completing the required report to the President and Congress on implementation of the Stevenson-Wydler Act.

Technical assistance in the drafting of P.L. 98-620 which further extends the rights of universities under P. L. 96-517.

Drafting the implementing regulations for P. L. 98-620.

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VIRGINIA MANDATORY CONTINUING LEGAL EDUCATION BOARD

Virginia State Bar
801 East Main, 10th Floor
Richmond, VA 23219

CERTIFICATION OF ATTENDANCE AT AN APPROVED COURSE OR PROGRAM (FORM 2)

(Please PRINT)

Attorney's Name: _____ VSB Member Number: _____

Business Address: _____

_____

_____
Zip Code

MCLE Board's Course ID Number:

Sponsor:

Course/Program Title:

Credit Hours Approved by Board:

Date(s) Attended: _____ Location Attended: _____

( ) I attended the full program. (Member will receive the "Credit Hours Approved By Board," shown above.)

( ) I attended the following number of hours: _____

(NOTE: Credit is awarded for actual time in attendance rounded to the nearest half hour.)

_____ _____
Date Signature

VIRGINIA MANDATORY CONTINUING LEGAL EDUCATION BOARD
Virginia State Bar
801 East Main Street, 10th Floor
Richmond, Virginia 23219 (804) 786-2061

(For Board Use Only)	Credit Hours _____
Course No._____	Date _____
APPROVED / DISAPPROVED	By_____

APPLICATION FOR APPROVAL OF A CONTINUING LEGAL EDUCATION COURSE (FORM 4)
May be filed by a VSB member or sponsoring organization before or after the activity.

1. Name and address of person requesting course approval (attorney or person from sponsoring organization): _____

_____

2. Name, address and telephone number of course sponsor:_____

_____

3. Title of course or program: _____

4. Beginning and ending dates and exact locations of course (use additional sheets if necessary)

_____

_____

5. Set forth the exact program schedule showing the amount of time to be devoted to all components of the course or program, including opening remarks, introduction, instructional time, breaks and meals.

_____

_____

6. Registration Fee: $_____

7. Number of credit hours requested:_____ (As provided in Regulation 102, the Board allows 1.0 credit hour for each 60 minutes of course work attended. This does not include welcoming remarks, breaks, non-substantive introductions and meal and social periods. Credit hours will be rounded to the nearest half hour.)

8. Attach a list of the faculty and a brief synopsis of their education and experience.

9. Attach copies of all materials to be distributed to participants or a summary thereof including an outline or table of contents. The Board reserves the right to require such additional documents as it deems necessary.

10. Description of physical facilities (classroom seating, availability of writing surface, etc.)

_____

11. Sponsor agrees to provide Certification of Attendance forms (Form #2) and Certification of Teaching forms (Form #3) to Virginia attorneys attending or teaching the course or program. The sponsor also agrees to collect and send those forms to the Virginia Mandatory Continuing Legal Education Board within a reasonable period of time after the course or program. (NOT APPLICABLE TO INDIVIDUAL MEMBERS.)

12. Sponsors, please indicate the number of Virginia attorneys you estimate will attend _____ (NOT APPLICABLE TO INDIVIDUAL MEMBERS.)

Signature: _____

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Intellectual Property Litigation
Involving the Department of the Army

Active Suits

British Hovercraft Corp. v. U.S., Cl. Ct. No. 235-84C, alleges infringement of patents covering air cushion vessels and vehicles. Settlement agreement executed and approved. Awaiting entry of judgment.

Duracell Inc. v. U.S., Cl. Ct. No. 763-83C, alleges infringement of ten patents covering lithium-sulfur dioxide batteries. Settlement agreement executed and approved. Awaiting dismissal of action.

Goodyear Aerospace v. U.S., Cl. Ct. No. 295-86C, alleges infringement of patent covering carbon disc brakes. Limited Army involvement as the accused brakes are used only in high performance aircraft.

Greenwood v. U.S., Cl. Ct. No. 451-86C, alleges infringement of patent covering a target locating and acquisisiton device. Case is in informal discovery stage. Plaintiff's complaint filed under RUSCC 27 has not been perfected.

Hovercraft Development v. U.S., Cl. Ct. No. 660-85C, alleges infringement of patents covering air cushion vehicles and vessels. Case is in discovery stage. Trial judge has set 31 December 1987 as cut off date for discovery. Status conference to finalize discovery schedule and enumerate unresolved issues scheduled for May 12, 1987.

ITT v. U.S., Cl. Ct. No. 48-84C, alleges infringement of patents covering fiber optic connectors. The court has ruled that all patents in suit are valid and two are infringed. No action taken yet with regard to trial on accounting issues.

Melvin v. U.S., Cl. Ct. No. 89-86C, alleges infringement of patents covering aircraft instrumentation. Case is in discovery.

Patecell v. U.S., Cl. Ct. No. 434-85C, alleges infringement of patents covering runflat tire inserts. Case is in discovery.

Pratt & Whitney Canada, Inc. v. U.S., Cl. Ct. No. 111-84C, alleges infringement of patent covering pipe diffuser in the centrifugal compressor of helicopter engines. Trial is scheduled for July 13-31, 1987.

Patents, Copyrights, and Trademarks Note

The Army Patent Licensing Program

John H. Raubitschek
Patents, Copyrights, and Trademarks Division

Many people are surprised to learn that the Army has a large patent portfolio. It is second only to the Navy in the number of patents owned by a Federal agency. At the end of Fiscal Year (FY) 1976, Army held 5,551 unexpired[1] patents in comparison to Navy's 9,521.[2] Together, the Army and the Navy had over half of the government's 28,021 patents. It is expected that the size of the government's patent portfolio will decrease dramatically over time as the patents expire because the agencies have become more selective in their filing and those patents on which maintenance fees are required will probably be allowed to lapse if they are not licensed.[3]

The large number of patents in DOD was accumulated for defensive purposes; that is, by patenting its technology, DOD sought to lessen the risk of being sued for patent infringement by others. This policy started to change in 1971 when President Nixon issued a statement to encourage federal agencies to license its patents.[4] This initiative was delayed when a suit was filed in 1973 alleging that the government-wide licensing regulations[5] were unconstitutional.

[1] Under 35 U.S.C. § 154 (1982), the patent term is 17 years, but this may be extended for a short period of time under section 155 because of regulatory review by an agency such as the Food and Drug Administration.

[2] 1973–1976 Annual Report of the Federal Council of Science and Technology (FCST) 440 [hereinafter 1973–76 FCST Annual Report].

[3] In FY 1976, the agencies filed 1,587 patent applications according to the 1973–76 FCST Annual Report, *supra* note 2, at 417. It is now estimated that the number is less than 1,000. In a recent draft Government Accounting Office (GAO) report (GAO/RCED–87–44) entitled Patent Policy: Recent Changes in Federal Law Considered Beneficial, the Department of Defense (DOD) and the Department of Energy (DOE) were reported in Table 3.1 on page 39 to have filed 883 patent applications in FY 1986. This does not include any data from the National Aeronautic and Space Administration (NASA), the only other agency having significant patent activity. NASA's total is 115.

[4] 36 Fed. Reg. 16,887 (1971).

[5] Issued by General Services Administration on 6 August 1982, 47 Fed. Reg. 34,148, 34,151 as 41 C.F.R. Part 101–4, and reissued by the Department of Commerce on 12 March 1985, 50 Fed. Reg. 9801, 9804 as 37 C.F.R. Chapter IV. The Department of Commerce was assigned regulatory responsibility under Pub. L. No. 98–620, which was codified in 35 U.S.C. § 208 (Supp. II 1984).

Although the government won on appeal, there was still a cloud over its licensing program because the court ruled that the plaintiff lacked standing and so never addressed the issue of constitutionality.[6] This concern was disposed of when Congress in 1980 gave all agencies the express authority to license their inventions.[7] Accordingly, the Army's licensing program should be considered rather new.[8]

The purpose of the government's licensing program is to promote the utilization of government-funded technology.[9] In the Army, exclusive patent licenses have been signed by the Secretary but are now executed by the Assistant Secretary, Research, Development and Acquisition (SARDA).[10] Non-exclusive licenses are signed by the Chief, Patents, Copyrights and Trademarks Division, USALSA, who has the responsibility for negotiating all licenses.[11] The handling of patent licenses within the Army is expected to change in view of the Federal Technology Transfer Act of 1986, which explicitly authorized laboratory directors to negotiate patent licenses.[12]

The Army publicizes its inventions through the National Technical Information Service (NTIS), an agency of the Department of Commerce, which does this for all agencies without charge. NTIS provides information on these inventions in a number of its publications, including the weekly Government Inventions for Licensing Abstract Newsletter, the annual Catalog of Government Patents, and the Tech Note service. This information is also on the NTIS computer data base which is accessed by various commercial services. For agencies such as the Army and the Air Force, which have a memorandum of understanding (MOU) with NTIS, their applications and patents are published in the Federal Register as being available for licensing.

The inventions are sent to NTIS in the form of patents and patent applications without the claims by the particular legal office filing the application. Claims are not provided because the patent application may become involved in an interference proceeding before the Patent and Trademark Office in which two or more different inventive entities are claiming the same invention. Not all the Army applications or patents are sent to NTIS but only those considered by the legal office to have significant commercial potential and, of course, owned by the Army. Copies of these patents and applications are sold to the public by NTIS for $1 and $6, respectively. It is not clear how effective this method of publicizing the Army's inventions is because many of the licenses granted seem to have been based on a particular company's familiarity with the inventor or the laboratory's research through scientific publications and conferences. In fact, on several occasions we have been contacted by a company about a license even before a patent application has been filed. Nevertheless, agencies are required to publish in the Federal Register their inventions which are available for licensing at least three months prior to granting an exclusive license unless the agency determines that expeditious granting of such a license will best serve the interest of the Federal government and the public.[13] Interested parties, who may include the inventor, are required to submit an application for either a exclusive or non-exclusive license.[14]

As part of the application, there must be a detailed description of the plan for development and/or marketing the invention, which includes how much money is required to bring the invention to the point of practical application and a statement as to the applicant's capability and intention to fulfill the plan. The plan does not have to be performed directly by the licensee but could be another party, which would usually be a sublicensee. This is generally the situation when the licensee has no manufacturing capability, such as a university. In addition, the application must include some other items.

The plan is reviewed by the Patents, Copyrights and Trademarks Division, USALSA, in consultation with the inventor and his or her laboratory. If the plan is considered acceptable, negotiation of the terms is initiated. It is not unusual for questions to be asked about the plan and occasionally changes are required. The plan is exempt from release under the Freedom of Information Act.[15]

A notice providing the public the opportunity to file written objections to the grant of the license must be published in the Federal Register at least sixty days before execution of any exclusive license,[16] with a copy being sent to the Attorney General.[17] Accordingly, we generally publish our intent to enter into a license with a specific company before the negotiation is completed. After expiration of this period and consideration of any written objections, the exclusive agreement is finalized and sent to SARDA for execution. To date, we have received no comments from the Attorney General and only one formal objection from the public on an exclusive license. In that instance, the license was granted over the objection, but the period of exclusivity in the

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[6] Public Citizen, Inc. v. Sampson, 180 U.S.P.Q. 497 (D.D.C. 1974), *rev'd*, 515 F.2d 1018 (D.C. Cir. 1975).

[7] Pub. L. No. 96-517, 35 U.S.C. § 207(a)(2) (1982). Prior to this time, only NASA and DOE had such authority in their individual enabling statutes.

[8] Chapter 10 was added to Dep't of Army, Reg. No. 27-60, Legal Services—Patents, Inventions, and Copyrights (15 May 1974) [hereinafter AR 27-60] on 24 June 1976 by Change No. 2 and revised by Interim Change No. I01 on 22 January 1984. Although the interim change has expired, it is still being followed. Dep't of Defense Directive No. 5535.3, Licensing of Government-Owned Inventions by the Department of Defense (Nov. 2 1973) provides general guidance.

[9] 37 C.F.R. § 404.2 (1986).

[10] General Orders No. 15, HQ, Dep't of Army, para. no. 8(c)(5) (16 Dec. 1980) gave SARDA the authority to approve exclusive patent licenses. This was not changed when the General Orders was revised on 12 June 1985.

[11] Delegation of signature authority was made in memoranda signed by the Secretary of Army on 26 June 1956 and 1 September 1965. The 1956 delegation was limited to royalty-free nonexclusive licenses.

[12] Section 2 of Pub. L. No. 99-502.

[13] 37 C.F.R. § 404.7(a)(1) (1986).

[14] 37 C.F.R. § 404.8 (1986).

[15] 35 U.S.C. § 209 (1982); 37 C.F.R. § 404.14 (1986).

[16] 37 C.F.R. § 404.7(a)(1)(i) (1986).

[17] 37 C.F.R. § 404.9 (1986).

was limited to two years. Any decision not to grant a license or to dismiss an objection to a grant is appealable.[18] The deciding official in the Army is the Assistant Judge Advocate General for Civil Law.[19]

Before the grant of any exclusive license, all agencies are required to make four specific determinations.[20] These are made in the Army by the Chief, Patents, Copyrights and Trademarks Division prior to submission of the license to SARDA for signature. There is generally no problem in making the determinations, with perhaps the exception of the one that the desired application has not been nor is likely expeditiously to be achieved under any nonexclusive license that has been or may be granted. It is assumed that the applicant's unwillingness to accept a nonexclusive license and the lack of any request for such a license from another permits the agency to make this determination. Also, if the agency is aware of any unlicensed use, it will be difficult for it to determine that an exclusive license is necessary to call forth risk capital to bring the invention to practical application.

Finally, the agency has to be sensitive to the potential impact the license may have on competition. The law does not permit an agency to grant an exclusive license if it determines that such a grant will tend to substantially lessen competition or result in undue concentration in any line of commerce to which the invention pertains.[21] The failure of the Assistant Attorney General, Antitrust Division, to object when we send him a copy of the Federal Register notice of our intent to grant an exclusive license is generally regarded as clearance from antitrust concerns.

The terms of Army licenses differ because the value of the technology as perceived by a licensee vary. There are a number of required clauses and restrictions, however.[22] The specific terms that usually involve the most negotiation are royalties and period of exclusivity. These are arrived at considering the licensee's investment and the estimate of how long it will take to get the invention to the market place. The rates range from 5 to 10% for exclusive licenses to less for nonexclusive licenses, most of which are royalty free. Prior to Public Law 96–517, agencies did not charge for nonexclusive licenses. Royalties are usually based on commercial sales, although there may be annual minimum payments and an execution fee. The period of exclusivity may be from two years to the life of the patent, which is somewhat unusual. At one time, the Army limited the term to five years.

Government agencies are also authorized to license foreign patents.[23] This is of limited significance for the Army, however, as it does not have a foreign filing program. Because some of the Army's inventions may be worth protecting abroad, in 1982 we entered into an MOU with NTIS, which would not only file foreign patent applications but also license them for the Army. Under the MOU, NTIS would select those inventions for foreign protection and keep the royalties in excess of the fifteen percent awarded to the inventor. Statutory basis for the MOU was provided by Public Law 96–517, which permits one agency to transfer custody of its inventions to another.[24] Although we have transferred custody of several inventions, NTIS has foreign filed on only one Army invention jointly made with the National Institute of Health (NIH) for the treatment of malaria, which it also licensed to a U.S. drug company.

As indicated in the table below, the number of licenses and amount of royalty income generated by the Army's program has been rather modest although comparable with the other services.[25] In addition, the Army's income does not reflect actual commercialization because all except $1010 came from a 1977 nonexclusive foreign license with Canada on a military invention. We extended Canada's royalty free license under our informal reciprocal filing arrangement to a world-wide royalty bearing license. Thus, whenever Canada sells the invention outside of Canada, the Army receives a royalty.

The reciprocal filing arrangement involves the Army and Canada sending their patent applications to each other and permitting the receiving country to file a patent application in its country at its expense in exchange for a royalty free license. Although this could interfere with our licensing program if Canada elects to file a patent application on an Army invention by limiting the foreign rights available, it has not because very few Army inventions are patented abroad.

Royalty Income (Licenses Granted)

	Fiscal Year				
	82	83	84	85	86
Army	$31K(4)	$24K(5)	$10K(5)	$5K(0)	$8K(1)
Navy	$58K(15)	$28K(9)	$15K(11)	$8K(5)	$6K(0)
AF	–0– (0)	–0– (0)	–0– (1)	$6K(2)	$7K(0)
Total	$89K(19)	$52K(14)	$25K(17)	$19K(7)	$21K(1)

These figures for DOD are not very impressive, especially when compared with those reported by NTIS.[26] For example, NTIS' royalties were $868K for FY 84, $1.5M for FY 85, and estimated at $4M for FY 86. Most of this income is attributable to medical inventions from NIH. We expect that the Army's licenses and income will increase because of the Federal Technology Transfer Act of 1986 which allows the agencies to keep the royalty income and share up to $100,000 a year with its inventors.

[18] 37 C.F.R. § 404.11(a) and (c) (1986).

[19] AR 27–60, para. 10–16a.

[20] 35 U.S.C. § 209(c)(1)(A)–(D) (1982); 37 C.F.R. § 404.7(a)(1)(ii)(A)–(D) (1986).

[21] 35 U.S.C. § 209(c)(2) (1982).

[22] 35 U.S.C. § 209(b) and (f) (1982); 37 C.F.R. § 404.5 and § 404.7(a)(2) (1986). One of these requirements, that the licensee must manufacture the invention substantially in the United States, severely limits the agencies in licensing foreign corporations in the United States. Because the statute and the regulation uses the word "normally," an agency could waive this requirement. To date, however, this has not been done.

[23] 35 U.S.C. § 209(d) (1982).

[24] 35 U.S.C. § 207(a)(4) (1982).

[25] GAO Report, GAO/RCED–85–94, Aug. 29, 1985, at 9 and 10. The FY 1985–6 statistics were added by the author, who contacted the other services.

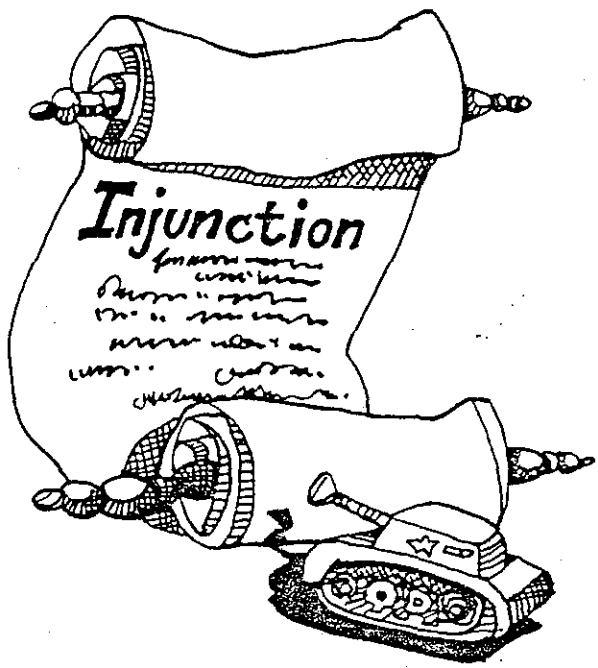
[26] NTIS report, Comparative Survey of Selected Private Sector Technology Transfer & Patent Management Organizations, June 1986, PB 86–227519, at 1 and 2.

If a licensee does not adhere to the marketing or development plan, the license may be terminated if the licensee cannot otherwise demonstrate that it has taken or can be expected to take within a reasonable time effective steps to achieve practical application of the invention.[27] The plan is important because it is part of the consideration for the government granting a license. To date, we have terminated a number of nonexclusive licenses but no exclusives. A decision to terminate is appealable to the Assistant Judge Advocate General for Civil Law.[28] There have been no appeals because the only terminations have been when the licensee lost interest and gave up.

During a license, things may become very complicated if there is or may be infringement by an unlicensed party. Although the Army usually retains the right to file suit, the exclusive licensee may if suit is not filed within a specified period of time. Because the Army cannot sue on its own, it requests the Department of Justice to take appropriate action. We have had only one serious question of infringement that was not referred to the Department of Justice because after we visited the potential infringer's plant in Texas, we were not convinced that there was infringement. We had to persuade the licensee, which was very concerned about the matter, however. We note that the Department of Justice has filed an infringement suit on only one occasion and this action is still pending.[29]

Another approach to address an infringement problem was taken by the Department of Agriculture which requested the International Trade Commission to launch an investigation under section 337 of the Tarriff Act of 1930, as amended,[30] to keep out of the country some devices that were believed to infringe its licensed patent. The investigation was terminated because the patent was being reexamined in the U.S. Patent and Trademark Office.[31] Any reluctance on the part of either the government or the licensee to enforce Government-owned patents will make it difficult for the government to have a successful licensing program.

Trade Secret Injunctions and Similar Actions Delaying the Obtaining of Military Equipment by the Government



By THEODORE PRAHINSKI*

In a 1970 seminal article,[1] at least so far as its influence on the present generation of government patent attorneys was concerned, Harry Saragovitz, then Chief Patent Counsel for the Army Material Command, studied the remedies available to persons who claimed misuse of trade secret data. He recommended that the remedy be a suit against the United States for monetary damages for misuse of trade secrets by the government, or its contractors if the United States had authorized the contractor to use the trade secret. The precedent for this is 28 U.S.C. § 1498, which bars injunctions against the government and its contractors in the closely analogous field of patent and copyright infringement and limits the remedy there to monetary damages.

Saragovitz's proposal was not adopted. Since then, there has been a movement toward trade secret injunctions and other delaying litigation against the government and an increase in injunctions against government contractors. One injunction, based on a trade secret later held to be unenforceable,[2] prevented the sale to the government of El Salvador of M-16 rifles needed to protect itself from rebels hostile to the United States; who wished to overthrow it.

It is the purpose of this article to review certain of these developments. They raise the question of whether the U.S. Government, itself, or its contractors or allies can be delayed in obtaining equipment needed to defend itself in time of war, and whether the United States will be able to continue to serve as the arsenal of democracy as it did in World Wars I and II.

In 1982 the D.C. Circuit held in the *Megapulse* decision[3] that an injunction was proper that barred the Department of Transportation [hereinafter "DoT"] from using, for competitive procurement, technical data for a Loran electronic navigation system largely developed under a government contract. In 1984 a district court held that an injunction against similar Navy Department use of technical data related to the cruise missile would be proper, but decided not to grant it on other grounds.

In 1984 Public Law 98-525 adopted a provision[5] discussed hereafter, which will prevent the Defense Department [hereinafter "DoD"] from using technical data in which proprietary rights are asserted during the pendency of appeals to the Armed Services Board of Contract Appeals [hereinafter "ASBCA"] and the courts on contracts placed after its effective date. Litigation in the ASBCA and in the Federal Circuit on the government's rights to use technical data was pending in one case from before 1979 until 1986.[6]

Litigation can delay the development and production of weapons that are necessary to defend against and overcome the new weapons being developed by potential enemies. The United States has been relying on the quality of its weapons to overcome the larger quantity of force available to Warsaw Pact countries. That advantage can be neutralized if necessary weapons cannot be procured in a timely manner due to potential injunctions for alleged trade secrets violations.

It is the conclusion of this article that the potential of harm to the United States Government demonstrates the need for promptly passing a statute that implements Saragovitz's original recommendation. It is recommended that the government's rights to substitute the monetary damage remedy should also apply to the P.L. 98-525 provision[7] which prevents release of technical data during the pendency of appeals from contracting officers' decisions that claims of proprietary rights are unjustified.

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The Typical Factual Situation for Development of Weapons Under Government Contracts

Typically, development begins with an idea of a contractor for a new device. Development work is very expensive, particulary when numerous alternatives have to be tried and tested to find one that works. Therefore, government contract funding is sought to turn the idea into practical hardware. The government, like other funders of the numerous unsuccessful trials required for research and development, feels it should get rights in those that turn out to be successful. If it does not, the person who has rights in it will be the sole source for supplying the newly developed product. Sole-source procurement is generally estimated to cost twenty-five to fifty percent more than competitive procurement.[8]

Contractors frequently perform a small amount of work on a new development at private expense, and then argue that this entitles them to rights in a development largely funded by the government. The contractor may prepare sketches of the idea, run a computer simulation, or construct a prototype and test it in a laboratory. A 1972 article by the present author discussed the type of work which had been regarded as sufficient to constitute actual reduction to practice of inventions under the patent rights clause in government contracts.[9] It points out the numerous changes that usually have to be made to turn the prototype tested in the laboratory into equipment which will reliably perform the objective of the development. To resolve the question of whether the contractor or the government has rights in the technical data in such situations, DoD used substantially the same standard contract clause on contracts placed from 1964 through 1985. This provides that contractors can claim "limited rights" in manufacturing data for items that have been "developed at private expense." DoD has the right to require contractors to justify such limited rights legends by clear and convincing evidence within sixty days of a written request.[10]

Contractors may also design a system so that it cannot be made or operate without some process or product which, unbeknownst to the government, the contractor either already owns or is contemporaneously developing. This can make him sole source for the whole system, and not just for that product or process. In the previously-mentioned *Megapulse, Inc. v. Lewis* case, in which an injunction was entered against the Department of Transportation, the contractor developed under government contract a Loran electronic navigation system using a unit called a megatron. It delivered 4,000 sheets of drawings describing the entire system, including six describing "detailed manufacturing processes and techniques followed in constructing the megatron *[which] could not be built without knowing these methods*" (emphasis supplied).[11] The court stated that the contractor was entitled to rights in the technical data describing these manufacturing methods. A question which might be asked is whether the contractor used this method in order to make itself sole source for a unit developed at substantial government expense.

The author has also seen cases where former government employees and consultants have submitted proposals to develop a system which would use a keystone technology in which they claimed rights, and also other components on which other contractors had done work. The possibility exists in such cases that the former government employee or consultant might have examined technical data of other contractors, and might be able to exclude the rival contractors from further work on their own developments. Government records are often too sketchy, and personnel changes too frequent, to conclusively establish whether any such impropriety really happened.

Litigation of data rights claims gives a contractor an opportunity to be sole source for follow-on work in the same area. The contractor can prevent others from competing for follow-on contract work for long periods by litigating before either a Board of Contract Appeals or the Court of Claims, or by forum shopping for a district court likely to give a favorable opinion.

U.S. District Court Injunctions Against the Government

In 1973 the current battle for injunctions against the government opened when a district court entered an injunction prohibiting the Air Force from releasing technical data furnished under a contract for developing a Loran-guided missile. The contractor, when requested to justify its trade secret claim, had refused to furnish any detail about the development work it claimed to have done at private expense. Instead, it simply made the conclusory assertion that a Loran guidance unit for a missile had been "developed at private expense." The government wished to release the report describing the system tested under the International Engineering Co. contract so that other contractors could know what had not worked under that contract and would not have to repeat that development work. Since the contractor had claimed some of the most basic concepts of Loran as its trade secrets, this put the government in the position where practically anything it said about follow-on contracts might be alleged to be a trade secret violation. The safest course of action for DoD would have been to give all follow-on contracts for development of this general type of missile to the International Engineering Co. This, however, would have been unfair to a number of other contractors who had also done development work on this type of missile.

The district court decision enjoining violation of the contractor's asserted trade secrets was rendered despite a contracting officer's ruling that the contractor had not borne the burden of proving that a claim of proprietary rights was proper, as he was required to do under a clause in his contract. In *International Engineering Co. v. Richardson*,[12] the D.C. Circuit reversed this action. It felt that the well-established rule under the Tucker Act,[13] which grants the district court jurisdiction over torts by the federal government, was that jurisdiction over government contract disputes lies in the Court of Claims, which can award monetary decisions but cannot issue an injunction.[14]

Shortly after the *International Engineering* decision was rendered, the Section of Public Contract Law of the American Bar Association requested Congress to grant injunction power to the district courts in this type of case, but Congress decided not to do so. The Section asked that the bill that became the Contract Disputes Act[15] provide for de novo judicial review in the federal district courts under the Administrative Procedures Act.[16] De novo review would allow contractors to refuse to furnish justification for proprietary legends to contracting officers and then present the evidence to a court. This would give developers a tactical advantage over contracting officers who feared litigation. The bill approved by the Senate Governmental Affairs Committee contained a provision granting this.[17] The House Judiciary Subcommittee on Administrative Law approved a bill with a similar provision in the face of objections by the Justice Department to the granting of injunctive relief. Committee Chairman Danielson announced he would seek to strike the bill's provisions granting injunctive and declaratory relief in the full committee.[18] The Contract Disputes Act of 1978, as ultimately passed by that Congress, limited contract dispute remedies to monetary claims before the Boards of Contract Appeals and the Court of Claims.

In 1982 the D.C. Circuit held in the

previously-mentioned *Megapulse* decision[19] that an injunction was proper which barred the Department of Transportation from using, for competitive procurement, drawings containing manufacturing details used in a Loran system developed under a Coast Guard contract. The effect of the congressional action in denying injunction remedies to the district courts under the Administrative Procedures Act is not discussed in *Megapulse*.

The Contract Disputes Act of 1978, as ultimately passed by that Congress, limited contract dispute remedies to monetary claims before the Boards of Contract Appeals and the Court of Claims.

The contract contained a provision stating that the government had the right to disclose data unless it was entitled to protection, as limited rights data, under standards set out in the contract.[20] The contractor had rights in products and processes developed at private expense before contract, and the government had rights in things developed under the contract.[21]

In *Megapulse*, the Coast Guard had reviewed the drawings delivered under the contract and determined that it was unlikely that significant portions of the processes described therein were developed at private expense. It advised Megapulse that it intended to remove the legends, claiming limited rights on all drawings for competitive procurement.[22]

Megapulse unsuccessfully protested this decision to the General Accounting Office and then sought an injunction from a district court prohibiting release of the drawings. The district court granted summary judgment to the government on the grounds that it had no subject matter jurisdiction, citing *International Engineering*.[23]

The circuit court reversed the summary judgment. It directed the district court to proceed on the merits and grant appellant such non-monetary relief as it felt appropriate. The Circuit Court found jurisdiction in the Trade Secrets Act[24] and the judicial review sections of the Administrative Procedures Act.[25]

The Trade Secrets Act reasoning was that this Act precludes agencies from releasing privately owned trade secrets in their possession unless authorized by law. The opinion stated the drawings which the Coast Guard wanted to release were trade secrets, and this release was not authorized by law. The court noted that the Supreme Court's 1979 *Chrysler Corporation v. Brown*[26] decision found jurisdiction to enjoin disclosure of data that would allegedly violate the Trade Secrets Act. The court rejected the government's arguments that *Chrysler* applied to information releasable under the Freedom of Information Act alleged to be trade secrets, but not to information releasable according to terms of a contract having provisions for determining the rights of parties. The opinion states that this argument presumes an unestablished fact, that the information falls within the scope of a contract, which Megapulse disputes. It stated, "We are disinclined to accept the Government's prejudgment of the ultimate (and as yet untried) merits of the action as a basis for a jurisdictional ruling at this stage."[27] It also stated that, "It is within the context of whether § 1905 has been violated and not in whether the district court has jurisdiction to decide this issue that the Government's contract arguments are valid."[28]

The Administrative Procedures Act reasoning was that section 702 gives a person aggrieved by administrative action a right to judicial review if there is no other adequate remedy at law (section 704). The court stated, "We are convinced that *Chrysler* effectively counters that portion of the *International Engineering* opinion that found no district court jurisdiction to review the agency's disclosure decision under the APA . . . ."[29] With respect to the provision in section 702 that states "nothing herein . . . confers authority to grant relief if any other statute that grants consent to suit expressly or impliedly forbids the relief which is sought," the court states that it cannot accept the view "that an agency action may not be enjoined, even if in clear violation of a specific statute, simply because that same action might also amount to a breach of contract."[30]

The consequence of this reasoning of the court is that a contractor, simply by asserting his version of the facts on a contract dispute, can get a court to consider granting an injunction, and can deprive the contract dispute forums established by Congress of jurisdiction. It also seems unfair to argue that the government is seeking to benefit from "a breach of contract." The government is simply asking that the question of whether there was a breach be decided under the limitations provided by Congress for contract disputes.

The *International Engineering* opinion gave the best answer to this argument by quoting the Supreme Court's *Larson v. Domestic and Foreign Commerce Corp.* decision:

> It is one thing to provide a method by which a citizen may be compensated for a wrong done to him by the Government. It is a far different matter to permit a court to exercise its compulsive powers to restrain the Government from acting, or to compel it to act. . . . The Government . . . cannot be stopped in its tracks by any plaintiff who presents a disputed question of property or contract.[31]

The *Megapulse* opinion finds its jurisdiction in Megapulse, Inc.'s assertions in its pleadings and affidavits. The court states, "it is uncontested that [a unit which Megapulse demonstrated before contract award] was *developed* solely with private funding prior to any contract between Megapulse and the Coast Guard" (emphasis supplied). The court further stated that the contract dispute remedy was not applicable because this technology had been "developed" before contract; it recognized that contract dispute remedies would have been applicable to technology developed under the contract. It stated that while this pre-contract unit could not be used at the high power levels required for a Coast Guard Loran system, it was "*allegedly* a valuable and working circuit system of enormous commercial value to Megapulse and of particular usefulness in the private sector when utilized at lower power ranges" and the "trade secrets here at issue represent the very economic life blood of Megapulse" (emphasis supplied).[32]

The consequence of the reasoning of the court is that a contractor, simply by asserting his version of the facts on a contract dispute, can get a court to consider granting an injunction, and can deprive the contract dispute forums established by Congress of jurisdiction.

