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**DATABASE AND MANAGEMENT
INFORMATION SUPPORT
FOR
THE U.S. ARMY SBIR PROGRAM**

10 JUNE 1994

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Prepared for

U.S. Army Research Office - Washington
U.S. Army Materiel Command
5001 Eisenhower Avenue
Alexandria, VA 22333

DTIC QUALITY INSPECTED 6

94-20753



Database and Management Information Support for the U.S. Army SBIR Program

performed by:

BRTRC, Inc.
Suite 800, 8260 Willow Oaks Corporate Drive, Fairfax, Virginia 22031

for:

U.S. Army Research Office - Washington
U.S. Army Materiel Command
5001 Eisenhower Avenue
Alexandria, VA 22333

10 June 1994

Contract No. DAAL01-93-C-0058

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NTIS CRA&I	<input checked="" type="checkbox"/>
DTIC TAB	<input type="checkbox"/>
Unannounced	<input type="checkbox"/>
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Availability Code	
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The views, opinions, and/or findings contained in this report are those of the authors and should not be construed as an official Department of the Army position, policy, or decision unless so designated by other documentation.

FOREWORD

This report, documenting BRTRC's database development and implementation; data collection, assessment, and analysis; management information; data automation; and information reporting and documentation support for the U.S. Army SBIR Program, was prepared for the U.S. Army SBIR Program Office, U.S. Army Research Office - Washington by BRTRC, Inc., 8260 Willow Oaks Corporate Drive, Suite 800, Fairfax, Virginia 22031. The authors wish to thank Dr. Kenneth A. Gabriel, Chief ARO-Washington and Mr. J. Patrick Forry, ARO-Washington for their sponsorship and guidance in this effort. We also thank LTC John Peeler, OASA(RDA) for his valuable support and contributions to our efforts under this contract. Special thanks are also due the Army SBIR points of contact at participating Army organizations across the country, whose extensive data automation efforts and insightful user comments were invaluable to the continued development of SBIR-PC and the overall success of this effort.

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EXECUTIVE SUMMARY

1.1 BACKGROUND

The Small Business Innovation Research (SBIR) Program is a multi-agency program which provides small businesses the opportunity to develop new and innovative technologies in support of government research needs. The SBIR Program was created in 1982 when President Reagan signed the Small Business Innovation Development Act into law. This program was reauthorized in 1992 and extended to the year 2000. The objectives of the program are to:

- (1) Stimulate U.S. technological innovation,
- (2) Increase small business participation in federal Research and Development (R&D),
- (3) Increase private sector commercialization of technology developed through federal R&D efforts, and,
- (4) Foster and encourage participation by woman-owned and by socially and economically disadvantaged small businesses.

The Army has made a commitment to meeting SBIR goals through the identification of more technology areas whose development is critical to current and future requirements, an aggressive outreach program to increase the number of participating small businesses with particular emphasis on woman-owned and minority firms, and effective management of SBIR contracts to ensure the successful development of innovative applications. The ultimate objective of each SBIR research is to commercialize research applications in the private sector. To date, the Army SBIR Program has witnessed the successful development of many valuable defense technology applications in key research areas.

Each SBIR research effort proceeds through three phases in order to reach technology commercialization:

Phase I - Concept Feasibility

DoD publishes an SBIR Solicitation twice each year. The Army participates in the first of these solicitations each year, seeking proposals against research topics of high interest to the Army. Interested small businesses then submit proposals based on criteria and guidelines contained in the solicitation. Successful proposals result in the award of a Phase I contract to

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study the feasibility of the specific technology program. Phase I awards are limited to a six-month, \$70,000 effort. Approximately 10% of all proposals receive awards.

Phase II - Research and Development

Firms that successfully complete a Phase I effort may submit a proposal to extend the effort into Phase II. Successful proposals result in the award of a Phase II contract to fund research, development, and prototype production. Phase II awards may cover a period of up to two years, with a funding ceiling of \$600,000. Approximately 30%-40% of Phase I projects result in Phase II awards due to limited funding and a strong focus on only the most productive efforts.

Phase III - Production and Commercialization

Successful Phase II efforts often result in the actual production and commercialization of a new product or service. No SBIR Program funds are expended in Phase III. Funding is obtained by the successful SBIR contractor from the private sector or government agencies which utilize the product or service. It is in Phase III where SBIR research achieves true success. Phase III transition signifies the successful introduction of a new and innovative technology and its application to government and/or private sector requirements.

The US Army SBIR Program focuses SBIR research on a growing number of technologies vital to Army technology needs. Key Army R&D objectives are set forth and continuously revised in the Army Science and Technology (S&T) Master Plan (ASTMP), which is developed by the Office of the Assistant Secretary of the Army for Research, Development and Acquisition (OASA(RDA)). The ASTMP describes Army technology investment strategies in support of current and future national defense requirements. All SBIR topics solicited by the Army support critical requirements identified in the ASTMP.

The Army implemented a new, centralized SBIR review process in 1993 to focus SBIR efforts on critical Army needs. This process was used to improve the generation of topics which the Army includes in the DoD SBIR Solicitations and to ensure that the best proposals which address Army-wide needs are selected for award of Phase I and Phase II contracts. The Army and the SBIR Program will benefit from these improvements through more relevant technology developments, increased transfer of technology into the private sector, and a reduction of the gap between Phase I and Phase II funding (one of Congress' major concerns as expressed in the most recent SBIR legislation).

The Army SBIR Program Office coordinates with more than 30 Army laboratories and Research, Development and Engineering centers across the country participating in the SBIR program. All major Army commands participating in research and development are represented. Under the U.S. Army Research Office's Washington Division, the program office performs

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general oversight of the Army SBIR Program, provides policy and budget guidance to the individual labs and centers, participates in local and national outreach efforts, and satisfies all administrative and reporting requirements for the program. To fulfill their duties, Army SBIR Management personnel interact with individual businesses, Army R&D personnel, senior Army management, DoD SBIR personnel, the Small Business Administration, Congress, and the general public. The laboratories and centers manage individual SBIR contracts, working closely with SBIR contractors to ensure the greatest probability of success in each SBIR effort.

In previous efforts, BRTRC developed, implemented and continuously refined an automated SBIR database management system to be used for tracking and reporting on SBIR activities. This PC-based tool, named SBIR-PC, is currently being used by all participating Army organizations as well as the SBIR Program Office to automate, track and report SBIR information.

1.2 CONTRACT OBJECTIVE

The purpose of this contract effort was to support the objectives of the Army SBIR Program by providing database development support, data collection/assessment/analysis support, management information, and data reporting/documentation support to the US Army SBIR Program Management Office. BRTRC also accessed and utilized the Army SBIR database to support the Army's new centralized review process which was implemented to improve the quality and relevance of topics solicited and proposals selected for award.

1.3 CONTRACT TASKS

This effort required the performance of the following six tasks:

1.3.1 Task 1 - Database Development in Support of the Army SBIR Program

BRTRC provided extensive database development support to the Army SBIR Program throughout this contract effort. Various modifications to the database management system and the data structures were made for two reasons: 1) to ensure that all relevant SBIR data continued to be tracked and reported in accordance with DoD, SBA, GAO, and Congressional requirements, and 2) to meet evolving Army management information requirements identified by field and Program Management Office personnel. BRTRC modified SBIR-PC to meet these evolving requirements, support expanding field office workloads, and adapt to changing reporting requirements.

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1.3.2 Task 2 - SBIR-PC User Support

BRTRC provided daily user support to approximately 35 SBIR-PC users located in the Army SBIR Program Management Office and Army research organizations across the country. This support consisted of providing on-line support over the telephone to users with questions or problems operating the system, producing and distributing a monthly newsletter addressing issues and questions related to SBIR-PC, and providing personal training to Army users of SBIR-PC. A significant portion of the user training was accomplished at the BRTRC facilities; however, BRTRC also traveled to meet with users on several occasions. For example, BRTRC personnel attended the National SBIR conferences held at Orlando FL in June 1993, Washington D.C. in September 1993, and Seattle WA in October 1994. BRTRC also attended an Army SBIR/STTR outreach conference in Orlando FL in December 1993 at which a significant number of SBIR-PC users were present.

1.3.3 Task 3 - SBIR Program Database Collection, Assessment, and Reporting

BRTRC supported the Army SBIR Program Management Office in the collection of SBIR data from field offices. In most cases, electronic data transfer methods were employed to transfer data; however, in some cases data updates were received on diskette by mail and in other cases BRTRC performed the actual data entry. The data collected included proposed and approved Army SBIR topics, proposals received from competing small firms, and awards/modifications made to fund SBIR projects. BRTRC integrated all collected SBIR data into a single, Army-wide SBIR database, which was maintained on Army SBIR Program Management Office computers. BRTRC utilized this data on numerous occasions to meet a variety of Army SBIR reporting requirements. As part of this task, BRTRC documented results of the Army SBIR Program using data contained in the SBIR-PC system in designing an updated Army Phase III Accomplishments book. BRTRC also used the collected SBIR data to produce high-quality viewgraphs for use by the Army SBIR Program Manager for presentations to senior Army/DoD leadership as well as at numerous conferences and symposia.

1.3.4 Task 4 - Database Development in Support of New Legislative Requirements

In a parallel effort to Task 1 (Database Development in Support of the Army SBIR Program), BRTRC modified SBIR-PC to reflect changes required by new legislation passed in October 1992. This recent legislation was translated into revised reporting requirements issued by the Small Business Administration, which changed the data required from the Army by the DoD SADB office. The majority of our efforts under this task focused on the development of a prototype database system to track data from the pilot Small Business Technology Transfer (STTR) Program. The STTR program is managed separately from the SBIR Program; however, it is similar in structure, organization, and data requirements.

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1.3.5 Task 5 - Implementation of System to Access to Army SBIR Data

BRTRC designed, developed, and implemented a PC-resident management information system which allows individuals or organizations outside the Army SBIR Program to access and use Army SBIR data. The purpose of this system was to promote cross-fertilization of ideas and avoid duplication of effort within federal agencies, as well as to advertise Army SBIR efforts to prime contractors and other users who are interested in learning about ongoing SBIR programs and assisting in the commercialization of Army SBIR technology thrusts. BRTRC delivered a fully-functional prototype of the SBIR Reference System for Government use and distribution. The data contained in this system was cleared for public release, and limited to topic and award information.

1.3.6 Task 6 - Support for Proposal Evaluation and Source Selection Process

BRTRC provided extensive data collection and entry, information management, program management, and administrative support to the Army SBIR Program Management Office during the design and implementation of the Army's new SBIR review process. This process was introduced during FY93, and included all Phase I proposals received under the 93.2 Solicitation as well as ongoing Phase II efforts which were to receive FY94 funds and all newly received Phase II proposals which were being evaluated for the first time

1.4 REPORT ORGANIZATION

The remainder of this report is structured around the six tasks described above. Chapter 2 documents BRTRC's database development and modification efforts under Task 1. Chapter 3 summarizes our SBIR-PC user support activities performed under Task 2. BRTRC data collection, assessment and reporting efforts under Task 3 are detailed in Chapter 4. Chapter 5 presents the results of our database development activities under Task 4. The development of a database system for public release of Army SBIR data (Task 5) is described in Chapter 6. The final chapter, Chapter 7, documents our support of the SBIR evaluation and source selection process.

ARMY SBIR DATABASE DEVELOPMENT SUPPORT

2.1 GENERAL

BRTRC provided extensive database development support to the Army SBIR Program throughout this contract effort. The SBIR Program and its sister program, the Small Business Technology Transfer (STTR) Program, are both growing and evolving continuously. Both programs have received praise from Congress, and a great deal of attention from leadership within the Army, DoD, and the Administration. These influences have led to an increased focus on the content and quality of SBIR data.

Various modifications to the SBIR database management system and the data structures were made for two general reasons: 1) to ensure that all relevant SBIR data continued to be tracked and reported in accordance with DoD, SBA, GAO, and Congressional requirements, and 2) to meet evolving Army management information requirements identified by field and Program Management Office personnel. BRTRC modified SBIR-PC to meet these evolving requirements, support expanding field office workloads, and adapt to changing reporting requirements.

2.2 TECHNICAL APPROACH

BRTRC first conducted requirements analyses for SBIR data tracking and reporting at the Army SBIR Program Management Office and the Army field office levels. This required extensive coordination with SBIR-PC users in the field and with the DoD SBIR Office which sets data tracking and reporting requirements which the Army must follow. Most of this coordination was done via telephone or local to BRTRC facilities. BRTRC also took advantage of meetings and conferences attended by several SBIR-PC users by attending the National SBIR Conferences held in October 1993 and November 1993, the annual Army SBIR Conference in April 1994, the SBIR Commercialization Conference held in June 1993, and the Army SBIR/STTR Outreach Conference held in December 1993. These meetings afforded the opportunity to operate SBIR-PC with the users and obtain their feedback, comments, and suggestions.

After modifications were identified and approved, BRTRC then designed, developed, and implemented upgrades to the SBIR-PC software and databases. Each modification made by BRTRC was thoroughly tested by BRTRC personnel using "live" Army SBIR data to ensure that the new or modified feature functioned as expected. After internal testing had been satisfactorily completed, updates were distributed to Army SBIR-PC users either electronically or via mail. During field distribution, BRTRC also installed the latest version of the SBIR-PC software at the Army SBIR Program Office.

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When significant changes had been made to SBIR-PC, BRTRC also revised the SBIR-PC User's Guide and other documentation for SBIR-PC. These updates were distributed to the field users and the SBIR-PC Program Office.

At the beginning of the contract, BRTRC distributed SBIR-PC version 3.0 to all Army users. Since that time, BRTRC has prepared twelve updates to the software, culminating in the present version 3.21. Most of these versions represent the addition of new data fields, the addition of new capabilities, or enhancements to existing features (as opposed to changes which correct programming errors in previous versions). In order to minimize the inconvenience and confusion to users, BRTRC automatically distributed only those versions which required that all users update their systems (cases where the data structure changed, or a significant error had been corrected). The other versions were advertised and updated as requested by the users. Each update incorporated all changes made in previous updates, so that a user who did not receive all the updates would be "caught up" with the other users who did receive each release.

2.3 SUMMARY OF MODIFICATIONS TO SBIR-PC

The latest version of SBIR-PC, version 3.21, was distributed to the field and installed at the SBIR Program Management Office. This version contains all updates, modifications, and revisions made to the software and databases during the course of this contract effort. A listing of the significant enhancements made to the SBIR-PC database management system during this contract effort are contained in this section.

Data Entry

- Added the ability to operate SBIR-PC on a network, so that multiple users at a single site can enter data into, and retrieve data from, a common database. Capability also supports shared printing on Lantastic and Novell networks.
- Added feature to Topics module allowing users to import topics which had been generated in a word processor by a scientist or engineer. This eliminated the requirement to re-type the topic narrative. BRTRC distributed the format required to support this feature to all SBIR-PC users.
- Improved the feature which allows proposal red forms to be entered using the OCRs purchased by many users of SBIR-PC.
- Implemented the necessary code for the special version of SBIR-PC to be used by the team performing mass data entry for the 93.2 Solicitation. This version allowed multiple users to enter proposal data, and for twelve labels to be printed on a common printer for each proposal entered. The labels were used to assist filing and distribution of proposals and evaluation forms. This system performed flawlessly as 2,836 proposals were entered in less than two weeks.
- Added ability to enter and track Phase III data.

Data Access and Reporting

- Added ability to generate user-defined reports, allowing nearly unlimited flexibility in generating ad hoc reports for individual use. Prior to this feature being added, users were limited to a suite of reports developed by BRTRC. While useful and adequate to support most users, frequent users had requested this logical extension of the report function.
- Added ability to perform funding queries, so users can access data based on a specific FY, or based on whether the funds are planned, committed, or obligated. This feature was added to better support users and the SBIR Program Management Office during generation of the annual report for DoD SBIR Office.
- Added Data Integrity Check, which reports quality of SBIR-PC data on an individual PC or on the network.
- Added data field to awards database to facilitate the tracking of awards which were reported to DoD and the SBA in a specific fiscal year.
- Added capability to save a query which can be retrieved at a later time. This is very useful when a user has built a complex query in a large database - which would take a significant amount of time to rebuild.
- Added printer control support for specific printer types. Until this feature was added, users were required to set up their printers manually prior to running a report. This feature simplifies the printer setup function for most users.
- Added a Budget Module, which allows individual sites to track their annual budget, and compare this budget to the actual dollar obligations. This will become very useful for the SBIR Management Office as well as individual sites during annual reporting efforts at the end of each fiscal year.

User Interface

- Made a large number of revisions to the user interface portions of the SBIR-PC software to make the software easier to use. These revisions were requested by frequent users of the system, and have improved the quality of data entered by the users.
- Improved the mouse interface for the SBIR-PC software in response to user requests.
- Expanded the indexing and query features of the software, allowing users more flexibility in accessing, viewing, and printing reports on specific subsets of Army SBIR data. These improvements were very well received by frequent users.

System Administration

- Improved the data merge capability to better support the system administrator when data updates are being merged from individual users into the Army-wide database.

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- Updated the export routines which prepare files for submission to the DoD SBIR Office. Such changes were required when DoD modified their data submission requirements or formats. Some changes were made by BRTRC to reduce the amount of time spent by the system administrator when preparing data submissions for DoD.
- Added tracking of records deleted by a field user to assist system administrator in identifying those records which should also be deleted from the Army-wide database.
- Added ability for system administrator to merge or extract specified subsets of SBIR data. This can be useful when data must be sent to a specific field site, or when a field site somehow submits a data update which contains more records than should exist for a site.

Performance

- Ensured that SBIR-PC was updated as new versions of the software generation tools used by BRTRC to build the software were obtained. In general, these updates improved SBIR-PC's performance with respect to memory management and operating speed.
- Improved software performance on low-memory PCs by reducing the memory required for the letter interpreter.
- Improved software performance on low-memory PCs by reducing the memory occupied by the Proposals module.

Corrections

- BRTRC corrected all errors reported by users and in-house BRTRC users as they were identified. In the vast majority of these cases, the error affected how a single feature would operate (versus causing the program to bomb or causing errors in the data). When significant errors were identified and corrected, a new version was shipped to all users. When non-critical errors were corrected, new versions were immediately shipped to the users experiencing the problem, and any other users interested in receiving the new update.

SBIR-PC USER SUPPORT

3.1 *GENERAL*

The SBIR-PC system has evolved into a system which contains a complex set of data. The field points of contact - the focal points for all SBIR activities performed by their organizations - will enter, access, and report on every piece of information contained in SBIR-PC at one time or another during performance of their duties. To support their duties, and those of the SBIR Program Management Office, a broad suite of utilities, reporting tools, data analysis tools, and data access capabilities have been incorporated into SBIR-PC. These tools, while designed to simplify the performance of specific duties, require training for individuals who are new to the SBIR program or who do not use SBIR-PC often enough to maintain proficiency in the software. In addition, the dynamic nature of the Army SBIR program affects the system on a continuous basis, leading to the introduction of new capabilities or enhancements of existing features on a regular basis.

Quality user support has proven to be essential to improving the quality of the Army's SBIR database. Proper training of all users ensures that no data errors or deficiencies are introduced by an inability to properly use the software.

3.2 *USER SUPPORT ACCOMPLISHMENTS*

BRTRC provided continuous user support to Army SBIR personnel in a variety of ways throughout the course of this contract effort:

On-line telephone assistance: In many cases, an individual who is using SBIR-PC to perform a specific function does not know or remember how to complete the operation. This is common among new users or individuals administering relatively small SBIR programs which do not require database activity on a regular basis. The volume of telephone calls also increases immediately after a new version of SBIR-PC has been released which contains significant changes to commonly used features or which introduces a much sought-after capability. By placing a telephone call to one of our full-time staff, these persons can obtain instantaneous help so they can perform their intended activities. User questions usually are answered in less than five minutes. For complex operations, BRTRC staff will remain on the telephone to ensure that the individual is able to complete the operation satisfactorily. All BRTRC personnel who support the SBIR Program are familiar with the SBIR-PC software and are able to provide on-line help to Army personnel. This form of user support has proven invaluable to the Army points of contact in ensuring that their data is as accurate, timely, and complete as possible.

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Personal Training: One-on-one personal training is the most beneficial form of user support which an individual can receive. BRTRC has provided this training to all users of SBIR-PC at least once over the course of our long-term support to the SBIR Program. Personal training consists of an individual operating the SBIR-PC software under the guidance of a BRTRC staff member. This in-depth training provides each user with valuable insights into how the software is used to perform SBIR tasks, how the data is stored and retrieved, and how the data is used for reporting purposes. Unfortunately, this type of training is limited due to the costs of this labor-intensive activity. In addition, BRTRC could not possibly visit each site across the country to perform training. To conserve resources, personal training was only provided in cases where an individual could visit BRTRC (saving contract TDY expenses) as part of other official travel, or when BRTRC personnel could visit sites at which more than one SBIR-PC user would be gathered. During the course of this contract effort, BRTRC providing user training to approximately ten individuals at BRTRC facilities or in the immediate vicinity of BRTRC. BRTRC also travelled to the National SBIR conferences held at Orlando FL in June 1993, Washington D.C. in September 1993, and Seattle WA in October 1994 as well as a national Army SBIR/STTR outreach conference in Orlando FL in December 1993. These meetings provided opportunities to train several users at a time, making efficient use of labor and travel resources.

User Manual: As part of our database development effort (Tasks 1 and 4), BRTRC produced a detailed SBIR-PC User's Guide which provides instructions on use of every SBIR-PC feature and capability. This guide, which is updated annually to reflect changes in the software, provides hints and help on the best ways to perform specific SBIR data tasks. It also assists the user on how to get the most out of the database and the management information system's data access, query, and reporting capabilities.

Automated On-line Help: SBIR-PC contains extensive on-line help. This help feature is context sensitive, which means that the help displayed on the screen is directly related to the screen which you were viewing when you requested help. The help instructions are in most cases as detailed as the user manual described above. The volume of telephonic inquiries was reduced when this feature was introduced. The help screens, like the user guide, are updated as the software is modified.

Newsletters: Under this contract effort, BRTRC began distributing a regular newsletter containing helpful hints, reminding users of data submission milestones, and discussing issues raised by users. This newsletter has been enthusiastically received by the Army SBIR community as a valuable source of assistance. When warranted, BRTRC included messages from the SBIR Program Management Office, making the newsletter an informal source of information for all Army SBIR activities and requirements. BRTRC has updated the format and content of the newsletter in response to user request. Appendix A contains copies of all newsletters published under this contract effort.

DATA COLLECTION, ASSESSMENT AND REPORTING

4.1 GENERAL

BRTRC supported the Army SBIR Program Management Office in the collection, assessment and reporting of SBIR data during performance of this task. In general, the SBIR information was automated by field points of contact using the SBIR-PC system developed by BRTRC. This data was obtained from the field and assessed for completeness and accuracy. The data was then integrated into an Army-wide SBIR database for use in meeting internal and external information reporting requirements.

BRTRC activities related to this tasking occurred on a daily basis. To accomplish the task objectives, BRTRC coordinated extensively with a variety of Government personnel. BRTRC worked closely with the DoD SBIR Coordination Office and the Army SBIR Management Office to identify all information needed to meet SBIR management and reporting requirements. Actual data collection required extensive coordination with individual Army field points of contact who used SBIR-PC to track information related to SBIR activities at their local organizations.

During this contract effort, BRTRC supported the collection and assessment of topic data for the 93.2 and 94.2 Solicitations, Phase I proposal data for the 93.1 and 93.2 solicitations, Phase II proposal data from the FY86 through FY92 Solicitations, and contract data for SBIR contracts arising from a broad range of past solicitations. This data is continuously updated and maintained at the SBIR Program Office at ARO-Washington at Headquarters, U.S. Army Materiel Command.

This chapter provides a detailed description of BRTRC accomplishments under this tasking.

4.2 DATA COLLECTION EFFORTS

BRTRC collected extensive amounts of information relating to SBIR topics solicited by the Army, Phase I and II proposals received from small businesses, and awards made to winning firms. A regular schedule was established with the field points of contact which called for all data updates to be provided by the tenth day of each month. In those cases where no data had changed since the previous update, the field provided confirmation that no updates would be sent.

BRTRC generally obtained the required SBIR information from the field in a standard electronic format used by the SBIR-PC software system. SBIR-PC has a data export feature

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which creates a file containing information which has changed since the last time an update was submitted. This minimizes the amount of data which is being transmitted, which is critical given the large amounts of data which have been automated over the past three years. To further minimize the size of the transmitted data, SBIR-PC incorporates state-of-the-art data compression techniques which ensure that a minimum number of diskettes (usually one) or a minimum amount of telephone time is required. Data transfers were accomplished through a variety of methods:

(1) Computer Diskette: A number of Army research organizations provided their data on microcomputer diskettes (3.25" and 5.5" formats) which were either hand-delivered or mailed. BRTRC coordinated with the field to re-transmit a diskette if the data had been corrupted in transit or if all required files were not present. This method, while not as efficient or timely as electronic transmittal methods described below, was generally reliable and accommodated those users who did not have ready access to a modem.

(2) Electronic Mail: A number of SBIR-PC users transmitted their SBIR data via electronic mail systems. BRTRC maintains an MCI-Mail account which can be accessed by other MCI-Mail accounts, Internet accounts which possess the File Transfer Protocol (FTP), and virtually any electronic mail system which allows the transfer of data files and conforms with standard electronic mail protocols. To date, all Army users have used their own MCI-Mail accounts to transmit data; however, Internet file transfers have been demonstrated to operate well under our support for the Air Force SBIR Program.

(3) BRTRC Bulletin Board System (BBS): BRTRC implemented a PC-based BBS which can be accessed by any Army SBIR participant with access to a modem and communications software. The bulletin board, which is described in detail by the SBIR-PC User's Guide, allows users to dial up a computer 24 hours-a-day to upload SBIR-PC data. This system has been successfully demonstrated, and is used by several Army organizations.

In a few cases, BRTRC collected SBIR data through means other than the SBIR points of contact in the field. Through our program management support activities, BRTRC often were in direct contact with SBIR firms performing SBIR Phase I and Phase II contracts. These interactions often revealed contract modifications and address changes not reflected in the data received from the field. In these situations, BRTRC informed the field of the data updates, and coordinated the automation of this data either by the field or by BRTRC with the data being subsequently transmitted to the field, or by both BRTRC and the field in order to eliminate the need for a data update.

Appendix B contains DoD/SBA requirements specifying the SBIR data which must be collected and maintained by the Army. BRTRC ensured that all required data was collected for each Army SBIR topic, each proposal submitted in response to the topics, and each award made for the selected proposals.

4.3 DATA ASSESSMENT AND INTEGRATION

All data collected by BRTRC under this contract effort was assessed to determine its validity and completeness. Questionable or missing data was verified with the data sources, and erroneous or incomplete records were corrected. These activities would often lead to the field making additional updates to their local SBIR-PC databases, requiring additional transmissions of SBIR data beyond the regularly scheduled monthly data updates.

BRTRC integrated all collected SBIR data into a single, Army-wide SBIR database, which was maintained on Army SBIR Program Management Office computers. BRTRC also maintained a "mirror" copy of the SBIR database which was used to first import field data submissions. When these data updates were verified, BRTRC then updated the official Army SBIR database at the SBIR Program Office. The integration functions were facilitated by automated features developed within SBIR-PC which decompress files received from the field and then import the data into the Army-wide database.

The majority of data assessment activities were performed during generation of the FY93 annual report, which is submitted 1 February 1994 to the DoD SBIR Office. This reflected past level of efforts during years in which the main purpose of the Army SBIR database was to provide required reports to the DoD SBIR Office. During this contract effort, however, additional data assessment requirements were identified as senior Army leadership began to examine and refine the SBIR Program. In response to new information requirements, BRTRC provided additional data assessment support to ensure that the Army's SBIR database was able to meet internal Army information requirements.

The results of BRTRC's data integration and assessment activities under this contract are reflected in the Army SBIR database which resides at the Army SBIR Program Office. This database is continuously updated as new data is collected by BRTRC from the field and other sources. Additional efforts are reflected in the preparatory work done for the Army Phase III Accomplishments Book, which is described in Paragraph 4.5 below.

4.4 SBIR REPORTING AND MANAGEMENT INFORMATION

BRTRC was required under this contract to utilize the Army SBIR database on numerous occasions to meet a variety of Army SBIR reporting requirements. These reports were provided in a wide range of formats and contained information specific to the information requests. Reports consisted of regularly scheduled reports as well as many ad hoc requests received by the SBIR Program Office from a wide variety of individuals and organizations both within and outside the Army. BRTRC also used statistical summaries of the collected SBIR data to produce high-quality viewgraphs for use by the Army SBIR Program Manager and other Army personnel. In general, BRTRC used the SBIR-PC database system to meet the information

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requests. On occasion, the reporting requirement required additional data collection to obtain information not available in the SBIR-PC system, or which had not yet been updated by the field points of contact.

BRTRC's reporting and management information activities under this tasking are described below, organized by the ultimate recipient of the Army SBIR data.

(1) Army SBIR Program Office Requirements The bulk of BRTRC reporting activities were performed in response to direct requests from the Army SBIR Program Office. These reports were used by Army SBIR Program Office personnel to perform budget planning, analyze historical trends, monitor results of the overall Army SBIR Program, and generate reports and briefings for senior Army leadership. BRTRC regularly assisted Program Office budget planning by generating funding reports which present the amount of funds planned and obligated in the current fiscal year, as well as the funds planned in future fiscal years (for Phase II contracts which are currently ongoing and which will require incremental funding in later fiscal years). These reports impacted on several Army budget decisions, including choosing the number of topics to be solicited in future years, and choosing the number of new-start Phase II awards to be made in the current fiscal year. BRTRC also generated statistical reports which summarize historical data or data for a specific solicitation to allow analysis of trends. These reports proved useful in setting future strategies and in assessing the results of previous policies and guidelines. In preparation for the annual reports which must be provided to DoD, BRTRC generated reports highlighting those Army organizations with low obligation rates for their SBIR funds. In many cases, these low rates were the result of a failure to update the database; however, in some cases the reports identified problem areas requiring Program Office attention. The SBIR Program Office required frequent data updates from the SBIR-PC system to support generation of briefings for management and senior Army leadership as well as for presentations at numerous conferences, symposia, and seminars at which the Army SBIR Program was represented. Finally, BRTRC responded to numerous ad hoc requests from Army SBIR personnel on a daily basis.

(2) DoD SBIR Coordination Office Requirements The Army SBIR Program Office provides the DoD SBIR Coordination Office with a variety of reports which contain topic, proposal, and award information for each solicitation and each fiscal year. This data is used by the DoD Coordination Office for internal analysis and administrative functions, and to provide the SBA and Congress with annual and ad hoc reports concerning the DoD SBIR Program. The Army SBIR Program Office also utilizes these reports to meet many of its own internal analysis and administrative objectives. The table on the following page presents DoD reporting requirements. These are described in detail in Appendix B which contains all DoD database and reporting requirements.

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**SBIR REPORTING REQUIREMENTS
FY94**

Due Date	Description
30 NOV	FYXX funding data for on-going Phase II projects
14 JAN	Phase I Appendix B for Solicitation XX.2 selected/awarded proposals
01 FEB	Solicitation XX.2 topics including an introduction letter, proposal submission addresses, indices, etc.
	Solicitation XX.2 topic information
	Expanded topic descriptions and published references to be included in DTIC's Technical Information Packages (TIPs)
	Service/agency level security and technical review confirmation
15 FEB	Appendix A for FYXX Phase II awards
	Appendix B for FYXX Phase II awards
	Contract and funding data for FYXX Phase II awards
	Contract and funding data for Phase I awards from the XX.1 Solicitation
	Contract and funding data for Phase I awards from the XX.2 Solicitation
	Service/Agency Annual Report form showing budget, award and funding information summaries; Award justifications if necessary
	Phase III awards made during FYXX
15 MAR	Phase I Appendix A for all proposals received from the XX.1 Solicitation
01 JUL	Phase I Appendix B for selected/awarded proposals from the XX.1 Solicitation
	WordPerfect file containing Solicitation XX.1 topics and including an introduction letter, proposal submission addresses, indices, etc.
	Solicitation XX.1 topic information
	Expanded topic descriptions and published references to be included in DTIC's Technical Information Packages (TIPs)
	Service/agency level security and technical review confirmation
01 SEP	Phase I Appendix A for all proposals received from the XX.2 Solicitation

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(3) Army Management Information Requirements BRTRC also generated a number of reports to assist the SBIR Program Office in responding to information requests from senior Army research and development leadership. These reports took the form of statistical summaries, specific data queries, fiscal year summaries, briefing information, point papers, information papers, and other less formal reports. In most cases, the information requests were received from the Office of the Assistant Secretary of the Army for Research, Development and Acquisition (OASA(RDA)); however, additional requests were received from major Army commands such as the U.S. Army Materiel Command. BRTRC also supported OASA(RDA) responses to DoD and Congressional inquiries regarding the Army SBIR Program.

(4) External Reporting Requirements Additional requests for SBIR data and information are received from numerous external organizations on a regular basis. The Army SBIR Program Office supports these requests in order to further the program's goals to increase participation by small and disadvantaged firms and to increase the number of projects which are commercialized outside the Army and DoD. Examples of organizations requesting data from the Army SBIR Program Office are members of Congress and their staffs, the Small Business Administration, the General Accounting Office, the Army Audit Agency, state and local economic development agencies interested in coordinating with the Army SBIR Program. In addition, the office receives inquiries from private firms who are interested in working with SBIR companies developing technologies of interest. These interactions often result in the commercialization of Phase I and Phase II Army projects.

4.5 *SBIR PHASE III ACCOMPLISHMENTS BOOK*

As part of this task, BRTRC documented results of the Army SBIR Program using data contained in the SBIR-PC system in designing an updated Army Phase III Accomplishments book. The purpose of this brochure is to highlight Army SBIR success stories which portray how small firms commercialized their Army-funded SBIR research. The Army SBIR Program Office distributes this high-quality publication to senior Army and DoD leadership, Congress, and attendees at SBIR conferences and meetings. The book is updated every one or two years based on the number of Phase III success stories which are identified.

In order to design and develop the Army Phase III Accomplishments Book, BRTRC performed the following subtasks:

(1) BRTRC generated a mass mailing, using SBIR-PC, to all firms who had completed a Phase II effort in the last three years describing the brochure and requesting that they submit their Phase III accomplishments to the SBIR Program Office.

(2) BRTRC requested Phase III information from the field points of contact and their local contract monitors. These requests were made through the regular newsletter produced by

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BRTRC and sent to all field participants, as well as through telephone conversations which occurred on a regular basis.

(3) BRTRC examined all Phase III submissions from the firms and the field, and confirmed their eligibility for inclusion in the brochure. Some submissions were eliminated during this process due to the fact that they had not actually achieved Phase III as of the submission date.

(4) BRTRC developed several drafts of the Army Phase III Accomplishments Book which were reviewed by the Army SBIR Program Office. BRTRC also coordinated with the field and the actual performing firms to refine their success stories and obtain high-quality photographs or diagrams which would be suitable for inclusion in this full-color booklet.

(5) BRTRC prepared camera-ready copies of the Phase III Accomplishments Book, as well as a computer file which would also be provided to the Government Printing Office (GPO), as specified in the contract.

The Army Phase III Accomplishments Book was originally scheduled for submission to the GPO by the end of this contract; however, the purpose of the brochure was redefined late in the effort. The printing, as directed by the Army SBIR Program Office, was officially delayed to incorporate the results of the inaugural Army Phase II Quality Awards. The overall structure and content of the brochure will require redesign and additional data collection and brochure design efforts which are beyond the scope of this contract. Appendix C contains copies of the Phase III brochure in its final form prior to the Army's decision to alter the structure, format and content of the booklet.

DATABASE DEVELOPMENT IN SUPPORT OF NEW LEGISLATIVE REQUIREMENTS

5.1 *GENERAL*

In a parallel effort to Task 1 (Army SBIR Database Development Support - see Chapter 2), BRTRC modified SBIR-PC to reflect changes required by new legislation passed in October 1992. This recent legislation was translated into revised reporting requirements issued by the Small Business Administration, which changed the data required to be reported by the Army to the DoD SBIR office.

The majority of our efforts under this task focused on the development of a prototype database system to track data from the pilot Small Business Technology Transfer (STTR) Program. This program was established by the latest SBIR legislation, and is intended to include academia, non-profit research institutions, and Federally Funded Research and Development Centers (FFRDCs) in federal research activities. The STTR Program was structured to operate in much the same way as the SBIR Program; however, each award would be made to a team composed of a small business and a research institution. These two parties are required to enter into a cooperative research and development agreement (CRADA) prior to receiving an STTR award.

5.2 *TECHNICAL APPROACH*

The STTR program is managed separately from the SBIR Program; however, it is similar in structure, organization, and data requirements. BRTRC began this task under the assumption that SBIR-PC would be modified to support STTR, which was expected to result in minor changes to the software. After a thorough data requirements analysis, a comparison of SBIR and STTR databases led to the conclusion that it would be most efficient to develop a separate STTR database system. While SBIR-PC could in theory be modified to accommodate the additional STTR data fields, this would result in a single system which would be too cumbersome to adequately meet the Army's management information needs.

A stand-alone system also serves the Army's best interests, since it could be designed in a streamlined manner specific to STTR requirements. This system will be able to react to the many changes which are expected to occur during the establishment of this new program. In addition, since STTR is a pilot program which may be eliminated in FY97, development of a separate system would eliminate the need to re-modify SBIR-PC if the STTR program is terminated.

5.3 *The STTR DATABASE SYSTEM*

BRTRC designed, developed, and implemented a prototype version of the STTR database system under this contract effort. This system supports all DoD/Army data entry, data tracking, and data reporting requirements as defined in the SBA and DoD STTR policy directives. This system has been developed in the FoxPro environment. FoxPro is a commercial database system which is compatible with the XBase data format, and is capable of operating both on IBM PCs using Windows and Macintosh computers. We believe that this system as designed will provide the Army with the greatest flexibility during future operation of the software.

BRTRC provided version X.X of the STTR software, the most recent version released by BRTRC, to the Army Research Office (ARO). ARO is responsible for the STTR proposal evaluation process, and will be entering STTR data for submission to DoD. The STTR software has also been installed at the SBIR Program Management Office to ensure that this office is able to respond to data inquiries as required.

A copy of the STTR database system designed by BRTRC in fulfillment of this tasking is provided on a high density, 3.25" IBM-compatible diskette in Appendix D. This appendix also contains a brief user guide which was developed to accompany the software.

IMPLEMENTATION OF SYSTEM FOR ACCESS TO ARMY SBIR DATA BY PERSONNEL OUTSIDE THE ARMY PROGRAM

6.1 GENERAL

The purpose of this task effort was to make Army SBIR data available for wide dissemination to organizations both inside and outside the Army to satisfy two objectives. First, this data could be used by research organizations within the Army and DoD to help identify common goals and parallel efforts which might be combined to produce the same results with potentially large cost savings. This cross-fertilization will help the DoD laboratories work more efficiently by avoiding duplication of effort through better communication and more timely information than might be available from other sources such as the Defense Technical Information Center (DTIC). Second, this data could be used by outside organizations (including state/local agencies and private firms) to determine areas of technological expertise within the small business community. Large prime contractors may discover areas where collaboration would benefit both the large and the small company. All these efforts benefit the small firms sponsored by the Army, and will create an environment in which the SBIR efforts receive greater visibility and can be brought to commercialization successfully in a shorter period of time.

To meet the goals of this effort, BRTRC examined the possibility of using an on-line dial-up system, a bulletin board system, and a stand-alone system. The on-line system was not pursued due to budget constraints. In order to provide adequate capability, a significant amount of software development and hardware investment would be required. The bulletin board approach was perceived to be inadequate due to the limited capabilities offered and the requirement to acquire and maintain hardware and software at the SBIR Program Office. BRTRC pursued the third option - development of a PC-based system which could be provided to all interested users. This chapter describes the Army SBIR Quick Reference System.

6.2 ARMY SBIR QUICK REFERENCE SYSTEM

The Quick Reference System is a user-friendly management information system that allows you to easily view and search SBIR program award information. Quick Reference is menu driven with on-line help available. It supports a mouse, or users can use the keyboard to maneuver through the modest number of screens. Quick Reference is provided with SBIR Phase II award data from fiscal years 1990 through 1992. For each Phase II award, the firm name, address, title, technical description of the project, awarding agency, topic number and keywords are presented. In addition, information is included to assist you in contacting a representative

from the Phase II company, in most cases the principal investigator and corporate official are named, or the Army point of contact.

Quick Reference was designed and developed as a personal on-line library of SBIR research and development projects. It is a tool for easily and conveniently viewing, but does not provide functions for adding, deleting, or editing. It is a management information system as opposed to a database management system. Approved SBIR data is downloaded from the SBIR-PC system and made available to Quick Reference users.

6.3 QUICK REFERENCE SYSTEM REQUIREMENTS

Quick Reference requires the following minimum computer hardware and software capabilities:

- 80286 processor or better
- DOS version 3.3 or higher
- A minimum of 4.1 MB of available hard disk space
- A minimum of 512K random-access memory (RAM). Quick Reference will utilize additional expanded/extended memory if it is available.

6.4 DISTRIBUTION OF QUICK REFERENCE SYSTEM

BRTRC has delivered a fully-functional version of the SBIR Quick Reference System for Government use and distribution. The data contained in this system is limited to Phase II contract awards, which represents publicly releasable information. Phase I contract information was not included because these efforts do not generally represent efforts resulting in usable products or technologies. Their inclusion would significantly increase the size of the databases, placing greater demand on user hardware systems. All proposal information was also excluded, since only those proposals which result in awards are releasable.

The Quick Reference System was first put to use after the National SBIR Commercialization Conference in June 1993. This conference brought DoD Phase II companies together with prime contractors in a variety of technological fields. Each prime contractor requested that they be provided with a copy of the Quick Reference program with DoD-wide Phase II data. These copies were distributed and comments received from the users were favorable.

Data updates and transmittal of more copies to additional users can be accomplished easily through the use of the BRTRC SBIR Bulletin Board. This system allows any potential

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user, with SBIR Program Office approval, to download a copy of the software and the latest version of the data for individual use. This minimizes the burden on the Program Office to continually release new copies via mail.

Appendix E provides a copy of the Quick Reference System User Guide. This guide provides detailed descriptions of the software's data contents, data access capabilities, and data query features.