Referring to the Megapulse unit demonstrated before the contract as being "developed with private finds" essentially states a conclusion on the point that the Coast Guard was litigating. It is unlikely that the Coast Guard knowingly conceded anything other than that the item was *built* with private funds. The issue in this dispute was not whether the item was built

with private funds, but whether the unit built met the "developed at private expense" test. Therefore, this jurisdictional standard subjects a large class of cases in which the government needs the power to proceed quickly to the delays inherent in the injunction remedy. Not only are the facts in such cases complicated, but there is great opportunity for further delays in appeals.

The complexity of determining whether privately funded work of a developer meets the government contract "developed at private expense" standard is demonstrated in the eighty-page opinion in the 1985 ASBCA *Bell Helicopter Textron* case. This opinion states that to be "developed," "an item or component must have been constructed and also tested . . . sufficiently to demonstrate that it performs (or at least that it can perform) *the objective for which it was developed*" (emphasis supplied).[33]

Whether the Megapulse pre-contract unit actually reached the "developed" stage would require an analysis of its technical details, as contrasted to the equivalent units used in previous Loran sets. Details of the testing conducted on this pre-contact unit, and the test results, should also be analyzed. An important issue is the objective of the development that motivated building the pre-contract unit. Was it to demonstrate why the government should fund further development of a high-power unit, or was it produced to meet the low-power market referred to? Was it able to meet that low-power market as it stood, or was the development work funded by the government necessary to make this usable for low-power uses?

This author argues that the *International Engineering* opinion remains viable despite *Megapulse* as to DoD contracts because, among other reasons, the DoT contract, unlike DoD contracts, did not contain a provision for expedited administrative determination of the propriety of the restriction.[34] If *Megapulse* is interpreted to preclude the government from contracting to quickly resolve disputes where a significant national interest may require this, it is quite serious. With respect to disputes over ownership of trade secret material or other property, the government needs to protect itself by contract when it invests large sums of money to develop new equipment, or when it needs to use the results of the development process with other equipment. As related to weapons, this is a serious danger to national security. A private party involved in funding of research and development for future production can do this, and needs to do it. The government should be able to do the same. The danger to national security of not having the best available weapon on hand when a war starts is too great. Since the development process takes several years, the seriousness of the threat would not be recognized at the time of an injunction action.

As an example of how realistic the threat to sensitive national security provisions may be, in *Williams International Corp. v. Lehman*[35] a district court held in 1985 that it did have jurisdiction to issue injunctions against release by the Navy of technical data involving the cruise missile, based on *Megapulse*. However, the court refused to issue an injunction because the evidence presented to it had never been presented to the contracting officer.

In *Conax Florida Corp. v. United States*[36] a district court granted a preliminary injunction in 1985 preventing the Navy from releasing technical data concerning a life jacket inflating device. Seven months later it entered summary judgment dismissing it, after reviewing the administrative record. It held that Conax was not entitled to de novo review or discovery going to the bias and predisposition of the contracting officer who denied its claim. The district court denied this, stating there was no evidence of bias, and that "even if an agency official's decision could have been motivated in part by a degree of partiality, if . . . it represents a reasoned resolution of the material issues, it must be upheld by a reviewing court."

With respect to disputes over ownership of trade secret material or other property, the government needs to protect itself by contract when it invests large sums of money to develop new equipment, or when it needs to use the results of the development process with other equipment. As related to weapons, this is a serious danger to national security.

Injunctions Against Government Contractors

Christianson v. Colt Industries Operating Corp.[37] reports that an unpublished decision of the Court of Appeals of the Federal Circuit approved an injunction which Colt obtained against Springfield Armory, Inc. This was the former Springfield Army Arsenal, now in private hands. The injunction prevented it from performing a contract to sell M-16 rifles to El Salvador, under a U.S. Government-approved foreign military sales program. The Armory apparently got the data for building the M-16 from the Army, which had taken a license covering production of the M-16 from Colt. In June 1986 the Pentagon had on display M-16 rifles captured from rebels fighting against the El Salvador Government. Included with the display were documents showing that the particular rifles on display, identified by serial number, had been shipped to Viet Nam during the war and were apparently captured there.

The *Christianson* case notes that the trade secret was the manufacturing tolerances needed to make the parts interchangeable. For example, did the parts have to be made to an accuracy of a thousandth of an inch, or a ten-thousandth of an inch, so they would work together? This tolerance is determined by trial and error during the development process. Interchangeability is necessary for military weapons that may have to be fixed on the battlefield with parts taken from another weapon. The district court decision in *Christianson* held that the tolerance trade secret was unenforceable on antitrust grounds. On appeal, the Seventh Circuit stated that it agreed with this holding, but transferred the appeal to the Federal Circuit because of the existence of a patent issue.[38]

In *Curtis-Wright Corp. v. Edel-Brown Tool and Die Co.*,[39] a Massachusetts appellate court upheld an injunction and remanded the case for determination of damages, in a case which clearly shows why the government, and not the government's contractor, should be the party against which the suit should be brought if the government wants to continue a competitive procurement system. The contractor was informed by Curtis-Wright, after it took a Navy contract to produce engine pistons of a forty-year-old type in accordance with drawings furnished him by the Navy, that the drawings were copies of proprietary Curtiss-Wright drawings. As in the M-16 case, the proprietary information in dispute was the manufacturing tolerances needed to make the piston interchangeable in engines made by Curtiss-Wright. The Navy stated that the drawings given Edel-Brown were not proprietary. When the contractor continued to perform, it was sued. The court held that there was sufficient evidence to support the jury verdict against Edel-Brown. It is hard to tell what the fault of Edel-Brown was, other than taking the Navy's word in a disputed situation.

In *Williams v. Curtiss-Wright Corp.*,[40] an injunction was entered forbidding performance of a government contract for engine parts using data stated to have been obtained under the Freedom of Information Act. A number of other cases have held that a right exists to get injunctions entered against government contractors.[41]

Boards of Contract Appeals Jurisdiction

In 1984 Congress passed separate, but closely similar, laws applying to the Defense Department[42] and to the civilian agencies generally,[43] establishing jurisdiction in Boards of Contract Appeals to hear disputes pertaining to the validity of restrictions on the use of technical data. Both permit contractors to retain restrictive legends on technical data during the pendency of disputes before the Boards of Contract Appeals and further appeals before the U.S. Court of Appeals for the Federal Circuit. These laws only apply to contracts awarded on solicitations issued after their effective dates. The provisions of these laws will only become significant after new items are developed under contracts affected by them, technical data is delivered under them, and the propriety of restrictive legends placed on the data is challenged by the government.

In the 1969 *Breed Corp.* decision,[44] the ASBCA held that it had no jurisdiction to enjoin the striking of a trade secret legend during the pendency of an appeal from a contracting officer's decision that the legend was not proper. The *Breed Corp.* decision remains effective after the passage of the Contract Disputes Act for contracts placed prior to the effective date of the 1984 laws. Also relevant is the 1985 *Williams International Corp. v. United States*[45] Court of Claims decision, which held that Congress did not intend to give the Court of Claims declaratory judgment jurisdiction under the Contract Disputes Act. The ASBCA would lack this jurisdiction also under this reasoning.

The *Bell Helicopter Textron*[46] contracting officer decision was rendered sometime before 1978 and was on appeal to the Federal Circuit until June, 1986, when the appeal was dismissed on the grounds that the Federal Circuit had no jurisdiction to hear appeals arising prior to the passage of the Contract Disputes Act.[47] The Circuit Court opinion notes that the appellee states that it has another five years to file suit in the Claims Court. The long pendency of this case demonstrates how ASBCA appeals, and further appeals to court from the ASBCA, can have the practical effect of an injunction in delaying use of technical data by the government. Under the reasoning of the *International Engineering*[48] and the *Conax Florida*[49] cases previously discussed, the data could have been released.

The Proposed Remedy

The M-16 case demonstrates that the United States needs a reliable legal mechanism to permit expansion of its weapons production in time of emergency. In addition to the El Salvador emergency, in the late 1960's the Army had to drastically expand automatic rifle procurements to meet Viet Nam needs. Colt, by itself, could not have produced the quantity required in time to meet these needs. Because of time pressures, the government then had little bargaining power to get the data it needed from Colt to have other manufacturers produce the M-16. The Army had to agree to pay high royalties to Colt.[50] To date, it has reportedly paid $40 million in license fees for procurements from sources other than Colt. In contrast, the chief United States World War II infantry weapon, the Garand M-1 rifle, was developed by Springfield Arsenal, which was then government owned. Therefore, to quickly expand production to meet World War II needs, the Army had the power to send technical data packages and teams of production experts to civilian factories.

Erroneous decisions of contracting officers will always happen. The government's needs are not to deprive contractors of a review, but to be able to buy equipment and services quickly when necessary.

The government can and does enter into contracts with the developers allowing it to transfer the technology to other producers. However, not all situations which might arise under such contracts will be anticipated, and disputes may arise as to what the contract covers. The M-16 case demonstrates the failure to deal adequately with the need to quickly supply weapons to a foreign country. The *Megapulse* case demonstrates that the government may not recognize that a newly-developed item cannot be made without using some proprietary technology, and thus may fail to enter into an appropriate contract when it has bargaining power before the development starts.

Saragovitz's proposed remedy would deal with such situations. Saragovitz concluded his previously-cited article:

> Although the recourses available to the owner of technical data are varied in the case of government misuse of such data, none of these approach the simplicity and directness of the recourse available to the patent owner when his patent has been used by the government without authorization. With growing dependence upon trade secret protection in lieu of patent protection, it would appear that a statute similar to that of 28 U.S.C. § 1498, encompassing and giving recourse in cases of unauthorized use or misuse of trade secrets by the United States government is definitely needed.[51]

28 U.S.C. § 1498 provides that the remedy of a United States patent or copyright owner for use of the protected subject matter shall be by suit in the U.S. Claims Court. The remedy is limited to monetary damages. This replaces the injunction remedy available against private parties who infringe patents or copyrights. Section 1498 extends to government contractors and subcontractors, provided they are given the "authorization and consent of the government."

Amendment of 28 U.S.C. § 1498 to provide that the government can acquire technical data by eminent domain would permit the United States to release data, if necessary, if it needed to during the pendency of an ASBCA appeal. The 1984 laws previously discussed could be revised to provide that the ASBCA had jurisdiction only to hear claims for the reasonable value of the data. Another possible solution to this problem, which can be adopted administratively, is to include option provisions in contracts which allow the government to buy the right to release data during the pendency of appeals. Legislation or administrative action granting some kind of review by higher-level officials before the government actually acquires and releases trade secret material might be desirable.

Erroneous decisions of contracting officers will always happen. The government's needs are not to deprive contractors of a review, but to be able to buy equipment and services quickly when necessary. Some statutes have required head-of-agency approval of sensitive decisions. This may be too high a level, because the Secretaries of the Army, Navy, and Air Force are likely too busy to handle the volume of cases that would arise, and would lack the detailed knowledge and the staff to make the decisions. A better solution would be to require the staff of a command, which is at a higher level than the command which

challenged the decision, to approve decisions to release data over the contractor's objections. Each service has commands with specialized procurement expertise that supervise the commands which actually place development contracts. These could give a relatively quick decision that would protect the contractor from an erroneous decision of a lower-level person.

The contractor should be permitted a judicial review, but such a review should be limited to monetary damages. Errors by boards of appeals and judges inevitably happen, no matter how conscientious, intelligent, or patriotic the judges are. Because the cases involve complex technology, the factual background may not be completely understood by the government lawyers or the judges. Even when the lawyers understand the cases, a lawyer who is expert in trade secret cases in a book on tactics states that it is necessary to make only the most important points to the court in order to improve the chances that the judge will understand these; the lawyer must simply trust the judge to reach the right decision on subsidiary points.[52] This demonstrates that trade secret injunction litigation is primarily a gamble on a point important to national security. Privately owned companies which feel that an injunction is necessary to protect their interests should consider the consequences of lost technological edges on battles and wars. The country and the companies can live with monetary damages; they may not be able to survive an injunction, or appeals that are pending for long periods of time.

De novo trials are a thorny issue. De novo trials would give developers an important tactical advantage. A contractor could refuse to furnish any evidence justifying his claim of rights in technical data to the contracting officer, and then present it to the court. The government would be inhibited from acting at the administrative level because it would not know what evidence the contractor had. Its technical experts would also have less of an opportunity to influence the decision. The counter-argument is that de novo trials are needed because the Administrative Procedures Act's standard for judicial review is potentially unfair. The administrative decision cannot be overcome if there is some substantial evidence to support it. Partisanship, merit pay, or other pressures might lead some government employees to always rule in favor of the government if there was a bare minimum of evidence to support their decisions. Such unfairness deters contractors from using their proprietary technology under government contracts. A good compromise would be to permit a contractor a de novo trial for monetary damages only, subject to the limitation that only evidence submitted to the contracting officer would be admissible.

The effect of any procedure, such as ASBCA appeals, in delaying necessary action should also be considered by the Congress. Persons who simply want to treat contractors fairly know that mistakes will inevitably be made by the government and that contractors are entitled to just treatment. Such treatment can be provided by making monetary damages available and by granting quick administrative reviews to decisions involving disputed trade secret rights and decisions to acquire contractor data. It would be reasonable to permit ASBCA appeals from decisions that proprietary legends are improper, if the government had the right to release technical data if necessary to protect an important government interest during the pendency of the appeal. In many cases there is no immediately pressing need to release the data. Resolution of the rights question before potential damage is done is in both the government's and the contractor's interest. The liability of the government for potentially large monetary damages should inhibit abuses of a power to release technical data.

FOOTNOTES

[1]Saragovitz, *Patents—Trade Secrets—Technical Data Use and Misuse by the U.S. Government*, 15 VILLANOVA L. REV. 331 (1970).

[2]Cold Indus. Operating Corp. v. Springfield Armory, Inc. (Fed. Cir.) (injunction decision unpublished, but noted in Christianson v. Colt Indus. Operating Corp., 609 F. Supp. 1174, 227 USPQ 361 (C.D. Ill. 1985)).

[3]Megapulse, Inc. v. Lewis, 672 F.2d 959.

[4]Williams Int'l Corp. v. Lehman (D. D.C., No. 84-1122, Nov. 6, 1984).

[5]10 U.S.C. § 2321 (applies only to solicitations issued after Oct. 19, 1985, § 1216 (c)(2), P.L. 98-525).

[6]Bell helicopter Textron, 85-3 BCA ¶ 18,415 (ASBCA 1985).

[7]10 U.S.C. § 2321(f).

[8]*Staff of Joint Economic Committee, 93d. Cong., 1st Sess., the General Advantages of Competition Over Sole Source Negotiation in the Defense Department* (Comm. Print 1973). The author, Larry Yuspeh, reports details of 20 cases where competitive procurement replaced sole source and found average savings of 51.9%. This author (Mr. Prahinski) remembers that a Defense Secretary, probably Robert MacNamara, was quoted about 10 years ago for an estimate of savings at 25%, but cannot find an authoritative citation.

[9]Prahinski, *Interpretation of the Term, "First Actually Reduced to Practice," Used in Patent Rights Clauses of Government Contracts*, 55 J. PAT. OFF. SOC'Y 107 (1973), *reprinted in* 10 Y.B. PROCUREMENT ARTICLES 637 (1973).

[10]DoD Federal Acquisition Regulation Supplement § 52.227-7013 (May 1981).

[11]*Megapulse*, 672 F.2d at 963, 970.

[12]512 F.2d 573 (D.C. Cir.), *cert. denied*, 423 U.S. 1048 (1976).

[13]28 U.S.C. § 1346 (1982).

[14]*See Megapulse*, 672 F.2d at 963.

[15]Contract Disputes Act of 1978, 41 U.S.C. §§ 601-06.

[16]712 Fed. Cont. Rep. K-1, Dec 26, 1977. The Administrative Procedures Act judicial review sections are found at 5 U.S.C. §§ 701-06 (1966).

[17]712 Fed Cont. Rep. K-1.

[18]Fed. Cont. Rep. A-4, D-1, Feb. 13, 1978.

[19]672 F.2d 959.

[20]*Id.* at 962.

[21]*Id.* at 969 n.47.

[22]*Id.* at 962-63.

[23]*Id.* at 964.

[24]18 U.S.C. § 1905 (1980).

[25]5 U.S.C. §§ 701-06 (1966).

[26]441 U.S. 281, 99 S. Ct. 1705, 60 L.Ed.2d 208.

[27]*Megapulse*, 672 F.2d at 966.

[28]*Id.* at 966 n.33.

[29]*Id.* at 965.

[30]*Id.* at 971.

[31]*International Eng'g*, 512 F.2d at 580 n.10, *quoting Larson*, 337 U.S. 682, 704 (1949).

[32]672 F.2d at 961 n.1, 969 n.47, and 970.

[33]*Bell Helicopter Textron*, 85-3 B.C.A. ¶ 18,415 at 92,421.

[34]*International Eng'g*, 512 F.2d at 575 n.1. *Megapulse*, 672 F.2d at 970, also suggests that *International Eng'g* may differ because monetary relief was an adequate remedy in that case.

[35]D. D.C., No. 84-1122, Nov. 6, 1985 (unpublished decision).

[36]D. D.C., No. 85-3111, July 30, 1986 (unpublished decision).

[37]609 F. Supp. 1174, 227 U.S.P.Q. 361 (C.D. Ill. 1985).

[38]32 P.T.C.J. 518 (7th Cir., Aug. 19, 1986), which states the trade secret is unenforceable on antitrust grounds.

[39]407 N.E.2d 319, 381 Mass. 1, 11 A.L.R. 4th 1 (1980).

[40]681 F.2d 161, 216 U.S.P.Q. 109 (3d Cir. 1982).

[41]*E.g.*, Space Aero Prod. v. R. E. Darling Co., 145 U.S.P.Q. 356 (Md. Ct. of Appeals 1965); CBS v. Image Sys., 16 Cont. Cases Fed. § 80,172 (D. Conn. 1971); Junkunc v. S.J. Advanced Technology and Mfg. Corp., 32 P.T.C.J. 104 (Ill. App. Ct., May 1, 1986).

[42]10 U.S.C. § 2321(e). (Applies to solicitations issued after Oct. 19, 1985, § 1216(c)(2), P.L. 98-525.)

[43]41 U.S.C. § 253d. (Applies to Solicitations issued after Dec. 29, 1984, § 203(b), P.L. 98-577.)

[44]76-1 B.C.A. ¶ 11,904 (1969, published 1976).

[45]7 Cl.Ct. 726, 3 Fed. Proc. Dec. ¶ 123 (1985).

[46]85-3 BCA ¶ 18,415.

[47]Bell Helicopter Textron v. United States, Appeal No. 86-904 (June 6, 1978) (opinion notes it will not be published and is not citable as a precedent).

[48]*International Eng'g*, 512 F.2d at 577-78.

[49]D. D.C. No. 85-3111, July 30, 1986.

[50]Author's Interview with Harry Saragovitz, Aug. 26, 1986.

[51]Saragovitz, *supra* note 1, 15 VILLANOVA L. REV. at 345.

[52]T. Arnold, PROTECTING TRADE SECRETS TODAY 374-75 (Practicing Law Institute, 1972).

UNITED STATES DEPARTMENT OF COMMERCE
Patent and Trademark Office
ASSISTANT SECRETARY AND COMMISSIONER
OF PATENTS AND TRADEMARKS
Washington, D.C. 20231

March 16, 1987

Walter R. Baylor
7701 Willowbrook Road
Fairfax Station, VA 22039

Dear Mr. Baylor:

Your Data Sheet informing this Office of your change of address has been received and noted. Your name, however, will continue to be listed as inactive until such time that you inform us that you are no longer with the government, or, that you are preparing and prosecuting patent applications on behalf of the government. [37 CFR 10.6(d), formerly 37 CFR 34.(f)].

Very truly yours,

Marian E. Ford
Office of Enrollment & Discipline

rection of the Director, or associate solicitor or assistant solicitor in the Office of the Solicitor shall participate in rendering a decision on the charges.

(c) No discovery shall be authorized of, and no member of the Committee on Discipline shall be required to testify about, deliberations of the Committee on Discipline.

Individuals Entitled To Practice Before the Patent and Trademark Office

§ 10.5 Register of attorneys and agents in patent cases.

A register of attorneys and agents is kept in the Office on which are entered the names of all individuals recognized as entitled to represent applicants before the Office in the preparation and prosecution of applications for patent. Registration in the Office under the provisions of this part shall only entitle the individuals registered to practice before the Office in patent cases.

§ 10.6 Registration of attorneys and agents.

(a) *Attorneys.* Any citizen of the United States who is an attorney and who fulfills the requirements of this part may be registered as a patent attorney to practice before the Office. When appropriate, any alien who is an attorney, who lawfully resides in the United States, and who fulfills the requirements of this part may be registered as a patent attorney to practice before the Office, *provided:* Registration is not inconsistent with the terms upon which the alien was admitted to, and resides in, the United States and *further provided:* The alien may remain registered only (1) if the alien continues to lawfully reside in the United States and registration does not become inconsistent with the terms upon which the alien continues to lawfully reside in the United States or (2) if the alien ceases to reside in the United States, the alien is qualified to be registered under paragraph (c) of this section. See also § 10.9(b).

(b) *Agents.* Any citizen of the United States who is not an attorney and who fulfills the requirements of this part may be registered as a patent agent to practice before the Office. When appropriate, any alien who is not an attorney, who lawfully resides in the United States, and who fulfills the requirements of this part may be registered as a patent agent to practice before the Office, *provided:* Registration is not inconsistent with the terms upon which the alien was admitted to, and resides in, the United States, and *further provided:* The alien may remain registered only (1) if the alien continues to lawfully reside in the United States and registration does not become inconsistent with the terms upon which the alien continues to lawfully reside in the United States or (2) if the alien ceases to reside in the United States, the alien is qualified to be registered under paragraph (c) of this section. See also § 10.9(b).

NOTE: All individuals registered prior to November 15, 1938, were registered as attorneys, whether they were attorneys or not, and such registrations have not been changed.

(c) *Foreigners.* Any foreigner not a resident of the United States who shall file proof to the satisfaction of the Director that he or she is registered and in good standing before the patent office of the country in which he or she resides and practices and who is possessed of the qualifications stated in § 10.7, may be registered as a patent agent to practice before the Office for the limited purpose of presenting and prosecuting patent applications of applicants located in such country, *provided:* The patent office of such country allows substantially reciprocal privileges to those admitted to practice before the United States Patent and Trademark Office. Registration as a patent agent under this paragraph shall continue only during the period that the conditions specified in this paragraph obtain.

(d) *Government employees.* Any officer or employee of the United States who is disqualified by statute (18 U.S.C. 203, 205) from practicing as an attorney or agent in proceedings or other matters before Government departments or agencies, may not be registered to practice before the Office. If any registered attorney or agent becomes an officer or employee of the

United States who is disqualified by statute from practicing as an attorney or agent in proceedings and other matters before Government departments or agencies, his or her name shall be endorsed as inactive on the register during the period of any employment by the United States. An officer or employee of the United States whose official duties require the preparation and prosecution of applications for patent and who fulfills the requirements of this part may be registered to practice before the Office to the extent necessary to carry out his or her official duties. A written statement describing the official duties of the officer or employee and signed on behalf of the agency employing the officer or employee may be required by the Director.

(e) *Former Office employees.* No individual who has served in the Office will be registered after termination of his or her services, nor if registered before such service, be reinstated, unless he or she signs a written statement indicating that he or she has read 18 U.S.C. 207. No individual who has served in the patent examining corps of the Office will be registered after termination of his or her services, nor if registered before such service, be reinstated, unless he or she signs a written undertaking (1) not to prosecute or aid in any manner in the prosecution of any patent application pending in any patent examining group during his or her period of service therein and (2) not to prepare or prosecute or to assist in any manner in the preparation or prosecution of any patent application of another (i) assigned to such group for examination and (ii) filed within two years after the date he or she left such group, without written authorization of the Director. Associated and related classes in other patent examining groups may be required to be included in the undertaking or designated classes may be excluded from the undertaking. When an application for registration or reinstatement is made after resignation from the Office, the applicant will not be registered or reinstated if he or she has prepared or prosecuted or assisted in the preparation or prosecution of any patent application as indicated in this paragraph.

(Approved by the Office of Management and Budget under control number 0651-0012)

§ 10.7 Requirements for registration.

(a) No individual will be registered to practice before the Office unless he or she shall:

(1) Apply to the Commissioner in writing on a form supplied by the Director and furnish all requested information and material and

(2) Establish to the satisfaction of the Director that he or she is:

(i) Of good moral character and repute;

(ii) Possessed of the legal, scientific, and technical qualifications necessary to enable him or her to render applicants for patents valuable service; and

(iii) Is otherwise competent to advise and assist applicants for patents in the presentation and prosecution of their applications before the Office.

(b) In order that the Director may determine whether an individual seeking to have his or her name placed upon the register has the qualifications specified in paragraph (a) of this secion, satisfactory proof of good moral character and repute and of sufficient basic training in scientific and technical matters must be submitted to the Director. Except as provided in this paragraph, each applicant for registration must take and pass an examination which is held from time to time. Each application for admission to take the examination for registration must be accompanied by the fee set forth in § 1.21(a)(1) of this subchapter. The taking of an examination may be waived in the case of any individual who has actively served for at least four years in the patent examining corps of the Office. The examination will not be administered as a mere academic exercise.

(c) Within two months from the date an applicant is notified that he or she failed an examination, the applicant may request regrading of the examination upon payment of the fee set forth in § 1.21(a)(6). Any applicant requesting regrading shall particularly point out the errors which the appli-

cant believed occurred in the grad of his or her examination.

(Approved by the Office of Managen and Budget under control number 0 0012)

§ 10.8 Oath and registration fee.

Before an individual may have hi her name entered on the register o torneys and agents, the indivi must, after his or her applicatio approved, subscribe and swear t oath or make a declaration presc by the Commissioner and pay the istration fee set forth in § 1.21(a)(this subchapter.

(Approved by the Office of Manage and Budget under control number 0012)

§ 10.9 Limited recognition in patent

(a) Any individual not regis under § 10.6 may, upon a showi circumstances which render it sary or justifiable, be given li recognition by the Director to ecute as attorney or agent a spe application or specified applica but limited recognition under paragraph shall not extend f than the application or applic specified.

(b) When registration of a re alien under paragraphs (a) or § 10.6 is not appropriate, the re alien may be given limited recog as may be appropriate under graph (a) of this section.

§ 10.10 Individuals not registered ognized to practice in patent cas

Only practitioners who are tered under § 10.6 or individual limited recognition under § 10.9 permitted to prosecute patent a tions of others before the Office

§ 10.11 Removing names from the

(a) Registered attorneys and shall notify the Director change of address. Any notific the Director of any change of shall be separate from any n change of address filed in in applications.

(b) A letter may be addresse individual on the register, at dress of which separate notice

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TAX REFORM AND THE ASSOCIATION MEETING

By Sheldon London

The sweeping Tax Reform Act of 1986 will change the tax consequences for millions of Americans who each year attend and enjoy the annual meetings, conventions, trade show, and seminars of sponsoring business and professional organizations.

To illustrate the impact of the new tax law, let's follow "I. M. Taxpayer" of Vienna, Virginia, who travels to Dallas, Texas, March 12-16, 1987 for the annual convention of his national trade association.

Meal Expenses

Notwithstanding the torrent of protests from the hospitality industry, Congress made a fundamental change in the way meal expenses are to be deducted. Since January 1 of this year, only 80 percent of food and beverage expenses for business meals are deductible.

A business meal is one that takes place in an atmosphere conducive to business discussion, and the taxpayer either establishes 1) that the expense was directly related to the active conduct of his business; or 2) that the meal directly precedes or follows a substantial and bona fide business discussion. In either case, the taxpayer must substantiate the deductions in accordance with IRS regulations. On this point, Congress instructed the IRS to develop stricter substantiation rules for meals costing more than $25. An individual who is away from home on business and dining alone or with other than business-related persons (e.g. family or friends) is nonetheless entitled to the meal expense deduction for his or her meal. There has been renewed emphasis on the Internal Revenue Code provision that disallows deductions for food or beverage expenses which are "lavish or extravagant under the circumstances." The legislative history states that it is the congressional intent that "this standard be enforced by the IRS and the courts."

In our example, I. M. Taxpayer is told at Dulles Airport that there is to be a two-hour weather delay. He decides to have a meal at the airport restaurant. His $12 tab, which included tax and tip, will be a $9.60 expense deduction (80 percent of $12) for IRS purposes. The legislative history of the Tax Reform Act of 1986 reveals that the 80 percent deduction may be taken on the entire meal bill including the amounts for tips and taxes. In our example, we have assumed that I. M. Taxpayer is self-employed, but even for those who are employees and who are reimbursed for their expenses, the 80 percent limit would apply to their employers.

For 1987 and 1988 calendar years, Congress created a limited exception from the 80 percent rule for meals which are an integral part of a "qualified banquet meeting." In these specific instances, 100 percent of the meal cost is deductible. The rules governing this exception are narrowly drawn. A "qualified banquet meeting" can be a convention, seminar, annual meeting or similar business meeting, so long as the following conditions are met: 1) the registration fee includes meals, the cost of which are not separately stated, 2) more than 50 percent of the participants are away from home, 3) there are at least 40 attendees, and 4) the meal event includes a speaker.

In I. M. Taxpayer's case, his registration fee of $350 includes all meal functions, and the sponsoring organization properly indicated in its promotional literature: "The registration fee includes all meal functions, and is fully tax deductible in conformity with the 'qualified meeting' rule, Sec. 142(n)(3) of the Tax Reform Act of 1986." Remember, this is only a two-year exception, good for 1987 and 1988.

Entertainment Expenses Other Than Meals

As of January 1, 1987 there is an 80 percent deduction limit on the amount of entertainment expenses. Formerly, 100 percent of the business entertainment expenses were deductible. As in prior law, entertainment expenses must constitute ordinary and necessary expenses, and additionally must either: 1) be directly related to or associated with the active conduct of the taxpayer's business; or 2) directly precede or follow a substantial and bona fide business discussion.

Our man in Dallas, I. M. Taxpayer, following such a business discussion with three colleagues involving issues related to the active conduct of his business, takes them to a professional basketball game, which happily coincides with one of the open evenings during the convention. I. M. Taxpayer paid $90 for the tickets. The tax law limits his entertainment deduction to 80 percent of the face value of the cost of these tickets, or $72. In no event may a taxpayer take a deduction on more than the face value of the tickets.

Convention Travel Expenses

The deductibility rules governing transportation expenses (air fare, airport limousines, city cabs, etc.) and lodging charges have not changed. These business expenses continue to be 100 percent deductible. Obviously, any hotel room service charges for food or beverage service on one's hotel bill would be subject to the 80 percent deductible rule.

Another change in the new tax law is a limitation on deductions for luxury water transportation to an amount twice the "per diem" allowable to employees of the federal government. The current federal per diem amount is $126. Deductions for the travel expense of taking a cruise ship to attend a convention in England, for example, would be affected by this change in the law. The 1986 tax reform law did not amend the already stringent rules governing deductions for foreign conventions and meetings aboard cruise ships of U.S. registry. The latter imposes a dollar limitation ($2,000) and strict reporting requirements. Sponsoring organizations having a cruise ship convention or a foreign convention are cautioned to consult counsel for proper guidance on program scheduling to insure deductibility.

See Tax, on page 45

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SMALL BUSINESS INNOVATION RESEARCH
GENERAL PURPOSE OF PL 97-219

ALL AGENCIES WITH OVER $100M/YR IN EXTRAMURAL RESEARCH MUST ESTABLISH SBIR PROGRAM OF ~~1.5%~~ 1.25% OF BUDGET TO:

- STIMULATE TECHNOLOGICAL INNOVATION
- USE SMALL BUSINESSES TO MEET FEDERAL NEEDS
- ENCOURAGE PARTICIPATION BY DISADVANTAGED AND MINORITY PERSONNEL IN INNOVATION
- INCREASE US PRIVATE SECTOR EFFORTS TO COMMERCIALIZE RESULTS OF FEDERAL R&D.

SMALL BUSINESS INNOVATION RESEARCH
FEDERAL AGENCY INVOLVEMENT

- DEPARTMENT OF AGRICULTURE
- DEPARTMENT OF COMMERCE
- DEPARTMENT OF DEFENSE
- DEPARTMENT OF EDUCATION
- DEPARTMENT OF ENERGY
- DEPARTMENT OF HEALTH AND HUMAN SERVICES
- DEPARTMENT OF TRANSPORTATION
- ENVIRONMENTAL PROTECTION AGENCY
- NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
- NATIOINAL SCIENCE FOUNDATION
- NUCLEAR REGULATORY COMMISSION
- SMALL BUSINESS ADMINISTRATION

SMALL BUSINESS INNOVATION RESEARCH
PHASES OF EFFORT

- THREE PHASES OF R&D SUPPORT:

- PHASE I
  $20-50,000 FOR 6 MONTHS TO:
  * DEMONSTRATE COMPETENCE OF FIRM
  * TEST TECHNICAL FEASIBLITY

- PHASE II
  $200-500,000 FOR 2 YEARS IF:
  * PHASE I PROGRESS SUFFICIENT
  * HAS ADEQUATE TECHNICAL MERIT
  * SHOWS PROMISE OF COMMERCIALIZATION

- PHASE III
  ADDITIONAL DEVELOPMENT COSTS BY:
  * COMPANY
  * BY COMMERCIAL PARTNER
  * WITH NON-SBIR FEDERAL MONEY.