PROPOSAL EVALUATION AND SOURCE SELECTION SUPPORT

7.1 GENERAL

In this task which was added as a modification to the original contract, BRTRC provided extensive data collection and entry, information management, program management, and administrative support to the Army SBIR Program Office during the design and implementation of the Army's new SBIR review process. This process, introduced during FY93, included all Phase I proposals received under the 93.2 Solicitation, all ongoing Phase II efforts which were to receive FY94 funds, and all newly received Phase II proposals which were being evaluated for the first time.

This chapter describes BRTRC's activities in accomplishing the goals of this tasking.

7.2 PROPOSAL EVALUATION AND SOURCE SELECTION SUPPORT ACTIVITIES

BRTRC supported the following SBIR Program Office activities during performance on this effort:

(1) **Implementation of Review Process**

BRTRC assisted the SBIR Program Office in the development, refinement, and implementation of a review plan which governed how the SBIR evaluation process would be executed by the Army. This required that an SBIR Evaluation Plan (SEP) be produced and staffed through senior management levels, and that the field be educated on their responsibilities and all relevant milestones under the new process. BRTRC also supported preparations for a video teleconference between Mr. George Singley, the Deputy Assistant Secretary for Research and Technology (DAS(R&T)), MG Thomas Prather, AMC Deputy Chief of Staff for Research, Development and Engineering, and several field sites at which the field representatives were located. This conference also included the ten Technology Area Chiefs (TACs) who played a key role in prioritizing SBIR proposals received by the Army.

(2) **Identification and Notification of Review Personnel**

BRTRC assisted the Program Office in coordinating with the field to identify all personnel who would participate in the newly implemented review process. This included approximately eighty (80) Team Chiefs (TCs) who would represent the field organizations to each TAC. The TCs were tasked with developing a field priority list

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of all proposals received under a specific technology area. The TACs then used these lists to assist in developing Army-wide priority lists for each technology area.

(3) SBIR-PC Software Modifications

BRTRC performed specialized modifications, which resulted in a version of the software which would only be used to accomplish this task, to provide maximum automation of the 93.2 Phase I proposal receipt, logging, and tracking operation. To assist the coordination of each proposal review, the specialized version of SBIR-PC generated twelve mailing labels for each proposal entered into the system. These labels were used to mark file folders, distribution copies, and evaluation sheets for each proposal, ensuring that no confusions would occur between proposals. BRTRC also moved up the schedule for final testing of a network version of the SBIR-PC software, which would allow multiple users to enter data into a single database.

(4) Set-up Data Entry Operation

BRTRC acquired four personal computers, a printer, network hardware, and all supplies required to support the simultaneous entry of proposal data by four BRTRC employees. This hardware was delivered to the SBIR Program Office, set-up in the proposal processing area, and tested to ensure that all features and capabilities were operational. BRTRC also assigned four individuals to operate the system and provided them with training prior to the receipt of 93.2 proposals.

(5) Phase I Proposal Data Entry

During the two weeks prior to the closing of the 93.2 Solicitation, and for the two weeks following the close, BRTRC entered all relevant proposal information for 2,836 Phase I proposals submitted in response to the 93.2 Solicitation. BRTRC completed all data entry and corrected all data entry errors ahead of schedule.

(6) Phase I Proposal Distribution to Evaluators

After all data entry and confirmation tasks were completed, BRTRC supported the distribution of proposals to the field for evaluations. BRTRC generated listings, from SBIR-PC, identifying all proposals to be sent to each field site. These listings were used by the SBIR Program Office to confirm distribution packages, and were used by the field to confirm receipt of those proposals assigned to their organizations.

(7) Coordination of Proposal Evaluations

BRTRC assisted the Program Office during coordination of field, TC, and TAC evaluations which resulted in the development of prioritized order-of-merit lists for proposals received under each technology area. This task required substantial interaction with field personnel to ensure that the objectives of the process were preserved, and that all schedule milestones were met.

(8) Collection of Evaluation Results

BRTRC performed data collection efforts to ensure that all prioritization data for all Phase I and Phase II projects had been received. These results were automated in a database which allowed decision makers to easily view priority lists and determine the funding cut-lines based on funding guidance.

(9) Support of Final Decision Process

BRTRC provided database and decision support to the SBIR Evaluation Board (SEB) and the General Officer Steering Committee (GOSC) during the final decision process which led to selection of Phase I and Phase II efforts which would receive FY94 funding. BRTRC support consisted of database manipulations, report generation, and the summarization of resulting data for use in briefing charts.

(10) Notification of Selection/Non-selection

Using SBIR-PC, BRTRC generated 2,836 letters notifying each firm which submitted a 93.2 Phase I proposal of the selection or non-selection of their proposal. BRTRC also generated mailing labels and supported the SBIR Program Office during mailing of these letters. BRTRC also generated and transmitted notification letters to firms proposing new Phase II efforts to be funded in FY94. Finally, BRTRC generated listing of approved Phase I and Phase II efforts for distribution to Army field organizations to begin the contract award process.

(11) Contract Award Tracking

BRTRC coordinated with field organizations that were tasked to make Phase I and Phase II contract awards on a weekly basis to provide the Army SBIR Program Office with the status of the awards. This information was used to report to DAS(R&T).

(12) Debriefing Support

BRTRC provided ad hoc data query and reporting support to the Army SBIR Program Office during the conduct of debriefings to contractors who were notified that their proposals had not been selected for award.

7.3 DOCUMENTATION OF BRTRC ACTIVITIES

The magnitude of the SBIR review process, the large number of Army participants, and the great number of companies involved necessitated that BRTRC provide extensive support under this task effort. BRTRC assisted the SBIR Program Office in the generation of numerous memorandums, letters, briefing charts, policy statements, and operating procedures. Including all these deliverables would overwhelm this documentation and the reader. Appendix F contains the most pertinent documentation which serves to further explain the SBIR evaluation process and document our activities in support of the SBIR Program Office.

APPENDIX A

ARMY SBIR NEWSLETTERS

SBIR-PC



May/June 1993 PRODUCED BY THE ARMY SBIR PROGRAM MANAGEMENT OFFICE Volume 4 Issue 5

Version 3.0

Conversion to the new program is in progress. A few labs and centers had some problems with their data, but it is now all in, and we've begun the short process we have to go through to complete the conversion. All of the data should be converted and assembled into the new software package by the end of May, which means that we should be able to ship the new Version the last week in May.

The new software package is fantastic! It will be shipped on about 6 low density floppy disks, and will be accompanied by a complete, thorough User's Guide. The User's Guide should answer practically every SBIR-PC question imaginable. The User's Guide is organized in a three-ring binder to make updating easy, and includes a full set of index tabs to make finding the different chapters fast and efficient.

Directions for installing the new version will be included in the software package. It should go smoothly; however, in the interest of safety, please do not delete the old Version 2.0 until Version 3.0 is successfully loaded and working.

We hope you will be as pleased with the new version as we are, and we can't wait to begin shipping it to you. Once you receive it, if you have any questions, please do not hesitate to call Terri Stafford at (703) 938-0356.

Thank you for your continued support and cooperation.

Attachments

With this month's newsletter, there are several different attachments which Joe Forry felt you should have and read. The first attachment is a list of the DoD 93.2 Topics which were cancelled. The second attachment contains a group of charts which begin to explain some of the beginning organization of the new Army SBIR Review Process. Please remember that the Army SBIR

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Review Process has not been finalized, and that the charts enclosed are just the beginning. An explanation of what is currently happening with the Review Process can be found on pages 2 and 3 of this newsletter.

The next two attachments are documents that everyone involved in SBIR should be familiar with. The first is the Small Business Innovation Research Program Policy Letter which was distributed by Bob Wrenn, the DoD SBIR Program Manager, and the second is the Small Business Technology Transfer Program Policy Directive. Should you have any questions about either of these two documents, please contact Joe Forry.

Comments or Questions?

Gerry Sanz
703-938-2014

Terri Stafford
703-938-0356

FAX
703-938-2050

ADDRESS
370 Maple Ave., West
Vienna, VA 22180

The Rumor Mill



From the
Desk of
Joe Forry

Selection Process Notes

The details are starting to fall into place for the 93.2 selection process, and I would like to share what I know with you at this time:

Centralized Source Selection

As most of you know, the final approval for selection of Phase I awards will be made by a formal, centralized source selection process. This process begins, as always, with your initial evaluation of all proposals received against topics originating from your organizations. Your evaluations will form the input to a Source Selection Evaluation Board (SSEB) which will further evaluate the proposals. Your inputs, with SSEB modifications, will be presented to a Source Selection Advisory Council (SSAC) which will make recommendations for Army-wide awards. The SSAC recommendations will be submitted to a Source Selection Authority (SSA) for final review and approval. After SSA approval, the process will return to your organizations for contract awards and technical monitoring of contract efforts.

While the beginning and end of this process follow historical Army SBIR operations, we have patterned the centralized evaluation/approval process on formal source selection procedures as described in the FAR

and other documents. Our challenge lies in ensuring that these new procedures can be assimilated into the tight schedules dictated by the SBIR process.

Tentative Schedule

Our tentative schedule is shown below. As you can see, our schedule leaves very little margin for error or slips. First, you will need to talk to your technical people and your management to ensure that proposal evaluations can be completed within one month. This must be carefully coordinated since some of you have taken substantially longer periods of time in the past, and the month of August is a popular vacation time for many. Second, we must be prepared to move quickly on contract awards once we receive SSA approval to make Phase I awards. This will also require coordination with your people. Remember that we should be getting contracts awarded by 2 FEB 94 to comply with SBA guidelines.

02 AUG 93	Proposals received by SBIR Office
09 AUG 93	Proposals sent to labs/centers for initial evaluations
09 SEP 93	Order of Merit Lists generated by labs/centers are delivered to SBIR Office for submission to SSEB
26-27 OCT 93	SSEB Meeting at ARO
31 OCT 93	SSAC Meeting in DC Area

The Process

After all proposals are received by my office, they will be logged and immediately transmitted to you for evaluation of proposals. We have developed evaluation sheets to be filled out by your evaluators and lab/center directors. The scores on these evaluation sheets will determine the 1 N orders for each topic, and will be used

continued on Page 3

continued from Page 2

as your inputs to the Source Selection Evaluation Board (SSEB). The SSEB will conduct a high-level evaluation of the proposals using your inputs and their expertise in the technology area. All topics have been grouped into ten technology areas, and the SSEB evaluation will be organized around these technology areas. Each area will have a technology manager supported by a team of individuals representing a broad cross-section of the Army R&D community for that technology area. Each technology team on the SSEB will be limited to a minimal number of individuals to avoid creating too large a group. The SSEB teams will use your inputs, proposal abstracts, and in some cases the proposals themselves to generate a single 1 N list across the entire technology area. These ten lists (one for each technology area) will then be integrated into a single list which will be presented to the SSAC for review. The SSAC will use SSEB inputs to formulate a recommendation for the SSA, who will then make a final determination and approve all Phase I awards. At that time (the first week of November), we will be notifying you as to which awards have been approved in your topics area(s), and the process will then proceed as it has in the past.

Additional Information

This process is in the final stage of review and approval. I will update you as more information becomes available. In the meantime, if you have any questions, please call me at my new office on (703) 617-7425 or (703) 617-7426. I welcome your comments and inputs as to how we can ensure that the Army SBIR Program will continue to be a success.

FY94 Budget Issues

Many of you already know that our FY94 budget is decreasing considerably from the FY93 budget. It appears right now that the budget will drop from \$77M to approximately \$63M. This has very serious consequences for our program, since we have a large number of

ongoing Phase II contracts and over 300 topics in the 93.2 Solicitation.

I am currently trying to plan the FY94 budget now to avoid unpleasantness in the future. Here is my proposed plan of action:

1. Reserve funds for FY94 mortgages on existing Phase II contracts. To do this effectively, I need solid Phase II funding numbers in our SBIR database which reflect all ongoing awards. I need final numbers by July at the latest so I can properly plan the 93.2 Phase Is.
2. Budget one award per topic for 93.2. I feel this is necessary due to the decreasing budget and the large number of topics. We may revisit this depending on how the Phase II mortgage figures turn out.
3. Reserve remaining funds for new Phase IIs and possible bridge funding of Phase Is. This is my real area of concern, since there may not be much left over.

All this depends on knowing what the FY94 mortgages are going to be. Please get the information in the database ASAP after BRTRC provides you with the converted data and new version of the SBIR-PC software. I will hold off making final budget plans until as late as possible in July; however, I need all the information in July.

Please Note: We cannot plan for budget figures that we do not know about. There is a real possibility that if you come up with a FY94 budget requirement later than this July, we will not be able to fund it.

May 1993

SBIR Deadlines and Events

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
						1
2	3	4	5	6	7	8
9 MOTHER'S Day	10 NO DATA DUMP REQUIRED	11	12	13	14	15 Armed Forces Day
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30 Memorial Day	31 Memorial Day Holiday					

June 1993

SBIR Deadlines and Events

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
		1	2	3	4	5
6	7	8	9	10	11	12
				NO DATA DUMP REQUIRED	SBIR Phase III Conference Orlando, Florida	
13	14	15	16	17	18	19
	Flag Day					
20	21	22	23	24	25	26
FATHER'S DAY	First Day of Summer					
27	28	29				

Monthly Data Dumps

Monthly Data Dumps will resume July 10, 1993. Please make sure that your new software package, Version 3.0, is loaded onto your computer, and is working correctly. The Data Dump must be submitted from the new program. A Data Dump from Version 2.0 will no longer be compatible. If you have any questions or problems, please contact Terri Stafford at 703-938-0356.



JOE FORRY'S CORNER

The 93.2 Review PROCESS

Procedures and schedules for the 93.2 proposal review process have now been finalized. The entire process, including changes to what I have told you so far, is explained below:

STRUCTURE

The proposals will be reviewed by an SBIR Evaluation Board (SEB) and approved by an SBIR Senior Review Group (SRG). The SEB is led by a Chairman and Deputy, who are responsible for prioritizing all proposals received by the Army and recommending proposals for Phase I awards subject to SRG approval.

Ten Technology Area Chiefs (TACs) report directly to the Chairman, and are responsible for prioritizing all proposals within their area. These 10 order of merit lists (OMLs) are used by the Chairman to build the overall Army OML for the SRG. The TACs are supported by Team Chiefs, who lead proposal evaluation teams. The Team Chief is responsible for ensuring that at least three individuals read and score every proposal, building prioritized OMLs within each topic, and submitting an OML across the team topics to the TAC.

WHERE YOU AND YOUR TECHNICAL STAFF FIT IN

Initial proposal evaluations will be performed by proposal evaluation teams. These teams will consist of two or three individuals who are collocated at a single site, and possess sufficient knowledge to score proposals

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under each topic. To meet these requirements, we expect that the teams will be made up of your topic authors and others from your technical staff as required.

I am counting on you to coordinate with this office and your technical staff to ensure that our tight review schedule is adhered to. I need the names of all persons who you plan to involve in the proposal evaluation process by the end of July.

CONTINUED ON PAGE 2

Comments or Questions?

Gerry Sanz
703-938-2014

Terri Stafford
703-938-0356

FAX
703-938-2050

ADDRESS
370 Maple Ave., West
Vienna, VA 22180

IMPORTANT ITEMS

Technology Teams Each team represents the topics which you have within a technology area.

Schedule As you can see, the schedule is very tight. We are allowing one month for completion of proposal evaluations and three months for processing of awards by your contracting shops. I will need lots of help from you to help the Army meet these deadlines.

OMLs This process obscures the concept of a single OML across your entire lab or center, depending on how many topics you have and how many technology areas they are placed in. As it now stands, the technology area chiefs will be looking at OMLs across each team.

Apportionments As you can see from the above process, there are no guarantees in this solicitation. While we are budgeting for one award per topic, it is probable that not all topics will receive awards and some topics will receive multiple awards. This is not all that different from the past, except for the fact that a higher-level review has been added to ensure that the best proposals receive funding.

PROCESS AND SCHEDULE

The process, with schedule dates is shown below:

2 AUG 93--Army SBIR Office receives all proposals and screens for format compliance.

- 16 AUG 93--Army SBIR Office distributes 1 copy of each proposal to cognizant Technology Area Chief (TAC), Team Chief, and evaluators.
- 15 SEP 93--Evaluators submit proposal evaluation forms and 1-N order of merit lists (OMLs) within each topic to Team Chiefs.
- 1 OCT 93--Team Chief submits 1-N OML (normalized) to TAC.
- 18-22 OCT 93--TAC briefs Technology Area 1-N OML to SEB.
- 1 NOV 93--SEB Chair presents Army-wide OML and funding allocation recommendations to SBIR Senior Review Group (SRG).
- 2 NOV 93--Army SBIR Office sends original of selected proposals to cognizant contract office for negotiation/award. Army SBIR Office coordinates fund transfers.
- 1 FEB 93--Phase I awards completed by contract offices at labs/centers. Phase I efforts monitored by lab/center technical personnel.

FY93 AND FY94 BUDGETS

Just a reminder that I will be scrubbing the FY93 and FY94 budgets in July and August.

FY94

Make sure that you have entered all your FY94 mortgages in the SBIR-EC database by the next regular data dump. I will be using this data to set Phase I, Phase II mortgage, and Phase II new start budgets for FY94.

(BTRC REMINDER: When entering the FY94 mortgage amounts, please remember to mark these funds as "planned" in the awards module)

FY93

I also need your data update to reflect all your FY93 obligations for the funds distributed to you 1003. I expect that you would have nearly all your contracts in place by now. Given our shrinking budget in FY94, any FY93 funds not obligated by 1 August may be subject to pull-back to meet FY94 requirements.

The Rumor Mill



Q. How will Phase II proposals be reviewed this year?

A. The Phase II process will parallel the Phase I process, and will occur at the same time. As you receive proposals, please identify the technology area which is most relevant to the proposal and the technology team chief who you feel should be assigned to that proposal. A factor which will affect the Phase II review process is the FY94 budget. After allowing for old mortgages and the Phase I awards, we will be making award decisions for the bulk of the remaining funds, and plan another review in the spring to apportion any remaining funds. I do not believe that we are going to have much money for new starts this time around.

Q. What are our responsibilities with respect to the SBIR-PC database?

A. Since we must do some data entry to log and track proposals, BRTRC will provide you with a diskette containing all the Appendix A data for proposals against your topics. You are still asked to enter the Appendix B data and award information for all your contracts.

Q. Just how much extra work is this process creating for me?

A. I don't think that we have actually added any work to your present load. First, we are decreasing your load by automating Appendix A data for you, screening the proposals received, and providing you with three evaluation sheets for each proposal; however, you will be required to assist in the process. This means working with your evaluation teams to make sure the evaluations are done correctly and on time, ensuring that the team chiefs complete their 1-N OMLs, and working with your contract office to quickly award the contracts after we know which proposals are selected. The rest of your SBIR responsibilities have not changed at all.

Q. Is there going to be a new evaluation form which uses new evaluation criteria?

A. We have put the form together, and it will be sent to you shortly (well before the process is under way).

Q. How soon after Joe Forry receives the 93.2 proposals should we expect to receive our copies in the mail.

A. We expect the log-in, data entry, and re-distribution process to take no more than 2 weeks. You should receive your copies no later than August 16, 1993. A complete schedule and milestone chart will be distributed before the 93.2 solicitation closes.

ARMY PHASE III Book-- VOLUME 3

Joe Forry is getting ready to publish the third volume of the Army Phase III Book. Several of you have already submitted some nominations for the Phase III Book; however, if you have any more, or if you have not yet sent any Phase III nominations, please get them to Fern Stafford as soon as possible.

For each nomination please try to include:

- ▲ A detailed description of the project.
- ▲ Any color pictures available.
- ▲ A list of Phase III impacts (for example, monetary achievements, spin-off projects, commercial customers, etc.).

The better the information and pictures, the more likely they are to be included in the book.

The absolute final deadline for sending information is September 1, 1993.

SBIR-PC VERSION 3.0

By now, you should have received your SBIR-PC Version 3.0. It would have arrived in a large white box, containing a new user guide, and several diskettes. If for any reason you have not received your new version of the software, please notify Terri Stafford immediately.

If you have already received your new software, please load it onto your computer as soon as possible. It is very important to make sure that everyone's software is working properly as soon as possible. If you are experiencing any difficulties, please notify Terri Stafford immediately.

All of this urgency is necessary because the Data Dump in July is crucial. We must meet certain deadlines dictated by DoD, and in order to do so, we must have everyone's information as close to July 10 as possible.

Your cooperation is greatly appreciated, and, once again, if you have any problems or questions, please do not hesitate to contact Terri Stafford.

ARMY SBIR TECHNOLOGY PLACEMENT BULLETIN

Joe Forry is initiating a new Army SBIR publication—the Army SBIR Technology Placement Bulletin. This Bulletin will feature Phase II success stories, accompanied by pictures of the successful Phase II product, much like the Army SBIR Phase III Book. The Bulletin will be a full color document, which will be distributed at meetings and conferences, to other SBIR companies, as well as to other government agencies.

Phase II companies must be nominated by the different Labs and Centers for inclusion in the Bulletin. Nominations will then be reviewed by Joe Forry, and once the final group of Phase II companies have been selected, the Army SBIR Program Manager's office will produce and distribute the Bulletin.

Please begin submitting your Phase II nominations for this Bulletin. Similar to the information needed for the Phase III Book, please include:

- ▲ A complete description of the Phase II company and project.
- ▲ Any color pictures available
- ▲ A list of descriptive facts and impacts. For example, unexpected breakthroughs, commercialization potential, and any anticipated benefits.

JOE FORRY'S NEW OFFICE INFORMATION

Phone
703-617-7425 / 7426

FAX
703-274-8274

Address:
HQ
US Army Material Command
ATTN: AMCRD-SBIR (J. Forry--Room 8N23)
5001 ~~4501~~ Eisenhower Avenue
Alexandria, VA 22333-0001

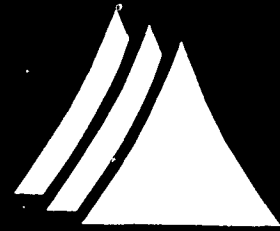
July 1993

SBIR Deadlines and Events

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
				1	2	3
4 INDEPENDENCE Day	5 INDEPENDENCE Day Holiday	6	7	8	9 DATA DUMP DUE TO BRTRC	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31

July Data Dump

Please make sure your July Data Dump includes: any Phase II new start information, any Phase II on-going information, any FY94 dollar information, and the Appendix B information for all selected and awarded 93.1 proposals. It is very important that we receive this Data Dump as close to July 10, as possible. We must get our 93.1 information to DoD as soon as possible, and we won't meet our deadline if any of the data is late!



93.2 PROPOSALS

At this point you should have received your 93.2 proposals from AMC. **DO NOT enter the 93.2 proposals into the SBIR-PC software package.** As the proposals were coming in, BRTRC immediately entered all of the Appendix A's into SBIR-PC. If you have already entered all of your Appendix A's for 93.2 into the software package, you will have to delete them and merge the Appendix A's which were entered at AMC. This is done for integrity purposes.

With this newsletter, you should have received your Appendix A's for the 93.2 solicitation. Please follow the instructions enclosed with the diskettes for merging your Appendix A's into SBIR-PC.

If you have any questions or problems, please feel free to contact Terri Stafford.

ARMY PHASE III BOOK--VOLUME 3

We have sent letters to all of the award winning Phase II companies listed in the SBIR-PC database (about 500 companies). The letter contained a questionnaire which asked if the project had progressed to the Phase III level, and if so, if the company had any pictures of the Phase III project. The company could simply re-fold the questionnaire and send it back to BRTRC.

We have gotten a good response to these questionnaires. Companies are sending them back promptly, indicating the status of their project. When a company submits a questionnaire indicating that they have indeed progressed to Phase III, we send them a second letter, detailing the mission of the Phase III book, and explaining exactly what we need from them to publish their project in Volume 3.

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We have told the companies that we would like their information within the next three weeks, so we can begin organization and design of Volume 3.

We have also received a good response from the individual field offices, so we should have a lot of different material in the new Volume. If you have any more information on Phase III companies, or commercialization updates, please do not hesitate to forward them to Terri Stafford.

We'll keep you updated about the progress of this book, and we'll let you know once it's been published!

COMMENTS OR QUESTIONS?

GERRY SANZ
703-205-1521

TERRI STAFFORD
703-205-1529

FAX
703-204-9447

FUNDING QUERY DEFINE

New to Version 3.11 is the ability to query on funding information when in the Awards Module. To access Funding Query Define select Tools from the Top Line Menu, then select Query Define from the Tools pull down menu. Once in the Query Define Screen, press <Alt+F> to access the Funding Query Define dialog box. The Funding Query Define dialog box contains all of the fields you normally use within the Funding Dialog box. You can develop a query set defined by any of the available funding information including "FY", "Amount", "Funding Source" and "Funding Type". To query on a funding item, simply fill in one of the blanks. (Don't forget to use the TAB key to move from field to field)

FY: Enter the fiscal year (i.e. 93)

Amount: Enter a dollar amount (i.e. 50000)

Funding Source: Enter S for SBIR or M for Mission money

Funding Type: Enter P for Planned, C for Committed, or O for Obligated

The Funding Query Define works exactly the same as Query Define. In fact, the two work together so that you can query on item(s) in the Query Define and in the Funding Query Define at the same time.

To define a funding query, press <Alt+F>, enter the data you would like to search for, and press <F10>. The funding check box, at the bottom left corner of your screen, conveys whether or not a Funding Query has been defined. If defined, the box will be checked. Once back at the main Query Define screen, press <F10> again to run the query. Now it's possible to query on FY93 money, or Mission money!

The documentation will be updated to reflect these changes. You will receive a new chapter for the documentation sometime at the end of October (at the National SBIR Conference in Washington D.C. if you attend!)

If there are more new features that you know you would use, please let Terri Stafford know so that we can see if the feature you want can be implemented into the program!

VERSION 3.11

Packaged with your 93.2 Appendix A diskette is a small update to the SBIR-PC software program. This update upgrades SBIR-PC to Version 3.11. In Version 3.11, BRTRC has tried to respond to the questions and problems reported to us by the users. So, Version 3.11 should fix several of the problems that have been reported to BRTRC. The good news is that Version 3.11 also contains a new feature to the program—the funding query. An article explaining the funding query appears in this issue of the SBIR-PC newsletter.

Therefore, keep the comments and questions coming. We are trying to respond to your requests as soon as possible in the hopes that we will create the best software package for your needs.

Watch for future updates of the program which will include such features as:

- ▲ A report writing utility, so that you can write your own reports to use within the program.
- ▲ An archiving utility, so that you can archive and save data you no longer want or need.

NATIONAL SBIR CONFERENCE

A federal R&D conference sponsored by the National Science Foundation and Department of Defense in cooperation with all SBIR federal agencies and Departments will be held in Washington, D.C. from October 13 to October 15. The conference and lodging will be at the Hyatt Regency-Crystal City in Arlington, VA. Special rates are guaranteed until September 29.

The conference will focus on (1) increased R&D opportunities for small, high-tech firms in the \$700 million SBIR budget; (2) the commercialization of SBIR R&D into products for private and government sector markets, and (3) opportunities under the new Small Business Technology Transfer Research (STTR) program.

SBIR/STTR Program Managers and other R&D and procurement experts from 18 Federal departments and agencies will be on hand to help small business attendees to identify markets, write better proposals, improve their government accounting systems, and succeed as competitor awardees. Key personnel from more than 30 Fortune 500 companies also will be at the conference looking for technologies.

If you don't have an opportunity to attend the October conference, there are two other ones over the next 8 months. These conferences are in Seattle, WA, November 15 thru 17, and next year in Houston, TX, April 26 thru 28.

On the morning of the 13th, at 9:30 a.m., Mr. Bob Wrenn will be hosting an open forum for all SBIR Points of Contacts. Please come join us!

DO YOU USE A SCANNER?

For more information on the benefits of a scanner, call 1-800-368-3683. This is a toll-free number. You can also write to: **BRTRC**, 10000 **BRTRC** Drive, **BRTRC**, VA. **BRTRC** is a not-for-profit organization. **BRTRC** is a 501(c)(3) organization. **BRTRC** is a 501(c)(3) organization. **BRTRC** is a 501(c)(3) organization.

HELPFUL HINTS & SUGGESTIONS

- ▲ Speed Search. When using Goto, the speed search is much quicker than using the arrow keys to move around. For example, if you are indexed on topic #, to find topic "A93-112", just start typing this topic #. When you type in "A93" it will automatically send you to the first topic beginning with "A93" (A93-001). If you then type in the next number, "A93-1", it will send you to A93-100, and so on. This works for all types of indexes.
 - ▲ Don't call up SBIR-PC when Windows is running! You will get a warning message, "Warning: Windows is in memory...", when you first initialize the program. Running Windows has caused the Data Transfer function to improperly function and has the potential to create a host of other problems. So PLEASE, exit to a DOS prompt before starting the program.
 - ▲ When creating a query and entering information in a field, make sure that you press <Enter> BEFORE proceeding to the next field or doing any other function (such as ALT-S). This ensures that the field is activated (highlighted in yellow).
 - ▲ If you receive the error message "Error 8101: ...", or any other "8000" error message, DON'T PANIC. Run "Complete Rebuild" which is found in Utilities-Database Repair Menu; this will take a few minutes. If the error continues, call BRTRC.
- PLEASE CALL BRTRC IF ANY ERRORS OCCUR!**

September 1993

SBIR Deadlines and Events

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
			1	2	3	4
		<p>SEPTEMBER DATA DUMP</p> <p>This data dump should include any new awards and any funding changes or modifications.</p> <p>DO NOT enter the 93.2 Appendix A's into your database. All Appendix A's were entered at AMC as the proposals were received. A diskette containing all of your Appendix A's is enclosed with this newsletter, with a set of instructions for merging the new proposals into your database.</p>				
5	6				10	11
	Labor Day				DATA DUMP DUE TO BRTRC	
12	13	14	15	16	17	18
			93.2 Appx A's Due to DoD			
19	20	21	22	23	24	25
			First Day of Autumn			
26	27	28	29	30		

BRTRC HAS MOVED !!!

Our New Address Is:

8260 Willow Oaks Corporate Drive

Suite 800

Fairfax, VA 22031

Our New Phone Numbers Are:

Terri Stafford: (703) 205-1529

Gerry Sanz: 703-205-1524

FAX: 703-204-9447

Bulletin Board (BBS): 703-204-9266

SBIR-PC



October 1993

PRODUCED BY THE ARMY SBIR PROGRAM MANAGEMENT OFFICE

Volume 4 Issue 9

CALL FOR TOPICS

-- 94.2

Soon you will be asked to submit topics for the 94.2 Solicitation Book. Once you receive this call for topics, you must enter all of your proposed topics into SBIR-PC for review. Below is an explanation of the information you will need to enter into the Topics Module in SBIR-PC. There is also an in depth explanation of the Topics Module in your SBIR-PC User's Guide.

A proposed topic is a topic that you are proposing for publication in the next solicitation book. These topics can only be found while in the Proposed topics mode. You must only enter proposed topics while in the Proposed mode.

An approved topic is a topic that has been approved for publication in a solicitation book. These topics can only be found while in the Approved topics mode. Approved topics are sent to you for incorporation into your database. If you enter a proposed topic while in the Approved topics mode it will not be transferred out of the program and cannot be reviewed for publication in the solicitation book.

The information described below covers both Proposed and Approved topics. Not all information fields will appear in both modes; some information is specific to a proposed topic, and some information is specific to an approved topics.

Topic #: Each topic has a unique topic number.

Proposed topics have a topic number that consists of the three letter Service ID and a three digit unique number (AAA-000) This number is used to distinguish one topic from another while the topic is still proposed. This number is generated for you using the Installation Control Variables you identified in Utilities under Control Data. Before you begin entering proposed topics, you must go into Installation Control Variables and set your Next Topic Number to 1.

Service ID (SID): The 3-digit ID that SBIR-PC uses to identify the Command, i.e. CEC for CECOM.

Solicitation This field is the Solicitation in which the topic is published For example, 94 2

-- continued on Page 3 --

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Hope to see all of you at the SBIR Conference in Crystal City. Feel free to bring any questions or problems you might be having; we should have time to answer them.

-- Terri

COMMENTS OR QUESTIONS?

GERRY SANZ
703-205-1521

TERRI STAFFORD
703-205-1529

FAX
703-204-9447

ADDING TOPICS WITH THE NEW ASCII IMPORT

Quite often, proposed topics for an upcoming solicitation book are written by an engineer or scientist and are submitted to the SBIR point of contact. SBIR-PC Version 3.0 can now import files that the engineers and scientists type into a standard ASCII format. The format that the engineers and scientists must follow is described in detail below.

Select **Add** from the Top-Line Menu.

Select **ASCII import** from the pull down menu.

At the **Select a File** dialog box, indicate where the ASCII file is located and what the file name is. To do this, type in the full path name at the File Name field, for example:

The topic will be pulled into a text editor, and you will be asked to verify the contents. Once you are satisfied with the topic, press <Ctrl+Enter> to add the topic into the database.

ASCII FORMAT

File Format: The proposed topics documents submitted to the SBIR point of contact must be in ASCII (.TXT) format. The topic may be typed into any word processor, as long as the document can then be exported to an ASCII text file. Some word processors, such as WordPerfect, call this a DOS-TEXT file. The SBIR-PC software is not designed to recognize any other file format. The documentation for most software packages will describe the steps required to save a document in ASCII format.

Only One Topic Per File: Each topic must be saved in a separate ASCII text file. You cannot have two or more topics in the same file.

The First Line of the File: The first line of this file must contain the phrase **SBIR TOPIC** or else it will be rejected by the SBIR-PC import utility.

The Topic Information: Each piece of topic information must be prefaced with the correct line header. An exact example of how the file needs to look is shown below.

Line Headers: The line headers should each appear on a line of their own (with the exception of **OBJECTIVE:**, described below) with the associated topic information entered immediately on the next line. It is important that these header lines each end with a colon (':')

Extra Topic Information: Sometimes it is necessary to submit information for a topic that does not fall into any of the eight categories used by SBIR-PC. You can submit that information in this file to your SBIR point of contact. To do so, enter the phrase **END OF TOPIC** after the narrative/keywords section. Make sure that **END OF TOPIC** appears on its own line. Anything entered below this line will be ignored by the SBIR-PC software.

ASCII EXAMPLE

Below is the layout for the topics' import file. The topic information must appear on the line immediately below the Line Header.

SBIR Topic

(This is the required file header, it must appear on its own line at the very top of the file.)

Technical Point of Contact:

Usually the Author and Proposal Evaluator.

PHONE:

Phone Number of the Technical Point of Contact. 9999 format.

TITLE:

The title may use multiple lines, however, please limit the title to 150 characters.

CATEGORY:

This will be a number between 1 and 4. The accepted categories are:

- 1 = Basic Research
- 2 = Exploratory Development
- 3 = Advanced Development
- 4 = Engineering Development

DOD CRITICAL TECHNOLOGY AREA:

This will be a number between 1 and 11. See the reference sheet in Appendix D, Reference Pages for acceptable values. ENTER ONE.

SERVICE CRITICAL TECHNOLOGY AREA:

This will be a number between 1 and 11. See the reference sheet in Appendix D, Reference Pages for acceptable values.

OBJECTIVE: Start narrative text on this line! Separate paragraphs with blank lines!

So, the next paragraph would start here.

KEYWORDS:

Each keyword **MUST** appear on its own line! Each line is limited to 40 characters.

END OF TOPIC This Line Header is optional. It should only be used for data which does not need to be entered into SBIR-PC.

— continued from Page 1 —

Command: The eight digit acronym used to identify the Command, i.e., ARDEC.

Category: The Category field must be filled in; if you try to leave it blank a window will appear prompting you to pick from the four choices listed. You may also press the <F3> key when on this field to select from a list of available categories

TPOC: The technical point of contact for this topic.

Phone: The phone number for the technical point of contact for this topic.

DTIC Subject: The Subject field is a two digit numerical code for the general subject area of the topic. This field must be filled in; if you try to leave it blank a window will appear prompting you to pick from the list of subject fields. You may also press the <F3> key when on this field to select from a list of available subjects.

DoD Crit. Tech: Each topic should correspond to one of DoDs Critical Technologies. To access a list of available critical technologies, press <F3> when on this field, and choose the critical technology which best corresponds to the current topic. The list also appears in the User's Guide in *Appendix D, Reference Pages*.

Svc. Crit. Tech.: Each topic should correspond to one of your Service's Critical Technologies. To access a list of available critical technologies, press <F3> when on this field, and choose the critical technology which best corresponds to the current topic. The list also appears in the User's Guide in *Appendix D, Reference Pages*.

Title: The full title of the current topic. When you have finished entering the title, press <Enter> to move to the next field.

Priorities: The Priorities field allows you to prioritize your topics. These fields do not necessarily have to be filled, the Program Manager will notify you if you need to prioritize your proposed topics.

Directorate: If the lab is in charge of several directorates, those directorates can prioritize their topics individually, using the Directorate field, exclusive of the lab prioritization.

Lab: This field allows the individual labs to prioritize their topics.

Service: Once the Program Manager has approved the topics, the Service priority field will be filled in solely as information. You do not need to modify or fill-in this field.

Org. Topic #: This field appears in the Approved Topic Mode. It serves as a reminder of the proposed topic number that was previously assigned to this approved topic.

ERRORS

If you are working in SBIR-PC, and a red line appears at the bottom of the screen, please follow these instructions:

1. Write down the error in its entirety, and make a note of what you were doing when you received the error, i.e. entering abstracts, paging down through the Goto screen etc.
2. Press ENTER. Sometimes the errors are only a warning to let you know what is going on within the program. Once you have pressed Enter, please look-up the error code in Chapter XIII of your User's Guide. If you do not understand exactly what is going on, please call Terri Stafford at BRTRC and she will try to explain the situation. In most cases it is safe to continue working. However, if you ever receive an error code in the 8000s (i.e. 8010, 8200) please move into the Utilities Module, select Database Repair System, and perform a Complete Rebuild.

ERRORS

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October 1993

SBIR Deadlines and Events

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
					1	2
3	4	5	6	7	8	9
10	11 COLUMBUS DAY HOLIDAY	12 DATA DUMP DUE TO BRTRC	13 SBIR CONFERENCE CRYSTAL CITY		15	16
17	18	19	20	21	22	23
24 UNITED NATIONS DAY	25	26	27	28	29	30
31 HALLOWEEN DAYLIGHT SAVINGS TIME ENDS						

SBIR-PC



December 1993

PRODUCED BY THE ARMY SBIR PROGRAM MANAGEMENT OFFICE

Volume 4 Issue 10

WELCOME! SUSIE SEAL

BRTRC would like to welcome its newest Employee, Susie Seal. Susie was previously at the Belvoir Research, Development, and Engineering Center, so some of you may already know her. She is an expert with databases and the SBIR-PC software program, which is wonderful, since she will be working with SBIR-PC and the Army database.

In order to contact Susie, please make a note of the following information:

Phone number: (703) 205-1571

FAX number: (703) 204-9447

Mailing address: 8260 Willow Oaks Corporate Drive, Suite 800, Fairfax, VA 22031. If you mail in your monthly data dump, you should now send the diskette to BRTRC, ATTN: Susie Seal, however, if you send your monthly data dump through MCI mail, continue doing so as you do now.

Susie will be available to answer questions about the software program, the database, upcoming deadlines, or DoD reporting requirements. Terri and Gerry will still be around to help and answer questions, but please try and contact Susie first, since she will be monitoring the main Army database. So, the next time you call BRTRC, call Susie and introduce yourself so that she can get to know all of you!

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SEASONS GREETINGS FROM BRTRC



COMMENTS OR QUESTIONS?

GERRY SANZ
703-205-1521

TERRI STAFFORD
703-205-1529

SUSIE SEAL
703-205-1571

FAX
703-204-9447

BACKING UP SBIR-PC

Backing up your database periodically is always a good idea. You never know when your computer may give out on you, and no one wants to lose information that is stored on their hard drive.

There are several ways to back up SBIR-PC. You may do a complete back up where you back up everything that is in the SBIR3 directory. This will allow you to restore the entire program. You may also back up just the data. This alternative would take less time and therefore you may choose to backup your data on a daily basis. Follow the instructions below to back up the SBIR-PC program using the DOS Backup command. Be sure to have several formatted floppy diskettes handy (at least 5 if you back up the entire system). DOS will prompt you for a new floppy disk as needed.

All examples assume that the SBIR-PC program resides in the SBIR3 directory on your C: drive and that you are backing up your files to the A: drive.

BACKING UP THE ENTIRE PROGRAM

- ▲ Enter the command to backup the SBIR3 directory and all subdirectories located in the directory.
C:\>BACKUP C:\SBIR3*. * A: /s
- ▲ DOS will backup everything that is in the SBIR3 directory, in addition to the subdirectories because the /s switch was included.

BACKING UP JUST THE DATA

- ▲ Enter the command to backup the SBIR3\DATA directory
C:\>BACKUP C:\SBIR3\DATA*. *
- ▲ DOS will backup everything that is in the SBIR3\DATA directory.

If the need ever arises (hopefully not) to have to restore your data, use the DOS Restore command. For more information on either the Backup or Restore command consult your DOS manual.

NEWS FROM OSD

NOVEMBER 1993

It has come to the attention of the OSD office that some activities are not using the proper distribution statement on unclassified SBIR documents. The small business owns the data rights to their SBIR project, not the government. However, the government has the right to use the data. Therefore, the distribution statement on unclassified documents that contain proprietary data should refer the requestor of the document to the small business who will decide whether or not to release the data. Below are instructions from the SBIR Solicitation on reports and distribution statements.

5.3 Reports

a. Contents

A final report is required for each Phase I project. The report must contain in detail the project objectives, work performed, results obtained, and estimates of technical feasibility. A completed SF 298, "Report Documentation Page", will be used as the first page of the report. In addition, Monthly status and progress reports may be required by the DoD agency. (A Sample SF 298 is provided in Reference D.)

b. Preparation

- (1) To avoid duplication of effort, language used to report Phase I progress in a Phase II proposal, if submitted, may be used verbatim in the final report with changes to accommodate results after Phase II proposal submission and modifications required to integrate the final report into a self-contained comprehensive and logically structured document.
- (2) Block 12a (distribution/Availability Statement) of the SF 298, "Report Documentation Page" in each unclassified final report must contain one of the following statements:
 - (A) Distribution authorized to U.S. Government Agencies only; report contains proprietary data produced under SBIR contract. Other requests shall be referred to the performing organization in Block 7 of this form.
 - (b) Approved for public release; SBIR report, distribution unlimited.
- (3) The report abstract (Block 13 of the SF 298, "Report Documentation Page") must identify the purpose of the work and briefly describe the work carried out, the finding or results and the potential applications of the effort. Since the Abstract may be published by the DoD, it must not contain any proprietary or classified data.