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A

SBIRREP1.WK1

SMALL BUSINESS INNOVATION RESEARCH PROGRAM REPS

AGENCY	NAME	TELEPHONE #	
AGRICULTURE	CLELAND, CHARLES	447-7002	
COMMERCE	MARUCA, JIM	377-1472	
DEFENSE	WRENN, BOB	697-9383	
EDUCATION	CHRISTENSEN, JOHN	357-6065	
ENERGY	WASHINGTON, GERRY	353-5867	
HHS	CLINKSCALES, RICHARD	245-5867	
TRANSPORTATION	KOVATCH, GEORGE	494-2051	AC 617
EPA	PRESTON, WALTER	382-7445	
NASA	JOHNSON, HARRY	453-8341	
NSF	TIBBETTS, ROLAND	357-7527	
NRC	FOREHAND, BILL	443-7679	
SBA, O INNOV TECH	SHANE,		

B

SBIR

Small Business Innovation Research

The SBIR Program

The SBIR program is interested in research on advanced concepts in scientific or engineering areas, particularly where the research may serve as a base for technological innovation. R&D and product firms may find an opportunity under SBIR to explore the most advanced high-risk concepts which can lead to the next generation of products and processes and strengthen our economic competitiveness.

Phase I—Feasibility Research

Phase I is to conduct feasibility related experimental or theoretical research on the proposed innovative idea or approach. The proposal should concentrate on that research which will significantly contribute to proving the technical feasibility of the approach or concept and which would be prerequisite to further research and NSF support in Phase II. **The objectives of Phase I are to determine: the technical feasibility of the proposed idea; the quality of research performed by the firm; and the ability to produce significant results in Phase I before consideration of increased Federal support in Phase II. The work proposed for Phase I, assuming that it proceeds successfully, should be suitable in nature for subsequent progression to Phase II and III.**

Awardees will have six (6) months to carry out their Phase I effort. Phase I results are to be submitted to NSF in a single comprehensive final report.

Under this solicitation NSF anticipates that it will make about 150 awards of up to $50,000 each to individual small business organizations for Phase I.

Phase II—Principal Research Project

Phase II is the principal research effort. Only those receiving Phase I awards will be eligible to submit Phase II proposals.

For Phase II a more comprehensive proposal must be submitted within thirty (30) days after the expiration date of Phase I award. It may be submitted earlier but not prior to the submission of the Phase I final report (see schedule on page 2). Phase II proposals must be prepared in accordance with further information which will be provided to all Phase I grantees.

Phase II proposals may request support for up to a two professional person- year level of effort annually, depending upon the scope of the research, for a period up to 24 months.

Phase II awards for up to $250,000 will be made to those companies with projects that appear most promising as a result of the first phase. It is anticipated that one-third to one-half of Phase I awardees will receive Phase II grants depending upon the availability of funds. Both Phase I and II may include a fee (estimated profit) of up to 7 percent.

Phase III—Development

This phase, conducted by the small business firm, is privately funded from a non-SBIR source through the exercising of the follow-on funding commitment. Phase III is the development phase to pursue commercial objectives from the NSF-supported research carried out in Phase I and II.

Public Law 96-480, As Amended by Public Law 99-502 (October 20, 1986)

An Act

To promote United States technological innovation for the achievement of national economic, environmental, and social goals, and for other purposes.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That this Act may be cited as the "Stevenson-Wydler Technology Innovation Act of 1980".

SEC. 2. FINDINGS.

The Congress finds and declares that:

(1) Technology and industrial innovation are central to the economic, environmental, and social well-being of citizens of the United States.

(2) Technology and industrial innovation offer an improved standard of living, increased public and private sector productivity, creation of new industries and employment opportunities, improved public services and enhanced competitiveness of United States products in world markets.

(3) Many new discoveries and advances in science occur in universities and Federal laboratories, while the application of this new knowledge to commercial and useful public purposes depends largely upon actions by business and labor. Cooperation among academia, Federal laboratories, labor, and industry, in such forms as technology transfer, personnel exchange, joint research projects, and others, should be renewed, expanded, and strengthened.

(4) Small businesses have performed an important role in advancing industrial and technological innovation.

(5) Industrial and technological innovation in the United States may be lagging when compared to historical patterns and other industrialized nations.

(6) Increased industrial and technological innovation would reduce trade deficits, stabilize the dollar, increase productivity gains, increase employment, and stabilize prices.

(7) Government antitrust, economic, trade, patent, procurement, regulatory, research and development, and tax policies have significant impacts upon industrial innovation and development of technology, but there is insufficient knowledge of their effects in particular sectors of the economy.

(8) No comprehensive national policy exists to enhance technological innovation for commercial and public purposes. There is a need for such a policy, including a strong national policy supporting domestic technology transfer and utilization of the science and technology resources of the Federal Government.

(9) It is in the national interest to promote the adaptation of technological innovations to State and local government uses. Technological innovations can improve services, reduce their costs, and increase productivity in State and local governments.

(10) The Federal laboratories and other performers of federally funded research and development frequently provide scientific and technological developments of potential use to State and local governments and private industry. These developments *, which include inventions, computer software, and training technologies,* should be made accessible to those governments and industry. There is a need to provide means of access and to give adequate personnel and funding support to these means.

(11) The Nation should give fuller recognition to individuals and companies which have made outstanding contributions to the promotion of technology or technological manpower for the improvement of the economic, environmental, or social well-being of the United States.

SEC. 3. PURPOSE.

It is the purpose of this Act to improve the economic, environmental, and social well-being of the United States by—

(1) establishing organizations in the executive branch to study and stimulate technology;

(2) promoting technology development through the establishment of ~~centers for industrial technology~~ *cooperative research centers*;

(3) stimulating improved utilization of federally funded technology developments *, including inventions, software, and training technologies,* by State and local governments and the private sector;

(4) providing encouragement for the development of technology through the recognition of individuals and companies which have made outstanding contributions in technology; and

(5) encouraging the exchange of scientific and technical personnel among academia, industry, and Federal laboratories.

SEC. 4. DEFINITIONS.

As used in this Act, unless the context otherwise requires, the term—

(1) "Office" means the Office of ~~Industrial Technology~~ *Productivity, Technology, and Innovation* ~~established~~ established under section 5 of this Act.

(2) "Secretary" means the Secretary of Commerce.

(3) ~~"Director" means the Director of the Office of Industrial Technology~~ *'Assistant Secretary' means the Assistant Secretary for Productivity, Technology, and Innovation*, appointed pursuant to section 5 of this Act.

(4) "Centers" means the ~~Centers for Industrial Technology~~ *Cooperative Research Centers* established under section 6 or section 8 of this Act.

(5) "Nonprofit institution" means an organization owned and operated exclusively for scientific or educational purposes, no part of the net earnings of which inures to the benefit of any private shareholder or individual.

~~(6) "Board" means the National Industrial Technology Board established pursuant to section 10.~~

(6) ~~(7)~~ "Federal laboratory" means any laboratory, any federally funded research and development center, or any center established under section 6 or section 8 of this Act that is ~~owned and funded~~ *owned, leased, or otherwise used by a Federal agency and funded* by the Federal Government, whether operated by the Government or by a contractor.

(7) ~~(8)~~ "Supporting agency" means either the Department of Commerce or the National Science Foundation, as appropriate.

"(8) 'Federal agency' means any executive agency as defined in section 105 of title 5, United States Code, and the military departments as defined in section 102 of such title.

"(9) 'Invention' means any invention or discovery which is or may be patentable or otherwise protected under title 35, United States Code, or any novel variety of plant which is or may be protectable under the Plant Variety Protection Act (7 U.S.C. 2321 et seq.).

"(10) 'Made' when used in conjunction with any invention means the conception or first actual reduction to practice of such invention.

"(11) 'Small business firm' means a small business concern as defined in section 2 of Public Law 85-536 (15 U.S.C. 632) and implementing regulations of the Administrator of the Small Business Administration.

"(12) 'Training technology' means computer software and related materials which are developed by a Federal agency to train employees of such agency, including but not limited to software for computer-based instructional systems and for interactive video disc systems.

SEC. 5. COMMERCE AND TECHNOLOGICAL INNOVATION.

(a) IN GENERAL.—The Secretary shall establish and maintain an Office of ~~Industrial Technology~~ *Productivity, Technology, and Innovation* in accordance with the provisions, findings, and purposes of this Act.

(b) ~~DIRECTOR~~ *ASSISTANT SECRETARY.*—The President shall appoint, by and with the advice and consent of the Senate, ~~a Director of the Office, who shall be compensated at the rate provided for level V of the Executive Schedule in section 5316 of title 5, United States Code.~~ *an Assistant Secretary for Productivity, Technology, and Innovation.*

(c) DUTIES.—The Secretary, through ~~the Director~~ *the Assistant Secretary* on a continuing basis, shall—

(1) determine the relationships of technological developments and international technology transfers to the output, employment, productivity, and world trade performance of United States and foreign industrial sectors;

(2) determine the influence of economic, labor and other conditions, industrial structure and management, and government policies on technological developments in particular industrial sectors worldwide;

(3) identify technological needs, problems, and opportunities within and across industrial sectors that, if addressed, could make a significant contribution to the economy of the United States;

(4) assess whether the capital, technical and other resources being allocated to domestic industrial sectors which are likely to generate new technologies are adequate to meet private and social demands for goods and services and to promote productivity and economic growth;

(5) propose and support studies and policy experiments, in cooperation with other Federal agencies, to determine the effectiveness of measures with the potential of advancing United States technological innovation;

(6) provide that cooperative efforts to stimulate industrial innovation be undertaken between ~~the Director~~ *the Assistant Secretary* and other officials in the Department of Commerce responsible for such areas as trade and economic assistance;

"(7) encourage and assist the creation of centers and other joint initiatives by State of local governments, regional organizations, private businesses, institutions of higher education, nonprofit organizations, or Federal laboratories to encourage technology transfer, to stimulate innovation, and to promote an appropriate climate for investment in technology-related industries;

"(8) propose and encourage cooperative research involving appropriate Federal entities, State or local governments, regional organizations, colleges or universities, nonprofit organizations, or private industry to promote the common use of resources, to improve training programs and curricula, to stimulate interest in high technology careers, and to encourage the effective dissemination of technology skills within the wider community;

(9) (7) consider government measures with the potential of advancing United States technological innovation and exploiting innovations of foreign origin; and

(10) (8) publish the results of studies and policy experiments.

(d) REPORT.—The Secretary shall prepare and submit to the President and Congress, within 3 years after the date of enactment of this Act, a report on the progress, findings, and conclusions of activities conducted pursuant to sections 5, 6, 8, 11, 12, and 13 of this Act (as then in effect) and recommendations for possible modifications thereof.

~~SEC. 6. CENTERS FOR INDUSTRIAL TECHNOLOGY.~~

SEC. 6. COOPERATIVE RESEARCH CENTERS.

(a) ESTABLISHMENT.—The Secretary shall provide assistance for the establishment of ~~Centers for Industrial Technology~~ *Cooperative Research Centers*. Such Centers shall be affiliated with any university, or other nonprofit institution, or group thereof, that applies for and is awarded a grant or enters into a cooperative agreement under this section. The objective of the Centers is to enhance technological innovation through—

(1) the participation of individuals from industry and universities in cooperative technological innovation activities;

(2) the development of the generic research base, important for technological advance and innovative activity, in which individual firms have little incentive to invest, but which may have significant economic or strategic importance, such as manufacturing technology;

(3) the education and training of individuals in the technological innovation process;

(4) the improvement of mechanisms for the dissemination of scientific, engineering, and technical information among universities and industry;

(5) the utilization of the capability and expertise, where appropriate, that exists in Federal laboratories; and

(6) the development of continuing financial support from other mission agencies, from State and local government, and from industry and universities through, among other means, fees, licenses, and royalties.

(b) ACTIVITIES.—The activities of the Centers shall include, but need not be limited to—

(1) research supportive of technological and industrial innovation including cooperative industry-university ~~basic and applied~~ research;

(2) assistance to individuals and small businesses in the generation, evaluation and development of technological ideas supportive of industrial innovation and new business ventures;

(3) technical assistance and advisory services to industry, particularly small businesses; and

(4) curriculum development, training, and instruction in invention, entrepreneurship, and industrial innovation.

Each Center need not undertake all of the activities under this subsection.

(c) REQUIREMENTS.—Prior to establishing a Center, the Secretary shall find that—

(1) consideration has been given to the potential contribution of the activities proposed under the Center to productivity, employment, and economic competitiveness of the United States;

(2) a high likelihood exists of continuing participation, advice, financial support, and other contributions from the private sector;

(3) the host university or other nonprofit institution has a plan for the management and evaluation of the activities proposed within the particular Center, including:

(A) the agreement between the parties as to the allocation of patent rights on a nonexclusive, partially exclusive, or exclusive license basis to and inventions conceived or made under the auspices of the Center; and

(B) the consideration of means to place the Center, to the maximum extent feasible, on a self-sustaining basis;

(4) suitable consideration has been given to the university's or other nonprofit institution's capabilities and geographical location; and

(5) consideration has been given to any effects upon competition of the activities proposed under the Center.

(d) PLANNING GRANTS.—The Secretary is authorized to make available nonrenewable planning grants to universities or nonprofit institutions for the purpose of developing a plan required under subsection (c)(3).

~~(e) RESEARCH AND DEVELOPMENT UTILIZATION. (1) To promote technological innovation and commercialization of research and development efforts, each Center has the option of acquiring title to any invention conceived or made under the auspices of the Center that was supported at least in part by Federal funds *Provided*, That—~~

~~(A) the Center reports the invention to the supporting agency together with a list of each country in which the Center elects to file a patent application on the invention;~~

~~(B) said option shall be exercised at the time of disclosure of invention or within such time thereafter as may be provided in the grant or cooperative agreement;~~

(C) the Center intends to promote the commercialization of the invention and file a United States patent application;

(D) royalties be used for compensation of the inventor or for educational or research activities of the Center;

(E) the Center make periodic reports to the supporting agency, and the supporting agency may treat information contained in such reports as privileged and confidential technical, commercial, and financial information and not subject to disclosures under the Freedom of Information Act; and

(F) any Federal department or agency shall have the royalty-free right to practice, or have practiced on its behalf, the invention for governmental purposes.

The supporting agency shall have the right to acquire title to any patent on an invention in any country in which the Center elects not to file a patent application or fails to file within a reasonable time.

(2) Where a Center has retained title to an invention under paragraph (1) of this subsection the supporting agency shall have the right to require the Center or its licensee to grant a nonexclusive, partially exclusive, or exclusive license to a responsible applicant or applicants, upon terms that are reasonable under the circumstances, if the supporting agency determines, after public notice and opportunity for hearing, that such action is necessary—

(A) because the Center or licensee has not taken and is not expected to take timely and effective action to achieve practical application of the invention;

(B) to meet health, safety, environmental, or national security needs which are not reasonably satisfied by the contractor or licensee; or

(C) because the granting of exclusive rights in the invention has tended substantially to lessen competition or to result in undue market concentration in the United States in any line of commerce to which the technology relates.

~~(3) Any individual, partnership, corporation, association, institution, or other entity adversely affected by a supporting agency determination made under paragraph (2) of this subsection may, at any time within 60 days after the determination is issued, file a petition to the United States Court of Claims which shall have jurisdiction to determine that matter de novo and to affirm, reverse, or modify as appropriate, the determination of the supporting agency.~~

(e) RESEARCH AND DEVELOPMENT UTILIZATION.—In the promotion of technology from research and development efforts by Centers under this section, chapter 18 of title 35, United States Code, shall apply to the extent not inconsistent with this section.

~~(f) ADDITIONAL CONSIDERATION. The supporting agency may request the Attorney General's opinion whether the proposed joint research activities of a Center would violate any of the antitrust laws. The Attorney General shall advise the supporting agency of his determination and the reasons for it within 120 days after receipt of such request.~~

SEC. 7. GRANTS AND COOPERATIVE AGREEMENTS.

(a) IN GENERAL.—The Secretary may make grants and enter into cooperative agreements according to the provisions of this section in order to assist any activity consistent with this Act, including activities performed by individuals. The total amount of any such grant or cooperative agreement may not exceed 75 percent of the total cost of the program.

(b) ELIGIBILITY AND PROCEDURE.—Any person or institution may apply to the Secretary for a grant or cooperative agreement available under this section. Application shall be made in such form and manner, and with such content and other submissions, as the Director shall prescribe. The Secretary shall act upon each such application within 90 days after the date on which all required information is received.

Note: "Director" should have been replaced by"Assistan Secretary"-- see Section 4(3).

(c) TERMS AND CONDITIONS.—

(1) Any grant made, or cooperative agreement entered into, under this section shall be subject to the limitations and provisions set forth in paragraph (2) of this subsection, and to such other terms, conditions, and requirements as the Secretary deems necessary or appropriate.

(2) Any person who receives or utilizes any proceeds of any grant made or cooperative agreement entered into under this section shall keep such records as the Secretary shall by regulation prescribe as being necessary and appropriate to facilitate effective audit and evaluation, including records which fully disclose the amount and disposition by such recipient of such proceeds, the total cost of the program or project in connection with which such proceeds were used, and the amount, if any, of such costs which was provided through other sources.

SEC. 8. NATIONAL SCIENCE FOUNDATION ~~CENTERS FOR INDUSTRIAL TECHNOLOGY.~~ *COOPERATIVE RESEARCH CENTERS*.

(a) ESTABLISHMENT AND PROVISIONS.—The National Science Foundation shall provide assistance for the establishment of ~~Centers for Industrial Technology.~~ *Cooperative Research Centers*. Such Centers shall be affiliated with a university, or other nonprofit institution, or a group thereof. The objective of the Centers is to enhance technological innovation as provided in section 6(a) through the conduct of activities as provided in section 6(b). ~~The provisions of sections 6(c) and 6(f) shall apply to Centers established under this section.~~

(b) PLANNING GRANTS.—The National Science Foundation is authorized to make available nonrenewable planning grants to universities or nonprofit institutions for the purpose of developing the plan, as described under section 6(c)(3).

(c) TERMS AND CONDITIONS.—Grants, contracts, and cooperative agreements entered into by the National Science Foundation in execution of the powers and duties of the National Science Foundation under this Act shall be governed by the National Science Foundation Act of 1950 and other pertinent Acts.

SEC. 9. ADMINISTRATIVE ARRANGEMENTS.

(a) COORDINATION.—The Secretary and the National Science Foundation shall, on a continuing basis, obtain the advice and cooperation of departments and agencies whose missions contribute to or are affected by the programs established under this Act, including the development of an agenda for research and policy experimentation. These departments and agencies shall include but not be limited to the Departments of Defense, Energy, Education, Health and Human Services, Housing and Urban Development, the Environmental Protection Agency, National Aeronautics and Space Administration, Small Business Administration, Council of Economic Advisers, Council on Environmental Quality, and Office of Science and Technology Policy.

(b) COOPERATION.—It is the sense of the Congress that departments and agencies, including the Federal laboratories, whose missions are affected by, or could contribute to, the programs established under this Act, should, within the limits of budgetary authorizations and appropriations, support or participate in activities or projects authorized by this Act.

(c) ADMINISTRATIVE AUTHORIZATION.—

(1) Departments and agencies described in subsection (b) are authorized to participate in, contribute to, and serve as resources for the Centers and for any other activities authorized under this Act.

(2) The Secretary and the National Science Foundation are authorized to receive moneys and to receive other forms of assistance from other departments or agencies to support activities of the Centers and any other activities authorized under this Act.

(d) COOPERATIVE EFFORTS.—The Secretary and the National Science Foundation shall, on a continuing basis, provide each other the opportunity to comment on any proposed program of activity under section 6, 8, ~~or 12~~ *10, 14, or 16* of this Act before funds are committed to such program in order to mount complementary efforts and avoid duplication.

~~SEC. 10. NATIONAL INDUSTRIAL TECHNOLOGY BOARD.~~

(a) ESTABLISHMENT.—There shall be established a committee to be known as the National Industrial Technology Board.

(b) DUTIES.—The Board shall take such steps as may be necessary to review annually the activities of the Office and advise the Secretary and the Director with respect to—

(1) the formulation and conduct of activities under section 5 of this title;

(2) the designation and operation of Centers and their programs under section 6 of this Act including assistance in establishing priorities;

(3) the preparation of the report required under section 5(d); and

(4) such other matters as the Secretary or Director refers to the Board, including the establishment of Centers under section 8 of this Act, for review and advice.

The Director shall make available to the Board such information, personnel, and administrative services and assistance as it may reasonably require to carry out its duties. The National Science Foundation shall make available to the Board such information and assistance as it may reasonably require to carry out its duties.

(c) MEMBERSHIP, TERMS, AND POWERS.—

(1) The Board shall consist of 15 voting members who shall be appointed by the Secretary. The Director shall serve as a nonvoting member of the Board. The members of the Board shall be individuals who, by reason of knowledge, experience, or training are especially qualified in one or more of the disciplines and fields dealing with technology, labor, and industrial innovation or who are affected by technological innovation. The majority of the members of the Board shall be individuals from industry and business.

(2) The term of office of a voting member of the Board shall be 3 years, except that of the original appointees, five shall be appointed for a term of 1 year, five shall be appointed for a term of 2 years, and five shall be appointed for a term of 3 years.

(3) Any individual appointed to fill a vacancy occurring before the expiration of the term for which his or her predecessor was appointed shall be appointed only for the remainder of such term. No individual may be appointed as a voting member after serving more than two full terms as such a member.

(4) The Board shall select a voting member to serve as the Chairperson and another voting member to serve as the Vice Chairperson. The Vice Chairperson shall perform the functions of the Chairperson in the absence or incapacity of the Chairperson.

(5) Voting members of the Board may receive compensation at a daily rate for GS–18 of the General Schedule under section 5332 of title 5, United States Code, when actually engaged in the performance of duties for such Board, and may be reimbursed for actual and reasonable expenses incurred in the performance of such duties.

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SEC. ~~11.~~ UTILIZATION OF FEDERAL TECHNOLOGY.

(a) POLICY.—(1) It is the continuing responsibility of the Federal Government to ensure the full use of the results of the Nation's Federal investment in research and development. To this end the Federal Government shall strive where appropriate to transfer federally owned or originated technology to State and local governments and to the private sector.

(2) Technology transfer, consistent with mission responsibilities, is a responsibility of each laboratory science and engineering professional.

(3) Each laboratory director shall ensure that efforts to transfer technology are considered positively in laboratory job descriptions, employee promotion policies, and evaluation of the job performance of scientists and engineers in the laboratory.

(b) ESTABLISHMENT OF RESEARCH AND TECHNOLOGY APPLICATIONS OFFICES.—Each Federal laboratory shall establish an Office of Research and Technology Applications. Laboratories having existing organizational structures which perform the functions of this section may elect to combine the Office of Research and Technology Applications within the existing organization. The staffing and funding levels for these offices shall be determined between each Federal laboratory and the Federal agency operating or directing the laboratory, except that (1) each laboratory having ~~a total annual budget exceeding $20,000,000 shall provide at least one professional individual full time~~ *200 or more full-time equivalent scientific, engineering, and related technical positions shall provide one or more full-time equivalent positions* as staff for its Office of Research and Technology Applications, and (2) after September 30, 1981, each Federal agency which operates or directs one or more Federal laboratories shall make available not less than 0.5 percent of the agency's research and development budget to support the technology transfer function at the agency and at its laboratories, including support of the Offices of Research and Technology Applications.

Furthermore, individuals filling positions in an Office of Research and Technology Applications shall be included in the overall laboratory/agency management development program so as to ensure that highly competent technical managers are full participants in the technology transfer process.

The agency head may waive the ~~requirements set forth in (1) and/or (2) of this subsection~~ *requirement set forth in clause (2) of the preceding sentence*. If the agency head waives ~~either requirement (1) or (2)~~ *such requirement*, the agency head shall submit to Congress at the time the President submits the budget to Congress an explanation of the reasons for the waiver and alternate plans for conducting the technology transfer function at the agency.

(c) FUNCTIONS OF RESEARCH AND TECHNOLOGY APPLICATIONS OFFICES.—It shall be the function of each Office of Research and Technology Applications—

~~(1) to prepare an application assessment of each research and development project in which that laboratory is engaged which has potential for successful application in State or local government or in private industry;~~

(1) to prepare application assessments for selected research and development projects in which that laboratory is engaged and which in the opinion of the laboratory may have potential commercial applications;

(2) to provide and disseminate information on federally owned or originated products, processes, and services having potential application to State and local governments and to private industry;

(3) to cooperate with and assist the ~~Center for the Utilization of Federal Technology~~ *National Technical Information Service, the Federal Laboratory Consortium for Technology Transfer,* and other organizations which link the research and development resources of that laboratory and the Federal Government as a whole to potential users in State and local government and private industry; ~~and~~

(4) to provide technical assistance ~~in response to requests from State and local government officials~~ *to State and local government officials; and*

"(5) to participate, where feasible, in regional, State, and local programs designed to facilitate or stimulate the transfer of technology for the benefit of the region, State, or local jurisdiction in which the Federal laboratory is located.

Agencies which have established organizational structures outside their Federal laboratories which have as their principal purpose the transfer of federally owned or originated technology to State and local government and to the private sector may elect to perform the functions of this subsection in such organizational structures. No Office of Research and Technology Applications or other organizational structures performing the functions of this subsection shall substantially compete with similar services available in the private sector.

~~(d) CENTER FOR THE UTILIZATION OF FEDERAL TECHNOLOGY.—There is hereby established in the Department of Commerce a Center for the Utilization of Federal Technology. The Center for the Utilization of Federal Technology shall—~~

(d) DISSEMINATION OF TECHNICAL INFORMATION.—The National Technical Information Service shall—

(1) serve as a central clearinghouse for the collection, dissemination and transfer of information on federally owned or originated technologies having potential application to State and local governments and to private industry;

~~(2) coordinate the activities of the Offices of Research and Technology Applications of the Federal laboratories;~~

(2) ~~(3)~~ utilize the expertise and services of the National Science Foundation and the ~~existing~~ Federal Laboratory Consortium for Technology Transfer; particularly in dealing with State and local governments;

~~(4) receive requests for technical assistance from State and local governments and refer these requests to the appropriate Federal laboratories;~~

"(3) receive requests for technical assistance from State and local governments, respond to such requests with published information available to the Service, and refer such requests to the Federal Laboratory Consortium for Technology Transfer to the extent that such requests require a response involving more than the published information available to the Service;

(4) ~~(5)~~ provide funding, at the discretion of the Secretary, for Federal laboratories to provide the assistance specified in subsection ~~(c)(4)~~;

(c)(3) and

(5) ~~(6)~~ use appropriate technology transfer mechanisms such as personnel exchanges and computer-based systems.

"(e) ESTABLISHMENT OF FEDERAL LABORATORY CONSORTIUM FOR TECHNOLOGY TRANSFER.—(1) There is hereby established the Federal Laboratory Consortium for Technology Transfer (hereinafter referred to as the 'Consortium') which, in cooperation with Federal laboratories and the private sector, shall—

"(A) develop and (with the consent of the Federal laboratory concerned) administer techniques, training courses, and materials concerning technology transfer to increase the awareness of Federal laboratory employees regarding the commercial potential of laboratory technology and innovations;

"(B) furnish advice and assistance requested by Federal agencies and laboratories for use in their technology transfer programs (including the planning of seminars for small business and other industry);

"(C) provide a clearinghouse for requests, received at the laboratory level, for technical assistance from States and units of local governments, businesses, industrial development organizations, not-for-profit organizations including universities, Federal agencies and laboratories, and other persons, and—

"(i) to the extent that such requests can be responded to with published information available to the National Technical Information Service, refer such requests to that Service, and

"(ii) otherwise refer these requests to the appropriate Federal laboratories and agencies;

"(D) facilitate communication and coordination between Offices of Research and Technology Applications of Federal laboratories;

"(E) utilize (with the consent of the agency involved) the expertise and services of the National Science Foundation, the Department of Commerce, the National Aeronautics and Space Administration, and other Federal agencies, as necessary;

"(F) with the consent of any Federal laboratory, facilitate the use by such laboratory of appropriate technology transfer mechanisms such as personnel exchanges and computer-based systems;

"(G) with the consent of any Federal laboratory, assist such laboratory to establish programs using technical volunteers to provide technical assistance to communities related to such laboratory;

"(H) facilitate communication and cooperation between Offices of Research and Technology Applications of Federal laboratories and regional, State, and local technology transfer organizations;

"(I) when requested, assist colleges or universities, businesses, nonprofit organizations, State or local governments, or regional organizations to establish programs to stimulate research and to encourage technology transfer in such areas as technology program development, curriculum design, long-term research planning, personnel needs projections, and productivity assessments; and

"(J) seek advice in each Federal laboratory consortium region from representatives of State and local governments, large and small business, universities, and other appropriate persons on the effectiveness of the program (and any such advice shall be provided at no expense to the Government).

"(2) The membership of the Consortium shall consist of the Federal laboratories described in clause (1) of subsection (b) and such other laboratories as may choose to join the Consortium. The representatives to the Consortium shall include a senior staff member of each Federal laboratory which is a member of the Consortium and a representative appointed from each Federal agency with one or more member laboratories.

"(3) The representatives to the Consortium shall elect a Chairman of the Consortium.

"(4) The Director of the National Bureau of Standards shall provide the Consortium, on a reimbursable basis, with administrative services, such as office space, personnel, and support services of the Bureau, as requested by the Consortium and approved by such Director.

"(5) Each Federal laboratory or agency shall transfer technology directly to users or representatives of users, and shall not transfer technology directly to the Consortium. Each Federal laboratory shall conduct and transfer technology only in accordance with the practices and policies of the Federal agency which owns, leases, or otherwise uses such Federal laboratory.

"(6) Not later than one year after the date of the enactment of this subsection, and every year thereafter, the Chairman of the Consortium shall submit a report to the President, to the appropriate authorization and appropriation committees of both Houses of the Congress, and to each agency with respect to which a transfer of funding is made (for the fiscal year or years involved) under paragraph (7), concerning the activities of the Consortium and the expenditures made by it under this subsection during the year for which the report is made.

"(7)(A) Subject to subparagraph (B), and amount equal to 0.005 percent of that portion of the research and development budget of each Federal agency that is to be utilized by the laboratories of such agency for a fiscal year referred to in subparagraph (B)(ii) shall be transferred by such agency to the National Bureau of Standards at the beginning of the fiscal year involved. Amounts so transferred shall be provided by the Bureau to the Consortium for the purpose of carrying out activities of the Consortium under this subsection.

"(B) A transfer shall be made by any Federal agency under subparagraph (A), for any fiscal year, only if—

"(i) the amount so transferred by that agency (as determined under such subparagraph) would exceed $10,000; and

"(ii) such transfer is made with respect to the fiscal year 1987, 1988, 1989, 1990, or 1991.

"(C) The heads of Federal agencies and their designees, and the directors of Federal laboratories, may provide such additional support for operations of the Consortium as they deem appropriate.

"(8) (A) The Consortium shall use 5 percent of the funds provided in paragraph (7)(A) to establish demonstration projects in technology transfer. To carry out such projects, the Consortium may arrange for grants or awards to, or enter into agreements with, nonprofit State, local, or private organizations or entities whose primary purposes are to facilitate cooperative research between the Federal laboratories and organizations not associated with the Federal laboratories, to transfer technology from the Federal laboratories, and to advance State and local economic activity.

"(B) The demonstration projects established under subparagraph (A) shall serve as model programs. Such projects shall be designed to develop programs and mechanisms for technology transfer from the Federal laboratories which may be utilized by the States and which will enhance Federal, State and local programs for the transfer of technology.

"(C) Application for such grants, awards, or agreements shall be in such form and contain such information as the Consortium or its designee shall specify.

"(D) Any person who receives or utilizes any proceeds of a grant or award made, or agreement entered into, under this paragraph shall keep such records as the Consortium or its designee shall determine are necessary and appropriate to facilitate effective audit and evaluation, including records which fully disclose the amount and disposition of such proceeds and the total cost of the project in connection with which such proceeds were used.

(f) ~~(e)~~ AGENCY REPORTING.—Each Federal agency which operates or directs one or more Federal laboratories shall ~~prepare biennially a report summarizing the activities~~ *report annually to the Congress, as part of the agency's annual budget submission, on the activities* performed by that agency and its Federal laboratories pursuant to the provisions of this section. ~~The report shall be transmitted to the Center for the Utilization of Federal Technology by November 1 of each year in which it is due.~~

(g) FUNCTIONS OF THE SECRETARY.—(1) The Secretary, in consultation with other Federal agencies, may—

"(A) make available to interested agencies the expertise of the Department of Commerce regarding the commercial potential of inventions and methods and options for commercialization which are available to the Federal laboratories, including research and development limited partnerships;

"(B) develop and disseminate to appropriate agency and laboratory personnel model provisions for use on a voluntary basis in cooperative research and development arrangements; and

"(C) furnish advice and assistance, upon request, to Federal agencies concerning their cooperative research and development programs and projects.

"(2) Two years after the date of the enactment of this subsection and every two years thereafter, the Secretary shall submit a summary report to the President and the Congress on the use by the agencies and the Secretary of the authorities specified in this Act. Other Federal agencies shall cooperate in the report's preparation.

"(3) Not later than one year after the date of the enactment of the Federal Technology Transfer Act of 1986, the Secretary shall submit to the President and the Congress a report regarding—

"(A) any copyright provisions or other types of barriers which tend to restrict or limit the transfer of federally funded computer software to the private sector and to State and local governments, and agencies of such State and local governments; and

"(B) the feasibility and cost of compiling and maintaining a current and comprehensive inventory of all federally funded training software.

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"SEC. ~~12~~ COOPERATIVE RESEARCH AND DEVELOPMENT AGREEMENTS.

"(a) GENERAL AUTHORITY.—Each Federal agency may permit the director of any of its Government-operated Federal laboratories—

"(1) to enter into cooperative research and development agreements on behalf of such agency (subject to subsection (c) of this section) with other Federal agencies; units of State or local government; industrial organizations (including corporations, partnerships, and limited partnerships, and industrial development organizations); public and private foundations; nonprofit organizations (including universities); or other persons (including licensees of inventions owned by the Federal agency); and

"(2) to negotiate licensing agreements under section 207 of title 35, United States Code, or under other authorities for Government-owned inventions made at the laboratory and other inventions of Federal employees that may be voluntarily assigned to the Government.

"(b) ENUMERATED AUTHORITY.—Under agreements entered into pursuant to subsection (a)(1), a Government-operated Federal laboratory may (subject to subsection (c) of this section)—

"(1) accept, retain, and use funds, personnel, services, and property from collaborating parties and provide personnel, services, and property to collaborating parties;

"(2) grant or agree to grant in advance, to a collaborating party, patent licenses or assignments, or options thereto, in any invention made in whole or in part by a Federal employee under the agreement, retaining a nonexclusive, nontransferrable, irrevocable, paid-up license to practice the invention or have the invention practiced throughout the world by or on behalf of the Government and such other rights as the Federal laboratory deems appropriate; and

"(3) waive, subject to reservation by the Government of a nonexclusive, irrevocable, paid-up license to practice the invention or have the invention practiced throughout the world by or on behalf of the Government, in advance, in whole or in part, any right of ownership which the Federal Government may have to any subject invention made under the agreement by a collaborating party or employee of a collaborating party; and

"(4) to the extent consistent with any applicable agency requirements and standards of conduct, permit employees or former employees of the laboratory to participate in efforts to commercialize inventions they made while in the service of the United States.

"(c) CONTRACT CONSIDERATIONS.—(1) A Federal agency may issue regulations on suitable procedures for implementing the provisions of this section; however, implementation of this section shall not be delayed until issuance of such regulations.

"(2) The agency in permitting a Federal laboratory to enter into agreements under this section shall be guided by the purposes of this Act.

"(3)(A) Any agency using the authority given it under subsection (a) shall review employee standards of conduct for resolving potential conflicts of interest to make sure they adequately establish guidelines for situations likely to arise through the use of this authority, including but not limited to cases where present or former employees or their partners negotiate licenses or assignments of titles to inventions or negotiate cooperative research and development agreements with federal agencies (including the agency with which the employee involved is or was formerly employed).

"(B) If, in implementing subparagraph (A), an agency is unable to resolve potential conflicts of interest within its current statutory framework, it shall propose necessary statutory changes to be forwarded to its authorizing committees in Congress.

"(4) The laboratory director in deciding what cooperative research and development agreements to enter into shall—

"(A) give special consideration to small business firms, and consortia involving small business firms; and

"(B) give preference to business units located in the United States which agree that products embodying inventions made under the cooperative research and development agreement or produced through the use of such inventions will be manufactured substantially in the United States and, in the case of any industrial organization or other person subject to the control of a foreign company or government, as appropriate, take into consideration whether or not such foreign government permits United States agencies, organizations, or other persons to enter into cooperative research and development agreements and licensing agreements.

"(5)(A) If the head of the agency or his designee desires an opportunity to disapprove or require the modification of any such agreement, the agreement shall provide a 30-day period within which such action must be taken beginning on the date the agreement is presented to him or her by the head of the laboratory concerned.

"(B) In any case in which the head of an agency or his designee disapproves or requires the modification of an agreement presented under this section, the head of the agency or such designee shall transmit a written explanation of such disapproval or modification to the head of the laboratory concerned.

"(6) Each agency shall maintain a record of all agreements entered into under this section.

"(d) DEFINITION.—As used in this section—

"(1) the term 'cooperative research and development agreement' means any agreement between one or more Federal laboratories and one or more non-Federal parties under which the Government, through its laboratories, provides personnel, services, facilities, equipment, or other resources with or without reimbursement (but not funds to non-Federal parties) and the non-Federal parties provide funds, personnel, services, facilities, equipment, or other resources toward the conduct of specified research or development efforts which are consistent with the missions of the laboratory; except that such term does not include a procurement contract or cooperative agreement as those terms are used in sections 6303, 6304, and 6305 of title 31, United States Code; and

"(2) the term 'laboratory' means a facility or group of facilities owned, leased, or otherwise used by a Federal agency, a substantial purpose of which is the performance of research, development, or engineering by employees of the Federal Government.

"(e) DETERMINATION OF LABORATORY MISSIONS.—For purposes of this section, an agency shall make separate determinations of the mission or missions of each of its laboratories.

"(f) RELATIONSHIP TO OTHER LAWS.—Nothing in this section is intended to limit or diminish existing authorities of any agency.

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"SEC. ~~13.~~ REWARDS FOR SCIENTIFIC, ENGINEERING, AND TECHNICAL PERSONNEL OF FEDERAL AGENCIES.

"The head of each Federal agency that is making expenditures at a rate of more than $50,000,000 per fiscal year for research and development in its Government-operated laboratories shall use the approriate statutory authority to develop and implement a cash awards program to reward its scientific, engineering, and technical personnel for—

"(1) inventions, innovations, or other outstanding scientific or technological contributions of value to the United States due to commercial applications or due to contributions to missions of the Federal agency or the Federal Government, or

"(2) exemplary activities that promote the domestic transfer of science and technology development within the Federal Government and result in utilization of such science and technology by American industry or business, universities, State or local governments, or other non-Federal parties.

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"SEC. ~~14.~~ DISTRIBUTION OF ROYALTIES RECEIVED BY FEDERAL AGENCIES.

"(a) IN GENERAL.—(1) Except as provided in paragraphs (2) and (4), any royalties or other income received by a Federal agency from the licensing or assignment of inventions under agreements entered into under section 11 ~~section 12~~, and inventions of Government-operated Federal laboratories licensed under section 207 of title 35, United States Code, or under any other provision of law, shall be retained by the agency whose laboratory produced the invention and shall be disposed of as follows:

"(A)(i) The head of the agency or his designee shall pay at least 15 percent of the royalties or other income the agency receives on account of any invention to the inventor (or co-inventors) if the inventor (or each such co-inventor) was an employee of the agency at the time the invention was made. This clause shall take effect on the date of the enactment of this section unless the agency publishes a notice in the Federal Register within 90 days of such date indicating its election to file a Notice of Proposed Rulemaking pursuant to clause (ii).

"(ii) An agency may promulgate, in accordance with section 553 of title 5, United States Code, regulations providing for an alternative program for sharing royalties with inventors who were employed by the agency at the time the invention was made and whose names appear on licensed inventions. Such regulations must—

"(I) guarantee a fixed minimum payment to each such inventor, each year that the agency receives royalties from that inventor's invention;

"(II) provide a percentage royalty share to each such inventor, each year that the agency receives royalties from that inventor's invention in excess of a threshold amount;

"(III) provide that total payments to all such inventors shall exceed 15 percent of total agency royalties in any given fiscal year; and

"(IV) provide appropriate incentives from royalties for those laboratory employees who contribute substantially to the technical development of a licensed invention between the time of the filing of the patent application and the licensing of the invention.

"(iii) An agency that has published its intention to promulgate regulations under clause (ii) may elect not to pay inventors under clause (i) until the expiration of two years after the date of the enactment of this Act or until the date of the promulgation of such regulations, whichever is earlier. If an agency makes such an election and after two years the regulations have not been promulgated, the agency shall make payments (in accordance with clause (i)) of at least 15 percent of the royalties involved, retroactive to the date of the enactment of this Act. If promulgation of the regulations occurs within two years after the date of the enactment of this Act, payments shall be made in accordance with such regulations, retroactive to the date of the enactment of this Act. The agency shall retain its royalties until the inventor's portion is paid under either clause (i) or (ii). Such royalties shall not be transferred to the agency's Government-operated laboratories under subparagraph (B) and shall not revert to the Treasury pursuant to paragraph (2) as a result of any delay caused by rulemaking under this subparagraph.

"(B) The balance of the royalties or other income shall be transferred by the agency to its Government-operated laboratories, with the majority share of the royalties or other income from any invention going to the laboratory where the invention occurred; and the funds so transferred to any such laboratory may be used or obligated by that laboratory during the fiscal year in which they are received or during the succeeding fiscal year—

"(i) for payment of expenses incidental to the administration and licensing of inventions by that laboratory or by the agency with respect to inventions which occurred at that laboratory, including the fees or other costs for the services of other agencies, persons, or organizations for invention management and licensing services;

"(ii) to reward scientific, engineering, and technical employees of that laboratory;

"(iii) to further scientific exchange among the government-operated laboratories of the agency; or

"(iv) for education and training of employees consistent with the research and development mission and objectives of the agency, and for other activities that increase the licensing potential for transfer of the technology of the Government-operated laboratories of the agency.

Any of such funds not so used or obligated by the end of the fiscal year succeeding the fiscal year in which they are received shall be paid into the Treasury of the United States.

"(2) If, after payments to inventors under paragraph (1), the royalties received by an agency in any fiscal year exceed 5 percent of the budget of the Government-operated laboratories of the agency for that year, 75 percent of such excess shall be paid to the Treasury of the United States and the remaining 25 percent may be used or obligated for the purposes described in clauses (i) through (iv) of paragraph (1)(B) during that fiscal year or the succeeding fiscal year. Any funds not so used or obligated shall be paid into the Treasury of the United States.

"(3) Any payment made to an employee under this section shall be in addition to the regular pay of the employee and to any other awards made to the employee, and shall not affect the entitlement of the employee to any regular pay, annuity, or award to which he is otherwise entitled or for which he is otherwise eligible or limit the amount thereof. Any payment made to an inventor as such shall continue after the inventor leaves the laboratory or agency. Payments made under this section shall not exceed $100,000 per year to any one person, unless the President approves a larger award (with the excess over $100,000 being treated as a Presidential award under section 4504 of title 5, United States Code).

"(4) A Federal agency receiving royalties or other income as a result of invention management services performed for another Federal agency or laboratory under section 207 of title 35, United States Code, shall retain such royalties or income to the extent required to offset the payment of royalties to inventors under clause (i) of paragraph (1)(A), costs and expenses incurred under clause (i) of paragraph (1)(B), and the cost of foreign patenting and maintenance for such invention performed at the request of the other agency or laboratory. All royalties and other income remaining after payment of the royalties, costs, and expenses described in the preceding sentence shall be transferred to the agency for which the services were performed, for distribution in accordance with clauses (i) through (iv) of paragraph (1)(B).

"(b) CERTAIN ASSIGMENTS.—If the invention involved was one assigned to the Federal agency—

"(1) by a contractor, grantee, or participant in a cooperative agreement with the agency, or

"(2) by an employee of the agency who was not working in the laboratory at the time the invention was made.

the agency unit that was involved in such assignment shall be considered to be a laboratory for purposes of this section.

"(c) REPORTS.—(1) In making their annual budget submissions Federal agencies shall submit, to the appropriate authorization and appropriation committees of both Houses of the Congress, summaries of the amount of royalties or other income received and expenditures made (including inventor awards) under this section.

"(2) The Comptroller General, five years after the date of the enactment of this section, shall review the effectiveness of the various royalty-sharing programs established under this section and report to the appropriate committees of the House of Representatives and the Senate, in a timely manner, his findings, conclusions, and recommendations for improvements in such programs.

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"SEC. ~~16~~ EMPLOYEE ACTIVITIES.

"(a) IN GENERAL.—If a Federal agency which has the right of ownership to an invention under this Act does not intend to file for a patent application or otherwise to promote commercialization of such invention, the agency shall allow the inventor, if the inventor is a Government employee or former employee who made the invention during the course of employment with the Government, to retain title to the invention (subject to reservation by the Government of a nonexclusive, nontransferrable, irrevocable, paid-up license to practice the invention or have the invention practiced throughout the world by or on behalf of the Government). In addition, the agency may condition the inventor's right to title on the timely filing of a patent application in cases when the Government determines that it has or may have a need to practice the invention.

"(b) DEFINITION.—For purposes of this section, Federal employees include 'special Government employees' as defined in section 202 of title 18, United States Code.

"(c) RELATIONSHIP TO OTHER LAWS.—Nothing in this section is intended to limit or diminish existing authorities of any agency.

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SEC. ~~15.~~ NATIONAL TECHNOLOGY MEDAL.

(a) ESTABLISHMENT.—There is hereby established a National Technology Medal, which shall be of such design and materials and bear such inscriptions as the President, on the basis of recommendations submitted by the Office of Science and Technology Policy, may prescribe.

(b) AWARD.—The President shall periodically award the medal, on the basis of recommendations received from the Secretary or on the basis of such other information and evidence as he deems appropriate, to individuals or companies, which in his judgment are deserving of special recognition by reason of their outstanding contributions to the promotion of technology or technological manpower for the improvement of the economic, environmental, or social well-being of the United States.

(c) PRESENTATION.—The presentation of the award shall be made by the President with such ceremonies as he may deem proper.

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SEC. ~~16.~~ PERSONNEL EXCHANGES.

The Secretary and the National Science Foundation, jointly, shall establish a program to foster the exchange of scientific and technical personnel among academia, industry, and Federal laboratories. Such program shall include both (1) federally supported exchanges and (2) efforts to stimulate exchanges without Federal funding.

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SEC. ~~17.~~ AUTHORIZATION OF APPROPRIATIONS.

(a) There is authorized to be appropriated to the Secretary for purposes of carrying out section 6, not to exceed $19,000,000 for the fiscal year ending September 30, 1981, $40,000,000 for the fiscal year ending September 30, 1982, $50,000,000 for the fiscal year ending September 30, 1983, and $60,000,000 for each of the fiscal years ending September 30, 1984, and 1985.

(b) In addition to authorizations of appropriations under subsection (a), there is authorized to be appropriated to the Secretary for purposes of carrying out the provisions of this Act, not to exceed $5,000,000 for the fiscal year ending September 30, 1981, $9,000,000 for the fiscal year ending September 30, 1982, and $14,000,000 for each of the fiscal years ending September 30, 1983, 1984, and 1985.

(c) Such sums as may be appropriated under subsections (a) and (b) shall remain available until expended.

(d) To enable the National Science Foundation to carry out its powers and duties under this Act only such sums may be appropriated as the Congress may authorize by law.

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SEC. ~~18.~~ SPENDING AUTHORITY.

No payments shall be made or contracts shall be entered into ~~pursuant to this Act~~ *pursuant to the provisions of this Act (other than sections ~~12, 13, and 14~~ 11, 12, and 13)* except to such extent or in such amounts as are provided in advance in appropriation Acts.

P.L. 96-517 as amended by P.L. 98-620

CHAPTER 18—PATENT RIGHTS IN INVENTIONS MADE WITH FEDERAL ASSISTANCE

§ 200. Policy and objective

It is the policy and objective of the Congress to use the patent system to promote the utilization of inventions arising from federally supported research or development; to encourage maximum participation of small business firms in federally supported research and development efforts; to promote collaboration between commercial concerns and nonprofit organizations, including universities; to ensure that inventions made by nonprofit organizations and small business firms are used in a manner to promote free competition and enterprise; to promote the commercialization and public availability of inventions made in the United States by United States industry and labor; to ensure that the Government obtains sufficient rights in federally supported inventions to meet the needs of the Government and protect the public against nonuse or unreasonable use of inventions; and to minimize the costs of administering policies in this area.

§ 201. Definitions

As used in this chapter—

(a) The term "Federal agency" means any executive agency as defined in section 105 of title 5, United States Code, and the military departments as defined by section 102 of title 5, United States Code.

(b) The term "funding agreement" means any contract, grant, or cooperative agreement entered into between any Federal agency, other than the Tennessee Valley Authority, and any contractor for the performance of experimental, developmental, or research work funded in whole or in part by the Federal Government. Such term includes any assignment, substitution of parties, or subcontract of any type entered into for the performance of experimental, developmental, or research work under a funding agreement as herein defined.

(c) The term "contractor" means any person, small business firm, or nonprofit organization that is a party to a funding agreement.

(d) The term "invention" means any invention or discovery which is or may be patentable or otherwise protectable under this title.

or any novel variety of plant which is or may be protectable under the Plant Variety Protection Act (7 U.S.C. 2321 et seq.)

(e) The term "subject invention" means any invention of the contractor conceived or first actually reduced to practice in the performance of work under a funding agreement.

: *Provided*, That in the case of a variety of plant, the date of determination (as defined in section 41(d) of the Plant Variety Protection Act (7 U.S.C. 2401(d))) must also occur during the period of contract performance

(f) The term "practical application" means to manufacture in the case of a composition or product, to practice in the case of a process or method, or to operate in the case of a machine or system; and, in each case, under such conditions as to establish that the invention is being utilized and that its benefits are to the extent permitted by law or Government regulations available to the public on reasonable terms.

(g) The term "made" when used in relation to any invention means the conception or first actual reduction to practice of such invention.

(h) The term "small business firm" means a small business concern as defined at section 2 of Public Law 85-536 (15 U.S.C. 632) and implementing regulations of the Administrator of the Small Business Administration.

(i) The term "nonprofit organization" means universities and other institutions of higher education or an organization of the type described in section 501(c)(3) of the Internal Revenue Code of 1954 (26 U.S.C. 501(c)) and exempt from taxation under section 501(a) of the Internal Revenue Code (26 U.S.C. 501(a)) or any nonprofit scientific or educational organization qualified under a State nonprofit organization statute.

§ 202. Disposition of rights

(a) Each nonprofit organization or small business firm may, within a reasonable time after disclosure as required by paragraph (c)(1) of this section, elect to retain title to any subject invention: *Provided, however*, That a funding agreement may provide otherwise (i) ~~when the funding agreement is for the operation of a Government-owned research or production facility~~,

when the contractor is not located in the United States or does not have a place of business located in the United States or is subject to the control of a foreign government,"

(ii) in exceptional circumstances when it is determined by the agency that restriction or elimination of the right to retain title to any subject invention will better promote the policy and objectives of this chapter or (iii) when it is determined by a Government authority which is authorized by statute or Executive order to conduct foreign intelligence or counter-intelligence activities that the restriction or elimination of the right to retain title to any subject

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(a) The term "Federal agency" means any executive agency as defined in section 105 of title 5, United States Code, and the military departments as defined by section 102 of title 5, United States Code.

(b) The term "funding agreement" means any contract, grant, or cooperative agreement entered into between any Federal agency, other than the Tennessee Valley Authority, and any contractor for the performance of experimental, developmental, or research work funded in whole or in part by the Federal Government. Such term includes any assignment, substitution of parties, or subcontract of any type entered into for the performance of experimental, developmental, or research work under a funding agreement as herein defined.

(c) The term "contractor" means any person, small business firm, or nonprofit organization that is a party to a funding agreement.

(d) The term "invention" means any invention or discovery which is or may be patentable or otherwise protectable under this title.

or any novel variety of plant which is or be protectable under the Plant Variety Protection Act (7 U 2321 et seq.)

(e) The term "subject invention" means any invention of the contractor conceived or first actually reduced to practice in the performance of work under a funding agreement.

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(f) The term "practical application" means to manufacture in the case of a composition or product, to practice in the case of a process or method, or to operate in the case of a machine or system; and, in each case, under such conditions as to establish that the invention is being utilized and that its benefits are to the extent permitted by law or Government regulations available to the public on reasonable terms.

(g) The term "made" when used in relation to any invention means the conception or first actual reduction to practice of such invention.

(h) The term "small business firm" means a small business concern as defined at section 2 of Public Law 85-536 (15 U.S.C. 632) and implementing regulations of the Administrator of the Small Business Administration.

(i) The term "nonprofit organization" means universities and other institutions of higher education or an organization of the type described in section 501(c)(3) of the Internal Revenue Code of 1954 (26 U.S.C. 501(c)) and exempt from taxation under section 501(a) of the Internal Revenue Code (26 U.S.C. 501(a)) or any nonprofit scientific or educational organization qualified under a State nonprofit organization statute.

§ 202. Disposition of rights

(a) Each nonprofit organization or small business firm may, within a reasonable time after disclosure as required by paragraph (c)(1) of this section, elect to retain title to any subject invention: *Provided, however*, That a funding agreement may provide otherwise (i) ~~when the funding agreement is for the operation of a Government-owned research or production facility~~,

when the contractor is not located in the United States does not have a place of business located in the United State is subject to the control of a foreign government,

(ii) in exceptional circumstances when it is determined by the agency that restriction or elimination of the right to retain title to any subject invention will better promote the policy and objectives of this chapter ~~or~~ (iii) when it is determined by a Government authority which is authorized by statute or Executive order to conduct foreign intelligence or counter-intelligence activities that the restriction or elimination of the right to retain title to any subject

invention is necessary to protect the security of such activities.

or, iv) when the funding agreement includes the operation of a Government-owned, contractor-operated facility of the Department of Energy primarily dedicated to that Department's naval nuclear propulsion or weapons related programs and all funding agreement limitations under this subparagraph on the contractor's right to elect title to a subject invention are limited to inventions occurring under the above two programs of the Department of Energy."

The rights of the nonprofit organization or small business firm shall be subject to the provisions of paragraph (c) of this section and the other provisions of this chapter.

~~(b)(1) Any determination under (ii) of paragraph (a) of this section shall be in writing and accompanied by a written statement of facts justifying the determination. A copy of each such determination and justification shall be sent to the Comptroller General of the United States within thirty days after the award of the applicable funding agreement. In the case of determinations applicable to funding agreements with small business firms copies shall also be sent to the Chief Counsel for Advocacy of the Small Business Administration.~~

~~(2) If the Comptroller General believes that any pattern of determinations by a Federal agency is contrary to the policy and objectives of this chapter or that an agency's policies or practices are otherwise not in conformance with this chapter, the Comptroller General shall so advise the head of the agency. The head of the agency shall advise the Comptroller General in writing within one hundred and twenty days of what action, if any, the agency has taken or plans to take with respect to the matters raised by the Comptroller General.~~

(b)(1) The rights of the Government under subsection (a) shall not be exercised by a Federal agency unless it first determines that at least one of the conditions identified in clauses (i) through (iii) of subsection (a) exists. Except in the case of subsection (a)(iii), the agency shall file with the Secretary of Commerce, within thirty days after the award of the applicable funding agreement, a copy of such determination. In the case of a determination under subsection (a)(ii), the statement shall include an analysis justifying the determination. In the case of determinations applicable to funding agreements with small business firms, copies shall also be sent to the Chief Counsel for Advocacy of the Small Business Administration. If the Secretary of Commerce believes that any individual determination or pattern of determinations is contrary to the policies and objectives of this chapter or otherwise not in conformance with this chapter, the Secretary shall so advise the head of the agency concerned and the Administrator of the Office of Federal Procurement Policy, and recommend corrective actions.

"(2) Whenever the Administrator of the Office of Federal Procurement Policy has determined that one or more Federal agencies are utilizing the authority of clause (i) or (ii) of subsection (a) of this section in a manner that is contrary to the policies and objectives of this chapter, the Administrator is authorized to issue regulations describing classes of situations in which agencies may not exercise the authorities of those clauses."

(3) At least once each year, the Comptroller General shall transmit a report to the Committees on the Judiciary of the Senate and House of Representatives on the manner in which this chapter is being implemented by the agencies and on such other aspects of Government patent policies and practices with respect to federally funded inventions as the Comptroller General believes appropriate.

(4) If the contractor believes that a determination is contrary to the policies and objectives of this chapter or constitutes an abuse of discretion by the agency, the determination shall be subject to the last paragraph of section 203(2).

(c) Each funding agreement with a small business firm or nonprofit organization shall contain appropriate provisions to effectuate the following:

(1) A requirement that the contractor disclose each subject invention to the Federal agency within a reasonable time after it is made and that the Federal Government may receive title to any subject invention not reported to it within such time.

(2) A requirement that the contractor make an election to retain title to any subject invention within a reasonable time after disclosure and that the Federal Government may receive title to any subject invention in which the contractor does not elect to retain rights or fails to elect rights within such time.

(3) A requirement that a contractor electing rights file patent applications within reasonable times and that the Federal Government may receive title to any subject inventions in the United States or other countries in which the contractor has not filed patent applications on the subject invention within such times.

(4) With respect to any invention in which the contractor elects rights, the Federal agency shall have a nonexclusive, nontransferable, irrevocable, paid-up license to practice or have practiced for or on behalf of the United States any subject invention throughout the world, and may, if provided in the funding agreement, have additional rights to sublicense any foreign government or international organization pursuant to any existing or future treaty or agreement.

"(1) That the contractor disclose each subject invention to the Federal agency within a reasonable time after it becomes known to contractor personnel responsible for the administration of patent matters, and that the Federal Government may receive title to any subject invention not disclosed to it within such time.

"(2) That the contractor make a written election within two years after disclosure to the Federal agency (or such additional time as may be approved by the Federal agency) whether the contractor will retain title to a subject invention: *Provided*, That in any case where publication, on sale, or public use, has initiated the one year statutory period in which valid patent protection can still be obtained in the United States, the period for election may be shortened by the Federal agency to a date that is not more than sixty days prior to the end of the statutory

period: *And provided further*, That the Federal Government may receive title to any subject invention in which the contractor does not elect to retain rights or fails to elect rights within such times.

"(3) That a contractor electing rights in a subject invention agrees to file a patent application prior to any statutory bar date that may occur under this title due to publication, on sale, or public use, and shall thereafter file corresponding patent applications in other countries in which it wishes to retain title within reasonable times, and that the Federal Government may receive title to any subject inventions in the United States or other countries in which the contractor has not filed patent applications on the subject invention within such times.

"(4) With respect to any invention in which the contractor elects rights, the Federal agency shall have a nonexclusive, nontransferrable, irrevocable, paid-up license to practice or have practiced for or on behalf of the United States any subject invention throughout the world: *Provided*, That the funding agreement may provide for such additional rights; including the right to assign or have assigned foreign patent rights in the subject invention, as are determined by the agency as necessary for meeting the obligations of the United States under any treaty, international agreement, arrangement of cooperation, memorandum of understanding, or similar arrangement, including military agreement relating to weapons development and production.".

(5) The right of the Federal agency to require periodic reporting on the utilization or efforts at obtaining utilization that are being made by the contractor or his licensees or assignees: *Provided*, That any such information ~~may~~

as well as any information on utilization or efforts at obtaining utilization obtained as part of a proceeding under section 203 of this chapter shall

be treated by the Federal agency as commercial and financial information obtained from a person and privileged and confidential and not subject to disclosure under section 552 of title 5 of the United States Code.

(6) An obligation on the part of the contractor, in the event a United States patent application is filed by or on its behalf or by any assignee of the contractor, to include within the specification of such application and any patent issuing thereon, a statement specifying that the invention was made with Government support and that the Government has certain rights in the invention.

(7) In the case of a nonprofit organization, (A) a prohibition upon the assignment of rights to a subject invention in the United States without the approval of the Federal agency, except where such assignment is made to an organization which has as one of its primary functions the management of inventions ~~and which is not, itself, engaged in or does not hold a substantial interest in other organizations engaged in the manufacture or sale of products or the use of processes that might utilize the invention or be in competition with embodiments of the invention~~ (provided that such assignee shall be subject to the same provisions as the contractor); ~~(B) a prohibition against the granting of exclusive licenses under United States Patents or Patent Applications in a subject invention by the contractor to persons other than small business firms for a period in excess of the earlier of five years from first commercial sale or use of the invention or eight years from the date of the exclusive license excepting that time before regulatory agencies necessary to obtain premarket clearance unless, on a case by case basis, the Federal agency approves a longer exclusive license. If exclusive field of use licenses are granted, commercial sale or use in one field of use shall not be deemed commercial sale or use as to other fields of use, and a first commercial sale or use with respect to a product of the invention shall not be deemed to end the exclusive period to different subsequent products covered by the invention;~~ (C) (B) a requirement that the contractor share royalties with the inventor; ~~and (D) a requirement that the balance of any royalties or income earned by the contractor with respect to subject inventions, after payment of expenses (including payments to inventors) incidental to the administration of subject inventions, be utilized for the support of scientific research or education.~~

(C) except with respect to a funding agreement for the operation of a Government-owned-contractor-operated facility, a requirement that the balance of any royalties or income earned by the contractor with respect to subject inventions, after payment of expenses (including payments to inventors) incidental to the administration of subject inventions, be utilized for the support of scientific research or education; (D) a requirement that, except where it proves infeasible after a reasonable inquiry, in the licensing of subject inventions shall be given to small business firms; and (E) with respect to a funding agreement for the operation of a Government-owned-contractor-operated facility, requirements (i) that after payment of patenting costs, licensing costs, payments to inventors, and other expenses incidental to the administration of subject inventions, 100 percent of the balance of any royalties or income earned and retained by the contractor during any fiscal year up to an amount equal to 5 percent of the annual budget of the facility, shall be used by the contractor for scientific research, development, and education consistent with the research and development mission and objectives of the facility, including activities that increase the licensing potential of other inventions of the facility; provided that if said balance exceeds 5 percent of the annual budget of the facility, that 75 percent of such excess shall be paid to the Treasury of the United States and the remaining 25 percent shall be used for the same purposes as described above in this clause (D); and (ii) that, to the extent it provides the most effective technology transfer, the licensing of subject inventions shall be administered by contractor employees on location at the facility."

Note - "(D)" to the left should have the words "a preference before the word "in." It is expecte that this wil be corrected early in the next Congress

(8) The requirements of sections 203 and 204 of this chapter.

(d) If a contractor does not elect to retain title to a subject invention in cases subject to this section, the Federal agency may consider and after consultation with the contractor grant requests for retention of rights by the inventor subject to the provisions of this Act and regulations promulgated hereunder.

(e) In any case when a Federal employee is a coinventor of any invention made under a funding agreement with a nonprofit organization or small business firm, the Federal agency employing such coinventor is authorized to transfer or assign whatever rights it may acquire in the subject invention from its employee to the contractor subject to the conditions set forth in this chapter.

(f)(1) No funding agreement with a small business firm or nonprofit organization shall contain a provision allowing a Federal agency to require the licensing to third parties of inventions owned by the contractor that are not subject inventions unless such provision has been approved by the head of the agency and a written justification has been signed by the head of the agency. Any such provision shall clearly state whether the licensing may be required in connection with the practice of a subject invention, or a specifically, identified work object, or both. The head of the agency may not delegate the authority to approve provisions or sign justifications required by this paragraph.

(2) A Federal agency shall not require the licensing of third parties under any such provision unless the head of the agency determines that the use of the invention by others is necessary for the practice of a subject invention or for the use of a work object of the funding agreement and that such action is necessary to achieve the practical application of the subject invention or work object. Any such determination shall be on the record after an opportunity for an agency hearing. Any action commenced for judicial review of such determination shall be brought within sixty days after notification of such determination.

§ 203. March-in rights

(1) With respect to any subject invention in which a small business firm or nonprofit organization has acquired title under this chapter, the Federal agency under whose funding agreement the subject invention was made shall have the right, in accordance with such procedures as are provided in regulations promulgated hereunder to require the contractor, an assignee or exclusive licensee of a subject invention to grant a nonexclusive, partially exclusive, or exclusive license in any field of use to a responsible applicant or applicants, upon terms that are reasonable under the circumstances, and if the contractor, assignee, or exclusive licensee refuses such request, to grant such a license itself, if the Federal agency determines that such—

(a) action is necessary because the contractor or assignee has not taken, or is not expected to take within a reasonable time, effective steps to achieve practical application of the subject invention in such field of use;

(b) action is necessary to alleviate health or safety needs which are not reasonably satisfied by the contractor, assignee, or their licensees;

(c) action is necessary to meet requirements for public use specified by Federal regulations and such requirements are not reasonably satisfied by the contractor, assignee, or licensees; or

(d) action is necessary because the agreement required by section 204 has not been obtained or waived or because a licensee of the exclusive right to use or sell any subject invention in the United States is in breach of its agreement obtained pursuant to section 204.