94.2 TOPIC SUBMISSION

Proposed Topics are due on December 15th. To ensure that everything goes smoothly, we have compiled the following check list. However, the check list may not answer all of your questions. There are several other references you can use to try and answer your topic questions. The October newsletter contains instructions for entering topics and using the new ASCII topic import feature. And, the SBIR-PC user's guide has an entire chapter on the Topics Module. If you still have questions, please feel free to call Terri Stafford.

TOPICS CHECK LIST

1. Set-up your SBIR-PC software program for the 94.2 solicitation. To do this, move into the Utilities Menu and select Control Variable. Select Installation Control Variables and set the fields to the following values:
Solicitation = 94.2
Next Topic Number = 1
2. Use the Proposed Topics Mode in the Topics Module. To check and see if you are currently working in the Proposed Topics Mode, look in the upper right-hand corner of the screen, it should say PROPOSED. If it says APPROVED, select Mode from the top line menu, and select proposed topics.
3. Delete all past proposed topics. You should only keep 94.2 proposed topics in the Proposed Topics Mode. Any previous proposed topics that were approved for a previous solicitation now exist in the Approved Topics Mode as approved topics.
4. Enter all of your proposed topics. Make sure that each proposed topic is complete; all fields on the screen should be filled-in, keywords should be filled in, and the topic narrative should contain an objective, a description, a Phase I explanation, a Phase II explanation, and a Potential Commercial Market description.
5. Once all topics have been entered, prioritize your topics. Be sure to use the correct priority level--all ARL directorates should use the Directorate priority level, everyone else should use the Lab priority level.
6. Transfer out your data. Move into the Utilities Menu, and select Data Transfer Options. Use the Transfer Data to Management Office option. Please make sure that the date you enter to Transfer Data On or After is an early enough date so that we receive all of your topics! For example, if you think you started entering

your topics on November 25th, set the date to November 1st to make sure that we get everything!

7. Send the transfer file to BRTRC. Feel free to use modem or mail. BRTRC will send you a FAX to confirm the topic numbers and titles.

That's all there is to it! Once again, if you have any questions or problems, please feel free to call BRTRC.

AWARDS FROM OTHER COMMANDS

When you award a Phase I or Phase II from another command be sure to change the Command Field to reflect that your command has made the award. The Command field is located in the upper right hand corner of the screen and is labeled CMD. This field is protected so that it cannot accidentally be changed, in order to change the Command field you must first turn the protection off. To do so, follow the instructions below:

- ▲ Select TOOLS from the top-line menu
- ▲ Select OVER-RIDE PROTECTION from the pull-down menu
- ▲ Move to the CMD field and enter your Command

The database will now reflect the Command which awarded the contract.

December 1993

SBIR Deadlines and Events

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
			1	2	3	4
5	6	7	8	9 First Day of Hanukkah	10 DATA DUMP DUE TO BRTRC	11
12			15 PROPOSED TOPICS DUE TO BRTRC	16	17	18
19	20	21 FIRST DAY OF WINTER	22	23	24	25 <i>MERRY CHRISTMAS</i>
26	27	28	29	30	31 <i>new year's eve</i>	

Things to look forward to in the new year:

- ☺ An update to the documentation!
- ☺ An SBIR-PC training session at BRTRC!
- ☺ A new Army Phase III Book!
- ☺ Guest columnists in the SBIR-PC Newsletter!
- ☺ Army SBIR brochures that you can hand out!



THE ANNUAL REPORT

It's time to compile the information for this year's annual report! The requirements are the same as they were last year. We request that you send the information to BRTRC by January 10th. To complete the required information as efficiently and effectively as possible, please follow these procedures:

- 1 Compare your field office's Four Year Funding Report to your own list of obligated FY93 funds. The Four Year Funding Report for your field office is included with this newsletter. This is a preliminary report that includes all the awards that BRTRC has received so far from each field, including the FY93 funding data collected for each.
- 2 Enter any missing information into SBIR-PC. All awards that have FY93 obligated funds will require the following information:

Award Information:

- ✓ Fiscal Year Reported
- ✓ Award Amount
- ✓ Contract Number
- ✓ Start Date
- ✓ End Date

Funding Information:

- ✓ Fiscal Year of Dollars
- ✓ Amount (\$) of Funding
- ✓ Planned/Obligated
- ✓ SBIR/Mission Money

[** Remember that all funding information can be accessed from Awards-View-Funding in SBIR-PC]

- 3 Send the updated database information to BRTRC using the Data Transfer to Management Office function found in the Utilities Module. You can either send the SBIRXFER.LZH file by diskette, through MCI Mail, or to the SBIR BBS. Please call BRTRC if you decide to send via BBS, so that the file can be retrieved and accounted for.

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Upon receiving your data, BRTRC will check this data, BRTRC will check this data against Mr. Forry's funding allocations. A final Detailed Funding Report including all FY93 funding information will be sent to each field office for final review.

- 4 Once you receive the Detailed Funding Report, review it carefully for verification of its accuracy, and notify BRTRC regarding final approval of this report.

Feel free to call Susie Seal with any questions. Good Luck!

COMMENTS OR QUESTIONS?

GERRY SANZ
703-205-1521

TERRI STAFFORD
703-205-1529

SUSIE SEAL
703-205-1571

FAX
703-204-9447

1994 SBIR SCHEDULE OVERVIEW

This schedule has been provided as an overview of SBIR reporting requirements and events for the upcoming year. **All items in bold should be included in your monthly data dump.**

All other items are included for your information. More information on these items will be included in the monthly newsletters.

JANUARY

- **FY93 Funding Data**
- **Appendix B's for all Awards**
- **Contract/funding data for all FY93 Awards**
- *SBIR 94.1 Solicitation closes*

FEBRUARY

- **SBIR Award Justifications**
- **94.2 Topic References for DTIC**
- **Phase III awards (we are going to start tracking Phase III awards in the database)**
- **Topic Technical Review Completed**

MARCH

- **94.1 Phase I Appendix As for all proposals received (it is possible that we will be sending these to you)**

APRIL

- **Any changes in funding information**
- **Any new approved awards**
- *SBIR 94.2 Solicitation opens*

MAY

- **Any changes in funding information**
- **Any new approved awards**

JUNE

- **Any changes in funding information**
- **Any new approved awards**
- **94.1 Phase I Selections**

JULY

- **94.1 Phase I Appendix Bs for selected/awarded proposals**
- **95.1 Solicitation Topics**
- *SBIR 94.2 Solicitation closes*

AUGUST

- **Any changes in funding information**
- **Any new approved awards**

SEPTEMBER

- **94.2 Phase I Appendix As for all proposals**

OCTOBER

- **Any changes in funding information**
- **Any new approved awards**
- *SBIR 95.1 Solicitation opens*

NOVEMBER

- **FY94 funding data for on-going Phase II projects**
- **94.2 Phase I Selections**

DECEMBER

- **Any changes in funding information**
- **Any new approved award**

FUNDING REPORTS MENU

On the first page of the newsletter, we mentioned using different SBIR-PC reports to help you verify the data in your database. Below is a general description of the different reports that might help you complete the annual report. All of these reports can be found in the Awards module. Select *Reports* from the top-line menu, and then select *Funding Reports Menu*; you now have access to several different reports that use the funding information within the database. Try out some of these reports, see how they work, try printing them, and then try using during the annual report drill. If you have any questions about any of the reports feel free to call Susie Seal.

DETAILED FUNDING REPORT

The Detailed Funding report prints funding information for each award. This report will adhere to the current query. The Detailed Funding Report includes the phase, firm, title, solicitation number, topic number, contract number, start and end dates, fiscal year of funding, fund amount, mission or SBIR, and whether it is planned, obligated, or committed. This report was designed to be 155 characters wide.

FOUR-YEAR FUNDING SUMMARY

The Four-year Funding Summary report prints funding information for all the records in the database. This report will adhere to the current query. This report prints the topic number, phase, firm, title, four years of funding, the award amount, start and end dates, and

the contract number. The report will ask you which fiscal year it should use to begin the four years of funding. The report will the sum all of the columns. The Four-year Funding Summary was designed to be 220 characters wide.

TOTALS BY YEAR

The Totals by Year report totals all the funding in the database by years. This report lists the fiscal year, the SBIR Money total, and the Mission Money total.

For example:

FY	SBIR Funding	Mission Funding
84	3,121,657	0
85	7,312,216	0
86	11,717,329	0
87	14,319,292	0

COST JUSTIFICATIONS

The Cost Justifications report prints the cost justifications for the records in the current query. Therefore, it is suggested that you first run a query based on Phase and Cost Justifications not equal to a blank field.

This report lists the firm's address, phase, award amount, the topic number, control number, and cost justification for each record in the query.

For example:

AdTech Systems Research, Inc.
Phase: I Amount: \$59059
1342 N. Fairfield Road
Dayton, OH 45432 Topic #: AF92-016

Ctrl #: 92AFO-032

Justification:

The contract cost is reasonable and necessary to ensure the performance of a quality investigation of the proposed idea.

SBIR-PC SURVEY

We are conducting this survey in order to find out more about your equipment, your needs, and your suggestions. We need as much feedback and information as possible in order to best assist you with the SBIR program and with SBIR-PC. Please complete this survey at your convenience and FAX it back to Terri Stafford at (703) 204-9447.

Equipment

- Exactly what type of computer do you have? (i.e. Unisys 386/25, Gateway 286/16, etc.)

- What is your printer make and model? Do you access your printer through a network?

- Do you have access to a modem? If so, what speed is it? (i.e. 2400 baud) And, what modem software do you use? (i.e. ProComm)

- Is your computer on a local area network(LAN)? If so, what kind? Who is your Network Administrator?

- What size floppy disk do you prefer for receiving updates, etc.?
(Please circle one)
5 1/4" or 3 1/2 "

The SBIR Program

- Do you find all of the information you need about the SBIR Program in general in the SBIR-PC newsletter?

- What other sorts of articles would you like to see in the newsletter?

- Are there any other booklets or brochures, like the Phase III Book, that you would like to see created in relation to the SBIR Program?

SBIR-PC

- Are there any new features that you would like to have in SBIR-PC?

- How many times a month do you use SBIR-PC? Once a month? Once a week? Once a day?

- Would you use a Window's version of SBIR-PC?

- Would you use a Macintosh version of SBIR-PC?

- If BRTRC hosted an SBIR-PC training conference here in Fairfax, VA, would you attend the conference? For one day? For two days?

- Please give any comments about the SBIR-PC program.

January 1994

SBIR Deadlines and Events

						1 New Year's Day
2	3	4	5	6	7	8
9	10 DATA DUMP DUE TO BRTRC	11	12	13	14	15
16	17 MARTIN LUTHER KING, JR. DAY	18	19	20	21	22
23/30	24/31	25	26	27	28	29

Read the first page of this newsletter carefully! Make sure you have included all of the necessary information for the annual report!

9 4 . 2
TOPICS
UPDATE

All of the 94.2 Topics are currently in the hands of the Technology Area Chiefs, and as soon as we have any information we will pass it on to you.

Susie had a wonderful time getting to know all of you, and she says that everyone did a great job getting all of the information to her as quickly as you possible could.

Thank you for making the transition between Army SBIR database representatives an easy one!

SBIR-PC



February/March 1994

Produced by the Army SBIR Program Management Office

Volume 5 Issue 2

94.2 APPROVED TOPICS

The Army has submitted 100 topics for the 94.2 solicitation. You should already have received a listing of the topics which were approved for publication. If you have not yet been notified which topics were approved, please call me, Terri Stafford, and I will FAX you a list of topics.

Now that the topics have been submitted for publication, I will be sending you a diskette containing all of your approved topics. You will be able to merge the approved topics directly into your database from this diskette. You should expect the diskette and a letter of instruction no later than the end of March. If you have any questions, please feel free to call me.

FY1993 ANNUAL REPORT

The Annual Report that the Army must submit to DoD and the SBA is complete. The following is a general breakdown of the statistics we reported for the Army:

Number of Phase I awards: 288

Phase I dollars obligated: \$14,589,045

Number of new Phase II awards: 124

New Phase II Dollars Obligated: \$25,834,386

Number of on-going Phase II awards: 199

Phase II dollars obligated: \$38,369,183

Now that the hard work is done, we have a few pieces of information that we must fill in for the SBA. Attached to this newsletter is a report detailing all of the contracts the Army is reporting as funded in FY1993. We must fill in any missing contract numbers, start dates, end dates, or abstracts. To determine whether or not we are missing one of these pieces of information, please look in the corresponding column. In the abstract column, you will find the first couple of words in the abstract, if the column is blank, we are missing that abstract. Please fill in any of the missing information right on this report, and FAX it to Terri Stafford. Also, please be sure to enter all of the missing information into your database!

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WHO IS YOUR POINT OF CONTACT?

Unfortunately, Susie Seal has changed jobs, and she is now with another company. No, you did not scare her off; her commute was too long.

So, you are are stuck with me! We will go back to our old routine—feel free to call me with questions, comments, etc., and, you can expect a call from me soon!

Thank you -- Terri Stafford

COMMENTS OR QUESTIONS?

GERRY SANZ
703-205-1521

TERRI STAFFORD
703-205-1529

FAX
703-204-9447

SBIR CONFERENCE IN HARPERS FERRY

The annual DoD SBIR Program Conference will be held April 6-7 at the Cliffside Inn and Conference Center in Harpers Ferry, West Virginia. The meeting will start at 8:30 a.m. on April 6, 1994, and end at 4:30 p.m. on April 7, 1994. For all those who are interested, there will be an informal reception at 6:00 p.m. on April 5, 1994. Below is some detailed information about the Conference.

An agenda of the meeting will be available to all participants at the beginning of the meeting. So far, all we know is that the first day of the conference will be dedicated to separate service meetings, and the second day will be a general session of all services and chaired by OSD. Changes to the DoD SBIR program management and implementation will be addressed and discussed.

For more information please call the Army SBIR program office at AMC, (703) 617-7425 or FAX (703) 274-8274.

WELCOME TO HARPERS FERRY, WEST VIRGINIA

Harpers Ferry, West Virginia is approximately 60 miles outside of the Washington D.C. area. During the Civil War, Confederate General Stonewall Jackson captured the largest number of Union prisoners at Harpers Ferry (12,500). Most of the town is now Harpers Ferry national monument.

There are many attractions in and around Harpers Ferry; you should find plenty of things to do when the conference is not in session.

OUTDOORS

Those of you who enjoy the outdoors might want to hike on the Appalachian trails, or visit the Harpers Ferry National Park or Skyline Drive. There are also a variety of places to go fishing, boating, or golfing.

HISTORY

If you want a taste of Harpers Ferry's history, you might enjoy the Jefferson County Museum and Courthouse, Antietam Battlefield, historic Shepherdstown, or the Chesapeake and Ohio Canal National Monument.

SHOPPING

If you are in the mood to shop, you may want to visit the Tanger Outlet, the Blue Ridge Outlets, or any of the number of antique shops located in Harpers Ferry.

RACING

Those of you who want a little more excitement might want to visit the Summit Point Speedway for sports car racing or the Charles Town Race Track for horse racing.

SBIR-PC Training Seminar at BRTRC?

BRTRC is contemplating having a training seminar at the BRTRC headquarters in Fairfax, Virginia. Groups of around 10-15 people would meet for hands-on training using SBIR-PC. Each group would be led by an instructor with other instructors there to offer guidance if you need on-one help in a particular area.

Areas covered would include basic data entry, queries, expanded queries, and reports. Other areas will be covered as requested.

If you think you may be interested in attending a Training Seminar, and you have not already sent back your January questionnaire, please contact Terri Stafford. If there is enough interest, BRTRC will arrange for these seminars.

PRINTING FROM WITHIN SBIR-PC

Are your reports not printing correctly? Is some of the information missing? These problems are usually easy to solve if you know how to set-up your printer.

When you print from a program like Word Perfect, the software program tells the printer how it should print the information. However, when you print from SBIR-PC, the software depends on you to set-up your printer in order to print the information. Therefore, when a report is not printing correctly, you must make sure that SBIR-PC and your printer are set-up correctly.

SBIR-PC

When printing a report from SBIR-PC, you define your report format from within the **Page Layout Dialog Box**. Once you have specified the report destination, the dialog box will appear, asking you to fill in some information. Take a minute to think about the report you are printing before filling in this information. Does the report have a lot of columns? You may want to print it landscape. Is the report going to be very long? You may want to use the maximum amount of lines on a page.

PAGE DIMENSIONS

Width: This number specifies how many characters will be printed across the page. A Portrait page has between 88 and 132 characters; Landscape has between 132 and 220 characters.

Height: The number specifies how many lines will print on the page. A Portrait page can have around 66 lines; Landscape page can have around 45 lines.

MARGINS

Top and Bottom: This number specifies the number of blank lines at the top and bottom of the page. For example, *Top: 5* would leave 5 blank lines at the top of each page.

Left and Right: This number specifies the number of blank characters on the left and right side of each line. For example, *Left: 5* would leave 5 blank spaces to the left of each line.

THE PRINTER

All printers are different, so I can not give you precise instructions. However, I here are some general guidelines for you to follow when you are trying to print a report.

Your printer should have a panel of buttons which give you access to option menus and printer functions. For example, if you have an HP Laser Jet III, you use the **MENU** button to scroll through different options, the **+** and **-** buttons to change your selections, and the **ENTER** button to save your choices.

By using buttons such as these on the front of your printer, you should find that you have access to things like orientation, font, and lines per page. These are the settings you need to work with in order to get your reports to print correctly. If you are having

trouble finding any of these options, or even the printer selection buttons themselves, please refer to your printer's manual.

ORIENTATION

This simply specifies Portrait mode or Landscape mode.

FONT

The font you choose tells your printer the size and shape of the characters it prints on the page. For all SBIR-PC reports, you want to use a non-proportional font such as Courier or Line Printer; these fonts are measured in Pitch or Characters per Inch, so they always print a set number of characters within an inch. Using these fonts makes it is easy to calculate how many characters you can print across the page.

For example, if the Pitch is 12, your paper is 8.5" wide, and you have a .25 inch margin on both sides, you know that you will get 96 characters across the page. The calculation are shown below

$$\text{Paper width} - \text{margins} = \text{Width of print area} \quad 8.5 - (.25 \times 2) = 8$$

$$\text{Width of print area} \times \text{characters per inch} = \text{characters across the page} \quad 8 \times 12 = 96$$

Make sure you specify this width within the SBIR-PC Page Layout Dialog Box!

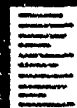
LINES PER PAGE

This number is determined by the orientation of the paper. For Portrait, you normally have 66 lines. For Landscape, you normally have 45 lines.

Make sure you specify this Height within the SBIR-PC Page Layout Dialog Box!

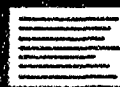
PORTRAIT:

Prints 8.5" x 11" on the paper (8.5" wide, 11" tall)



LANDSCAPE:

Prints 11" x 8.5" on the paper (11" wide, 8.5" tall)



MARCH 1994

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
	1	2	3	4	5	
6	7	8	9	10 DATA DUMP DUE TO BRTRC	11	12
13	14	15	16	17 St. Patrick's Day	18	19
20 Spring Equinox	21	22	23	24	25	26
27	28	29	30	31		

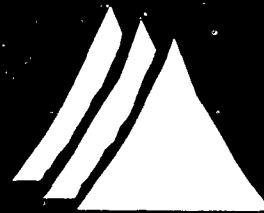
DATA DUMPS

Monthly data dumps are still around, however, fewer and fewer people are sending in their data. Please try to send as much data as possible to BRTRC on the 10th of every month. If you have not entered any data in your system since the previous data dump, please call Terri Stafford and let her know that there will be no data dump from you this month.

In your next data dump, please try to include any of the information requested in this newsletter (please read FY1993 Annual Report, and Hints and Suggestions). Our next big data requirement is not until June, so now is a good time to do some catch up work.

Thank you for your continued hard work and support.

SBIR-PC



April/May 1994

Produced by the Army SBIR Program Management Office

APPROVED TOPICS ENCLOSED

Enclosed please find a diskette containing your 94.2 Approved Topics. Please merge the approved topics directly into your database from this diskette. To merge data:

- Select Utilities from the Main Menu
- Select 6) Data Transfer Options
- Select Merge Options
- Insert the diskette into your disk drive, and Decompress the Merge File
- Perform the Merge
- Back at the Utilities menu, select Rebuild Database
- Perform a Complete Rebuild
- Your Approved topics should now be in the database

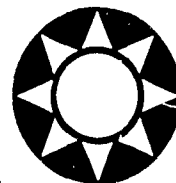
KEY TECHNOLOGIES

Some of the 94.2 Topics did not have assigned Critical or Key Technologies. Below is a list of the topics which were missing this information. If these topics belong to your command, please identify a critical or key technology for each, and enter the information into the database (in the approved topics module, in the approved topics you just merged into your database). Also, please call Terri Stafford with the critical or key technology so that she can report the information as soon as possible.

- | | |
|-----------|-----------|
| ■ A94-016 | ■ A94-056 |
| ■ A94-023 | ■ A94-064 |
| ■ A94-024 | ■ A94-070 |
| ■ A94-025 | ■ A94-081 |
| ■ A94-050 | ■ A94-082 |
| ■ A94-053 | ■ A94-083 |
| ■ A94-054 | ■ A94-084 |
| ■ A94-055 | |

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*Hope
You Are
Having a
Good
Spring!*

COMMENTS OR QUESTIONS?