(2) A determination pursuant to this section or section 202(b)(4) shall not be subject to the Contract Disputes Act (41 U.S.C. §601 et seq.). An administrative appeals procedure shall be established by regulations promulgated in accordance with section 206. Additionally, any contractor, inventor, assignee, or exclusive licensee adversely affected by a determination under this section may, at any time within sixty days after the determination is issued, file a petition in the United States Claims Court, which shall have jurisdiction to determine the appeal on the record and to affirm, reverse, remand or modify, ", as appropriate, the determination of the Federal agency. In cases described in paragraphs (a) and (c), the agency's determination shall be held in abeyance pending the exhaustion of appeals or petitions filed under the preceding sentence."

§ 204. Preference for United States industry

Notwithstanding any other provision of this chapter, no small business firm or nonprofit organization which receives title to any subject invention and no assignee of any such small business firm or nonprofit organization shall grant to any person the exclusive right to use or sell any subject invention in the United States unless such person agrees that any products embodying the subject invention or produced through the use of the subject invention will be manufactured substantially in the United States. However, in individual cases, the requirement for such an agreement may be waived by the Federal agency under whose funding agreement the invention was made upon a showing by the small business firm, nonprofit organization, or assignee that reasonable but unsuccessful efforts have been made to grant licenses on similar terms to potential licensees that would be likely to manufacture substantially in the United States or that under the circumstances domestic manufacture is not commercially feasible.

§ 205. Confidentiality

Federal agencies are authorized to withhold from disclosure to the public information disclosing any invention in which the Federal Government owns or may own a right, title, or interest (including a nonexclusive license) for a reasonable time in order for a patent application to be filed. Furthermore, Federal agencies shall not be required to release copies of any document which is part of an application for patent filed with the United States Patent and Trademark Office or with any foreign patent office.

§ 206. Uniform clauses and regulations

~~The Office of Federal Procurement Policy, after receiving recommendations of the Office of Science and Technology Policy, may issue regulations which may be made applicable to Federal agencies implementing the provisions of sections 202 through 204 of this chapter and the Office of Federal Procurement Policy shall establish standard funding agreement provisions required under this chapter.~~

The Secretary of Commerce may issue regulations which may be made applicable to Federal agencies implementing the provisions of sections 202 through 204 of this chapter and shall establish standard funding agreement provisions required under this chapter. The regulations and the standard funding agreement shall be subject to public comment before their issuance."

§ 207. Domestic and foreign protection of federally owned inventions

(a) Each Federal agency is authorized to—

(1) apply for, obtain, and maintain patents or other forms of protection in the United States and in foreign countries on inventions in which the Federal Government owns a right, title, or interest;

(2) grant nonexclusive, exclusive, or partially exclusive licenses under federally owned patent applications, patents, or other forms of protection obtained, royalty-free or for royalties or other consideration, and on such terms and conditions, including the grant to the licensee of the right of enforcement pursuant to the provisions of chapter 29 of this title as determined appropriate in the public interest;

(3) undertake all other suitable and necessary steps to protect and administer rights to federally owned inventions on behalf of the Federal Government either directly or through contract; and

(4) transfer custody and administration, in whole or in part, to another Federal agency, of the right, title, or interest in any federally owned invention.

(b) For the purpose of assuring the effective management of Government-owned inventions, the Secretary of Commerce is authorized to—

"(1) assist Federal agency efforts to promote the licensing and utilization of Government-owned inventions;

"(2) assist Federal agencies in seeking protection and maintaining inventions in foreign countries, including the payment of fees and costs connected therewith; and

"(3) consult with and advise Federal agencies as to areas of science and technology research and development with potential for commercial utilization.

§ 208. Regulations governing Federal licensing

The ~~Administrator of General Services~~ Secretary of Commerce is authorized to promulgate regulations specifying the terms and conditions upon which any federally owned invention, other than inventions owned by the Tennessee Valley Authority, may be licensed on a nonexclusive, partially exclusive, or exclusive basis.

§ 209. Restrictions on licensing of federally owned inventions

(a) ~~No Federal agency shall grant any license~~ under a patent or patent application on a federally owned invention unless ~~the person requesting the license has supplied the agency with a plan for development and/or marketing of the~~ invention, except that any such plan may be treated by the Federal agency as commercial and financial information obtained from a person and privileged and confidential and not subject to disclosure under section 552 of title 5 of the United States Code.

(b) A Federal agency shall ~~normally~~ grant the right to use or sell any federally owned invention in the United States ~~only to a licensee~~ that agrees that ~~any products embodying the invention or produced through the use of the invention will be manufactured substantially in the United States~~.

(c)(1) Each Federal agency ~~may grant exclusive~~ or partially exclusive licenses in any invention covered by a federally owned domestic patent or patent application ~~only if, after public notice~~ and ~~opportunity for filing written objections~~, it is determined that—

(A) the ~~interests of the Federal Government~~ and the public will best be served by the proposed license, in view of the applicant's intentions, plans, and ability to bring the invention to practical application or otherwise promote the invention's utilization by the public;

(B) the ~~desired practical application has not been achieved~~, or is not likely expeditiously to be achieved, ~~under any nonexclusive license~~ which has been granted, or which may be granted, on the invention;

(C) ~~exclusive or partially exclusive licensing~~ is a reasonable and necessary incentive to call forth the investment of risk capital and expenditures to bring the invention to practical application or otherwise promote the invention's utilization by the public; and

(D) the proposed terms and scope of exclusivity are not greater than reasonably necessary to provide the incentive for bringing the invention to practical application or otherwise promote the invention's utilization by the public.

(2) A Federal agency shall ~~not grant such exclusive~~ or partially exclusive license under paragraph (1) of this subsection ~~if it determines~~ that the grant of such license ~~will tend substantially to lessen competition~~ or result in undue ~~concentration in any section of the country in any line of commerce to which the technology~~ to be licensed relates, or to create or maintain other situations inconsistent with the antitrust laws.

(3) ~~First preference~~ in the exclusive or partially exclusive licensing of federally owned inventions ~~shall go to small business firms submitting plans that are determined by the agency to be within the capabilities of the firms and equally likely, if executed, to bring the invention to practical application as any plans submitted by applicants that are not small business firms.~~

(d) After consideration of whether the interests of the Federal Government or United States industry in foreign commerce will be enhanced, any Federal agency may ~~grant exclusive or partially exclusive licenses~~ in any invention covered by a foreign patent application or patent, ~~after public notice~~ and opportunity for filing written objections, except that a Federal agency shall not grant such exclusive or partially exclusive license if it determines that the grant of such license will tend substantially to lessen competition or result in undue concentration in any section of the United States in any line of commerce to which the technology to be licensed relates, or to create or maintain other situations inconsistent with antitrust laws.

(e) The Federal agency shall maintain a record of determinations to grant exclusive or partially exclusive licenses.

(f) Any grant of a license shall contain such terms and conditions as the Federal agency determines appropriate for the protection of the interests of the Federal Government and the public, including provisions for the following:

(1) ~~periodic reporting~~ on the utilization or efforts at obtaining utilization that are being made by the licensee with particular reference to the plan submitted: *Provided*, That any such information may be treated by the Federal agency as commercial and financial information obtained from a person and privileged and confidential and ~~not subject to disclosure~~ under section 552 of title 5 of the United States Code;

(2) the ~~right of the Federal agency to terminate~~ such license in whole or in part ~~if it determines that the licensee is not executing the plan~~ submitted with its request for a license and the licensee cannot otherwise demonstrate to the satisfaction of the Federal agency that it has taken or can be expected to take within a reasonable time, effective steps to achieve practical application of the invention;

(3) the right of the Federal agency to terminate such license in whole or in part if the licensee is in breach of an agreement obtained pursuant to paragraph (b) of this section; and

(4) the right of the Federal agency to terminate the license in whole or in part if the agency determines that such action is necessary to meet requirements for public use specified by Federal regulations issued after the date of the license and such requirements are not reasonably satisfied by the licensee.

§ 210. Precedence of chapter

(a) This chapter shall take precedence over any other Act which would require a disposition of rights in subject inventions of small business firms or nonprofit organizations contractors in a manner that is inconsistent with

this chapter, including but not necessarily limited to the following:

(1) section 10(a) of the Act of June 29, 1935, as added by title I of the Act of August 14, 1946 (7 U.S.C. 427i(a); 60 Stat. 1085);

(2) section 205(a) of the Act of August 14, 1946 (7 U.S.C. 1624(a); 60 Stat. 1090);

(3) section 501(c) of the Federal Mine Safety and Health Act of 1977 (30 U.S.C. 951(c); 83 Stat. 742);

(4) section 106(c) of the National Traffic and Motor Vehicle Safety Act of 1966 (15 U.S.C. 1395(c); 80 Stat. 721);

(5) section 12 of the National Science Foundation Act of 1950 (42 U.S.C. 1871(a); 82 Stat. 360);

(6) section 152 of the Atomic Energy Act of 1954 (42 U.S.C. 2182; 68 Stat. 943);

(7) section 305 of the National Aeronautics and Space Act of 1958 (42 U.S.C. 2457);

(8) section 6 of the Coal Research Development Act of 1960 (30 U.S.C. 666; 74 Stat. 337);

(9) section 4 of the Helium Act Amendments of 1960 (50 U.S.C. 167b; 74 Stat. 920);

(10) section 32 of the Arms Control and Disarmament Act of 1961 (22 U.S.C. 2572; 75 Stat. 634);

(11) subsection (e) of section 302 of the Appalachian Regional Development Act of 1965 (40 U.S.C. App. 302(e); 79 Stat. 5);

(12) section 9 of the Federal Nonnuclear Energy Research and Development Act of 1974 (42 U.S.C. 5901; 88 Stat. 1878);

(13) section 5(d) of the Consumer Product Safety Act (15 U.S.C. 2054(d); 86 Stat. 1211);

(14) section 3 of the Act of April 5, 1944 (30 U.S.C. 323; 58 Stat. 191);

(15) section 8001(c)(3) of the Solid Waste Disposal Act (42 U.S.C. 6981(c); 90 Stat. 2829);

(16) section 219 of the Foreign Assistance Act of 1961 (22 U.S.C. 2179; 83 Stat. 806);

(17) section 427(b) of the Federal Mine Health and Safety Act of 1977 (30 U.S.C. 937(b); 86 Stat. 155);

(18) section 306(d) of the Surface Mining and Reclamation Act of 1977 (30 U.S.C. 1226(d); 91 Stat. 455);

(19) section 21(d) of the Federal Fire Prevention and Control Act of 1974 (15 U.S.C. 2218(d); 88 Stat. 1548);

(20) section 6(b) of the Solar Photovoltaic Energy Research Development and Demonstration Act of 1978 (42 U.S.C. 5585(b); 92 Stat. 2516);

(21) section 12 of the Native Latex Commercialization and Economic Development Act of 1978 (7 U.S.C. 178(j); 92 Stat. 2533); and

(22) section 408 of the Water Resources and Development Act of 1978 (42 U.S.C. 7879; 92 Stat. 1360).

The Act creating this chapter shall be construed to take precedence over any future Act unless that Act specifically cites this Act and provides that it shall take precedence over this Act.

(b) Nothing in this chapter is intended to alter the effect of the laws cited in paragraph (a) of this section or any other laws with respect to the disposition of rights in inventions made in the performance of funding agreements with persons other than nonprofit organizations or small business firms.

(c) Nothing in this chapter is intended to limit the authority of agencies to agree to the disposition of rights in inventions made in the performance of work under funding agreements with persons other than nonprofit organizations or small business firms in accordance with the Statement of Government Patent Policy issued on ~~August 23, 1971 (36 Fed. Reg. 16887)~~ February 18, 1983, agency regulations, or other applicable regulations or to otherwise limit the authority of agencies to allow such persons to retain ownership of inventions. Any disposition of rights in inventions made in accordance with the Statement or implementing regulations, including any disposition occurring before enactment of this section, are hereby authorized, except that all funding agreements, including those with others than small business firms and nonprofit organizations, shall include the requirements established in paragraph 202(c)(4) and section 203 of this title."

(d) Nothing in this chapter shall be construed to require the disclosure of intelligence sources or methods or to otherwise affect the authority granted to the Director of Central Intelligence by statute or Executive order for the protection of intelligence sources or methods.

§ 211. Relationship to antitrust laws

Nothing in this chapter shall be deemed to convey to any person immunity from civil or criminal liability, or to create any defenses to actions, under any antitrust law.

§ 212. Disposition of rights in educational awards

"No scholarship, fellowship, training grant, or other funding agreement made by a Federal agency primarily to an awardee for educational purposes will contain any provision giving the Federal agency any rights to inventions made by the awardee.

E

Public Law 97-219
97th Congress

An Act

To amend the Small Business Act to strengthen the role of the small, innovative firms in federally funded research and development, and to utilize Federal research and development as a base for technological innovation to meet agency needs and to contribute to the growth and strength of the Nation's economy.

July 22, 1982
[S. 881]

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,

Small Business Innovation Development Act of 1982.
15 USC 631 note.
15 USC 638 note.

SECTION 1. This Act may be cited as the "Small Business Innovation Development Act of 1982".

SEC. 2. (a) The Congress finds that—

(1) technological innovation creates jobs, increases productivity, competition, and economic growth, and is a valuable counterforce to inflation and the United States balance-of-payments deficit;

(2) while small business is the principal source of significant innovations in the Nation, the vast majority of federally funded research and development is conducted by large businesses, universities, and Government laboratories; and

(3) small businesses are among the most cost-effective performers of research and development and are particularly capable of developing research and development results into new products.

(b) Therefore, the purposes of the Act are—

(1) to stimulate technological innovation;

(2) to use small business to meet Federal research and development needs;

(3) to foster and encourage participation by minority and disadvantaged persons in technological innovation; and

(4) to increase private sector commercialization innovations derived from Federal research and development.

SEC. 3. Section 9(b) of the Small Business Act is amended— 15 USC 638.

(1) by striking out "and" at the end of paragraph (2);

(2) by striking out the period at the end of paragraph (3) and inserting in lieu thereof "; and"; and

(3) by adding at the end thereof the following:

"(4) to develop and maintain a source file and an information program to assure each qualified and interested small business concern the opportunity to participate in Federal agency small business innovation research programs;

"(5) to coordinate with participating agencies a schedule for release of SBIR solicitations, and to prepare a master release schedule so as to maximize small businesses' opportunities to respond to solicitations;

"(6) to independently survey and monitor the operation of SBIR programs within participating Federal agencies; and

"(7) to report not less than annually to the Committee on Small Business of the Senate and the Committee on Small Business of the House of Representatives on the SBIR programs

Report to congressional committees.

of the Federal agencies and the Administration's information and monitoring efforts related to the SBIR programs.".

15 USC 638.

SEC. 4. Section 9 of the Small Business Act is amended by adding at the end thereof the following new subsections:

Definitions.

"(e) For the purpose of this section—

"(1) the term 'extramural budget' means the sum of the total obligations minus amounts obligated for such activities by employees of the agency in or through Government-owned, Government-operated facilities, except that for the Agency for International Development it shall not include amounts obligated solely for general institutional support of international research centers or for grants to foreign countries;

"(2) the term 'Federal agency' means an executive agency as defined in section 105 of title 5, United States Code, or a military department as defined in section 102 of such title, except that it does not include any agency within the Intelligence Community (as the term is defined in section 3.4(f) of Executive Order 12333 or its successor orders);

"(3) the term 'funding agreement' means any contract, grant, or cooperative agreement entered into between any Federal agency and any small business for the performance of experimental, developmental, or research work funded in whole or in part by the Federal Government;

"(4) the term 'Small Business Innovation Research Program' or 'SBIR' means a program under which a portion of a Federal agency's research or research and development effort is reserved for award to small business concerns through a uniform process having—

"(A) a first phase for determining, insofar as possible, the scientific and technical merit and feasibility of ideas submitted pursuant to SBIR program solicitations;

"(B) a second phase to further develop the proposed ideas to meet the particular program needs, the awarding of which shall take into consideration the scientific and technical merit and feasibility evidenced by the first phase and, where two or more proposals are evaluated as being of approximately equal scientific and technical merit and feasibility, special consideration shall be given to those proposals that have demonstrated third phase, non-Federal capital commitments; and

"(C) where appropriate, a third phase in which non-Federal capital pursues commercial applications of the research or research and development and which may also involve follow-on non-SBIR funded production contracts with a Federal agency for products or processes intended for use by the United States Government; and

"(5) the term 'research' or 'research and development' means any activity which is (A) a systematic, intensive study directed toward greater knowledge or understanding of the subject studied; (B) a systematic study directed specifically toward applying new knowledge to meet a recognized need; or (C) a systematic application of knowledge toward the production of useful materials, devices, and systems or methods, including design, development, and improvement of prototypes and new processes to meet specific requirements.

Research or research and development, budget.

"(f)(1) Each Federal agency which has an extramural budget for research or research and development in excess of $100,000,000 for

fiscal year 1982, or any fiscal year thereafter, shall expend not less than 0.2 per centum of its extramural budget in fiscal year 1983 or in such subsequent fiscal year as the agency has such budget, not less than 0.6 per centum of such budget in the second fiscal year thereafter, not less than 1 per centum of such budget in the third fiscal year thereafter, and not less than 1.25 per centum of such budget in all subsequent fiscal years with small business concerns specifically in connection with a small business innovation research program which meets the requirements of the Small Business Innovation Development Act of 1982 and regulations issued thereunder: *Provided,* That any Federal agency which has an extramural budget for research or research and development in excess of $10,000,000,000 for fiscal year 1982 shall expend not less than 0.1 per centum of its extramural budget in fiscal year 1983, not less than 0.3 per centum of such budget in the second fiscal year thereafter, not less than 0.5 per centum of such budget in the third fiscal year thereafter, not less than 1 per centum of such budget in the fourth fiscal year thereafter, and not less than 1.25 per centum of such budget in all subsequent fiscal years with small business concerns specifically in connection with a small business innovation research program which meets the requirements of the Small Business Innovation Development Act of 1982 and regulations issued thereunder: *Provided further,* That a Federal agency shall not make available for the purpose of meeting the requirements of this subsection an amount of its extramural budget for basic research or research and development which exceeds the percentages specified herein. Funding agreements with small business concerns for research or research and development which result from competitive or single source selections other than under a small business innovation research program shall not be counted as meeting any portion of the percentage requirements of this subsection.

"(2) Amounts appropriated for atomic energy defense programs of the Department of Energy shall for the purposes of paragraph (1) be excluded from the amount of the research or research and development budget of that Department.

Small business innovation research program, requirements.

"(g) Each Federal agency required by subsection (f) to establish a small business innovation research program shall, in accordance with this Act and regulations issued hereunder—

"(1) unilaterally determine categories of projects to be in its SBIR program;

"(2) issue small business innovation research solicitations in accordance with a schedule determined cooperatively with the Small Business Administration;

"(3) unilaterally receive and evaluate proposals resulting from SBIR proposals;

"(4) unilaterally select awardees for its SBIR funding agreements;

"(5) administer its own SBIR funding agreements (or delegate such administration to another agency);

"(6) make payments to recipients of SBIR funding agreements on the basis of progress toward or completion of the funding agreement requirements; and

"(7) make an annual report on the SBIR program to the Small Business Administration and the Office of Science and Technology Policy.

"(h) In addition to the requirements of subsection (f), each Federal agency which has a budget for research or research and develop-

ment in excess of $20,000,000 for any fiscal year beginning with fiscal year 1983 or subsequent fiscal year shall establish goals specifically for funding agreements for research or research and development to small business concerns, and no goal established under this subsection shall be less than the percentage of the agency's research or research and development budget expended under funding agreements with small business concerns in the immediately preceding fiscal year.

"(i) Each Federal agency required by this section to have an SBIR program or to establish goals shall report annually to the Small Business Administration the number of awards pursuant to grants, contracts, or cooperative agreements over $10,000 in amount and the dollar value of all such awards, identifying SBIR awards and comparing the number and amount of such awards with awards to other than small business concerns.

Policy directives.

"(j) The Small Business Administration, after consultation with the Administrator of the Office of Federal Procurement Policy, the Director of the Office of Science and Technology Policy, and the Intergovernmental Affairs Division of the Office of Management and Budget, shall, within one hundred and twenty days of the enactment of the Small Business Innovation Development Act of 1982, issue policy directives for the general conduct of the SBIR programs within the Federal Government, including providing for—

"(1) simplified, standardized, and timely SBIR solicitations;

"(2) a simplified, standardized funding process which provides for (A) the timely receipt and review of proposals; (B) outside peer review for at least phase two proposals, if appropriate; (C) protection of proprietary information provided in proposals; (D) selection of awardees; (E) retention of rights in data generated in the performance of the contract by the small business concern; (F) transfer of title to property provided by the agency to the small business concern if such a transfer would be more cost effective than recovery of the property by the agency; (G) cost sharing; and (H) cost principles and payment schedules;

"(3) exemptions from the regulations under paragraph (2) if national security or intelligence functions clearly would be jeopardized;

"(4) minimizing regulatory burden associated with participation in the SBIR program for the small business concern which will stimulate the cost-effective conduct of Federal research and development and the likelihood of commercialization of the results of research and development conducted under the SBIR program; and

"(5) simplified, standardized, and timely annual report on the SBIR program to the Small Business Administration and the Office of Science and Technology Policy.

"(k) The Director of the Office of Science and Technology Policy, in consultation with the Federal Coordinating Council for Science, Engineering and Research, shall, in addition to such other responsibilities imposed upon him by the Small Business Innovation Development Act of 1982—

"(1) independently survey and monitor all phases of the implementation and operation of SBIR programs within agencies required to establish an SBIR program, including compliance with the expenditures of funds according to the requirements of subsection (f) of this section; and

"(2) report not less than annually, and at such other times as the Director may deem appropriate, to the Committees on Small Business of the Senate and the House of Representatives on all phases of the implementation and operation of SBIR programs within agencies required to establish an SBIR program, together with such recommendations as the Director may deem appropriate.". Report to congressional committees.

SEC. 5. Effective October 1, 1988, paragraphs (4) through (7) of section 9(b) of the Small Business Act (as added by section 3) and subsections (e) through (k) of section 9 of the Small Business Act (as added by section 4) are repealed. 15 USC 638.

SEC. 6. The Comptroller General shall, not more than five years after the date of enactment of this Act, transmit a report to the Senate and the House of Representatives on the implementation of, and nature of research conducted under this Act, including the judgments of the heads of Departments and agencies as to the effect of this Act on research programs. Report to Congress. 15 USC 638 note.

Approved July 22, 1982.

LEGISLATIVE HISTORY—S. 881 (H.R. 4326):

HOUSE REPORTS: No. 97-349, Pts. I-7 accompanying H. R. 4326 (Comms. on Small Business; Energy and Commerce; Veterans' Affairs; Science and Technology; Foreign Affairs; Armed Services; and Permanent Select Committee on Intelligence), respectively.
SENATE REPORT No. 97-194 (Comm. on Small Business).
CONGRESSIONAL RECORD:
Vol. 127 (1981): Dec. 7, 8, considered and passed Senate.
Vol. 128 (1982): June 17, 22, 23, H.R. 4326 considered and passed House; passage vacated and S. 881, amended, passed in lieu.
June 29, Senate concurred in House amendment.
WEEKLY COMPILATION OF PRESIDENTIAL DOCUMENTS:
Vol. 18, No. 29 (1982): July 22, Presidential statement.

DOMEBIL3

JUNE 8, 1988

TO: LOWELL HARMISON
FROM: JIM LIVERMAN

SUBJECT: INFO ON DOMINICI BILL AND THE 1984 DOLE AMENDMENTS TO TECH TRF STORY.

Attached are a number of pages of material relevant to the Technology Transfer story.

1. THE DOMINICI BILL - You will note that the bill seems to focus only on the DEPARTMENT OF ENERGY laboratories because there has been a history of DOE not delegating the authority for licensing etc out of the headquarters here in Washington.

I had only a scurfy copy of the essential parts of the Domenici Bill and extracted parts where reference to "computer software" was made with complete copy of Section 408 which has totally to do with computer software and related matters.

2. DOLE AMENDMENTS

This material has to do with the background of "WHY?" the Domenici Bill - i.e, because of the recalcitrance of DOE to play the game as the Congress wants it played. The Dole amendments were an attempt to get DOE to delegate and get active in transfer. That didnt work so now Domenici is basically directing that DOE get on with its job with there no longer being a choice.

DOMEBIL2.DOC

TITLE IV - TECHNOLOGY MANAGEMENT AT THE DEPARTMENT OF ENERGY NATIONAL LABORATORIES.

SEC 401 - FINDINGS
SEC 402 - PURPOSE
SEC 403 - POLICY
It is the policy of Congress that intellectual property rights in technology or devices developed at the National Laboratories should be controlled in a manner that promotes the use of such technology and devices too improve the competitive advantage of the United States industries.

SEC 404 - DEFINITIONS
(1) "invention"
(2) "subject invention"
(3) "made"
(4) The term "technical data" means recorded information of a scientific or technical nature regardless of form or the media on which it may be recorded.
(5) The term "computer software" means recorded information regardless of form or the media on which it may be recorded comprising computer programs or documentation thereof.
(6) "intellectual property"
(7) "collaborative party
(8) "laboratory owned"

SEC 405 - GENERAL AUTHORITY - The Secretary of Energy shall permit the director of any of its National Laboratories -
(1) to enter into cooperative research and development agreements on behalf of the Department of Energy with -
(A) other Federal agencies;
(B) units of State or local governments;
(C) industrial organizations incluidng corporations, partnerships, and limited partnerships, consortia, and industrial development organizations;
(D) public and private foundations.
(E) nonprofit organizations including universities; or
(F) other persons including licensees of inventions, technical data or computer software owned by the Naitonal Laboratory; and
(2) To negotiate intellectual property licensing agreements for National Laboratory owned inventions, technical data or computer software assigned or licensed to the National Laboratory by third parties including voluntary assignment by employees.

SEC 406 - CONTRACT CONSIDERATIONS
(a) Regulation & Procedures
(b) Agreement Considerations. The Director of the National Laboratory in deciding what cooperative research and development agreements to enter into shall:

(1) give special consideration to small business firms and consortia involving small business firms;
(2) give preference to business units located in the United States which agree that products embodying inventions, technical data or computer software will be developed and manufactured substantially in the United States.
(3) conditions for foreign government or foreign controlled companies to get agreements
(4) provide universities opportunity ..

SEC 407 - PATENT OWNERSHIP AND THE CONDISTIONS OF OWNERSHIP.
(A) Disposal of Title to Inventions.
(B) Retention of Title by United States except under special situations.

SEC 408 - TECHNICAL DATA OR COMPUTER SOFTWARE AND THE CONDITIONS OF OWNERSHIP

GAOREV01.doc May 12, 1988

GAO OFFICE FOR PICKUP 700 4TH ST NW, 4TH & G ST, ROOM 1000.

The following are drawn from the GAO report:

RCED-88-116BR - CONSTRAINTS PERCEIVED BY FEDERAL LABORATORY AND AGENCY OFFICIALS TO TECHNOLOGY TRANSFER. MARCH 4, 1988.

1. Stevenson-Wydler Technology Innovation Act of 1980, (15 USC 3701 et seq).

2. Patent and Trademark Amendments of 1980, (35 USC 200 & 205 202 (c) (7) (C) and (E) et seq).

3. Federal Technology Transfer Act of 1986 (PL 99-502, Oct 20, 1986 (15 USC 3710).

4. Executive Order 12591, Facilitating Access to Science and Technology, April 1987.

5. Public Law 98-620, November 1984 amending DOE acts to give more authority for granting titles to non-profits managing Fed Labs.

6. Patent Policy: Recent Changes in Federal Law Considered Beneficial (GAO/RCED-87-44, April 16, 1987.

7. Energy Management: Effects of Recent Changes on DOE Patent Policies (GAO/RCED-87-5, Dec 31, 1986).

8. Presidential Memo, 1983 re transfering technology formalized by the above Executive Order.

9. 17 USC 105 - stating that copyright protection is not available for any federal government work and policy is to disseminate:
    a. NTIS
    b. National Energy Software Center at Argonne
    c. NASA Computer Software Mgt & Info Center, U of Ga.
    d. Various Tech Briefs.

10. Dept of Commerce report to Pres & Congress, April 1988 about barriers to transfer of software to private sector, state & local governments.

11. Software Distribution: Review of the DOE's National Energy Software Center (GAO/IMTEC-88-2, Oct 14, 1987.

12. Semiconductor Chip Protection Act of 1984 (17 USC 901 et seq).

13. Atomic Energy Act of 1954 (42 USC 2013, 2051, 2161).

14. Energy Reorganization Act of 1974 (42 USC 5813).

15. Department of Energy Organization Act (42-USC 7112).

16. 10 USC 130(A) - SecDef able to withhold tech info.

17. National Def Auth Act FY 1988, FY 1989 (15 USC 4606) excludes from disclosure confidential info re semiconductors from 3rd parties.

4

LIVERMAN & ASSOCIATES
SMALL SYSTEMS CONSULTANTS

FAX COVER SHEET

DATE: 5/20/88

TO: NORM LATKER, JIM LIVERMAN FROM: JAY LIVERMAN
FRANK AITERI

#: _____ FAX: 301 961-6501
VOICE: 301 929 1900

NUMBER OF PAGES: 3 (w/cover)

Please call _____ at 301 929-1900 if the message was incomplete or not legible.

MESSAGE:

CALLED 11 AGENCIES THAT SUPPORT SBIR.
ONLY 1 APPEARED TO HAVE SBIR ON-LINE.

THIS DOES NOT MEAN SOME ONE ELSE DOESN'T PROVIDE IT, BUT IF THEY DO, THE SBIR REP WAS UNAWARE.

NRC, NASA, & EPA WERE difficult to get answers FROM. IT APPEARS, HOWEVER, THAT NONE OF THEM PROVIDE ACCESS TO ELECTRONIC MEDIA.

Jay

7315 WISCONSIN AVENUE • WEST MALL • BETHESDA, MD 20814
TELEPHONE: (301) 929-1900 DATA: (703) 690-7602

DEPARTMENT OF AGRICULTURE

Spoke with:
Charles Cleland at 447-7002

Results:
Said that data is provided on line, but didn't know how. Gave me John Meyers #. Is sending me abstracts on research completed over the last two years. Also putting me on the mailing list for RFP's which come out every October 1. SBA provides the pre-solicitations quarterly for all agencies.

Spoke with:
An assistant of John Meyers at 344-3846.

Results:
Data is provided on-line through Dialog. System is called CRIS. (# 60 on Dialog).

DEPARTMENT OF COMMERCE

Spoke with:
Assistant to Jim Maruca at 377-1472.

Results:
Put me on the mailing list for RFP's which come out every October 15. Gave me the number to call for electronic information as well as anything further. Maruca's office deals with many things, SBIR being only 1.

Spoke with:
Ed Tiernan at 763-4240.

Results:
Informed me that DOC does not provide SBIR information electronically. He said that SBIR is not in FEDRIP, at least not directly.

DEPARTMENT OF DEFENSE

Spoke with:
Bob Wrenn at 697-9383

Results:
Put me on the RFP mailing list which comes out October 1. Informed me that there is no electronic media for SBIR related information. Put me in touch with the Defense Technical Service?.

Spoke with:
Defense Technical Service? at 1 800-368-5211

Results:
Is sending all abstracts of '87 Stage I SBIR info, as well as '85 Stage II SBIR info.

DEPARTMENT OF EDUCATION
Spoke with:
John Cristensen at 357-6065
Results:
Put me on the RFP mailing list which comes out in March. There is no electronic database for any of their SBIR or related information.

DEPARTMENT OF ENERGY
Spoke with:
An assistant to Gerry Washington (female).
Results:
Put me on the RFP mailing list which comes out in the Fall. There is no electronic database for any of their SBIR or related information.

DEPARTMENT OF HEALTH AND HUMAN SERVICES
Spoke with:
An assistant to Richard Clinkscales at 245-5867.
Results:
Mailing list. Did not know about electronic media. Gave me Lily Ingstrom's office.

Spoke with:
An assistant to Lily Ingstrom at 496-1968 (NIH).
Results:
No electronic database for SBIR. I mentioned the fact that I was able to pull severeral items off of the NTIS system. She believed that each institute might have their own policy, but that her office did not and had no plans to do so.

DEPARTMENT OF TRANSPORTATION
Spoke with:
John McGahan, an assistant to Dr. George Kovatch at 617 494-2051.
Results:
Mailing list. No electronic database for SBIR. RFP's published February 15th.

NATIONAL SCIENCE FOUNDATION
Spoke with:
An assistant to Roland Tibbetts at 357-7527.
Reults:
Mailing list. No electronic database for SBIR. No intention of any future electronic database. RFP's sent out May 15.

CULTURE AND FOOD
CURRENT RESEARCH INFORMATION/USDA 1138

Describes current research in agriculture sponsored by the U.S. Department of Agriculture and state institutions. Records are removed from this database two years after project completion.

Format:	full text
Field Searching:	unavailable
Updating:	monthly
Reprints:	unavailable
Host:	DIALOG Information Services, Inc.

ATTN: NORM, FRANK, Jim

DATABASE ~~USED~~ MAINTAINED BY USDA.

G

X. PARTICIPATING FEDERAL AGENCY SBIR REPRESENTATIVES

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(202) 377-1472

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SBIR Coordinator
OSD/SADBU
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(202) 697-9383

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SBIR Spokesperson
c/o SBIR Program Manager
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Director, Office of Small and Disadvantaged
Business Utilization
Office of the Secretary
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Washington, D. C. 20201
(202) 245-7300

DEPARTMENT OF TRANSPORTATION

Dr. George Kovatch
Chief, University Research & Technology
Innovation Office (DTS-23)
U. S. Department of Transportation
Transportation Systems Center
Kendall Square
Cambridge, MA 02142
(617) 494-2051

PARTICIPATING AGENCY SBIR REPRESENTATIVES

ENVIRONMENTAL PROTECTION AGENCY

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SBIR Program Manager
Research Grants Staff (RD-675)
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Environmental Protection Agency
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(202) 382-7445

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Director, SBIR Office - Code CR
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Mr. Ritchie Coryell
SBIR Program Managers
National Science Foundation
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(202) 357-7527

NUCLEAR REGULATORY COMMISSION

Mr. William E. Forehand
SBIR Program Representative
Program Management, Policy Development
and Analysis Staff
Office of Nuclear Regulatory Research
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555
(301) 443-7679

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SBIRAGENCIES.WK1

ESTIMATES OF FUNDING FOR SBIR BASED ON
1986 R&D BUDGET LEVELS OF AGENCIES

AGENCY	TOTAL 1986	TOTAL 1988	INHURAL 86	INHURAL 88	XHURAL 86	XHURAL 88	BELOW DEPARTMENT 1.25% 86	BELOW DEPARTMENT 1.25% 88	DEPT LEVEL 86	DEPT LEVEL 88	GOVT 86	GOVT 88
TOTAL ALL AGENCIES	16502	18005	5160.00	5494.00	11342.0	12511.00					206.28	225.06
AGRICULTURE	896	927	598.00	671.00	298.0	256.00			11.20	11.59		
AG RESEARCH SERVICE	436	495	421.00	480.00	15.0	15.00	5.45	6.19				
COOP STATE AG RES	269	238	13.00	11.00	256.0	227.00	3.36	2.98				
FOREST SERVICE	109	119	100.00	109.00	9.0	10.00	1.36	1.49				
COMMERCE	339	275	256.00	235.00	83.0	40.00			4.24	3.44		
NOAH	237	170	162.00	135.00	75.0	35.00	2.96	2.13				
DEFENSE	3227	3366	1285.00	1343.00	1942.0	2023.00			40.30	42.08		
ARMY	827	848	463.00	507.00	364.0	341.00	10.33	10.60				
NAVY	784	838	431.00	464.00	353.0	374.00	9.80	10.48				
AIR FORCE	759	825	200.00	217.00	559.0	608.00	9.49	10.31				
DEFENSE AGENCIES	857	855	191.00	154.00	666.0	701.00	10.71	10.69				
ENERGY	2040	2061	128.00	98.00	1912.0	1963.00			25.50	25.76		
EDUCATION	95.8	105	1.15	6.14	94.6	98.86	0.00	1.31				
HEALTH & HUMAN SERV	5190	5778	1149.00	1152.00	4041.0	4626.00			64.88	72.23		
ALCOHOL & DRUG	395	478	136.00	155.00	259.0	323.00	4.94	5.98				
NIH	4588	5074	879.00	853.00	3709.0	4221.00	57.35	63.43				
HOUSING & URB DEVE	5.25	7.68	2.71	4.13	2.5	3.55			0.00	0.00		
INTERIOR	368	353	320.00	321.00	48.0	32.00			4.60	4.41		
GEOLOGICAL SURVEY	211	207	191.00	193.00	20.0	14.00	2.64	2.59				
JUSTICE	22	17.4	1.90	1.37	20.1	16.03			0.00	0.00		
LABOR	9.5	21.15	3.70	4.94	5.8	16.21			0.00	0.00		
STATE	1.5	1.78	1.10	1.42	0.4	0.36			0.00	0.00		
TRANSPORTATION	68	79.7	23.00	37.30	25.0	42.40			0.00	0.00		
TREASURY	18	18.25	12.00	11.97	6.0	6.28			0.00	0.00		
OTHER AGENCIES												
AID	185	147	1.20	1.20	183.8	145.80	2.31	1.84	2.31	1.84		
EPA	218	206	65.00	65.74	149.0	140.26	2.73	2.58	2.73	2.58		
NASA	2069	2510	892.00	1060.00	1177.0	1450.00	25.86	31.38	25.86	31.38		
NSF	1353	1706	130.00	163.00	1223.0	1543.00	16.91	21.33	16.91	21.33		
VETERANS ADMIN	170	190	169.00	188.00	1.0	2.00	2.13	2.38	2.13	2.38		
TOTAL IF TOTAL AGENCY BUDGET CONSIDERED									200.65	219.02		
TOTAL IF ONLY INDIVIDUAL AGENCIES WITH OVER 100M							168.33	187.67				
TOTAL IF 1.25% OF ALL GOVT R&D											206.28	225.06

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1986 SMALL BUSINESS ADM COMPILATION OF SBIRS FROM AGENCIES

	PHASE I AWARDS		PHASE II AWARDS	
	NUMBER	MONEY** x M	NUMBER	MONEY x M
HHS	406	20.30	112	28.00
DOD-AF	310	15.50	111	27.75
DOD-ARMY	262	13.10	51	12.75
DOD-NAVY	215	10.75	66	16.50
DOD-SDIO	151	7.55	0	0.00
NASA	144	7.20	77	19.25
NSF	110	5.50	44	11.00
DOE	96	4.80	41	10.25
DOD-DNA	42	2.10	2	0.50
DOD-DARPA	39	1.95	9	2.25
DOA	36	1.80	12	3.00
DOT	29	1.45	8	2.00
EPA	21	1.05	11	2.75
ED	14	0.70	6	1.50
NRC	13	0.65	3	0.75
DOC	11	0.55	3	0.75
	1899	94.95	556	139.00

** FUNDS ESTIMATED AT $50K FOR PHASE I AND $250K FOR PHASE II.

SBA8601.WK1

1986 SMALL BUSINESS ADM COMPILATION OF SBIRS FROM AGENCIES

	PHASE I AWARDS		PHASE II AWARDS	
	NUMBER	MONEY** x M	NUMBER	MONEY x M
DOA	36	1.80	12	3.00
DOC	11	0.55	3	0.75
DOD-AF	310	15.50	111	27.75
DOD-ARMY	262	13.10	51	12.75
DOD-DARPA	39	1.95	9	2.25
DOD-DNA	42	2.10	2	0.50
DOD-NAVY	215	10.75	66	16.50
DOD-SDIO	151	7.55	0	0.00
DOE	96	4.80	41	10.25
DOT	29	1.45	8	2.00
ED	14	0.70	6	1.50
EPA	21	1.05	11	2.75
HHS	406	20.30	112	28.00
NASA	144	7.20	77	19.25
NSF	110	5.50	44	11.00
NRC	13	0.65	3	0.75
	1899	94.95	556	139.00

** FUNDS ESTIMATED AT $50K FOR PHASE I AND $250K FOR PHASE II.

$PHASEII.WK1 CALCULATION OF PHASE II COSTS
1956 SBA SBIR

PAGE	AGENCY	AMT
232	NAVY	159
	NAVY	100
	AF	185
	NAVY	499
	AF	150
	AF	226
	ARMY	250
	NAVY	389
	AF	240
233	NAVY	119
	NAVY	251
	AF	200
	NAVY	46
	AF	230
	NAVY	201
	AF	150
	ARMY	42
	AF	200
235	NSF	196
	NSF	194
	DOE	232
	HHS	73
236	HHS	418
	HHS	287
	HHS	173
	NASA	250
237	NASA	207
	NASA	497
	NASA	473
	NASA	480
	NAVY	356
	ARMY	111
	NAVY	295
238	NSF	186
	NAVY	186
240	NAVY	186
	AF	205
	AF	172
	AF	247
242	DOA	200
243	NSF	193
	DOE	224
	DOE	353
244	DARPA	198
	HHS	200
	HHS	200
	HHS	227
	HHS	401

AGENCY:	NUMBER	TOTAL PHASE II	
NAVY	13	66	0.196969
AF	14	111	0.126126
ARMY	3	262	0.011450
NSF	4	44	0.090909
DOE	1	41	0.024390
HHS	8	112	0.071428
NASA	5	77	0.064935
	48		
	48/556		0.086330
TOTAL	11257K		
(48) AVG	261K		

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SBIRPG04.WK1

NUMBERS AND VALUE IN $'S OF AGENCY SUPPORT OF SBIR

	ARMY	AIR F.	NAVY	DARPA	DNA	SDIO	HHS	NIH	ADAMHA	FDA	CDC	OAPP
1985 PHASE I												
NO REVIEWED	808	1306	851	130	95	415						
NO APPROVED	124	249	110	14	18	36						
$'S												
1985 PHASE II												
NO REVIEWED	ABOVE	ABOVE	ABOVE	ABOVE	ABOVE	ABOVE						
NO APPROVED	64	118	55	6	2	15						
$'S												
1986 PHASE I												
NO REVIEWED												
NO APPROVED												
$'S												
1986 PHASE II												
NO REVIEWED												
NO APPROVED												
$'S												
1987 PHASE I												
NO REVIEWED												
NO APPROVED							357	328				
$'S							17.85 M	16.42 M				
1987 PHASE II												
NO REVIEWED												
NO APPROVED							233	214				
$'S							49.35 M	45.40 M				
1988 PHASE I												
NO REVIEWED												
NO APPROVED							341	300	20	2	2	1
$'S							15.0 M	13.75 M	1.0 M	0.1 M	0.1 M	0.05 M
1988 PHASE II												
NO REVIEWED												
NO APPROVED												
$'S												

NUMBERS AND VALUE IN $'S OF AGENCY SUPPORT OF SBIR'S

	NSF	USDA	NASA	DOT	DOC	DOE	DED	EPA	NRC
1985 PHASE I									
NO REVIEWED									
NO APPROVED									
$'S									
1985 PHASE II									
NO REVIEWED									
NO APPROVED									
$'S									
1986 PHASE I									
NO REVIEWED									
NO APPROVED									
$'S									
1986 PHASE II									
NO REVIEWED									
NO APPROVED									
$'S									
1987 PHASE I									
NO REVIEWED	1248				183	942	200		
NO APPROVED	152	23			13	111	28		
$'S	7.8 M	1.1 M			0.364 M	4.75 M	0.82 M		
1987 PHASE II									
NO REVIEWED									
NO APPROVED		12							
$'S		2.49 M							
1988 PHASE I									
NO REVIEWED									
NO APPROVED							20		
$'S							0.6 M		
1988 PHASE II									
NO REVIEWED									
NO APPROVED									
$'S									

SBIR

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AGRICULTURE DEPARTMENT SBIR R&D AREAS

TOPICAL AREAS	CONTACT PERSON	MAJ	SUB	SUB/ SUB	TOT
FORESTS & RELATED RESOURCES		1	4	8	8
PLANT PRODUCTION & PROTECTION		1	4	0	4
ANIMAL PRODUCTION & PROTECTION		2	4+6	9+9	18
AIR, WATER, SOILS		1	3	0	3
FOOD SCIENCE & NUTRITION		1	4	0	4
RURAL & COMMUNITY DEVELOPMENT		1	3	0	3

SBIRRES1.WK1

RESEARCH AREAS OF DIFFERENT AREAS

AGENCY	TOPICAL AREAS	CONTACT PERSON
AGRICULTURE	FORESTS & RELATED RESOURCES	
AGRICULTURE	PLANT PRODUCTION & PROTECTION	
AGRICULTURE	ANIMAL PRODUCTION & PROTECTION	
AGRICULTURE	AIR, WATER, SOILS	
AGRICULTURE	FOOD SCIENCE & NUTRITION	
AGRICULTURE	RURAL & COMMUNITY DEVELOPMENT	

UNITED STATES DEPARTMENT OF AGRICULTURE

COMPETITIVE RESEARCH GRANTS OFFICE

SMALL BUSINESS INNOVATION RESEARCH PROGRAM

TECHNICAL ABSTRACTS

Fiscal Year 1987

U.S. Department of Agriculture
Cooperative State Research Service
OGPS/CRGO/SBIR
Room 112, J. S. Morrill Building
Washington, D.C. 20251

October 1987

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CONTENTS

AREA1.WK1

COMMERCE DEPARTMENT SBIR R&D AREAS

	MAJOR AREA	SUB AREA
1	ATMOSPHERIC & HYDROLOGICAL SCIENCES	MILLIMETER WAVE ANTENNA
2	ATMOSPHERIC & HYDROLOGICAL SCIENCES	INVESTIGATION OF TECHNIQUES FOR MEASURING HAIL
3	OCEAN SCIENCE & ENGINEERING	POSITIONING AND SURVEYING SYSTEMS
4	OCEAN SCIENCE & ENGINEERING	SHIPBOARD EQUIP FOR RES & SURVEY VESSELS
5	OCEAN SCIENCE & ENGINEERING	MARINE ENVIRONMENTAL MODELING INFO & FORECASTING
6	OCEAN SCIENCE & ENGINEERING	CHEMICAL SENSING ELECTRODES
7	OCEAN SCIENCE & ENGINEERING	DIVING
8	OCEAN SCIENCE & ENGINEERING	OCEAN INSTRUMENTATION & MEASUREMENT SYST
9	LIVING MARINE RESOURCES	ACCURATE WEIGHT DETERMINATION AT SEA
10	LIVING MARINE RESOURCES	DEVELOPMENT OF ARCHIVAL FISH TAG
11	LIVING MARINE RESOURCES	AQUACULTURE SYSTEMS & TECHNIQUES
12	LIVING MARINE RESOURCES	PROTOTYPE TV SYSTEM FOR REEF FISH ASSESSMENT
13	CHEMICAL & PHYSICAL MEASUREM. & STRDS	DIELECTRIC SENSORS FOR COMPOSITE PROCESS CONTROL
14	CHEMICAL & PHYSICAL MEASUREM. & STRDS	IMPROVD SAMPL STRUCTURES FOR SCANNING TUNNELING MICROSCOPE
15	DATA AND INFO SYSTEMS	IMPRVD HYDROLOGICAL DATA MGT SYS
16	DATA AND INFO SYSTEMS	MARINE ENVIRONMENTAL DATA AND INFO
17	DATA AND INFO SYSTEMS	TECHNOLOGIES FOR DISSEMINATION OF WEATHER INFO
18	MAPPING AND CHARTING	CARTOGRAPHIC DATA AND INFO
19	ENVIRONMENTAL SATELLITES	LOW-COST HRPT DIRECT READOUT STATION

CANT BELIEVE THIS IS ALL THE CATEGORIES FOR COMMERCE IF SO - 7 PRIME
AND 19 TOTAL.

DOD - ARMY SBIR R&D AREAS

DOD - NAVY SBIR R&D AREAS

DOD - AIR FORCE SBIR R&D AREAS

DOD - ADVANCED RESEARCH PROJECTS AGENCY SBIR R&D AREAS

DOD - DEFENSE NUCLEAR AGENCY SBIR R&D AREAS

DOD - STRATEGIC DEFENSE INITIATIVE OFFICE SBIR R&D AREAS

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DEPARTMENT OF EDUCATION TOPICS FOR SBIR

		X
1	TRANSPORTATION FOR DISABLED INDIVIDUAL	WHEEL CHAIR IMPROVEMENTS
2	TRANSPORTATION FOR DISABLED INDIVIDUAL	PERSONAL VEHICLE ADAPTATION
3	TRANSPORTATION FOR DISABLED INDIVIDUAL	MASS TRANSIT ADAPTATIONS
4	EXERCISE & RECREATION EQUIP FOR DISABLED	EXER EQUIP DEVELOP OR MODS
5	EXERCISE & RECREATION EQUIP FOR DISABLED	RECREATION EQUIP DEV OR MODS
6	IMPROV OF PROSTHETICS & ORTHOTICS DISAB	MATERIALS
7	IMPROV OF PROSTHETICS & ORTHOTICS DISAB	FABRICATION METHODS
8	IMPROV OF PROSTHETICS & ORTHOTICS DISAB	FITTING METHODS
9	IMPROV OF PROSTHETICS & ORTHOTICS DISAB	REDUCTION OF COSTS
10	REDUCE OR ELIM ENV BARRIERS FOR DISABL	X
11	ADAPT FOR VISION IMPARIED DISABLED	IMPROVED LOW VISION AIDS
12	ADAPT FOR VISION IMPARIED DISABLED	FEASIBILITY, DESIGN DEV TECH FOR CODING FOR DEAF-BLIND
13	ADAPT FOR VISION IMPARIED DISABLED	ADAPT TO MAKE CURRENT TECHNOL DEVICES USABLE
14	GUIDE MATERIALS FOR RESPITE CARE DISABLD	X
15	ACTIVITIES IMPROVE RANDOLPH-SHEPPARD OPRS	MARKETING STRATEGIES & CONCEPTS
16	ACTIVITIES IMPROVE RANDOLPH-SHEPPARD OPRS	DEVELOP HANDBOOK OPR SELF SUFFICIENT
17	ACTIVITIES IMPROVE RANDOLPH-SHEPPARD OPRS	DEVELOP RESOURCE ALLOCATION MODEL
18	MEMORY & LOGIC IMPROVE BY COMPUTER USE	REMEMBER DATA & RULES
19	MEMORY & LOGIC IMPROVE BY COMPUTER USE	PROCESS DATA ACCORDING TO PROGRAMMED LOGIC
20	MEMORY & LOGIC IMPROVE BY COMPUTER USE	LEARNING AND THINKING PROSTHETIC AUGMENTATION
21	QUIK RETRIEVE LARGE BASES USE BY DISABLD	X
22	INTEGRATION OF VIDEOTAPED ILLUS FOR DISABL	X
23	SW REDUC AUDITORY CLUTTER VOICE SYNTHESIS	X
24	IMPROVE COMPUTER-VOICE OUTPUT EQ	X
25	PORTABLE SCAN DATA & INFO GATHER BY DISABLD	X
26	INPUT/OUTPUT DEVICES AID COMPUTER ACCESS	X
27	LOW COST TV CLOSED CAPTIONED LINE 21 DECODER	X
28	COMPUTER LANGUAGE ASSESSMENT PROCEDURES	X
29	TECH ADULT LITERACY/BASIC SKILL INSTRUCTION	COURSEWARE ADDRESS LEARNING STYLES COMPLEMENT VIDEODISC

19 BASIC COMPONENTS
29 TOTAL TOPIC AREAS - ALL SPECIALIZED

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DOE SBIR AREAS

1	GEOTHERMAL INSTRUMENTATION	4		
2	ADVANCED INDUSTRIAL SENSORS & CONTROLS	4		
3	ADVANCED BUILDING ENVELOPE MAT TECH	4	3+1+4+1	9
4	INDOOR RADON DETECTOR	3		
5	HUMAN GENOME	3		
6	ENV BIOTECH & ANALYSIS	4		
7	BOTANICAL RES TECH & INST	4		
8	CHEMICAL SCIENCE RESEARCH	4		
9	MATERIALS SCIENCE	2		
10	HIGH TEMPERATURE SEMICONDUCTING MATERIAL	2		
11	2 PHASE FLOW INSTRUMENTATION	1		
12	PLASMA DIAGNOSTICS	2	2+1	3
13	PLASMA CONFINEMENT	4		
14	FUSION ENERGY	4		
15	TECHNOL FOR SUPERCONDUCTOR COLLIDER	3		
16	HIGH ENERGY PHYSICS TECH & RES	3		
17	HEP DATA PROCESSING & DETECTOR INSTRUM	4	3+3X1	6
18	ACCELERATOR TECH HEP	4		
19	ACCELERATOR TECH NUCLEAR PHYSICS	3		
20	NUCLEAR PHYSICS INSTRUMENTATION	4		
21	COAL UTILIZATION	4		
22	FOSSIL ENERGY INSTRUMENATION	4		
23	FOSSIL ENERGY MATERIALS	3		
24	ENHANCED OIL & GAS RECOVERY	4		
25	BIOTECH FOR FOSSIL ENERGY	4		
26	ADV ROBOTICS FOR NUCLEAR FACILITIES	4		
27	SENSORS & MONITORING FOR ADV NUC REACTOR	3		
28	COMPUTER APPLN FOR NUCLEAR POWER PLANTS	4		
29	FUEL CYCLE PROCESSES	4		
		100		108

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DEPARTMENT OF ENERGY SBIR PROGRAMS 1987 BY ELEMENT

ELEMENT	AWARDS	TOTAL AMT
CHEMICAL SCIENCES RESEARCH	9	$447,405
MATERIALS SCIENCE	8	$398,488
ADVANCED CONTROL SYSTEMS	1	$49,918
PLANT NATURAL PRODUCT CHEMISTRY	1	$50,000
HEALTH & ENV EFFECTS INSTR	1	$49,173
NUCLEAR MEDICINE	4	$199,415
HEALTH & ENV EFFECTS METHODOLOGIES	4	$186,279
HEP TECHNOLOGY RESEARCH	7	$349,775
HEP DATA PROCESSING & DETECTOR INSTR.	7	$345,858
PARTICLE ACCELERATOR TECH	3	$147,443
NUC PHYS INSTR & TECHNIQUES	1	$49,721
PLASMA DIAGANOSTICS	4	$198,101
PLASMA CONFINEMENT SYSTEMS TECHNOLOGY	10	$497,593
FUSION ENERGY SYSTEMS	5	$248,584
ROBOTICS & REMOTE SYST TECH FOR NUC FACIL	4	$199,458
SENSORS & MONITORING FOR ADV NUC REACTORS	2	$87,836
SPACE NUCLEAR POWER TECH & SYS CONCEPTS	3	$148,685
FULL CYCLE TECHNOLOGY	2	$99,461
ADV TECH FOR DECONTAM & DECOMM NUC FACIL	3	$149,332
COMPUTER APPLN TO NUCLEAR POWER PLANTS	5	$249,844
COAL UTILIZ & CONVERSION	7	$348,895
FOSSIL ENERGY INSTRUMENTATION	2	$99,976
ENHANCED OIL RECOVEREY & TAR SANDS	3	$149,318

FOSSIL ENERGY MATERIALS		2	$98,750
PHOTOVOLTAIC RESEARCH		2	$97,916
SOLAR THERMAL TECHNOLOGY		4	$198,662
HIGH TEMP STRUCTURAL CERAMICS - HEAT ENGINES		3	$149,783
INDUSTRIAL SEP, CONVERS & RECOV PROCESSES		4	$191,596
		111	$5,487,265
VALUE EACH	$5,487,265/111		$49,435

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DEPARTMENTAL PERSONNEL SUPERVISING SBIR PROGRAMS IN HHS

	INSTITUTE	DIVISION	PERSON
NIH	AGING	ALL	DR. MIRIAM KELTY
NIH	ALLERGY	ALL	DR. JOHN DIGGS
NIH	ARTHRITIS	ALL	DR. STEVE HAUSMAN
NIH	DIABETES	ALL	MR. JOHN RATHUNE
NIH	CANCER	CANCER BIOLOGY	MS. JANET GERENDASY
NIH	CANCER	ETIOLOGY	DR. JOHN COOPER
NIH	CANCER	TREATMENT	DR. GREGORY KURT
NIH	CANCER	PREVENT & CONTROL	DR. JAMES CALLAHAN
NIH	CHILD HEALTH	ALL	MS. HILDEGARD TOPPER
NIH	DENTAL	ALL	DR. THOMAS VALEGA
NIH	ENV HEALTH SCI	ALL	DR. MICHAEL GALVIN
NIH	EYE	ALL	DR. RALPH HELMSEN
NIH	GEN MED SCI	ALL	DR. ELKE JORDAN
NIH	HEART & LUNG	ALL	DR. HENRY ROSCOE
NIH	NEUROLOGY	ALL	DR. EDWARD DONOHUE
NIH	RESOURCES	ALL	DR. JAMES O'DONNELL
NIH	NURSING	ALL	DR. JANET HEINRICH
NIH	GEN NIH	ALL	DR. JAMES WILLETT
ADAM	ALCOHOL ABUSE	ALL	DR. LAURIE FOUDIN
ADAM	DRUG ABUSE	ALL	DR. JACQUELIN LUDFORD
ADAM	MENTAL HEALTH	ALL	MR. JAMES MOYNIHAN
CDC	NIOSH	ALL	DR. ROY FLEMING
FDA	ALL	ALL	MS. OLIA HOPKINS
OS	ADOLESCENT PREG	ALL	MS EUGENIA ECKARD

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NIH INTEREST AREAS FOR THE SBIR PROGRAM
ALPHABETIC ARRANGEMENT OF TOPICS

PHS AIDS
PHS AMPUTATIONS, FRACTURES
PHS ARTHRITIS, MUSCULOSKELETON & SKIN DIS
PHS BASIC RESEARCH TOOLS
PHS BEHAVIOR & SOCIAL RES
PHS BEHAVIORAL SCIENCE R&D
PHS BIOMED & CLIN RES
PHS BLOOD DISEASES & RESOURCES
PHS BRAIN & BODY IMAGING TECHNIQUES
PHS CANCER BIOLOGY & DIAGNOSIS
PHS CANCER ETIOLOGY & PREVENTION
PHS CANCER PREVENTION & CONTROL
PHS CANCER TREATMENT
PHS CARDIOVASCULAR DISEASES
PHS CARIES
PHS CATARACT
PHS CELLULAR & MOLECULAR BASIS OF DISEASE
PHS CLIN EVAL INSTRUMENTS & TECHNOL
PHS COMMUMNICATIVE DISORDERS
PHS COMPUTER SYS FOR CONTROL FEED, HANDLING, PATH
PHS CONTROL TECHNOLOGY RESEARCH
PHS CONVULSIVE, DEVELOPMENTAL & NEUROMUSCULAR DIS.
PHS CORNEAL DISEASES
PHS CRANIOFACIAL ANOMALIES
PHS DEFINITION & MODEL METABOLIC PATHWAYS
PHS DEMYELINATING, ATROPIC & DEMENTING DISORDERS
PHS DERMATOLOGIC CONDITIONS
PHS DETN EXTENT & CAUSE OF PROB WEAR CONTACT LENS
PHS DEV ALTER DESIGN/METH TOXIC/CARCINOG ASS.
PHS DEV ANAL METH & AN MODELS FOR ANIM DRUGS
PHS DEV BM RES METH USE CELLS, ORGANISMS COMPUTERS
PHS DEV COMM TECH USE BY TEENS & PAREN DELAY PM SEX
PHS DEV COMP SYS TO MODEL METAB PATH OF SPEC TOX CHEM
PHS DEV COMP SYS TO PREDICT BIOCHEM INTERACT HUMANS
PHS DEV INFO KSYST SOFTWARE FOR MGT & CLIN NURS
PHS DEV INNOV RES TECH OR INST PREVENT PREG IN ADOL
PHS DEV METHODOL FOR BIOAVAIL & BIOEQUIV IN DRUG TESTS
PHS DEV PROD/DEVIC MEASURE EXPOSE TO TOX AGEN
PHS DEV PROG TO DELAY/DETER/CEASE NURSES SMOKING
PHS DEV SYS OF MICROORG TO LEARN DETOX PATHS
PHS DEV SYS OR DEVICES FOR PATIENT MONITOR
PHS DEV TECH TO ALTER METAB PATHWAYS TO MODUL TOXICITY
PHS DEV & COND SURVY SEX ED HOME, VIDEO DELAY PM SEX

PHS DEV & TEST TECH HELP PAT CARE HOME OR OTHER
PHS DIABETES, ENDOCRINOL & METAB DISEASE
PHS DIGESTIVE DISEASES & NUTRITION
PHS DISORDERS OF REPRODUCTION
PHS DRUG DELIVERY SYSTEMS
PHS DRUG USE IN WORKPLACE
PHS EMPLOYEE ASSISTANCE PROGRAM EVAL PACKAGE
PHS ETIOLOGICAL RESEARCH
PHS EVAL OF POST MARKETING SURVEILLANCE OF DRUGS
PHS FUNDAMENTAL NEUROSCIENCES
PHS GENETICS
PHS GLAUCOMA
PHS HEALTH & BEHAVIOR
PHS HEART & VASCULAR DISEASE
PHS IDENTIFICATION
PHS IMMUNOLOGY, ALLERGY & IMMUN. DISEASE
PHS INSTRUMENTATION FOR BASIC & CLIN RESEARCH
PHS KIDNEY, UROLOGIC & HEMATOLOGIC DISEASE
PHS LOW VISION & REHABILITATION
PHS LUNG DISEASE
PHS METHODOLOGICAL STUDY OF EPIDEMOL OF DRUG ABUSE
PHS MICROBIOL & INFECT DISEASE
PHS MUSCULOSKELETAL INJURIES
PHS NEUROMOLECULAR BIOLOGY & CHEMISTRY
PHS NEUROSCI & NEUROPSYCH AGING
PHS NEUROTOXIC DISORDERS
PHS NEW METODS FOR ASS SAFETY & EFFICACY OF DRUGS
PHS NOISE-INDUCED LOSS OF HEARING
PHS OCCUPATIOINAL CANCERS
PHS OCCUPATIONAL LUNG DISEASE
PHS OPIOID PEPTIDES
PHS ORAL ULCERATIVE DISEASES & SALIVA
PHS OTHER MISSION WORK
PHS OTHER RES TOPICS IN CARCINOGENESIS
PHS OTHER RES TOPICS OF INT TO INST
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PHS OTHER RESEARCH TOPICS OF INT TO INSTITUTE
PHS OTHER RESEARCH TOPICS WITHIN INSTITUTE
PHS OTHER RESEARCH WITHIN DIVISION
PHS OTHER TOPICS IN MISSION
PHS OTHER TOPICS OF INTEREST TO DIVISION
PHS OTHER TOPICS OF INTEREST TO INSTITUTE
PHS OTHER TOPICS OF INTEREST TO MISSION
PHS OTHER TOPICS WITHIN DIVISION
PHS PAIN CONTROL & BEHAVIORAL STUDIES
PHS PERFORM & DRUG CONCENTRATIONS OF ABUSED SUBST

PHS PERFORM & DRUG CONCENTRATIONS OF ABUSED SUBST
PHS PERIDONTAL DISEASE
PHS PERINATAL EFFECTS OF ABUSED SUBSTANCES
PHS PHARMACOLOGICAL SCIENCES
PHS PHARMACOLOGY
PHS PHARMACOLOGY
PHS PHYSIOLOGY & BIOMEDICAL ENGINEERING
PHS POPULATION RESEARCH
PHS PREVENTION
PHS PREVENTION PROGRAM ASSESSMENT METHODS
PHS PREVENTION RESEARCH
PHS PSYCHOLOGIC DISORDERS
PHS QUANT ANAL FOR DRUGS IN BODY FLUIDS
PHS REDN OF RAD EXP FROM MED FLUOROSCOPY
PHS RES IN LAB ANIMAL SCIENCE
PHS RES ON METHODS OTHER THAN ANIMALS FOR TESTING.
PHS RESEARCH FOR MOTHERS & CHILDREN
PHS RESPIRATOR RESEARCH
PHS RESTORATIVE MATERIALS
PHS RETINAL & CHOROIDAL dISEASES
PHS REUSE OF DISPOSAL MED DEVICES
PHS R&D INSTRUMENT & SPEC TECH BIOMED RES
PHS SERIOL MARKER TEST FOR NON-A/NON-B ANTIGENS.
PHS SPECIALIZED PROD FOR USE IN TOX STUDIES
PHS STRABISMUS, AMBLYOPIA, & VISUAL PROCESSING
PHS STROKE & TRAUMA
PHS SYSTEMS DEVELOPMENT
PHS TECH OF HOW USE + PEER PRESSURE DELAY PREMART SEX
PHS TECH TO ADDR PROB OF AIDS IN IV DRUG USERS
PHS TECH TO PROM COMM AWARE OF ADOLESCENT PREGNANCY
PHS TEST METH FOR ASSESS BIOL EFF ENV AGTS
PHS TNG IN DRUG ABUSE TREATMENT TECHNIQUES
PHS TOXIC REACT BY MED DEVICE MATERIALS
PHS TRANSPL DEVICE USING HUMAN ORG & TISSUE
PHS TREATMENT COMPLIANCE