GERRY SANZ
703-205-1521

TERRI STAFFORD
703-205-1529

FAX
703-204-9447

UPDATING THE COMMAND FIELD

Currently the Command field in the database is used to identify the managing command for the different proposals and awards. For example, if a proposal is managed by the Tank-Automotive Command in Warren, Michigan, the Command field is filled-in with TACOM.

Some Commands now have several different directorates who are responsible for different proposals and awards. Yet, it is sometimes still necessary to be able to identify the command as well as the directorate. For example, if a proposal is managed by the Vehicles Structures Directorate, who falls under the Army Research Laboratory, it is necessary to be able to identify both in the Proposals and Awards modules. Therefore, I have devised a system that I think make the database easier to use in all cases.

We will need to update all of the Command fields within the database. Below is a listing I have put together which identifies the old Command listing and the new Command listing you need to enter into the database. Please work through your database updating the Command field to reflect the new Command. Some of you will have no changes to make, while some of you may have quite a few. There is no huge hurry to get this done; however, it would be nice if it could be completed before the May data dump. If you are going to have a problem with this, please let me know and I will try to help you out.

Once all of the Command fields have been updated, it is imperative that you submit a data dump. This is the only way that I will be able to update my database so that it reflects the new Commands. I think that you will find that it is now easier to query on a small group of proposals and awards

Thank you for your continued support and hard work.

SPRING CLEANING

While you are going through the database and updating your command fields, now would be a good time to do a little "Spring Cleaning". As you move around check and make sure all of your data is current and accurate

- Are you aware of any firm names that have changed?
- Have any firms reported address changes?
- Always fill in as much information as possible as soon as possible. Have you received new contract numbers, or abstracts?
- Enter any modifications to current awards. If you need to update the funding, make sure you make a note in the Comment line that this is a modification.
- Use the General Comments section under the View menu to make notes about the current proposal or award. Is there more information you would like to keep track of, or notes you can make that will help you later? Have any modifications been made to this award?

OLD COMMAND	NEW COMMAND
AMSAA	AMSAA
AMC	AMC
ARDEC	ARDEC
ARI	ARI
ARL	ARL
ACISD	ARLACISD
BED	ARLBED
EPSD	ARLEPSD
HRED	ARLHRED
MD	ARLMD
S3I	ARLS3I
SLAD	ARLSLAD
VAL	ARLVAL
VPD	ARLVPD
VSD	ARLVSD
WTD	ARLWTD
ARO	ARO
AVRDEC	AVRDEC
CECOM	CECOM
AS	CECAS
NV	CECNV
SW	CECSW (etc.)
CERL	COECERL
CRREL	COECRREL
ERDEC	ERDEC
DDESB	DDESB
MEDICAL	MEDICAL
MICOM	MICOM
NATICK	NATICK
PMSDA	PMSDA
STRICOM	STRICOM
SDC	SDC
TACOM	TACOM
TECOM	TECOM
TMDE	TMDE
TOP	COETOP
AEC	AEC
TRADOC	TRADOC
WES	COEWES

MISSING PHASE IS

We have some Phase II awards in the database for which we cannot find a corresponding Phase I award. DoD would like to know what is going on; therefore, we need to find the corresponding Phase I information and get it into the database. Also, please call Terri Stafford and relay the information to her so that she can report it before the next data dump.

Below is the list of Phase II awards

93CER-046

Statistical Sciences, Inc.

Integrated GIS and Statistical Data Analysis System

47420

Genelabs, Inc.

Assay Development of Diagnostic Tests for Hepatitis B

92CRD-041

Microsensor Systems, Inc.

Miniature CW Agent Detector

88BRD-005

Los Alamos Technical Associates, Inc.

Electrolytic Water Disinfection Unit (EWDU) for the Reverse Osmosis Water Purification Unit

90ARD-002

Veritay Technology, Inc.

Ignition of High-Energy Density Charges-Solid Propellants

THANK YOU!

PHASE III INFORMATION

I don't see any new Phase III information in the database. Please do not forget to enter all of your Phase III information. We really need to track the commercialization of the SBIR projects, and it will really make the Phase III Book a lot easier to create. (In fact, if your Phase III company sends you an abstract about their success, please go ahead and enter it as an abstract in the Awards module. This way, we don't have to try and track down a write-up!)

NEW AND IMPROVED

A new and improved version of SBIR-PC is coming! By the end of the summer you will receive a substantially updated version of SBIR-PC, along with an update to the documentation. Here are some of the things you can look forward to:

REPORT WRITER

Create your own reports for SBIR-PC within the program! You will be able to set up your report with the information you want, in the format you want!

BUDGET MODULE

This new module will show you a funding summary for a given fiscal year! You will be able to enter your budget received for that year, as well as any money you sent or received from another command or service. The program then calculates your revised budget (total budget + money received - money distributed), and gives you a breakdown for Phase I dollars, Phase II New Start dollars, and Phase II On-going dollars. This module will make it for easy for you to see whether or not your budget is balanced for a given fiscal year!

IMPROVED SCREEN LAYOUT

We have revised the layout of the screens slightly to make it easier to find the funding data, abstracts, benefits, and keywords!

NEW FIELDS

We have added Technology Area and DoD Critical Technology Area to the Proposals Module and Awards Module. This will make it easy for you to track your Proposals and Awards based on the different technology areas. How many proposals did you receive dealing with computer software? You will now be able to answer that question in a matter of seconds!

CHANGES TO SBIR-PC

BRTRC is contemplating adding a status field to the Awards Module. We would like to get the users' input. Please complete the following questionnaire and fax it back to Terri Stafford as soon as possible, FAX (703) 204-9447. Thank You.

Name:

Organization:

The Awards Module screen containing the proposed Status field is shown on the right. The Status field would be similar to the Status field in the Proposal Module. It would be displayed in the upper right-hand corner of the screen. The field would be accessed by a pull-down menu on the top-line. The pull-down menu would contain the following choices:

- Negotiating New Start
- Active Ongoing
- Completed Suspended
- Cancelled

■ **Would this new field be helpful?**

- Yes No

■ **The status for all Awards would have to be entered into the database. Would this hinder you from using the new field?**

- Yes No

■ **Please circle the statuses that you would use and add any other status selections that you feel would be appropriate.**

- | | | |
|-------------|-----------|-----------|
| Negotiating | Active | New Start |
| Ongoing | Completed | Suspended |
| Cancelled | Other | |

■ **Please tell us how you would use this field (ie. reports, queries etc).**

APRIL 1994

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
					1	2
3	4	5	6	7	8	9
10 DATA DUMP DUE TO BRTRC	11	12	13 Thomas Jefferson's Birthday	14	15	16
17	18	19	20	21	22 Earth Day	23
24	25	26	27	28	29	30

DATA DUMPS

In your next data dump, please include the following:

- All information for awarded Phase I--Appendix A and B. (We know there are some--we need all of the information in the database, please.)
- Your new command fields--as explained on the previous page of this newsletter.
- The Critical and Key Technology codes for the topics listed on the previous page in this newsletter.
- Any known Phase III information

MAY 1994

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
1	2	3	4	5	6	7
8 Mother's Day	9	10 DATA DUMP DUE TO BRTRC	11	12	13	14
15	16	17	18	19	20	21 ARMED FORCES DAY
22	23	24	25	26	27	28
29	30 Memorial Day	31				

COMMENTS AND SUGGESTIONS

Please don't forget to keep telling us about your comments and suggestions.

We want to know what you think about the software, the documentation, the newsletter, everything.

- Would you use a "quick reference" version of the documentation?
- Are there any features that you would like in the software that do not currently exist?
- Do you like the newsletter calendar?

APPENDIX B
DOD SBIR DATA AND REPORTING REQUIREMENTS

**OSD SBIR REPORTING
REQUIREMENTS**

April 20, 1993

DoD SBIR Coordinator
OSD/SADBU, Pentagon Rm 2A340
Washington, D.C. 20301-3061
(703) 697-1481

OSD SBIR REPORTING REQUIREMENTS

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Annual Report Form
Award Justification Form

Data Schedule

GENERAL INFORMATION

This reference lays out the DoD SBIR Program data submission requirements for the DoD components -- Army, Navy, Air Force, Advance Research Projects Agency (ARPA), Defense Nuclear Agency (DNA), Strategic Defense Initiative Organization (SDIO), and U.S. Special Operations Command (SOCOM). Required information must be submitted in the format specified in this document, but may be in one of several forms: ASCII data files, WordPerfect files, printed reports, and memos. Carefully read each section in order to provide information in the proper form and format. Submission dates will be updated by OSD annually, and issued at least 30 days prior to the start of the fiscal year.

To quickly and efficiently merge data from the services and agencies, most of the data requirements are for ASCII files delivered on floppy disk (either 3½" or 5¼" diskettes, high density is preferred). Reporting formats are described in detail, with blank forms and examples, on the pages that follow.

ASCII data file formats have changed slightly due to new requirements introduced by the re-authorization law (P.L. 102-564) and the revised SBA directive (26JAN93). Specifically, they are:

- Phase II proposed cost, award amount, and fiscal year funding fields are 7 digits long.
- Phase I and Phase II Appendix A information includes the field "Multiple Winner". Answer "Y" if the proposing firm has received more than 15 Phase II awards in the preceding 5 years, otherwise answer "N".
- Phase III information must be tracked for all non-SBIR government contracts awarded to Phase II firms as either a follow-on R&D effort or as a purchase of products and/or services.

Below are a few general instructions that apply to all ASCII data files, unless otherwise noted in the file format description:

- ASCII files are fixed format, undelimited files.
- ID numbers must be unique and of a consistent format within an agency. They can be alphanumeric and must be left justified in the 9 position field. One ID number will be used to track a proposal/project through the SBIR life cycle - proposal, Phase I award, Phase II award, and Phase III. That is, the Phase II award ID number is the same as the Phase I award ID number.
- Upper and lower case characters may be used unless stated otherwise. Abstracts and titles should be in upper and lower case.
- Left justify alphanumeric fields; right justify numeric fields.

In this document, filename are often shown as either [Agency]A1.[FY][solicitation number] or as AgencyA1.931. This is a generic filename used for illustration. The Phase I Appendix A file from the FY93.1 solicitation submitted by the Army would be named ARMYA1.931. Similarly, the Phase II Contract and Funding file from SDIO would be named SDIOC2.93. Please follow the file naming convention shown at the top of each data section.

PHASE I APPENDIX A

- ASCII File [Agency]A1.[FY][solicitation number]
- One record for each Phase I proposal received in the solicitation

Appendix A information from every proposal received in response to the SBIR topics is due 2 months after the close of the solicitation. The data for the fields in this file are on the Appendix A "red form" except 18. Multiple Winner. If the proposer submitted a Company Commercialization Report (which describes its 16 or more Phase II awards and commercialization efforts) with its proposal, place a "Y" in the Multiple Winner field, otherwise put a "N".

<u>Field Description</u>	<u>Length</u>	<u>Position</u>
1. ID # assigned by Agency	9	1-9
2. FY of Phase I	2	10-11
3. Solicitation Number	2	12-13
4. Agency	5	14-18
5. Topic Number	3	19-21
6. Field Office	8	22-29
7. Proposal Title	150	30-179
8. Firm Name	40	180-219
9. Street Address	50	220-269
10. City	17	270-286
11. State	2	287-288
12. ZIP	5	289-293
13. Proposed Cost	6	294-299
14. Phase	1	300
15. Proposed Duration	2	301-302
16. Woman-owned	1	303
17. Minority-owned	1	304
18. Multiple Winner	1	305
19. Number of Employees	3	306-308
20. Principal Investigator	25	309-333
21. PI Phone Number	10	334-343

Data Dictionary

<u>Field Description</u>	<u>Definition</u>
ID # assigned by Agency	Alphanumeric ID number used to track the proposal
FY of Phase I	Fiscal Year of the Solicitation
Solicitation Number	Solicitation Number, either 01 or 02
Agency	Agency (ARMY,NAVY,AF,ARPA,DNA,SDIO,SOCOM) receiving the proposal
Topic Number	3-digit Topic Number with leading zeros (ie-001)
Field Office	Field office receiving the proposal (upper case, acronym)
Proposal Title	Title of the Phase II proposal
Firm Name	Name of the firm (upper case)
Street Address	Street address of the firm
City	City where the firm is located
State	2-letter upper case Post Office abbreviation for firm's state
ZIP	5-digit ZIP code
Proposed Cost	Proposed cost of the proposal (dollars only, no commas or periods)
Phase	Phase of the proposal, should be 1
Proposed Duration	Proposed duration of work effort (2-digits, right justify)
Woman-owned	Woman-Owned Firm indicator, either "W"=yes, " "=no
Minority-owned	Minority-Owned Firm indicator, either "M"=yes, " "=no
Multiple Winner	Firm has received more than 15 Phase II awards in last 5 years, either "Y" or "N"
Number of Employees	Number of the firm's employees (right justify)
Principal Investigator	Name of the Principal Investigator
PI Phone Number	Principal Investigator's phone number (10-digits, no punctuation)

PHASE I APPENDIX B

- ASCII File [Agency]B1.[FY][solicitation number]
- One record for each Phase I proposal awarded or selected for award from the solicitation

Appendix B information is kept for Phase I proposals that have been awarded or have been selected for award. This file is due 6 months after the close of the solicitation.

<u>Field Description</u>	<u>Length</u>	<u>Position</u>
1. ID # assigned by Agency	9	1-9
2. Phase	1	10
3. Agency	5	11-15
4. Field Office	8	16-23
5. Keyword List	100	24-123
6. Abstract	2240	124-2363

Data Dictionary

<u>Field Description</u>	<u>Definition</u>
ID # assigned by Agency	Alphanumeric ID number used to track the proposal (Left justified)
Phase	Phase of the proposal, should be 1
Agency	Agency (ARMY,NAVY,AF,ARPA,DNA,SDIO,SOCOM) making the award
Field Office	Field office awarding/managing the contract
Keyword List	List of keywords from Appendix B, separated by spaces (Upper case)
Abstract	Technical abstract and anticipated benefits from Appendix B (Abstracts shorter than 2240 characters do not need to be padded with trailing spaces.)

PHASE I CONTRACT • ASCII File [Agency]C1.[FY][solicitation number]

- One record for each fiscal year of funding for each Phase I proposal awarded from the solicitation

Contract and funding information for Phase I awards is due in February with the Annual Report. This file contains award information and obligated funds; planned funding can not be reported. Contract award date and contract number are very important.

<u>Field Description</u>	<u>Length</u>	<u>Position</u>
1. ID # assigned by Agency	9	1-9
2. Agency	5	10-14
3. Award Amount	6	15-20
4. Award Date	7	21-27
5. Contract End Date	7	28-34
6. Contract Number	20	35-54
7. FY of Funding	2	55-56
8. Amount of SBIR Funds	6	57-62
9. Amount of Non-SBIR Funds	6	63-68

Data Dictionary

<u>Field Description</u>	<u>Definition</u>
ID # assigned by Agency	Alphanumeric ID number used to track the proposal
Agency	Agency (ARMY,NAVY,AF,ARPA,DNA,SDIO,SOCOM) making the award
Award Amount	Award cost of the contract (dollars only, no commas or periods)
Award Date	Date of contract award (DDMMYY) ¹
Contract End Date	Date the contract ends (DDMMYY) ¹
Contract Number	Contract Number (letters must be upper case)
FY of Funding	Fiscal year of the funds obligated for the contract
Amount of SBIR Funds	Amount of SBIR funds obligated (right justify)
Amnt of Non-SBIR Funds	Amount of Non-SBIR funds obligated (right justify)

• **OBLIGATED FUNDS FROM 2 FISCAL YEARS:**

If a new Phase I award received funding from more than one fiscal year, the data file should have two records, one for each fiscal year of money. For example, Army obligates \$50,000 in FY92 SBIR funds, \$30,000 in FY93 SBIR funds, and \$20,000 in FY93 program funds to Phase I project ABC1234. The data file should show:

```
ABC1234 ARMY 10000021JUN9321NOV93DACA39-93-C-0001 92 50000 0
ABC1234 ARMY 10000021JUN9321NOV93DACA39-93-C-0001 93 30000 20000
```

***** IMPORTANT *****

• **REQUIRED PHASE I CONTRACT FILES:**

In the FY92 Annual Report, Phase I awards were reported from 6 solicitations: 90.1 through 92.2. DoD components must submit a Phase I Contract file described here for each solicitation originating Phase I awards. Although the FY93 data schedule requests AgencyC1.921 and AgencyC2.922 in February, if you have Phase I awards from FY91.2 (or earlier), you must provide those files also. For example, file AgencyC1.912 should contain only those Phase I awards from the 91.2 Solicitation that have not been reported before and have FY money obligated on them. It is also a good idea to provide a Phase I Appendix B file for awards made from earlier solicitations.

¹ Where MMM is the 3 letter abbreviation for the month. Example - 07JUN91

PHASE II APPENDIX A

- ASCII File [Agency]A2.[FY]
- One record for each Phase II awarded in the fiscal year

Phase II new starts are Phase II awards made since the last report to Congress and the SBA, and that have obligated the reporting fiscal year's money. All new start data (Appendix A, Appendix B, contract and funding information) is due in February for the Annual Report.

<u>Field Description</u>	<u>Length</u>	<u>Position</u>
1. ID # assigned by Agency	9	1-9
2. FY of Phase II	2	10-11
3. FY of Phase I	2	12-13
4. Agency	5	14-18
5. Topic Number	3	19-21
6. Field Office	8	22-29
7. Proposal Title	150	30-179
8. Firm Name	40	180-219
9. Street Address	50	220-269
10. City	17	270-286
11. State	2	287-288
12. ZIP	5	289-293
13. Proposed Cost	7	294-300
14. Phase	1	301
15. Proposed Duration	2	302-303
16. Woman-owned	1	304
17. Minority-owned	1	305
18. Multiple Winner	1	306
19. Number of Employees	3	307-309
20. Principal Investigator	25	310-334
21. PI Phone Number	10	335-344

Data Dictionary

<u>Field Description</u>	<u>Definition</u>
ID # assigned by Agency	Alphanumeric ID number used to track the proposal (must be the same as Phase I)
FY of Phase II	Fiscal Year that the Phase II award
FY of Phase I	Fiscal Year of the Phase I proposal
Agency	Agency (ARMY,NAVY,AF,ARPA,DNA,SDIO,SOCOM) receiving the proposal
Topic Number	3-digit Topic Number with leading zeros (ie-001)
Field Office	Field office receiving the proposal (upper case, acronym)
Proposal Title	Title of the Phase II proposal
Firm Name	Name of the firm (upper case)
Street Address	Street address of the firm
City	City where the firm is located
State	2-letter upper case Post Office abbreviation for firm's state
ZIP	5-digit ZIP code
Proposed Cost	Proposed cost of the proposal (dollars only, no commas or periods)
Phase	Phase of the proposal, should be 2
Proposed Duration	Proposed duration of work effort (2-digits, right justify)
Woman-owned	Woman-Owned Firm indicator, either "W" =yes, " " =no
Minority-owned	Minority-Owned Firm indicator, either "M" =yes, " " =no
Number of Employees	Number of the firm's employees (right justify)
Principal Investigator	Name of the Principal Investigator for the Phase I work
PI Phone Number	Principal Investigator's phone number (10-digits, no punctuation)

PHASE I FROM DIFFERENT AGENCY: If Phase I and Phase II awards are not made by the same agency, the agency reporting the Phase II award will supply a memo to OSD stating the agency, topic number, and contract number (and ID number, if known) of the Phase I award.

PHASE II APPENDIX B

- ASCII File [Agency]B2.[FY]
- One record for each Phase II proposal awarded in the fiscal year

Appendix B information is kept for Phase II proposals that have been awarded or have been selected for award. There should be one record for each Phase II award in the AgencyA2.FY file. This file is due in February.

<u>Field Description</u>	<u>Length</u>	<u>Position</u>
1. ID # assigned by Agency	9	1-9
2. Phase	1	10
3. Agency	5	11-15
4. Field Office	8	16-23
5. Keyword List	100	24-123
6. Abstract	2240	124-2363

Data Dictionary

<u>Field Description</u>	<u>Definition</u>
ID # assigned by Agency	Alphanumeric ID number used to track the proposal
Phase	Phase of the proposal, should be 2
Agency	Agency (ARMY,NAVY,AF,ARPA,DNA,SDIO,SOCOM) making the award
Field Office	Field office awarding/managing the contract
Keyword List	List of keywords from Appendix B, separated by spaces (Upper case)
Abstract	Technical abstract and anticipated benefits from Appendix B (Abstracts shorter than 2240 characters do not need to be padded with trailing spaces.)

**PHASE II CONTRACT
(NEW STARTS)**

- ASCII File [Agency]C2.[FY]
- One record for each fiscal year of funding for each Phase II awarded in the fiscal year

This file contains at least one record for each Phase II award included in the AgencyA2.FY and AgencyB2.FY files, and is due in February.