PHS-NIH-NIA	BIOMED & CLIN RES	DR. MIRIAM KELTY	496-9374
PHS-NIH-NIA	BEHAVIOR & SOCIAL RES	DR. MIRIAM KELTY	496-9374
PHS-NIH-NIA	NEUROSCI & NEUROPSYCH AGING	DR. MIRIAM KELTY	496-9374
PHS-NIH-NIAID	IMMUNOLOGY, ALLERGY & IMMUN. DISEASE	DR. JOHN DIGGS	496-7291
PHS-NIH-NIAID	MICROBIOL & INFECT DISEASE	DR. JOHN DIGGS	496-7291
PHS-NIH-NIAID	AIDS	DR. JOHN DIGGS	496-7291
PHS-NIH-NIAID	OTHER MISSION WORK	DR. JOHN DIGGS	496-7291
PHS-NIH-NIAMS	ARTHRITIS, MUSCULOSKELETON & SKIN DIS	DR STEVE HAUSMAN	496-7495
PHS-NIH-NIDDKD	DIABETES, ENDOCRINOL & METAB DISEASE	MR JOHN RATHUNE	496-7793
PHS-NIH-NIDDKD	DIGESTIVE DISEASES & NUTRITION	MR JOHN RATHUNE	496-7793
PHS-NIH-NIDDKD	KIDNEY, UROLOGIC & HEMATOLOGIC DISEASE	MR JOHN RATHUNE	496-7793
PHS-NIH-NIDDKD	OTHER TOPICS IN MISSION	MR JOHN RATHUNE	496-7793
PHS-NIH-NCI	CANCER BIOLOGY & DIAGNOSIS	MS. JANET GERENDASY	496-7028
PHS-NIH-NCI	OTHER RESEARCH TOPICS IN DIVISION	MS. JANET GERENDASY	496-7028
PHS-NIH-NCI	CANCER ETIOLOGY & PREVENTION	DR. JOHN COOPER	496-1882
PHS-NIH-NCI	OTHER RES TOPICS IN CARCINOGENESIS	DR. JOHN COOPER	496-1882
PHS-NIH-NCI	CANCER TREATMENT	DR. GREGORY CURT	496-6711
PHS-NIH-NCI	OTHER RESEARCH WITHIN DIVISION	DR. GREGORY CURT	496-6711
PHS-NIH-NCI	CANCER PREVENTION & CONTROL	DR. JAMES CALLAHAN	496-1071
PHS-NIH-NCI	OTHER TOPICS WITHIN DIVISION	DR. JAMES CALLAHAN	496-1071
PHS-NIH-NICHD	POPULATION RESEARCH	MS HILDEGARD TOPPER	496-1848
PHS-NIH-NICHD	RESEARCH FOR MOTHERS & CHILDREN	MS HILDEGARD TOPPER	496-1848
PHS-NIH-NICHD	OTHER RESEARCH TOPICS WITHIN INSTITUTE	MS HILDEGARD TOPPER	496-1848
PHS-NIH-NIDR	CARIES	DR. THOMAS VALEGA	496-6324
PHS-NIH-NIDR	PERIDONTAL DISEASE	DR. THOMAS VALEGA	496-6324
PHS-NIH-NIDR	CRANIOFACIAL ANOMALIES	DR. THOMAS VALEGA	496-6324
PHS-NIH-NIDR	RESTORATIVE MATERIALS	DR. THOMAS VALEGA	496-6324
PHS-NIH-NIDR	PAIN CONTROL & BEHAVIORAL STUDIES	DR. THOMAS VALEGA	496-6324
PHS-NIH-NIDR	ORAL ULCERATIVE DISEASES & SALIVA	DR. THOMAS VALEGA	496-6324
PHS-NIH-NIDR	OTHER RES TOPICS OF INT TO INST	DR. THOMAS VALEGA	496-6324
PHS-NIH-NIEHS	TEST METH FOR ASSESS BIOL EFF ENV AGTS	DR. MICHAEL J. GALVIN	919-541-7825
PHS-NIH-NIEHS	SPECIALIZED PROD FOR USE IN TOX STUDIES	DR. MICHAEL J. GALVIN	919-541-7825
PHS-NIH-NIEHS	DEV PROD/DEVIC MEASURE EXPOSE TO TOX AGEN	DR. MICHAEL J. GALVIN	919-541-7825
PHS-NIH-NIEHS	DEV ALTER DESIGN/METH TOXIC/CARCINOG ASS.	DR. MICHAEL J. GALVIN	919-541-7825
PHS-NIH-NIEHS	OTHER RES TOPICS OF INT TO INST	DR. MICHAEL J. GALVIN	919-541-7825
PHS-NIH-NEI	RETINAL & CHOROIDAL dISEASES	DR. RALPH HELMSEN	496-5884
PHS-NIH-NEI	CORNEAL DISEASES	DR. RALPH HELMSEN	496-5884
PHS-NIH-NEI	CATARACT	DR. RALPH HELMSEN	496-5884

PHS-NIH-NEI	GLAUCOMA	DR. RALPH HELMSEN	496-5884
PHS-NIH-NEI	STRABISMUS, AMBLYOPIA, & VISUAL PROCESSING	DR. RALPH HELMSEN	496-5884
PHS-NIH-NEI	LOW VISION & REHABILITATION	DR. RALPH HELMSEN	496-5884
PHS-NIH-NEI	OTHER RES TOPICS OF INTEREST TO INST	DR. RALPH HELMSEN	496-5884
PHS-NIH-NIGMS	CELLULAR & MOLECULAR BASIS OF DISEASE	DR. ELKE JORDAN	496-7061
PHS-NIH-NIGMS	GENETICS	DR. ELKE JORDAN	496-7061
PHS-NIH-NIGMS	PHARMACOLOGICAL SCIENCES	DR. ELKE JORDAN	496-7061
PHS-NIH-NIGMS	PHYSIOLOGY & BIOMEDICAL ENGINEERING	DR. ELKE JORDAN	496-7061
PHS-NIH-NIGMS	OTHER TOPICS OF INTEREST TO MISSION	DR. ELKE JORDAN	496-7061
PHS-NIH-NHLBI	HEART & VASCULAR DISEASE	DR. HENRY ROSCOE	496-7225
PHS-NIH-NHLBI	LUNG DISEASE	DR. HENRY ROSCOE	496-7225
PHS-NIH-NHLBI	BLOOD DISEASES & RESOURCES	DR. HENRY ROSCOE	496-7225
PHS-NIH-NHLBI	OTHER RESEARCH TOPICS OF INT TO INST	DR. HENRY ROSCOE	496-7225
PHS-NIH-NINCDS	COMMUMNICATIVE DISORDERS	MR. EDWARD DONOHUE	496-4188
PHS-NIH-NINCDS	FUNDAMENTAL NEUROSCIENCES	MR. EDWARD DONOHUE	496-4188
PHS-NIH-NINCDS	STROKE & TRAUMA	MR. EDWARD DONOHUE	496-4188
PHS-NIH-NINCDS	CONVULSIVE, DEVELOPMENTAL & NEUROMUSCULAR DIS.	MR. EDWARD DONOHUE	496-4188
PHS-NIH-NINCDS	DEMYELINATING, ATROPIC & DEMENTING DISORDERS	MR. EDWARD DONOHUE	496-4188
PHS-NIH-NINCDS	OTHER RESEARCH TOPICS OF INT TO INSTITUTE	MR. EDWARD DONOHUE	496-4188
PHS-NIH-DRR	R&D INSTRUMENT & SPEC TECH BIOMED RES	DR. JAMES O'DONNELL	496-6023
PHS-NIH-DRR	RES IN LAB ANIMAL SCIENCE	DR. JAMES O'DONNELL	496-6023
PHS-NIH-DRR	DEV BM RES METH USE CELLS, ORGANISMS COMPUTERS	DR. JAMES O'DONNELL	496-6023
PHS-NIH-DRR	DEV SYS OR DEVICES FOR PATIENT MONITOR	DR. JAMES O'DONNELL	496-6023
PHS-NIH-DRR	OTHER TOPICS OF INTEREST TO DIVISION	DR. JAMES O'DONNELL	496-6023
PHS-NIH-NCNR	DEV & TEST TECH HELP PAT CARE HOME OR OTHER	DR. JANET HEINRICH	496-0523
PHS-NIH-NCNR	DEV INFO KSYST SOFTWARE FOR MGT & CLIN NURS	DR. JANET HEINRICH	496-0523
PHS-NIH-NCNR	DEV PROG TO DELAY/DETER/CEASE NURSES SMOKING	DR. JANET HEINRICH	496-0523
PHS-TRANS NIH	RES ON METHODS OTHER THAN ANIMALS FOR TESTING.	DR. JAMES WILLETT	496-5175
PHS-ADAMHA-NIAAA	PHARMACOLOGY	DR. LAURIE FOUDIN	443-1273
PHS-ADAMHA-NIAAA	IDENTIFICATION	DR. LAURIE FOUDIN	443-1273
PHS-ADAMHA-NIAAA	TREATMENT COMPLIANCE	DR. LAURIE FOUDIN	443-1273
PHS-ADAMHA-NIAAA	PREVENTION	DR. LAURIE FOUDIN	443-1273
PHS-ADAMHA-NIAAA	BASIC RESEARCH TOOLS	DR. LAURIE FOUDIN	443-1273
PHS-ADAMHA-NIAAA	OTHER TOPICS OF INTEREST TO INSTITUTE	DR. LAURIE FOUDIN	443-1273
PHS-ADAMHA-NIDA	QUANT ANAL FOR DRUGS IN BODY FLUIDS	MS. JACQUELIN LUDFORD	443-1056
PHS-ADAMHA-NIDA	OPIOID PEPTIDES	MS. JACQUELIN LUDFORD	443-1056
PHS-ADAMHA-NIDA	PERFORM & DRUG CONCENTRATIONS OF ABUSED SUBST	MS. JACQUELIN LUDFORD	443-1056
PHS-ADAMHA-NIDA	PERINATAL EFFECTS OF ABUSED SUBSTANCES	MS. JACQUELIN LUDFORD	443-1056
PHS-ADAMHA-NIDA	METHODOLOGICAL STUDY OF EPIDEMOL OF DRUG ABUSE	MS. JACQUELIN LUDFORD	443-1056
PHS-ADAMHA-NIDA	DRUG USE IN WORKPLACE	MS. JACQUELIN LUDFORD	443-1056
PHS-ADAMHA-NIDA	TNG IN DRUG ABUSE TREATMENT TECHNIQUES	MS. JACQUELIN LUDFORD	443-1056
PHS-ADAMHA-NIDA	CLIN EVAL INSTRUMENTS & TECHNOL	MS. JACQUELIN LUDFORD	443-1056
PHS-ADAMHA-NIDA	DRUG DELIVERY SYSTEMS	MS. JACQUELIN LUDFORD	443-1056
PHS-ADAMHA-NIDA	PREVENTION RESEARCH	MS. JACQUELIN LUDFORD	443-1056
PHS-ADAMHA-NIDA	ETIOLOGICAL RESEARCH	MS. JACQUELIN LUDFORD	443-1056
PHS-ADAMHA-NIDA	PREVENTION PROGRAM ASSESSMENT METHODS	MS. JACQUELIN LUDFORD	443-1056
PHS-ADAMHA-NIDA	EMPLOYEE ASSISTANCE PROGRAM EVAL PACKAGE	MS. JACQUELIN LUDFORD	443-1056
PHS-ADAMHA-NIDA	TECH TO ADDR PROB OF AIDS IN IV DRUG USERS	MS. JACQUELIN LUDFORD	443-1056
PHS-ADAMHA-NIDA	OTHER RES TOPICS OF INTER TO INST	MS. JACQUELIN LUDFORD	443-1056
PHS-ADAMHA-NIMH	INSTRUMENTATION FOR BASIC & CLIN RESEARCH	MR. JAMES MOYNIHAN	443-3107
PHS-ADAMHA-NIMH	BRAIN & BODY IMAGING TECHNIQUES	MR. JAMES MOYNIHAN	443-3107

PHS-ADAMHA-NIMH	NEUROMOLECULAR BIOLOGY & CHEMISTRY	MR. JAMES MOYNIHAN	443-3107
PHS-ADAMHA-NIMH	PHARMACOLOGY	MR. JAMES MOYNIHAN	443-3107
PHS-ADAMHA-NIMH	SYSTEMS DEVELOPMENT	MR. JAMES MOYNIHAN	443-3107
PHS-ADAMHA-NIMH	BEHAVIORAL SCIENCE R&D	MR. JAMES MOYNIHAN	443-3107
PHS-ADAMHA-NIMH	HEALTH & BEHAVIOR	MR. JAMES MOYNIHAN	443-3107
PHS-CDC-NIOSH	CONTROL TECHNOLOGY RESEARCH	DR. ROY FLEMING	404-329-3343
PHS-CDC-NIOSH	RESPIRATOR RESEARCH	DR. ROY FLEMING	404-329-3343
PHS-CDC-NIOSH	OCCUPATIONAL LUNG DISEASE	DR. ROY FLEMING	404-329-3343
PHS-CDC-NIOSH	MUSCULOSKELETAL INJURIES	DR. ROY FLEMING	404-329-3343
PHS-CDC-NIOSH	OCCUPATIOINAL CANCERS	DR. ROY FLEMING	404-329-3343
PHS-CDC-NIOSH	AMPUTATIONS, FRACTURES	DR. ROY FLEMING	404-329-3343
PHS-CDC-NIOSH	CARDIOVASCULAR DISEASES	DR. ROY FLEMING	404-329-3343
PHS-CDC-NIOSH	DISORDERS OF REPRODUCTION	DR. ROY FLEMING	404-329-3343
PHS-CDC-NIOSH	NEUROTOXIC DISORDERS	DR. ROY FLEMING	404-329-3343
PHS-CDC-NIOSH	NOISE-INDUCED LOSS OF HEARING	DR. ROY FLEMING	404-329-3343
PHS-CDC-NIOSH	DERMATOLOGIC CONDITIONS	DR. ROY FLEMING	404-329-3343
PHS-CDC-NIOSH	PSYCHOLOGIC DISORDERS	DR. ROY FLEMING	404-329-3343
PHS-FDA	TRANSPL DEVICE USING HUMAN ORG & TISSUE	MS OLIA HOPKINS	443-6170
PHS-FDA	TOXIC REACT BY MED DEVICE MATERIALS	MS OLIA HOPKINS	443-6170
PHS-FDA	REDN OF RAD EXP FROM MED FLUOROSCOPY	MS OLIA HOPKINS	443-6170
PHS-FDA	DETN EXTENT & CAUSE OF PROB WEAR CONTACT LENS	MS OLIA HOPKINS	443-6170
PHS-FDA	REUSE OF DISPOSAL MED DEVICES	MS OLIA HOPKINS	443-6170
PHS-FDA	DEV SYS OF MICROORG TO LEARN DETOX PATHS	MS OLIA HOPKINS	443-6170
PHS-FDA	COMPUTER SYS FOR CONTROL FEED, HANDLING, PATH	MS OLIA HOPKINS	443-6170
PHS-FDA	DEFINITION & MODEL METABOLIC PATHWAYS	MS OLIA HOPKINS	443-6170
PHS-FDA	DEV TECH TO ALTER METAB PATHWAYS TO MODUL TOXICITY	MS OLIA HOPKINS	443-6170
PHS-FDA	DEV COMP SYS TO MODEL METAB PATH OF SPEC TOX CHEM	MS OLIA HOPKINS	443-6170
PHS-FDA	DEV COMP SYS TO PREDICT BIOCHEM INTERACT HUMANS	MS OLIA HOPKINS	443-6170
PHS-FDA	SERIOL MARKER TEST FOR NON-A/NON-B ANTIGENS.	MS OLIA HOPKINS	443-6170
PHS-FDA	DEV METHODOL FOR BIOAVAIL & BIOEQUIV IN DRUG TESTS	MS OLIA HOPKINS	443-6170
PHS-FDA	NEW METODS FOR ASS SAFETY & EFFICACY OF DRUGS	MS OLIA HOPKINS	443-6170
PHS-FDA	EVAL OF POST MARKETING SURVEILLANCE OF DRUGS	MS OLIA HOPKINS	443-6170
PHS-FDA	DEV ANAL METH & AN MODELS FOR ANIM DRUGS	MS OLIA HOPKINS	443-6170
PHS-OAPP	TECH TO PROM COMM AWARE OF ADOLESCENT PREGNANCY	MS EUGENIA ECKARD	245-1181
PHS-OAPP	TECH OF HOW USE + PEER PRESSURE DELAY PREMART SEX	MS EUGENIA ECKARD	245-1181
PHS-OAPP	DEV INNOV RES TECH OR INST PREVENT PREG IN ADOL	MS EUGENIA ECKARD	245-1181
PHS-OAPP	DEV & COND SURVY SEX ED HOME, VIDEO DELAY PM SEX	MS EUGENIA ECKARD	245-1181
PHS-OAPP	DEV COMM TECH USE BY TEENS & PAREN DELAY PM SEX	MS EUGENIA ECKARD	245-1181

HHSAREA1.WK1

HHS NUMBER OF PROGRAM CATEGORIES FOR SBIR

INSTITUTE	MAJOR	SUB	SUB-SUB		TOTAL
NIA	3	15+10+4			29
NIAID	3	11+12+8			31
NIAMS	1	8			8
NIDDK	3	26+22+39			87
NCI	4	16+4*+5**+7	*9+6+11+6	**1+5+25+19+9	49
NICHD	2	3* +5**	*16 + **32		48
NIDR	6	6+8+4+8+6+6+			38
NIEHS	4	3+4+2+3			12
NEI	6	8+7+5+2+4+6			32
NIGMS	4	9+9+7+5			30
NHLBI	3	21+15+18			54
NINCDS	5	6+3+4+7+6+			26
DDR	4	3+2+1+1			7
NCNR	3	5+4+1			10
TRANS NIH	6	1 EA			6
ADAM-AAA	4	1 EA			4
ADAM-IDA	14	2+8+3+4+4+9X1			30
ADAMIMH	7	8+4+3+2+4+8			49
CDCNIOSH	12	12 X 1			12
FDA	16	3+15X1			18
IAPP	4	4X1			4
TOTALS	114	527			584

PHSAREA1.WK1

RESEARCH AREAS OF DIFFERENT AREAS

TOPICAL AREAS

PHS AIDS
PHS AMPUTATIONS, FRACTURES
PHS ARTHRITIS, MUSCULOSKELETON & SKIN DIS
PHS BASIC RESEARCH TOOLS
PHS BEHAVIOR & SOCIAL RES
PHS BEHAVIORAL SCIENCE R&D
PHS BIOMED & CLIN RES
PHS BLOOD DISEASES & RESOURCES
PHS BRAIN & BODY IMAGING TECHNIQUES
PHS CANCER BIOLOGY & DIAGNOSIS
PHS CANCER ETIOLOGY & PREVENTION
PHS CANCER PREVENTION & CONTROL
PHS CANCER TREATMENT
PHS CARDIOVASCULAR DISEASES
PHS CARIES
PHS CATARACT
PHS CELLULAR & MOLECULAR BASIS OF DISEASE
PHS CLIN EVAL INSTRUMENTS & TECHNOL
PHS COMMUMNICATIVE DISORDERS
PHS COMPUTER SYS FOR CONTROL FEED, HANDLING, PATH
PHS CONTROL TECHNOLOGY RESEARCH
PHS CONVULSIVE, DEVELOPMENTAL & NEUROMUSCULAR DIS.
PHS CORNEAL DISEASES
PHS CRANIOFACIAL ANOMALIES
PHS DEFINITION & MODEL METABOLIC PATHWAYS
PHS DEMYELINATING, ATROPIC & DEMENTING DISORDERS
PHS DERMATOLOGIC CONDITIONS
PHS DETN EXTENT & CAUSE OF PROB WEAR CONTACT LENS
PHS DEV ALTER DESIGN/METH TOXIC/CARCINOG ASS.
PHS DEV ANAL METH & AN MODELS FOR ANIM DRUGS
PHS DEV BM RES METH USE CELLS, ORGANISMS COMPUTERS
PHS DEV COMM TECH USE BY TEENS & PAREN DELAY PM SEX
PHS DEV COMP SYS TO MODEL METAB PATH OF SPEC TOX CHEM
PHS DEV COMP SYS TO PREDICT BIOCHEM INTERACT HUMANS
PHS DEV INFO KSYST SOFTWARE FOR MGT & CLIN NURS
PHS DEV INNOV RES TECH OR INST PREVENT PREG IN ADOL
PHS DEV METHODOL FOR BIOAVAIL & BIOEQUIV IN DRUG TESTS
PHS DEV PROD/DEVIC MEASURE EXPOSE TO TOX AGEN
PHS DEV PROG TO DELAY/DETER/CEASE NURSES SMOKING
PHS DEV SYS OF MICROORG TO LEARN DETOX PATHS
PHS DEV SYS OR DEVICES FOR PATIENT MONITOR
PHS DEV TECH TO ALTER METAB PATHWAYS TO MODUL TOXICITY
PHS DEV & COND SURVY SEX ED HOME, VIDEO DELAY PM SEX

PHS DEV & TEST TECH HELP PAT CARE HOME OR OTHER
PHS DIABETES, ENDOCRINOL & METAB DISEASE
PHS DIGESTIVE DISEASES & NUTRITION
PHS DISORDERS OF REPRODUCTION
PHS DRUG DELIVERY SYSTEMS
PHS DRUG USE IN WORKPLACE
PHS EMPLOYEE ASSISTANCE PROGRAM EVAL PACKAGE
PHS ETIOLOGICAL RESEARCH
PHS EVAL OF POST MARKETING SURVEILLANCE OF DRUGS
PHS FUNDAMENTAL NEUROSCIENCES
PHS GENETICS
PHS GLAUCOMA
PHS HEALTH & BEHAVIOR
PHS HEART & VASCULAR DISEASE
PHS IDENTIFICATION
PHS IMMUNOLOGY, ALLERGY & IMMUN. DISEASE
PHS INSTRUMENTATION FOR BASIC & CLIN RESEARCH
PHS KIDNEY, UROLOGIC & HEMATOLOGIC DISEASE
PHS LOW VISION & REHABILITATION
PHS LUNG DISEASE
PHS METHODOLOGICAL STUDY OF EPIDEMOL OF DRUG ABUSE
PHS MICROBIOL & INFECT DISEASE
PHS MUSCULOSKELETAL INJURIES
PHS NEUROMOLECULAR BIOLOGY & CHEMISTRY
PHS NEUROSCI & NEUROPSYCH AGING
PHS NEUROTOXIC DISORDERS
PHS NEW METODS FOR ASS SAFETY & EFFICACY OF DRUGS
PHS NOISE-INDUCED LOSS OF HEARING
PHS OCCUPATIOINAL CANCERS
PHS OCCUPATIONAL LUNG DISEASE
PHS OPIOID PEPTIDES
PHS ORAL ULCERATIVE DISEASES & SALIVA
PHS OTHER MISSION WORK
PHS OTHER RES TOPICS IN CARCINOGENESIS
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PHS OTHER RES TOPICS OF INTEREST TO INST
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PHS OTHER RESEARCH WITHIN DIVISION
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PHS OTHER TOPICS OF INTEREST TO DIVISION
PHS OTHER TOPICS OF INTEREST TO INSTITUTE
PHS OTHER TOPICS OF INTEREST TO MISSION
PHS OTHER TOPICS WITHIN DIVISION
PHS PAIN CONTROL & BEHAVIORAL STUDIES
PHS PERFORM & DRUG CONCENTRATIONS OF ABUSED SUBST

PHS PERFORM & DRUG CONCENTRATIONS OF ABUSED SUBST
PHS PERIDONTAL DISEASE
PHS PERINATAL EFFECTS OF ABUSED SUBSTANCES
PHS PHARMACOLOGICAL SCIENCES
PHS PHARMACOLOGY
PHS PHARMACOLOGY
PHS PHYSIOLOGY & BIOMEDICAL ENGINEERING
PHS POPULATION RESEARCH
PHS PREVENTION
PHS PREVENTION PROGRAM ASSESSMENT METHODS
PHS PREVENTION RESEARCH
PHS PSYCHOLOGIC DISORDERS
PHS QUANT ANAL FOR DRUGS IN BODY FLUIDS
PHS REDN OF RAD EXP FROM MED FLUOROSCOPY
PHS RES IN LAB ANIMAL SCIENCE
PHS RES ON METHODS OTHER THAN ANIMALS FOR TESTING.
PHS RESEARCH FOR MOTHERS & CHILDREN
PHS RESPIRATOR RESEARCH
PHS RESTORATIVE MATERIALS
PHS RETINAL & CHOROIDAL dISEASES
PHS REUSE OF DISPOSAL MED DEVICES
PHS R&D INSTRUMENT & SPEC TECH BIOMED RES
PHS SERIOL MARKER TEST FOR NON-A/NON-B ANTIGENS.
PHS SPECIALIZED PROD FOR USE IN TOX STUDIES
PHS STRABISMUS, AMBLYOPIA, & VISUAL PROCESSING
PHS STROKE & TRAUMA
PHS SYSTEMS DEVELOPMENT
PHS TECH OF HOW USE + PEER PRESSURE DELAY PREMART SEX
PHS TECH TO ADDR PROB OF AIDS IN IV DRUG USERS
PHS TECH TO PROM COMM AWARE OF ADOLESCENT PREGNANCY
PHS TEST METH FOR ASSESS BIOL EFF ENV AGTS
PHS TNG IN DRUG ABUSE TREATMENT TECHNIQUES
PHS TOXIC REACT BY MED DEVICE MATERIALS
PHS TRANSPL DEVICE USING HUMAN ORG & TISSUE
PHS TREATMENT COMPLIANCE

FEDERAL AGENCY SBIR SOLICITATION TOPICS AVAILABLE

U. S. DEPARTMENT OF TRANSPORTATION

FY 1988 SBIR PROGRAM SOLICITATION

(Repeated from December 1987 PSA)

The RELEASE DATE for this SBIR Program Solicitation is: February 15, 1988

The CLOSING DATE for the receipt of PHASE I proposals is: May 2,1988

Copies of this FY 1988 SBIR Solicitation may be obtained from:

DOT SBIR Program Office, DTS-23
U. S. Department of Transportation
Transportation Systems Center
Kendall Square
Cambridge, MA 02142
Attention: Dr. George Kovatch
(617) 494-2051

All other SBIR-related inquiries should be directed to the above address.

It is estimated that approximately 10 Phase I awards, valued at up to $50,000 each, will be made under this Fiscal Year 1988 solicitation.

THE FEDERAL RESEARCH TOPIC TITLES AVAILABLE UNDER THIS SBIR PROGRAM SOLICITATION FOLLOW:

FEDERAL AVIATION ADMINISTRATION

1. Putrefaction and Body Tissue Alcohol Levels
2. Advanced Turbine Engine Containment Technology
3. Techniques for Dynamic Test of Aircraft Structures and Furnishings
4. NDI Techniques for Defect Characterization and Analysis in Composite Aircraft Structures
5. Neural Nets Applied to Air Traffic Control
6. Shadowgraph Enhancement

FEDERAL AGENCY SBIR SOLICITATION TOPICS AVAILABLE

U. S. DEPARTMENT OF TRANSPORTATION

(Repeated from December 1987 PSA)

7. Passenger/Baggage Tracking
8. Glass Bottle Contents Verification System
9. Airborne Instrumentation for Locating Radio Interference
10. Development of an Instrument/System to Measure, Record and Analyze Aircraft Cockpit Visibility
11. Effects of Rotational Shifts on Operational Errors

FEDERAL HIGHWAY ADMINISTRATION

1. Measuring Live Load Stresses on Bridges
2. Nonintrusive Point Gage for the Hydraulics Laboratory
3. Overhead Infrared Vehicle Detector
4. Passive Roadway Edgeline Marker

FEDERAL RAILROAD ADMINISTRATION

1. Nondestructive Evaluation of Damaged Insulated Tank Cars

NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION

1. Develop the Software and Specifications for a Lap-Top Computer Aided Accident Data Collection and Transmission System
2. Accessories to Increase the Safety of Light Trucks and Vans
3. Crash Protection Accessories Using Inflated Structures to Increase the Safety of Motor Vehicles Already in Use
4. Accessories to Increase the Safety of Motorcyclists or School Bus Occupants

URBAN MASS TRANSPORTATION ADMINISTRATION

1. Suburban Mobility
2. Entrepreneurial and Small Business Participation in Transit

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EPA - NO INFO

5

FEDERAL AGENCY SBIR SOLICITATION TOPICS AVAILABLE

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

FY 1988 SBIR PROGRAM SOLICITATION

The RELEASE DATE for this SBIR Program Solicitation is: April 18, 1988

The CLOSING DATE for the receipt of PHASE I proposals is: June 20, 1988

Copies of this FY 1988 SBIR Solicitation may be obtained from:

SBIR Program Manager
Code CR
National Aeronautics and Space Administration
Washington, D. C. 20546

NOTE: Telephone requests for this Solicitation cannot be accepted.

Names, addresses, and phone numbers of NASA contact points where SBIR-related inquiries may be directed:

John A. Glaab, SBIR Program Manager
Code CR
National Aeronautics and Space Administration
Washington, D. C. 20546
Telephone: (202) 453-8702

The National Aeronautics and Space Administration anticipates making approximately 200 Phase I awards in amounts not to exceed $50,000.

THE FEDERAL RESEARCH TOPIC TITLES AVAILABLE UNDER THIS SBIR PHASE I PROGRAM SOLICITATION FOLLOW:

1. Aeronautical Propulsion and Power
2. Aerodynamics and Acoustics
3. Aircraft Systems, Subsystems, and Operations
4. Materials and Structures
5. Teleoperators and Robotics

6. Computer Sciences and Applications
7. Information Systems and Data Handling
8. Instrumentation and Sensors
9. Spacecraft Systems and Subsystems
10. Space Power
11. Space Propulsion
12. Human Habitability and Biology in Space
13. Quality Assurance, Safety and Check-Out for Ground and Space Operations
14. Satellite and Space Systems Communications
15. Materials Processing, Micro-Gravity, and Commercial Applications in Space

FEDERAL AGENCY SBIR SOLICITATION TOPICS AVAILABLE

NATIONAL SCIENCE FOUNDATION

FY 1988 SBIR PROGRAM SOLICITATION

The RELEASE DATE for this SBIR Program Solicitation is: April 1, 1988

The CLOSING DATE for the receipt of PHASE I proposals is: June 20, 1988

Copies of this FY 1988 SBIR Solicitation may be obtained from:

National Science Foundation
Forms & Publications Office
1800 G St., N. W., Room 232
Washington, D. C. 20550
Telephone: (202) 357-7861

Questions on general policies, procedures and administration of the SBIR Program should be directed to:

Roland Tibbetts or Ritchie Coryell
Program Managers, SBIR
National Science Foundation
1800 G St., N. W., Room 1250
Washington, D. C. 20550
Telephone: (202) 357-7527

The National Science Foundation anticipates making approximately 160 Phase I awards in amounts not to exceed $50,000.