<u>Field Description</u>	<u>Length</u>	<u>Position</u>
1. ID # assigned by Agency	9	1-9
2. Agency	5	10-14
3. Award Amount	7	15-21
4. Award Date	7	22-28
5. Contract End Date	7	29-35
6. Contract Number	20	36-55
7. FY of Funding	2	56-57
8. Amount of SBIR Funds	7	58-64
9. Amount of Non-SBIR Funds	7	65-71

Data Dictionary

<u>Field Description</u>	<u>Definition</u>
ID # assigned by Agency	Alphanumeric ID number used to track the proposal
Agency	Agency (ARMY,NAVY,AF,ARPA,DNA,SDIO,SOCOM) making the award
Award Amount	Award cost of the contract (dollars only, no commas or periods)
Award Date	Date of contract award (DDMMYY)
Contract End Date	Date the contract ends (DDMMYY)
Contract Number	Contract Number (letters must be upper case)
FY of Funding	First fiscal year of funds obligated for the contract
Amount of SBIR Funds	Amount of SBIR funds obligated in first year (leading zeros)
Amount of Non-SBIR	Amount of Non-SBIR funds obligated in 1st year (leading zeros)

NOTES:

● **OBLIGATIONS FROM 2 FISCAL YEARS:**

If a new start Phase II award received funding from more than one fiscal year, the data file should have two records, one for each fiscal year of money. For example, Army obligates \$250,000 in FY92 SBIR funds, \$200,000 in FY93 program funds to Phase II project ABC5678. The data file should show:

```
ABC5678 ARMY 75000021JUN9321JUL95DACA39-93-C-0002 92 250000 0
ABC5678 ARMY 75000021JUN9321JUL95DACA39-93-C-0002 93 0 200000
```

● **COST SHARING:**

If two or more agencies are cost-sharing an award, the agency administrating the award is responsible for reporting it to OSD. A memo must accompany the AgencyA2.FY file listing the Phase II projects being funded by 2 or more agencies, the agencies involved, and a description of the cost sharing arrangement. No other agency should include its in their data to be transferred to OSD to prevent counting it twice. All funding, including funding from the non-administrating agency, must be reported by the administrating agency. For example, the memo can be as simple as this:

"The Navy and Air Force are jointly funding a Phase II project to VIASAT, Inc. entitled 'Robotic Vehicle Communications', topic # N91-123. The Air Force has obligated \$200,000 of FY92 SBIR funds; the Navy has obligated \$100,000 in FY92 SBIR funds and \$150,000 in FY92 program funds. NAVAIR will manage the project."

**PHASE II CONTRACT
(ON-GOING)**

- ASCII File [Agency]C2.[FY]
- One record for each previously reported Phase II project receiving fiscal year money

A Phase II "on-going" is a Phase II project that has been previously reported to Congress and the SBA as a new start, and is a multi-year project receiving the reporting fiscal year's money. This file is due in November.

<u>Field Description</u>	<u>Length</u>	<u>Position</u>
1. ID # assigned by Agency	9	1-9
2. Agency	5	10-14
3. FY of Phase I	2	15-16
4. FY of Phase II	2	17-18
5. Topic Number	3	19-21
6. Firm Name	40	22-61
7. Contract Number	20	62-81
8. FY of Funding	2	82-83
9. Amount of SBIR Funds	7	84-90
10. Amount of Non-SBIR Funds	7	91-97

Data Dictionary

<u>Field Description</u>	<u>Definition</u>
ID # assigned by Agency	Alphanumeric ID number used to track the proposal
Agency	Agency (ARMY,NAVY,AF,ARPA,DNA,SDIO,SOCOM) making the award
FY of Phase II	Fiscal Year that the Phase II award
FY of Phase I	Fiscal Year of the Phase I proposal
Topic Number	3-digit Topic Number with leading zeros (ie-001)
Firm Name	Name of the firm (upper case)
Contract Number	Contract Number (letters must be upper case)
FY of Funding	First fiscal year of funds obligated for the contract
Amount of SBIR Funds	Amount of SBIR funds obligated in first year (leading zeros)
Amount of Non-SBIR	Amount of Non-SBIR funds obligated in 1st year (leading zeros)

• COST SHARING:

If two agencies are cost-sharing an award, the agency administrating the award is responsible for reporting the total funding from both agencies for the project to OSD.

PHASE III

- ASCII File [Agency]3.[FY]
- One record for each Phase III contract awarded in the previous fiscal year

The SBA requires all participating SBIR agencies to track government contracts awarded with non-SBIR money to Phase II firms that are either

- (1) follow-on awards for SBIR derived products and processes for use by the federal government, or
- (2) continuation of research or research and development under the SBIR program.

In addition, any information concerning non-federal sources of capital for commercial application of SBIR funded research or research and development should also be reported.

<u>Field Description</u>	<u>Length</u>	<u>Position</u>
1. ID Number	9	1-9
2. Agency	5	10-14
3. FY	2	15-16
4. Topic Number	3	17-19
5. Firm Name	40	20-59
6. Street Address	50	60-109
7. City	17	110-126
8. State	2	127-128
9. ZIP	5	129-133
10. Non-federal Capital	9	134-142
11. DoD Award Amount	9	143-151
12. Contract Number	20	152-171
13. Field Office and/or Corporate Sponsor	40	172-211
14. Phase III Title	100	212-311

Data Dictionary

<u>Field Description</u>	<u>Definition</u>
ID Number	Alphanumeric ID number used to track the project
Agency	Name of the Agency (ARMY,NAVY,AF,ARPA,DNA,SDIO,SOCOM)
FY	Fiscal Year of the Phase II Award
Topic Number	3-digit Topic Number with leading zeros (ie-001)
Firm Name	Name of the firm (upper case)
Street Address	Street address of the firm
City	City where the firm is located
State	2-letter upper case Post Office abbreviation for firm's state
ZIP	5-digit ZIP code
Non-federal Capital	Dollar amount of non-federal capital commitment
DoD Award Amount	Award amount of Phase III contract (non-SBIR funds only ¹)
Contract Number	Contract number of Phase III project (upper case)
Office/Sponsor	Government office or corporate firm providing the Phase III funding
Phase III Title	Title of the Phase III project

The Services and Agencies are responsible for their section of the DoD SBIR Solicitation. There are four separate submissions for the solicitation topics:

1. Topics WordPerfect File (described below)
2. Topics Data File (see page 16)
3. Topics Reference Report for DTIC (see page 17)
4. Security and Technical Review Memo

A service/agency level security and technical review is required before submitting the topics to OSD, and a memo stating the topics are approved must be supplied with the Topics WordPerfect File.

OSD will assemble the sections from the components and perform a security and technical review. Should any problems or question occur, the topics will be returned to the component for revision or correction and then must be resubmitted to OSD within 5 days.

Topics Wordperfect File:

The component's complete section will be in one WordPerfect file and follow these standards:

- Proportional 9 point font
- One inch margins
- Footer centered on every page: [Agency] #
- Include the following sections:
 - (1) Submission of Proposals Instruction
 - (2) Addresses and Point of Contact to Submit Proposals (If the submission address is included in the Proposal Submission Instruction section, then the Addresses to Submit Proposals section is not necessary.)
 - (3) Subject/Word Index (sorted in alphabetical order) - not more than 6 pages long!
 - (4) Critical Technology Topic Index
 - (5) Full Topic Descriptions in topic number order

Topic Number: Entries must be numbered consecutively by each agency. The topic number format is [Agency Designation][FY]-[3 Digit Number]
Examples: A92-001 for Army, N92-001 for Navy, AF92-001 for Air Force, ARPA 92-001 for ARPA, SDIO 92-001 for SDIO, DNA 92-001 for DNA, and SOCOM 92-001 for SOCOM

Category: Each topic must have the category of R&D in which the work will begin. R&D categories are

- Basic Research
- Exploratory Development
- Advanced Development
- Engineering Development

After the budget category, the topic must list the Defense Critical Technology that relates to this research.

Objective: Each topic must have a stated objective of the project to reach Phase III. No more than 2 lines.

Description. Should contain three short paragraphs. A general description of the current situation and overall requirements, a Phase I description stating the desired results of Phase I work to be completed, and a Phase II description stating the desired results of Phase II work.

Commercial Potential. A description of the dual use commercial potential of a Phase III project coming from this topic

Examples follow on the next several pages.

EXAMPLE INTRODUCTION LETTER

U.S. NAVY

Proposal Submission

The Navy SBIR Program Manager is responsible for the implementation, administration and management of the Navy SBIR program. Mr. Vincent D. Schaper is the Navy SBIR Program Manager and is with the Office of the Chief of Naval Research. Inquiries of a general nature may be addressed to:

Office of the Chief of Naval Research
ATTN: Mr. Vincent D. Schaper
Navy SBIR Program Manager
800 North Quincy Street, BCT #1, Room 922
Arlington, VA 22217-5000
(703) 696-4286

Small R&D businesses are invited to respond to the 296 technical topics identified by the Navy in this DoD solicitation. A brief description of each topic is included along with the address of the originating office. In addition, there are index and topic title sections which are provided for quick reference, on the ensuing pages.

SBIR proposals may not be submitted to the above address and must be received by the originating office listed on the following pages in order to be considered during the selection process.

The Navy's mission is to maintain the freedom of the open seas. The Navy employs and maintains air, land and ocean going vehicles and personnel necessary to accomplish this mission. The topics on the following pages are a portion of problems encountered by the Navy in fulfilling its mission.

Selection of proposals for funding is based upon technical merit and the evaluation criteria contained in this document. Because funding is limited, the Navy reserves the right to limit the amount funded under any topic and only those proposals considered to be of superior quality will be funded.

NAVY 1

ARMY SMALL BUSINESS INNOVATION RESEARCH PROGRAM

Submitting Proposals on Army Topics

Phase I proposal (5 copies including 1 red-printed form) should be addressed to:

ARMAMENT RESEARCH, DEVELOPMENT AND ENGINEERING CENTER (ARDEC)

Topic Nos. A91-031 through A91-042
Commander
U.S. Army Armament RD&E Center
ATTN: SMCAR-AST
Bldg. 1, SBIR Program
Picatinny Arsenal, NJ 07806-5000

Point of Contact

G. Magistro
(201) 724-7349

BELVOIR RESEARCH, DEVELOPMENT AND ENGINEERING CENTER (BRDEC)

Topic Nos. A91-043 through A91-045
Mail address:
Commander
U.S. Army Belvoir RD&E Center
ATTN: AMSTR-PBP, SBIR Program
Bldg 314, Procurement Receptionist
Ft. Belvoir, VA 22060-5606

C. Harrison
(703) 664-1068

Handcarry address:

U.S. Army Belvoir RD&E Center
ATTN: STRBE-IL (C. Harrison)
Bldg. 312, Rm. 116
Ft. Belvoir, VA 22060-5606

COMMUNICATION ELECTRONICS COMMAND (CECOM)

Topic Nos. A91-046 through A91-047
Director
U.S. Army Center for Night Vision & Electro-Optics
ATTN: AMSEL-RD-NV-RM-FP, SBIR Program
Bldg. 305, Linda Kline
Ft. Belvoir, VA 22060-5677

J. Crisci
(201) 544-2665

Topic Nos. A91-048 through A91-051

Director
U.S. Army Center for Signals Warfare
ATTN: AMSEL-RD-SW-DTI, SBIR Program
Bldg. 260, Linda Monroe
Vint Hill Farms Station
Warrenton, VA 22186-5100

SUBJECT/WORD INDEX TO THE ARMY SBIR SOLICITATION

SUBJECT/WORD	TOPIC NO.
abradable coating	177
abrasion	183
accelerometer	042
acoustic	034,055,121,131,153,174,176
actuators	125
Ada	060
adaptive control	032
adhesive bonding	172
adiabatic shear	170
air chemistry	157
ANC	034
antennas	056
antibodies	218,228
armor	106
artificial intelligence (AI)	036,048,053,058,077,180,188,248
ASIC	144,206
autostereoscopic video	139
beam processing	126,160
biodegradable	214
biosynthesis	094
brush seals	190
C3I	061
cannon caliber fuzing	042
CASE tools	194
chemical protection	091,093
chemical agents	069,070,071,072,073,223,224,225
chemical energy transfer	065
coated fiber	088
combat vehicles	097
composite structures	097,179
composite materials	161,164,165,166,167,168,169,183,187
compressors	177
cooling	047,092,103,193
couplers	075
damage/casualty assessment	182,249
data collection	050,086,248
data processing	128,199,244
database	060,105,164,203,205,248
decontamination	066,070
dental	213

**U.S. ARMY
FY1991 SBIR TOPIC INDEX**

MATERIALS AND PROCESSES

- A93-053 Ammunition Loading Hazards Detection for Artillery/Armor
- A93-059 Blow-Molded Ammunition Container Development
- A93-061 Formulation of Pyrotechnic Compositions with Solventless Binders
- A93-065 Advanced Packaging Cushioning Material to Improve Performance in the Insensitive Munitions (IM) Fast Cook-off and Sympathetic Detonation Tests
- A93-066 Critical Fluid Extraction of Single-Base Gun Propellant Formulations

ELECTRONIC DEVICES

- A93-074 Affordable Design of Electronic Structures Incorporating Resonant Tunnelling Elements
- A93-083 Temperature Insensitive Laser Diode Arrays
- A93-091 Non-Destructive Optical Evaluation of Thin Layer Semiconductor Heterostructures
- A93-093 Novel Josephson Junctions for Intrinsic Voltage Standards
- A93-096 DC to RF Laser Diode Characterization System
- A93-185 Microelectronic Display (MIDIS) Technology
- A93-323 Double Focus Unity Magnification Vision System
- A93-354 Downsized Color Reproduction System

SENSORS

- A93-039 Low Cost Laser Radar (LADAR) Technology for Smart Submunition Target Sensing
- A93-044 Passive Aero-Acoustic Sensor Self Interference Cancellation
- A93-047 Multipath Interference at Millimeter Wave Frequencies
- A93-049 Characterization of Atmospheric Turbulent Effects for Acoustic Transducer Windscreen Design

ARMY 10

EXAMPLE TOPIC DESCRIPTIONS

U.S. ARMY

FY1991 TOPIC DESCRIPTIONS

ARMAMENT RESEARCH, DEVELOPMENT AND ENGINEERING CENTER

A91-031 TITLE: Fire Control Battle Management and Decision Support System Using Intelligent Sensor Based Robotic Systems Technology

CATEGORY: Exploratory Development; Machine Intelligence/Robotics

OBJECTIVE: Develop and demonstrate expert system decision aids for armor and/or artillery applications.

DESCRIPTION: The feasibility of developing high performance expert system decision aids for armor and artillery system applications has been demonstrated recently based on laboratory prototype tests. Further technology development is required, however, to address specific algorithmic issues associated with real time planning/replanning, sensor/information fusion, terrain analysis, as well as issues of knowledge engineering, man/machine interface, rapid prototyping and simulation environments for evaluating decision aids. Expert system decision aids which address one or more of the following requirements are of specific interest: (a) Identification Friend or Foe (IFF), (b) Fire Control (acquisition/tracking), (c) tactical planning/order preparation, (d) tactical situation assessment, (e) status/reports, (f) self defense of weapon platform, (g) sustainment, (h) command and control, (i) fire direction, (j) communications, (k) reconnaissance, selection and occupation of position and (l) embedded training.

Phase I: Develop methodology for design and implementation of distributed expert system decision aids for artillery and/or armor applications. Formulate and define conceptual designs for specific expert system modules including hardware implementation and software prototyping environment. Develop detailed functional specifications.

Phase II: Develop a full-up laboratory prototype decision support system with appropriate displays, simulation driven development environment and run-time environment. Optimize hardware/software, algorithm and interface design based on laboratory test results and provide complete documentation of hardware/software, analysis and test results.

COMMERCIAL POTENTIAL: Government and commercial security systems.

A91-032 TITLE: Advanced Adaptive Weapon Control Technology

CATEGORY: Exploratory Development; Weapon System Environment

OBJECTIVE: Develop and demonstrate low cost high performance digital servo control technology for precision fire-on-the-move applications including armor, air defense and aircraft system applications.

DESCRIPTION: Recently progress has been made in demonstrating major accuracy improvements for both aircraft and combat vehicle weapon systems using advanced digital control design techniques and Linear Quadratic Gaussian/Loop Transfer Recovery design approaches. Further improvements in gun accuracy are anticipated

ARMY 15

TOPICS DATA FILE

- ASCII File [Agency]TOP.[FY][Solicitation]
- One record for each topic

This file is an ASCII data file submitted to OSD with the Topics WordPerfect File and Security/Technical Review Memo.

<u>Field Description</u>	<u>Length</u>	<u>Position</u>
1. Agency	5	1-5
2. FY	2	6-7
3. Solicitation	1	8
4. Topic Number	3	9-11
5. Field Office	8	12-19
6. Research Category (6.?)	1	20
7. Critical/Key Technology	3	21-23
8. Topic Title	150	24-173
9. Keyword List	100	174-273

Data Dictionary

<u>Field Description</u>	<u>Definition</u>
Agency	Name of the Agency (ARMY,NAVY,AF,ARPA,DNA,SDIO,SOCOM)
FY	Fiscal Year of the Solicitation
Solicitation	Solicitation Number, either 1 or 2
Topic Number	3-digit Topic Number with leading zeros (ie-001)
Field Office	Field office receiving the proposal (upper case, acronym)
Research Category (6.?)	Research Category of the topic, either 1, 2, 3 or 4
Critical/Key Technology	Critical technology or Key technology area pertaining to this topic (ie-C15, K08)
Topic Title	Title of the topic
Keyword List	List of keywords pertaining to the topic, separated by spaces (Upper case)

CRITICAL TECHNOLOGIES	KEY TECHNOLOGY AREAS
C01. Materials	K01. Computers
C02. Industrial Production	K02. Software
C03. Electronics	K03. Sensors
C04. Computers	K04. Communications Networking
C05. Telecommunications	K05. Electronic Devices
C06. Sensors and Electronic Combat	K06. Environmental Effects
C07. Navigation, Guidance & Vehicle Control	K07. Materials and Processes
C08. Marine Systems	K08. Energy Storage
C09. Propulsion & Vehicular Systems	K09. Propulsion & Energy Conversion
C10. Laser, Optics & Power Systems	K10. Design Automation
C11. Directed Energy & Kinetic Energy Systems	K11. Human-Systems Interfaces
C12. Munitions Devices & Energetic Materials	
C13. Chemical & Biological Systems	
C14. Survivability & Hardening	
C15. Nuclear-related Technologies	

This report is due at the same time as the Topics WordPerfect File and Topics Data File, but is sent directly to Richard Sparks at DTIC. This information is used to prepare the DTIC Technical Information Packets (TIPs).

Send the Topic Reference Report directly to:

Defense Technical Information Center
ATTN: DTIC/SBIR, Richard Sparks
Building 5, Cameron Station
Alexandria, VA 22304-6415

(703) 274-6902
(800) 225-3842

Word processing files in ASCII or WordPerfect are appreciated.

Each topic must have the following information in the following order:

- (1) Agency, topic number and title
- (2) Topic author's name and phone number
- (3) At least 4 keywords
- (4) At least one published reference, preferably a report available through DTIC

Information from items 1 through 3 will only be used internally by DTIC. Unclassified, unlimited citations from item 4 may be incorporated in the package sent to potential bidders by DTIC.

Authors are also encouraged to submit any additional published or unpublished materials, up to 50 pages, which they believe would assist bidders in understanding the topic. All material for use by SBIR bidders must be unclassified information with no limitations on distribution to the public.

EXAMPLE TOPIC REFERENCE REPORT

Topic Reference Report with Expanded Topic Descriptions
Army Solicitation 92.2

Topic#: ARMY 92-124
Topic Title: Modeling Complex Automatic Flight Controls for Helicopter Systems
Topic Author: Dr. David Smith
Author Phone#: (703) 558-2213
Keywords: Helicopter, Flight Control, Modeling, High Bandwidth
References: "Automatic Flight Controls", National Defense, Sept. 1991

Expanded Topic Description:

Aircraft control and stability augmentation systems are typically depicted as block diagrams. These diagrams are representations which relate the inputs in terms of linear, non-linear, and boolean operations. Although Second Generation Comprehensive Helicopter Analysis Systems currently have a transfer function element, it is incapable of representing complex controls systems such as that of the UH-60 Blackhawk or the AH-64 Apache. In order to model realistic aircraft control systems, engine models, hydro-mechanical units, electrical control units, and fuel control systems, only a few basic control system block diagram elements are required. The set of basic elements consists of summing junctions, product junctions, gains, table look-ups, transfer junctions, limiters, hysteresis, deadbands, delays, and non-linear functions such as trig functions. Using a general multi-input/multi-output approach with this set of control elements would provide a more robust modeling system and include all the effects that the user community requires. User interface issues must be addressed as well to provide significant improvements in helicopter analysis capability over the current restricted and simplified flight control system models.

ANNUAL REPORT

There are several parts that make up the complete Annual Report package for submission. The first 4 are printed reports or forms, and the last is several ASCII files provided on floppy disk.

1. Completed Annual Report form
2. Modification Memo (see page 19)
3. Award Justifications
4. Phase I and Phase II Statistics (see page 20)
5. Data Files - All New Start Phase II information and Phase I contract and funding information:
 - AgencyA2.FY Phase II New Start Appendix A
 - AgencyB2.FY Phase II New Start Appendix B
 - AgencyC2.FY Phase II New Start Contract and Funding
 - AgencyC1.FY Phase I Awards Contract and Funding (may be several files)

The DoD Annual Report to the SBA records SBIR activity of the previous fiscal year. It covers information on the SBIR budget, topic solicitation, proposals received, Phase I awards, Phase II awards, Phase III projects, and modifications. It includes minority- and woman-owned business statistics, award justifications, a list of awards made later than 6 months after the close of the solicitation, and a list of multiple award winners.