THE FEDERAL RESEARCH TOPIC TITLES AVAILABLE UNDER THIS SBIR PHASE I PROGRAM SOLICITATION FOLLOW:

1. Physics
2. Chemistry
3. Materials Research
4. Mathematical Sciences
5. Astronomical Sciences

FEDERAL AGENCY SBIR SOLICITATION TOPICS AVAILABLE

NATIONAL SCIENCE FOUNDATION

6. Atmospheric Sciences
7. Earth Sciences
8. Ocean Sciences
9. Polar Sciences and Operations
10. Cellular Biosciences
11. Molecular Biosciences
12. Biotic Systems and Resources
13. Behavioral and Neural Sciences
14. Social and Economic Sciences
15. Advanced Scientific Computing
16. Computer and Computation Research
17. Networking and Communications Research and Infrastructure
18. Microelectronic Information Processing Systems
19. Information, Robotics and Intelligent Systems
20. Electrical, Communications and Systems Engineering
21. Design, Manufacturing and Computer Integrated Engineering
22. Chemical, Biochemical and Thermal Engineering
23. Mechanics, Structures and Materials Engineering
24. Emerging Engineering Technologies
25. Critical Engineering Systems

AGENAREA.WK1

	AGENCY	MAJOR AREA	SUB AREA	SUB-SUB AREA
1	NSF	PHYSICS	INSTRUMENTATION SCIENTIFIC	PARTICLE DETECTORS
2	NSF	PHYSICS	INSTRUMENTATION SCIENTIFIC	ELECTRON & ION SOURCES
3	NSF	PHYSICS	INSTRUMENTATION SCIENTIFIC	PARTICLE TRAPS
4	NSF	PHYSICS	INSTRUMENTATION SCIENTIFIC	OPTICAL DEVICES
5	NSF	PHYSICS	INSTRUMENTATION SCIENTIFIC	ELECTRONICS
6	NSF	PHYSICS	INSTRUMENTATION SCIENTIFIC	SPECIALIZED COMPUTERS
7	NSF	PHYSICS	INSTRUMENTATION SCIENTIFIC	DATA ACQUISITION SYSTEMS
8	NSF	PHYSICS	INSTRUMENTATION SCIENTIFIC	GRAPHIC TERM/WK STATIONS
9	NSF	PHYSICS	INDUSTRIAL APPLICATIONS	ION SOLID INTERACTION
10	NSF	PHYSICS	INDUSTRIAL APPLICATIONS	PARTICLES & PHOTONS INTERACTION WITH MATTER
11	NSF	PHYSICS	INDUSTRIAL APPLICATIONS	SUPER CONDUCTIVITY
12	NSF	CHEMISTRY	CHEMICAL SYNTHESIS	ORGANIC & INORG ORGANOMETALLIC COMPD
13	NSF	CHEMISTRY	CHEMICAL SYNTHESIS	ISOLATE & CHARACTERIZE NATURAL PRODUCTS
14	NSF	CHEMISTRY	CHEMICAL SYNTHESIS	DESIGN & SYNTHESIZE COMPOUNDS
15	NSF	CHEMISTRY	CHEMICAL CHARACTERIZATION	CHEMICAL INSTRUMENTS & SENSORS
16	NSF	CHEMISTRY	CHEMICAL CHARACTERIZATION	INNOVATIVE COMPUTATIONAL APPROACHES IN CHEM
17	NSF	MATERIALS	INSTRUMENTATION	IMPROVED DETN OF STRUCTURE OF MATERIALS
18	NSF	MATERIALS	NEW MATERIALS	NOVEL MATERIALS W/HIERARCHICAL STRUCTURES
19	NSF	MATERIALS	NEW MATERIALS	SUPERIOR MATRIX MATERIALS/THERMAL-MECH PROP
20	NSF	MATERIALS	NEW MATERIALS	SUPERCONDUCTING MATERIALS
21	NSF	MATERIALS	NEW MATERIALS	ADV MATERIALS OF HIGH QUAL & REPRODUCIBILITY
22	NSF	MATERIALS	NEW MATERIALS	NOVEL MATERIALS FOR ELECTRONIC, OPTICAL ETC
23	NSF	MATERIALS	NEW MATERIALS	CERAMIC MATERIALS WITH SUPERIOR STRENGTH ETC
24	NSF	MATERIALS	NEW MATERIALS	SPECIALTY ADV MATERIALS - FAST PROCESSING
25	NSF	MATERIALS	NEW MATERIALS	NOVEL TRIBIOLOGICAL COATINGS OR SURFACES
26	NSF	MATERIALS	NEW MATERIALS	ARTIFICIALLY STRUCTURED MATERIALS
27	NSF	MATERIALS	NEW MATERIALS	INNOVATIVE PROCESSING MATERIALS
28	NSF	MATH SCIENCES	ANALYTICAL METHODS	MULTIPHASE FLOWS - IN POROUS MEDIA, PIPES ETC
29	NSF	MATH SCIENCES	ANALYTICAL METHODS	OPTIMAL DESIGN - DRAG REDUCTION, OPTIMAL SHAPE ETC
30	NSF	MATH SCIENCES	ANALYTICAL METHODS	SYSTEMS THEORY -NON LINEAR FILTERING ETC
31	NSF	MATH SCIENCES	ANALYTICAL METHODS	PHENOMENA - MULTIPLE SCALES - VORTEX IN TURB FLOW
32	NSF	MATH SCIENCES	ANALYTICAL METHODS	INVERSE PROBLEMS - TOMOGRAPHY ETC
33	NSF	MATH SCIENCES	ANALYTICAL METHODS	NONLINEAR CONTINUUM MECHANICS ETC
34	NSF	MATH SCIENCES	ANALYTICAL METHODS	NONLINEAR OPTIMIZATION & OPTIMAL CONTROL
35	NSF	MATH SCIENCES	ALGEBRAIC METHODS	MATHEMATICAL CODING THEORY/CRYPTOLOGY
36	NSF	MATH SCIENCES	ALGEBRAIC METHODS	COMBINATORIAL COMPLEXITY: ALGORITHMS ETC
37	NSF	MATH SCIENCES	ALGEBRAIC METHODS	COMPUTATION AND ALGORITHMS
38	NSF	MATH SCIENCES	ALGEBRAIC METHODS	SYMBOLIC COMPUTATION
39	NSF	MATH SCIENCES	STATISTICAL METHODS	STATISTICAL RELIABILITY - LIFE TESTING ETC
40	NSF	MATH SCIENCES	STATISTICAL METHODS	ROBUST STATISTICAL PROCEDURES - GRAPHIC ETC
41	NSF	MATH SCIENCES	STATISTICAL METHODS	OPTIMAL EXPERIMENTAL DESIGN REGRESSION & DISCRETE
42	NSF	MATH SCIENCES	STATISTICAL METHODS	MONTE CARLO & PROBABILISTIC METHODS SOLVE PROB
43	NSF	MATH SCIENCES	STATISTICAL METHODS	EXPLORATORY DATA ANALYSIS IN MULTIVARIATE ANALYSIS
44	NSF	MATH SCIENCES	GEOMETRIC METHODS	GEOMETRY OF ROBOTIC DEVICES
45	NSF	MATH SCIENCES	GEOMETRIC METHODS	GEOMETRY OF DNA & POLYMERS
46	NSF	MATH SCIENCES	GEOMETRIC METHODS	INTEGRAL GEOMETRY PROBABILITY, PATTERN RECOG
47	NSF	MATH SCIENCES	GEOMETRIC METHODS	PACKING & TILING

48	NSF	MATH SCIENCES	GEOMETRIC METHODS	GEOMETRIC MODELING FOR CAD/CAM
49	NSF	MATH SCIENCES	GEOMETRIC METHODS	COMPUTATIONAL GEOMETRY
50	NSF	MATH SCIENCES	GEOMETRIC METHODS	DEVELOPMENT & APPLN OF FRACTAL TECHNIQUES
51	NSF	MATH SCIENCES	STOCHASTIC MODELS	VALIDATION OF STOCHASTIC MODELS IN VARIOUS SYS
52	NSF	MATH SCIENCES	COMPUTATIONAL MATH	DESIGN & ANALYSIS OF MATH MODELS & ALGORITHMS
53	NSF	MATH SCIENCES	COMPUTATIONAL MATH	APPLICATION OF ANALYSIS TO FLUID DYNAMICS
54	NSF	MATH SCIENCES	COMPUTATIONAL MATH	APLN OF ANAL TO COMPUTER GRAPHICS ETC
55	NSF	ASTRONOMY	VISIBLE LIGHT DETECTORS	VISIBLE LIGHT DETECTORS
56	NSF	ASTRONOMY	INFRARED DETECTOR ARRAYS	INFRARED DETECTOR ARRAYS
57	NSF	ASTRONOMY	MILLIM WAVE LENGTH INSTRUMENT	MILLIM WAVE LENGTH INSTRUMENT
58	NSF	ASTRONOMY	OPTICAL COATING TECHNOLOGY	OPTICAL COATING TECHNOLOGY
59	NSF	ASTRONOMY	SYSTEMS FOR DATA HANDLING	SYSTEMS FOR DATA HANDLING
60	NSF	ATMOSPHERIC S	MEASURE PHYSICAL PROPERTIES	MEASURE PHYSICAL PROPERTIES
61	NSF	ATMOSPHERIC S	MEASURE CHEMICAL PROPERTIES	MEASURE CHEMICAL PROPERTIES
62	NSF	ATMOSPHERIC S	ANALYTICAL METHODS	ANALYTICAL METHODS
63	NSF	EARTH SCI.	INSTRUMENTS & TECHNIQUES	CRUSTAL STUDIES
64	NSF	EARTH SCI.	INSTRUMENTS & TECHNIQUES	ANALY MEASURE CHEM, ISOTOP, CRYSTAL STRUCTURE
65	NSF	EARTH SCI.	INSTRUMENTS & TECHNIQUES	FIELD MEASUREMENTS GRAVITATIONAL FLDS
66	NSF	EARTH SCI.	INSTRUMENTS & TECHNIQUES	STRESS/STRAIN OF EARTH'S CRUST
67	NSF	EARTH SCI.	INSTRUMENTS & TECHNIQUES	SEISMOLOGICAL MEASURE ACCELERATION, ETC
68	NSF	EARTH SCI.	INSTRUMENTS & TECHNIQUES	SYNTHETIC MATERIALS LAB SYN OF GEOL MATERIALS
69	NSF	EARTH SCI.	INSTRUMENTS & TECHNIQUES	PHYSICAL PROPERTIES ROCKS ETC HIGH PRES
70	NSF	EARTH SCI.	INSTRUMENTS & TECHNIQUES	DEEP DRILLING & LOGGING TECHNOLOGY
86	NSF	OCEAN SCI	16 TOPICS	
113	NSF	POLAR SCI	23 TOPICS	
118	NSF	CELL BIOSCI	5 TOPICS	
122	NSF	MOL BIOSCI	4 TOPICS	
126	NSF	BIOTIC SYS	4 TOPICS	
131	NSF	BEHAV/NEURAL	5 TOPICS	
136	NSF	SOCIAL & ECO	5 TOPICS	
140	NSF	ADV SCI COMPU	4 TOPICS	
143	NSF	COMPUTER RES	3 TOPICS	
145	NSF	NETWORKING R.	2 TOPICS	
150	NSF	MICRO IPS	5 TOPICS	
160	NSF	INFO/ROBOTICS	10 TOPICS	
179	NSF	SYST ENGR	19 TOPICS	
207	NSF	COMP ENGR	28 TOPICS	
229	NSF	CHEM/BIO ENGR	22 TOPICS	
253	NSF	MECH STR ENGR	24 TOPICS	
259	NSF	EMERG TECH	5 TOPICS	
267	NSF	CRIT ENGR SYS	8 TOPICS	

NRCAREA1.WK1

NUCLEAR REGULATORY COMMISSION SBIR TOPIC AREAS

	PRIME AREA	SUB AREA
1	ENGINEERING TECHNOLOGY	NUC PWR PLT AGING & RESIDUAL LIFETIME
2	ENGINEERING TECHNOLOGY	METHODS TO ANALYZE AGING EFFECTS
3	ENGINEERING TECHNOLOGY	IMPROV EXAM & TEST METHODS TO DETN COND
4	ENGINEERING TECHNOLOGY	METHODS FOR RESIDUAL LIFETIME EVAL
5	ENGINEERING TECHNOLOGY	MECHANICAL & STRUCTURAL ENGR
6	ENGINEERING TECHNOLOGY	COMPONENT STRUCTURE RELIABILITY EVAL
7	ENGINEERING TECHNOLOGY	SEISMIC SAFETY MARGINS EVAL EARTHQUAKE RESISTANCE
8	ENGINEERING TECHNOLOGY	MATERIALS ENGINEERING - PIPING SAFETY
9	ENGINEERING TECHNOLOGY	MAT ENGR IMPROVED MEDTHODS OF NON DESTR TEST
10	ENGINEERING TECHNOLOGY	CHEM ENGR - DECOMM RES TO ESTAB & VAL CRITERIA
11	ENGINEERING TECHNOLOGY	SAFETY NUC WASTE - MATERIALS & ENGR FACIL
12	ENGINEERING TECHNOLOGY	SAFETY NUC WASTE - MATERIALS & ENGR CONTAINERS
13	ENGINEERING TECHNOLOGY	METHODS & MODELS PREDICT REPOSITORY PERFORMANCE
14	RADIATION PROTECTION & HEALTH	SELF-POWERED RAD DETECTORS FOR SOURCE LOCATION
15	RADIATION PROTECTION & HEALTH	QUANT EFFECTS GEOM OF WORKER/DOSIMETER ON MEASUREMENT
16	THERMAL HYDRAULIC RESEARCH	IMPLEMENT TRAC-BF1 & COBRA NC CODES ON PC'S
17	SEVERE ACCIDENT RESARCH	NATURAL CIRCULATION IN REACTOR COOLANT
18	SEVERE ACCIDENT RESARCH	STEAM EXPLOSIONS
19	SEVERE ACCIDENT RESARCH	HIGH-PRESSURE MELT EJECTION
20	SEVERE ACCIDENT RESARCH	CORE-CONCRETE INTERACTIONS
21	SEVERE ACCIDENT RESARCH	HYDROGEN COMBUSTION
22	SEVERE ACCIDENT RESARCH	IODINE CHEMICAL FORM
23	SEVERE ACCIDENT RESARCH	FISSION PRODUCT REVAPORIZATION
24	RISK ANALYSIS RESEARCH	ASSURE QUALITY OF RISK ANALYSIS METHODOLOGIES
25	LR RADIOACT PLUME TRSPT SIMULATION MODELX	

6 MAJOR AREAS, 25 TOTAL TOPIC AREAS

CONFIDENTIAL

SBIRTODO.DOC

JUNE 22, 1988

TO: NORM LATKER/FRANK ALTIERI

FROM: JIM LIVERMAN

STATUS REPORT
THINGS TO DO IN THE SBIR PACKAGE OF WORK

A. Application Forms & Abstracts:

AGENCY	APLN FORMS	ABS/YRS
Agriculture	YES	YES 87
Commerce	NO	YES PH I 87
Defense	NO	YES 85
Energy	YES	YES PHI 87
Education	YES	YES 87
Health and Human Services	YES	YES 87
Transportation	NO	NO
Environmental Protection Agency	NO	NO
Natl Aeronautics and Space	NO	NO
National Science Foundation	YES	YES PI 87
Nuclear Regulatory Commission	YES	NO
Small Business Administration	YES (1)	YES (2)

(1) The SBA issuance was generic for NASA, NSF, HHS & DOT.
(2) The SBA provided by title and amount listing but no abstracts for all agencies for 1984, 1985, 1986. 1987 not yet out from SBA.

The abstract material from HHS has also been received on three floppy disks but format and language is such that cant be directly read into our data bases. Liverman & Associates (LA) will revisit the HHS computer people to see about providing in format that will be directly translatable to Lotus or Dataflex.

The most useful material at this time seems to be the SBA provided annual statistical compilation.

1. LA should visit SBA first to see if can get info transferred directly on electronic data basis compatible wdth our data base packages or in a form to we can transfer directly.

2. Determine from SBA names & telephone numbers of people in other agencies with whom the work to get data for the SBA report.
3. Contact each of these agency EDP people to get them to provide their info to us in same format.

B. Data extracted from material to date have been used to:
   1. Prepare charts re the SBIR Program:
      a. Purpose of PL 96-480, PL 97-219, PL 99-502.
      b. Agencies directed to initiate programs.
      c. Nature of solicitations.
      d. Phase descriptions.
      e. Proposal components.
      f. POSSIBLE USET NITCH

   2. Put together the word descriptions of each agency's SBIR programs in a single binder for our background.
   3. Compile statistics from 1986 SBA SBIR compilation on all agencies to estimate the total number and relative funding split of SBIR awards by Phase I and Phase II by agency.
   4. Estimates of possible maximum funding for SBIR based on agencies 1986 budgets taken from the 1986 NSF Federal Funds for Science for later comparison with actuals.

STRATEGY:

1. Complete data gathering from Agencies.
2. Rapidly convert to our data base format so we can manipulate it to extract maximum information.
3. Evaluate this data and determine what we are prepared to do with each potential client from this group. (See chart SBIRUSET for possibilities).
4. Send out literature to each potential client - i.e., all 2000 + 1987 recipients of Phase I awards.
5. Align ourselves with agencies to know immediately when the 1988 Phase I awards are made and to whom and get our literature packages out to them immediately.

REQUIREMENTS:

We have to work aggressively to complete the various data bases and know how we are going to search them etc.

SMALL BUSINESS INNOVATION RESEARCH
FEDERAL AGENCY DESIRES

- SOLICITATION TOPICS

  * PRODUCE A PRODUCT TO MEET SPECS
  * SOLVE OR CONTRIBUTE TO SOLUTION OF PARTICULAR MISSION PROBLEM
  * PERFORM RESEARCH IN TECHNICAL AREA WHEN ADVANCES WOULD CONTRIBUTE TO FUTURE AGENCY NEEDS

- MISSION AGENCIES (DOD, DOT, DOE, ETC)

  * SPECIFIC PROBLEM SOLUTION
  * SPECIFIC PRODUCT TO SPECS
  * MOST LIKELY VERY APPLIED

- AGENCIES ADVANCING GENERIC SCIENCE (NSF, HHS, ETC)

  * ENCOURAGE RESEARCH IN GENERAL AREAS
  * SHARPEN UNDERSTANDING OF PROBLEM AREAS

SMALL BUSINESS INNOVATION RESEARCH
PROPOSAL COMPONENTS

- SIGNIFICANCE OF PROBLEM

  * WHY WORK ON IT
  * WHAT IS NATIONAL NEED
  * WHY IMPORTANT TO AGENCY

- SOLUTION TO TECHNICAL OBJECTIVES

  * BARRIERS TO SOLUTION OF PROBLEM
  * SCIENTIFIC/TECHNICAL IMPORTANCE

- TECHNICAL QUALITY, INNOVATIVENESS, ORIGINALITY OF IDEA

  * SPECIFIC PROBLEM AREA
  * UNIQUENESS OF APPROACH
  * SPECIAL QUALIFICATIONS TO ATTACK PROBLEM

- NATURE OF FINAL PRODUCT

  * WHAT HAS BEEN IMPROVED OR IS NEW
  * WHAT WILL BE AVAILABILITY
  * WHAT ARE SOCIAL OR ECONOMIC BENEFITS

SMALL BUSINESS INNOVATION RESEARCH

MARKET NITCH FOR USET

* PRE PHASE I

  * DETERMINE MARKET POTENTIAL
  * DATA BASE STATE OF ART SEARCHES
  * ASSIST DECISION ON AGENCY NEEDS
  * PROVIDE LIST OF TECHNICAL EXPERTS
  * GUIDE PREPARATION OF PROPOSALS

* POST PHASE I AWARDS

  * PROVIDE PATENT & LISCENSING SERVICE
  * PROVIDE ASSISTANCE ON COMMERCIAL PARTNER OR RISK CAPITAL FUNDING FOR PHASE III
  * PROVIDE EXPERT ASSISTANCE ON PROJECT
  * MAKE AWARE OF AVAILABILITY OF FEDERAL FACILITIES

Jun2288 sbiruset.cht

M

MEMO

TO: N. LATKER
FROM: LIVERMAN, JR.
DATE: MONDAY JULY 11, 1988
RE: ORGANIZING NIH SBIR DATA

As I mentioned in my last memo (07/11/88), the SBIR information is not as organized as it could be. According to the programmer at the NIH, the data cannot be printed out in the format that we need. This leaves us with three options:

I) Rekey all 1800 records into a text/field database.
This option is not at all favorable, as it would take probably four weeks to accomplish.

II) Read all of the data into a text database; similar to Carlan's concept of hypertext. The data is currently in the format that we could use, and it wouldn't take an enormous amount of effort to do this. There are, however, disadvantages to this approach:

- o There will be no way to breakout the Phase I awards, Phase II awards, or any other breakout that might be needed. If you wanted to get a count on each of these, you would need to do a search on the item you wanted (Phase I), and then manually count the number of awards.
- o You could not quickly get funding totals for Phase I, Phase II, or anything else that was numerically oriented. You could get it by finding each abstract, adding it up, and finding the next.

In my mind, these drawbacks are fairly substantial.

III) A program could be written to abstract the top part of each abstract (a part that the programmer in NIH referred to as the administrative detail). This could then be read into a field oriented database (Dataflex). This would allow reports that add up the totals, and give the breakouts that are needed. In addition to this, the original data could be electronically transferred into a text database (IZE) to facilitate hypertext capabilities.

So, I would like to discuss and resolve these issues tomorrow so that we can get started transferring this data, whatever the format.

cc: F. ALTIERI
LIVERMAN, SR.

XYZ

MEMO

Jay Carlin re contract

DATE: 07/11/88
TO: N. LATKER
FROM: LIVERMAN, JR.
RE: STATUS REPORT & CURRENT SITUATION

I) CONTACTING AGENCIES AND GATHERING INFORMATION -

NIH SBIR:

I have spoken with Terrell McLurkin at NIH, (he is a programmer), and we were scheduled for a meeting this week sometime. Unfortunately his supervisors do not approve, so any help I get from him will be over the phone. I will discuss this in more detail tomorrow.

ALL OTHER SBIR:

I need you to decide which is the next logical agency to contact, and who I should possibly speak with. If you can get my foot in the door, I can start gathering data.

NSF:

As discussed before, I believe that we can get much more information than we currently have. I really would like you, Frank or Liverman, Sr. to get my foot in the door there, and I believe that I can handle it from there.

II) DATABASE VENDOR STATUS

DIALOG - Registered, and waiting for password.

BRS - Registered, and ready to go.

NEWSNET - Registered, and will be online on July 13, 1988.

III) GENERAL

I will be coming out tomorrow, probably all day. I might have an early meeting, but after that I will plan to stay in McLean. I will also be on-site all day Friday. I will move your computer into my office early tomorrow morning. I think that should purchase a rolling cart to hold the computer so that we can easily move it between offices easier.

I loaded Telescan onto your computer this weekend. You need to call them and get an account number as well as an access number. I left the book open on the page that you need.

I also would like to register with Telescan. If you could arrange for them to ship me a package, I would be very greatful. I will be happy to write you, USET, or Telescan a check.

cc: FRANK A.
JIM L

FORMAT01.DOC July 7, 1988

TO: NORM LATKER
FROM: JIM LIVERMAN
SUBECT: FORMAT OF USDA's "CURRENT RESEARCH INFORMATION DATABASE.

The following is the basic format of the CURRENT RESEARCH INFORMATION/USDA database searched under "Biotech. Attached is an actual abstract as it came from the database which will give a real sense of the information which COULD BE INCLUDED, but which may not be depending upon who prepares the summary and codes the information. IF the summaries are prepared by the SCIENTISTS themselves the quality will probably not be this good. Exactly how one can motivate the individuals to provide information of this level is not clear.

FILE #_____. AGENCY ID: _____ PROJECT #:_____

PROJ TYPE:_____ REGIONAL PROJ #:_____

PERIOD:_____ FY:_____

INVESTIGATOR:_____

LOCATION:_____

TITLE:_____

GY CONTRACT/GRANT/AGREEMENT NO
00

ACTVTY CMMDTY SCNCE RPA PRDCT PRGM JTC
SPECIAL CLASSIFICATION NUMBERS

BASIC %_____ APPLIED %_____ DEVELOPMENTAL %_____

OBJECTIVES: 5 LINES

APPROACH: 12 LINES

KEYWORDS: 5-8

PROGRESS REPORT: 15-30 LINES

PUBLICATIONS: LITERATURE CITATION TO PAST 12 MONTHS

041716 AGENCY ID: ARS 3620 PROJ NO: 3620-41000-018-00D
PROJ TYPE: INHOUSE RGL PROJ NO: 00000
PERIOD: 01 OCT 86 TO 01 OCT 88 FY: 00
INVEST: SLININGER P J; SILMAN R W; BRYAN W L
LOCATION: NORTHERN REGIONAL RES CENTER PEORIA ILL 61604

MODELLING BIOREACTOR SYSTEMS FOR EFFICIENT CONVERSION OF PLANT SUGARS TO MICROBIAL PRODUCTS

GY	CONTRACT/GRANT/AGREEMENT NO
00	

ACTVTY	CMMDTY	SCNCE	RPA	PRDCT	PRGM	JTC
A7500	C7000	F1929	R318	100%	P7.01	J5A

SPECIAL CLASSIFICATION
S7099 100%
E2A1 020%

BASIC 050% APPLIED 050% DEVELOPMENTAL 000%

OBJECTIVES:Identify and model the effects of environmental and physiological condi- tions on the efficiencies of unit operations so that optimal bioreactor systems can be designed for producing primary and secondary metabolites andmicrobial polysaccharides from plant sugars.

APPROACH: Examine model systems: ethanolic fermentation of xylose by Pichia stipitis, fusarin C production from starch by Fusarium moniliforme, and pullulan production from starch by Aureobasidium pullulans. Choose a fusarin C-producing strain from screening on whole corn and defined media. Use batch and continuous cultures to examine regulation of ethanol and fusarin C production by physiological state and environment (nutrients, carbon/nitrogen sources, aeration, temperature, pH, etc.). Focus on pullulan recovery via precipitation and filtration. Examine shear, pH, temperature, composition, and culture history effects on viscosity and sol-ubility. Use model equations to predict behaviors and optimize configura- tions.

KEYWORDS:#REVIEW-PENDING-86310

PROGRESS:87/01 87/12
A colorimetric assay was developed to analyze oxygen solubility during xylose fermentation by Pichia stipitis. The method is based on consumption of oxygen by glucose oxidase and production of a pink quinone of syringaldazine by a coupled peroxidase reaction. Sugar consumption was associated with an increase in oxygen solubility and also oxygen transfer rate = (oxygen solubility x transfer coefficient). Continuous culture studies showed that cellular oxygen demand is a linear function of growth. Yields of biomass, ethanol, and xylitol were cojsistent with our model and varied with oxygen transfer. Accumulation of xylitol could be associated with a calculated shortage of NAD+. Fusarin C was isolated from cultures of Fusarium moniliforme and purified. An HPLC method was developed to quantitate this mycotoxin (and its isomers) on a routine basis. A defined

medium was formulated to support mycelial groqth and fusarin C production and is being used to evaluate the nutritional requirements for fusarin C synthesis. Work with this system has shown that the absence of zinc and iron significantly increases fusarin C production. Pullulans from 3 Aureobasidium pullulans strains were compared. Pullulan produced by NRRL B-6220 gave a partially Newtonian fluid that was very sensitive to shearing. Pullulans produced by NRRL B-12974 and -12997 were pseudoplastic fluids that were much less shear sensitive.

PUBLICATIONS: 87/01 87/12

SILMAN, R.W. 1986. Anaerobic calorimetry of Zymomonas mobilis using a heat-flux sensor. Biotech. Bioeng. 28:1769-1773.

BOTHAST, R.J., SLININGER, P.J. and SHIMIZU, G.P. Bioreactors. In: Biomass Handbook, O. Kitani and C.W. Hall, Editors. Item 4.4.9. Gordon and Breach Science Publishers LTD, London, England. Accepted July 16, 1986 (Chapter).

SLININGER, P.J., et al. 1986. Behavior of Pichia stipitis in oxygen-limited continuous cultures fed D-xylose. Microbe '86 XIV Intern. Cong. Micro., Manchester, England, Sept. 7-13, Abstract, No. P.I. 1-3, p. 195.

SLININGER, P.J., BOLEN, P.L. and KURTZMAN, C.P. 1987. Pachysolen tannophilus: properties and process considerations for ethanol production from D-xylose. Enzyme Microb. Technol. 9:5-15.

SLININGER, P.J. and BOTHAST, R.J. Continuous fermentation of feed streams containing D-glucose and D-xylose in a two-stage process utilizing immobilized S. cerevisiae and P. tannophilus. Biotechnol. Bioeng. Accepted Oct. 30, 1987.

BRYAN, W.L. and SILMAN, R.W. 1987. A method to calculate kinetic parameters for solid-state fermentations. 194th ACS National Meeting, New Orleans, Louisiana, Aug. 30-Sept. 4. Abstract MBTD No. 173.

FORMAT02.DOC July 7, 1988

TO: NORM LATKER
FROM: JIM LIVERMAN
SUBJECT: FORMAT OF NIH ABSTRACTS AS IN THEIR DATABASE

Below is outlined the "content" headings of the NIH SBIR Abstracts. Attached are two of them as examples.

SBIR GRANTS
DATE_____

PROJECT NUMBER....._____ PI ADDRESS

UNIT IDENTIFIER_____ _____

_____

AWARD AMOUNT_____ _____

GRANTEE INSTITUTION_____

TITLE_____

BACKGROUND SUMMARY: 10-12 LINES

OBJECTIVES OF PHASE: 10-15 LINES

DESCRIPTORS:

NUMERICAL CODES	EMPHASIS INDICATOR	KEYWORDS
XXXX XXXX	P = PRIMARY	3-4 AT EACH
	S = SECONDARY	NUMERICAL CODE
	T = TERTIARY	

SOURCE OF DATA:_____ DATE OF AWARD_____ DATE OF LAST UPDATE_____

--PROJECT NUMBER.....1 R43 AG07197-01 FY 87

IRG/INTRAMURAL UNIT..SSS
AWARD AMOUNT..... $49,921

PI ADDRESS
THONNARD, NORBERT
ATOM SCIENCES, INC
114 RIDGEWAY CENTER
OAK RIDGE, TN 37830

GRANTEE INSTITUTION..ATOM SCIENCES, INC.

TITLE Imaging of elements in tissue at trace concentrations

Instrumentation enabling quantitative trace element concentration imaging with high sensitivity and resolution (1 ppm, 5 Mum) of biological tissue sections over 2x2 mm2 would be a valuable research tool. Simultaneous structural imaging would enhance the utility. Sputter Initiated Resonance Ionization Spectroscopy (SIRIS) will be adapted to provide structural imaging and quantitative element concentration imaging of biological tissue sections. The method will be tested by imaging the concentration of iron and aluminum in tissue sections from brains of Alzheimer's disease victims, and correlating these images with surface structure visible in secondary electron images from the identical location, and optical microscopy of adjacent stained sections. SIRIS utilizes a fo

enhance the utility. Sputter Initiated Resonance Ionization Spectroscopy (SIRIS) will be adapted to provide structural imaging and quantitative element concentration imaging of biological tissue sections. The method will be tested by imaging the concentration of iron and aluminum in tissue sections from brains of Alzheimer's disease victims, and correlating these images with surface structure visible in secondary electron images from the identical location, and optical microscopy of adjacent stained sections. SIRIS utilizes a focused ion beam to sputter neutral atoms and ions from the sample surface. The ions are rejected, while the neutral atoms are ionized with narrow band lasers tuned to specific transitions of the selected element. This yields a uniformly high ionization efficiency for any selected element with essentially no ionization or interference from other constituents in the sample. Imaging will be implemented by rastering the ion beam over the sample with synchronous detection, storage and display of the secondary electron and SIRIS ion signals. The system will also be applicable to the semiconductor industry, surface science and geoscience.

0 DESCRIPTORS
0 0485 6737 S BRAIN DISORDERS, DEMENTIA, ALZHEIMER'S DISEASE
0 0631 2633 P CHEMICALS (GENERAL), ELEMENTS, TRACE ELEMENTS
0 0632 1013 P CHEMISTRY, ANALYTICAL METHODS, SPECTROMETRY
0 0719 6364 P COMPUTER, DESIGN AND EVALUATION OF COMPUTERS (INCL. HARDWARE)
0 1629 5100 S IRON
0 1852 6873 S METALS, ALUMINUM (COMPOUNDS)
0 2138 3040 S OPTICS, IMAGING-VISUALIZATION (GENERAL)

-P,S,T = PRIMARY, SECONDARY, TERTIARY EMPHASIS RESPECTIVELY
$ = TOTAL AWARD AMTS & NOT LIMITED TO PORTION OF PROJECT RELATED TO SUBJECT OF SEARCH
SOURCE: CRISP FORMAT S FY 87 LAST UPDATE 06-09-88

--PROJECT NUMBER.....1 R43 AI24041-01A1 FY 87

IRG/INTRAMURAL UNIT..SSS

AWARD AMOUNT..... $50,000

PI ADDRESS
KERMANI-ARAB, VALI
ALLERGY IMMUNO TECHNOLOGIES
1527 MONROVIA AVENUE
NEWPORT BEACH, CA 92663

GRANTEE INSTITUTION..ADVANCED ALLERGY RESEARCH CENTER, INC.

TITLE Measurement of interleukin-2 and interleukin-2 receptor by ELISA

During the past 20 years, different biological activities have been described about lymphokine produced by activated leucocytes. Interleukin-1 is a factor produced by activated mononuclear phagocytes and is essential for supporting both T and B cell responses. On the other hand, activated T cells produce a factor called Interleukin-2 which is necessary for T cell proliferation. This soluble factor exerts its biological effects by interacting with specific high-affinity receptors on the surface of activated T-cells. A decrease in the ability to produce Interleukin-2 and dysfunction of Interleukin-2 receptor have been found in several diseases, including autoimmunity, graft-vs-host rejection, acquired immune deficiency, lymphoadenopathy, and cancer. Thus a strong rationale exists for the investigation of determination of Interleukin-2 and Interleukin

determination of Interleukin-2 and Interleukin-2 receptor. Phase I of this study will: a. develop a sensitive ELISA assay for the measurement of IL-2 and IL-2R in the same sample of cultured lymphocytes; b. determine the optimal conditions for the assay; and c. determine the sensitivity of the assay by comparison with bioassay.

Phase II of the study will involve the measurement of IL-2 and IL-2R in normal subjects as well as patients with cancer, AIDS, arthritis, SLE, pemiphigus and transplantation subjects and others. When sufficient clinical data has been accumulated, the assay will be converted into a kit form for research and clinical use after submission to the FDA for approval. The PI has had extensive experience in working with lymphokines, particularly interleukins, and is confident that not only will the assay be developed without undue difficulty, but that the assay can be reduced to kit form to facilitate the diagnosis of immune dysfunction diseases.

0 DESCRIPTORS
0 0435 7500 S BLOOD CELLS, LYMPHOCYTES
0 1553 6330 S IMMUNITY, CELLULAR, LEUKOCYTE ACTIVATION, TRANSFORMATION AND PROLIFERATION
0 1553 6712 P IMMUNITY, CYTOKINES, LYMPHOKINES, INTERLEUKIN 2
0 1554 7840 P IMMUNOLOGICAL TESTS AND IMMUNOASSAY, ENZYME-LINKED IMMUNOSORBENT ASSAY (ELISA)
0 1555 0786 S IMMUNOLOGICAL TESTS AND IMMUNOASSAY, IMMUNOLOGICAL TESTS
0 1560 6271 S IMMUNOPATHOLOGY, IMMUNOLOGIC DEFICIENCY DISORDERS, ACQUIRED IMMUNE DEFICIENCY DISORDERS, AIDS

- CONTINUED ON NEXT PAGE

--PROJECT NUMBER.....1 R43 AI24041-01A1 (Continued)

0 2138 3797 T OPTICS, MICROSCOPY (GENERAL)
0 2573 4531 P RECEPTORS OF NON-SENSORY STIMULI (GENERAL)
0 2935 5444 T TISSUE (CELL) CULTURE

-P,S,T = PRIMARY, SECONDARY, TERTIARY EMPHASIS RESPECTIVELY
$ = TOTAL AWARD AMTS & NOT LIMITED TO PORTION OF PROJECT RELATED TO SUBJECT OF
SOURCE: CRISP FORMAT S FY 87 LAST UPDATE 06-09-88