ANNUAL REPORT FORM:

Each service and agency is responsible for filing an Annual Report for the service/agency to OSD by the 15th of February. The agency's R&D extramural and SBIR budgets must be obtained from the comptroller. The totals on the form are used as a check to verify that all the data transferred properly from the data files. A blank Annual Report form is supplied in the appendix.

AWARD JUSTIFICATION:

Award justifications are required for Phase I awards that exceed \$100,000 and for Phase II awards that exceed \$750,000. You can use the Award Justification form located in the appendix or any other format that provides the same information.

DATA FILES:

Phase II New Starts and On-goings are a little tricky to distinguish. Two methods that work well are:
(1) Assign the Annual Report year in which the Phase II project was first reported to a field in your database. As Phase II awards are made, put in the current fiscal year in this field. Then in February, Phase II projects with the current fiscal year are New Starts and Phase II projects with earlier years are active On-going projects; or
(2) Use the date of Phase II award as the cut off date. Award dates that are before February of this year and after January of last year are New Start projects. Award dates before February of last year are On-going projects.

Several Phase I Contract File may be necessary if Phase I awards made in the past year come from several solicitations. You should submit one Phase I Contract File (AgencyC1.FY) for each solicitation with Phase I awards being reported. For example, the Army made Phase I awards in FY92 from 3 solicitations. They submitted 3 files ARMYC1.911, ARMYC1.912, and ARMYC1.922 containing Phase I awards to be reported in the FY92 Annual Report from the 91.1, 91.2 and 92.2 Solicitations, respectively. It is also a good idea to provide a Phase I Appendix B file for awards made from earlier solicitations.

MODIFICATIONS

- Memo listing contract modifications made in the previous fiscal year to SBIR projects previously reported, submitted with the Annual Report

Any SBIR project reported in a previous Annual Report that has received a dollar modification to its contract must be listed in a memo that is submitted with the current Annual Report. The following items must be supplied:

1. Agency
2. Phase
3. Topic Number
4. Modification Amount
5. Type of Modification (ie- Bridge money on a Phase I, Phase II option exercised, etc.)

EXAMPLE OF A MODIFICATION MEMO

FY92 Annual Report
Contract Modifications
DARPA

<u>ID Number</u>	<u>PH</u>	<u>Topic#</u>	<u>Firm</u>	<u>Modification</u>
9133860	II	91-312	Compound Engine, Inc.	\$34,554 Phase II contract modification
9010488	II	90-056	Entropic Research Corp.	\$249,174 Phase II option funded
8933791	II	89-116	Information Systems Corp.	\$245,768 Phase II opt'on funded
9000103	I	90-209	KDT Industries	\$63,071 bridge money added to Phase I

PHASE I & PHASE II STATISTICS

- One page report of Phase I & Phase II summary statistics for the fiscal year

Phase I and Phase II summary statistics are due in February with the Annual Report. The following items must be covered by each Phase I solicitation and Phase II:

1. Number of proposals received and selected
2. Average dollar amount for received (proposed cost) and selected (award amount)
3. Number of companies represented for received and selected
4. Number of minority- and woman-owned businesses represented for received and selected
5. Number of states represented for received and selected
6. Average firm size for received and selected

EXAMPLE PHASE I & PHASE II STATISTICS

ARMY PHASE I				
	SOLICITATION 92.1		SOLICITATION 92.2	
Number of Topics	78		134	
Number of Proposals	<u>Received</u> 834	<u>Selected</u> 81	<u>Received</u> 1,024	<u>Selected</u> 129
Average Dollar Amount	\$ 50,257	\$ 50,345	\$ 50,333	\$ 50,405
Number of Companies Represented	690	76	727	101
Number of Minority Owned Businesses	89	7	95	12
Number of Woman Owned Businesses	66	5	72	9
Number of States Represented	42	25	39	26
Average Firm Size	23	31	21	34
ARMY PHASE II				
Number of Proposals	<u>Received</u> 247	<u>Awarded</u> 93		
Average Dollar Amount	\$510,899	\$511,021		
Number of Companies Represented	203	88		
Number of Minority Owned Businesses	20	18		
Number of Woman Owned Businesses	18	12		
Number of States Represented	20	19		
Average Firm Size	35	42		

APPENDIX

SMALL BUSINESS INNOVATION RESEARCH (SBIR) PROGRAM
ANNUAL REPORT TO THE U.S. SMALL BUSINESS ADMINISTRATION

Reporting Fiscal Year: FY _____
 Service/Agency: _____

1. AGENCY TOTAL EXTRAMURAL R&R&D BUDGET \$ _____

2. AGENCY TOTAL SBIR BUDGET \$ _____

3. SOLICITATION DATA

3a. Total Number of Phase I SBIR Solicitations Released _____

3b. Identification Number of the Solicitation _____

3c. Date of Solicitation Released _____

3d. Solicitation Proposal Due Date _____

3e. Number of Topics in Solicitation _____

3f. Number of Subtopics in Solicitation _____

3g. Number of Solicitations Distributed _____

4. PHASE I DATA

4a. Number of Phase I Proposals Received _____

4b. Number of Phase I Awards for Reported FY _____ total: _____
 (list the number of awards receiving FY dollars)

FY _____ FY _____ FY _____ FY _____

4c. Phase I SBIR Dollars Obligated for Reported FY _____ total: \$ _____
 (list FY dollars obligated)

FY _____ FY _____ FY _____ FY _____

4d. Number Minority and Disadvantage Phase I Awards _____ total: _____

FY _____ FY _____ FY _____ FY _____

4e. Minority and Disadvantage Phase I Dollars Obligated _____ total: \$ _____

FY _____ FY _____ FY _____ FY _____

5. PHASE II DATA

- 5a. Number of Phase II Proposals Received _____
- 5b. Number of new Phase II Awards for Reported FY _____
- 5c. Total Funding (Face) Agreement of new Phase II Awards \$ _____
- 5d. Number Minority and Disadvantage new Phase II Awards _____
- 5e. Total Funding Agreement of Minority and Disadvantage new Phase IIs \$ _____

6. AGENCY PHASE II OBLIGATIONS

- 6a. Number of new Phase II Awards Funded with Reported FY Funds _____
- 6b. Dollar Amount of Obligations for new Phase II Awards in FY \$ _____
- 6c. Number of Previously Reported Phase II Awards with Dollars Obligated in FY _____
- 6d. Dollar Amount of FY's Obligations of Previous Awards \$ _____

7. AGENCY AWARD MODIFICATIONS

- 7a. Number of Funding Agreements with Dollar Modifications in Reported FY _____
- 7b. Net Dollar Amount of Modifications for Reported FY \$ _____
- 7c. List Each Contract Modification or Option Exercised with a Description (in a Modification Memo)

8. AGENCY REPORT SUMMARY

FY Budget	Phase I Obligated	Phase II Obligated	Total	SBIR Funds Obligations	SBIR Unobligated	Funds Obligated
_____	_____	_____	_____	_____	_____	_____

AGENCY SBIR FUNDS TRANSFERRED IN REPORTED FY
 (list FY SBIR funds given to or received from another agency)
 To/From Agency Amount

_____	_____	_____
_____	_____	_____

**Justification for SBIR Phase I/Phase II Contract
Awards Exceeding \$100,000/\$750,000 Respectively**

Service/Agency: _____

Date: _____

Phase I Solicitation Year: _____

Phase I: Phase II:

Amount of Award: \$ _____

Topic Number: _____

ID/Log Number: _____

Company Name and Address:

Justification.

- The contract cost contract is reasonable and necessary to ensure the performance of a quality investigation of the proposed idea.
- The additional cost is justified due to the unusually high expense of travel between the contractor's location and the government lab.
- The contract cost is reasonable considering the cost of materials, machining, and test setup required for these tests.
- The efforts in this proposal require high quality manpower.
- A reduction in the scope of effort would seriously affect the objectives to be achieved.
- The additional cost is justified in order to provide adequate man-hours to create a useful end product.
- The amount exceeding the threshold is funded with regular program funds (non-SBIR funds).
- Other. (State reason.)

DATA SCHEDULE

SBIR REPORTING REQUIREMENTS
FY93
(Revised)

Due Date	File	Description	Page
30NOV92	AgencyC2.92	ASCII file containing FY92 funding data for on-going Phase II projects	8
11JAN93	AgencyB1.922	ASCII file containing Phase I Appendix B for Solicitation 92.2 selected/awarded proposals	3
01FEB93	Agency932.WPF	WordPerfect file containing Solicitation 93.2 topics and including an introduction letter, proposal submission addresses, indices, etc.	10
	AgencyTOP.932	ASCII file containing Solicitation 93.2 topic information	16
	Topic Reference Report	Report to DTIC containing expanded topic descriptions and published references pertinent to the topic to be included in DTIC's Technical Information Packages (TIPs)	17
	Memo	Memo stating that the service/agency level security and technical reviews have been performed	10
15FEB93	AgencyA2.92	ASCII file containing Appendix A for FY92 Phase II awards	5
	AgencyB2.92	ASCII file containing Appendix B for FY92 Phase II awards	6
	AgencyC2.92	ASCII file containing contract and funding for FY92 Phase II awards	7
	AgencyC1.921	ASCII file containing contract and funding for Phase I awards from the 92.1 Solicitation	4
	AgencyC1.922	ASCII file containing contract and funding for Phase I awards from the 92.2 Solicitation	4
	Annual Report	Service/Agency Annual Report form showing budget, award and funding information summaries; Award justifications if necessary.	18
15MAR93	AgencyA1.931	ASCII file containing Phase I Appendix A for all proposals received from the 93.1 Solicitation	2
01JUL93	AgencyB1.931	ASCII file containing Phase I Appendix B for selected/awarded proposals from the 93.1 Solicitation	3
	Agency941.WPF	WordPerfect file containing Solicitation 94.1 topics and including an introduction letter, proposal submission addresses, indices, etc.	10
	AgencyTOP.941	ASCII file containing Solicitation 94.1 topic information	16
	Topic Reference Report	Report to DTIC containing expanded topic descriptions and published references pertinent to the topic to be included in DTIC's Technical Information Packages (TIPs)	17
	Memo	Memo stating that the service/agency level security and technical reviews have been performed	10
30SEP93	AgencyA1.932	ASCII file containing Phase I Appendix A for all proposals received from the 93.2 Solicitation	2

**SBIR REPORTING REQUIREMENTS
FY94**

Due Date	File	Description	Page
30NOV93	AgencyC2.93	ASCII file containing FY93 funding data for on-going Phase II projects	8
14JAN94	AgencyB1.932	ASCII file containing Phase I Appendix B for Solicitation 93.2 selected/awarded proposals	3
01FEB94	Agency942.WPF	WordPerfect file containing Solicitation 94.2 topics and including an introduction letter, proposal submission addresses, indices, etc	10
	AgencyTOP.942	ASCII file containing Solicitation 94.2 topic information	16
	Topic Reference Report	Report to DTIC containing expanded topic descriptions and published references pertinent to the topic to be included in DTIC's Technical Information Packages (TIPs)	17
	Memo	Memo stating that the service/agency level security and technical reviews have been performed	10
15FEB94	AgencyA2.93	ASCII file containing Appendix A for FY93 Phase II awards	5
	AgencyB2.93	ASCII file containing Appendix B for FY93 Phase II awards	6
	AgencyC2.93	ASCII file containing contract and funding for FY93 Phase II awards	7
	AgencyC1.931	ASCII file containing contract and funding for Phase I awards from the 93.1 Solicitation	4
	AgencyC1.932	ASCII file containing contract and funding for Phase I awards from the 93.2 Solicitation	4
	Annual Report	Service/Agency Annual Report form showing budget, award and funding information summaries; Award justifications if necessary	18
	Agency3.93	ASCII file containing Phase III awards made during FY93	9
15MAR94	AgencyA1.941	ASCII file containing Phase I Appendix A for all proposals received from the 94.1 Solicitation	2
01JUL94	AgencyB1.941	ASCII file containing Phase I Appendix B for selected/awarded proposals from the 94.1 Solicitation	3
	Agency951.WPF	WordPerfect file containing Solicitation 95.1 topics and including an introduction letter, proposal submission addresses, indices, etc.	10
	AgencyTOP.951	ASCII file containing Solicitation 95.1 topic information	16
	Topic Reference Report	Report to DTIC containing expanded topic descriptions and published references pertinent to the topic to be included in DTIC's Technical Information Packages (TIPs)	17
	Memo	Memo stating that the service/agency level security and technical reviews have been performed	10
01SEP94	AgencyA1.942	ASCII file containing Phase I Appendix A for all proposals received from the 94.2 Solicitation	2

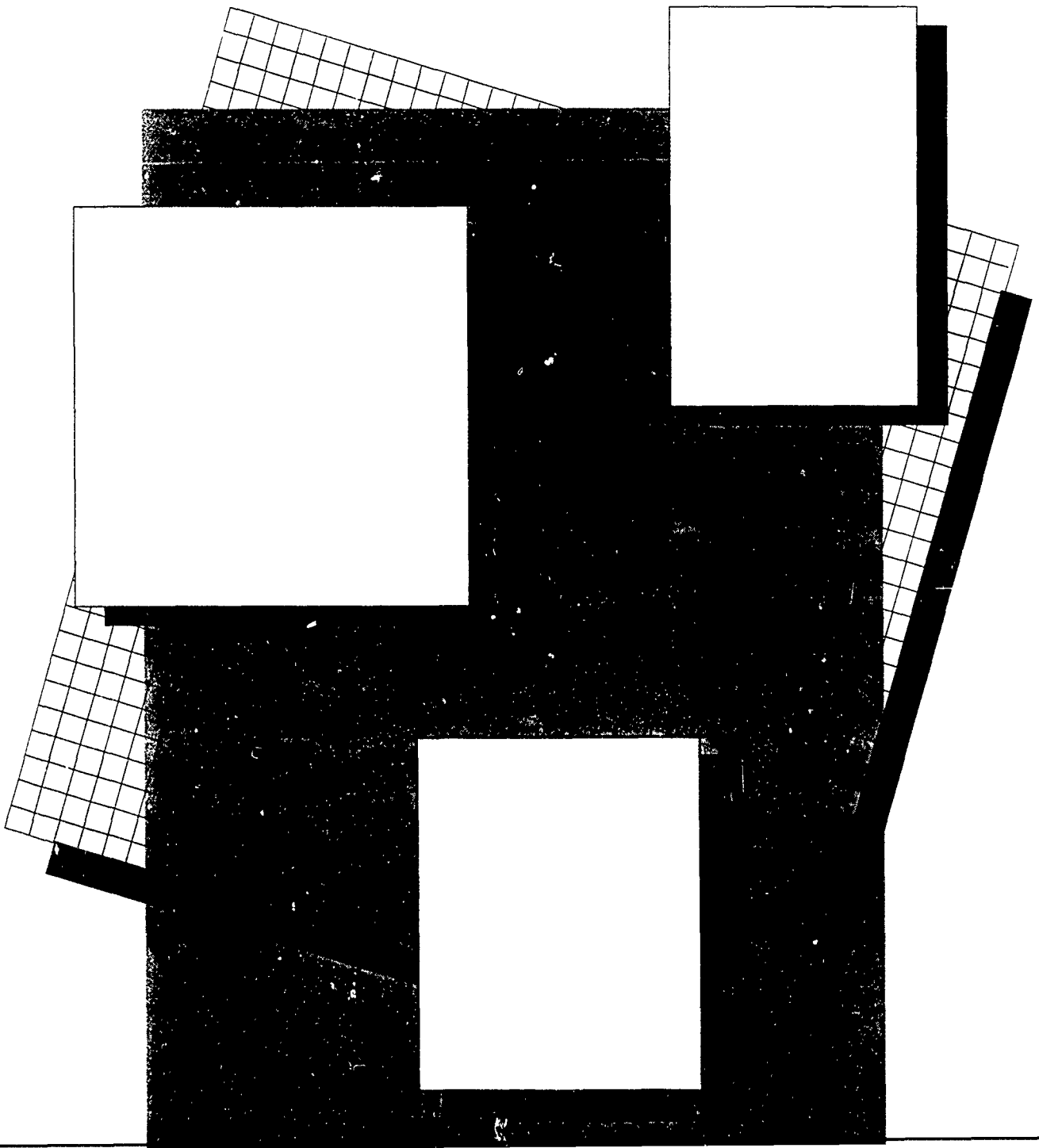
APPENDIX C

ARMY SBIR PHASE III ACCOMPLISHMENTS BROCHURE (DRAFT)



ARMY PHASE III

SBIR Program Review



The Army Phase III SBIR Program Review

Table of Contents

The Army's modernization strategy hinges on maintaining the technological edge over potential adversaries around the globe. The Army Science and Technology Master Plan (ASTMP) provides the Army's strategic vision for accomplishing these goals within the newly emerging global political and domestic budgetary environments. The Small Business Innovation Research (SBIR) Program is an important part of the Army's technology base initiatives. This program allows the Army to tap the vast resources of the most innovative community in our country today -- our small businesses.

The Army Phase III SBIR Program Review highlights Army-sponsored projects which have benefitted the Army across the spectrum of our critical technologies. Furthermore, these successful firms have successfully transitioned their technology developments into products which are generating revenues with funds obtained outside the SBIR Program. These success stories represent part of the return on our SBIR investment. We salute these firms and all firms participating in the Army SBIR Program.

George T. Singley III

Assistant Secretary

for Research and Technology

The Army actively supports goals set forth by the Administration and Congress to transition defense research into the private sector. The Small Business Innovation Research (SBIR) Program is a highly effective component of the Army's technology transfer efforts. The ultimate objective of every SBIR initiative is to develop a product which benefits the Army and which a small business can market on its own outside the program. This program has spawned a large number of successful transitions to date, and the Army is working towards increasing the number of transitions by placing greater emphasis on technology transfer from the generation of research topics to beyond the end of the SBIR work.

We are proud to present this 3rd Edition of the Army Phase III SBIR Program Review, which highlights recent technology transfer benefits provided by the Army SBIR Program. This brochure documents the successes of 21 innovative small businesses sponsored by the Army SBIR Program. These firms have risen through a highly competitive process in which they demonstrated the feasibility of their ideas and transformed them into marketable end products. These success stories show how the Army and small business have collaborated to develop high technology solutions to Army problems as well as generate significant revenues for small businesses.

Our current success stories represent the efforts of a wide variety of small businesses as well as many different Army research organizations. These two communities have demonstrated how collaborative efforts between government and industry can work to further the nation's economic and defense goals.

Dr. Gerald J. Iafrate

Director, U.S. Army Research Office

Introduction

The SBIR Program was established by Congress to help small businesses develop promising technologies into useful applications. The SBIR Program has benefitted the government through the enormous innovative resources of the small business community, and assisted numerous small firms by providing seed money to develop products and services which have resulted in commercial sales outside the SBIR Program.

As the United States continues to experience the political and economic changes arising from the end of the cold war, we must seek out innovative methods whereby industry and government can collaborate to meet the collective needs of the nation. The administration has set a new course for government which will create new methods of using science to develop critical technologies. This new era of partnering and cooperation will bring government and industry together in new ways. The SBIR Program is a leading example of how such cooperation can lead to success and economic growth.

A recent General Accounting Office study stated that the federal SBIR program had resulted in more than \$1 billion of non-SBIR revenues for participating small businesses. This document presents recent examples of how the Army SBIR Program has benefitted not only the Army and DoD, but the small business community at large.

An excellent example of how an SBIR project can provide both military and commercial benefits is pictured to the right. During the period just prior to Operation Desert Storm, an SBIR company was asked to provide field repair kits to seal holes in battle-damaged vehicles. These kits, which restored chemical agent and moisture resistance while providing partial ballistic protection, were a direct result of SBIR-funded efforts. This company now enjoys continued success marketing the same repair materials worldwide to repair surfboards, sailboards, and other recreational equipment.

An SBIR Perspective

The Small Business Innovation Development Act was signed into law in 1982, leading to the establishment of SBIR programs in all government agencies conducting significant amounts of research and development (R&D). Congress reaffirmed the success of the program in 1992 by reauthorizing the SBIR Program through the year 2000. This critical legislation also provided authorization for significant expansion of SBIR funding, and established the Small Business Technology Transfer Program - a program similar to SBIR which also includes participation by academia and other research institutions who form cooperative R&D agreements with small businesses. The overall objectives of the SBIR program are to:

- (1) Stimulate technological innovation;
- (2) Emphasize increased private-sector commercialization of technology developed through federal SBIR R&D;
- (3) Increase small business participation in federal R&D; and,
- (4) Foster and encourage participation by minority and disadvantaged persons in technological innovation through improved dissemination of SBIR information.

The Army historically has played a significant role in the DoD SBIR Program, as evidenced by the budget history presented below:

The Three Steps to Success

The SBIR Program is divided into three separate phases: Phase I, Phase II, and Phase III.

Each year, in cooperation with other DOD agencies, the Army solicits proposals seeking innovative solutions to high-priority science and technology problems. The best proposals receive Phase I contracts to study the feasibility of promising solutions to these Army needs. The SBIR Program is quite competitive, with approximately one in ten proposals being funded. Phase I contracts are generally limited to a six-month, \$70,000 effort.

Firms that successfully complete a Phase I effort may be invited to submit a proposal to extend the effort into a Phase II contract to fund research, development, and prototype production. Phase II awards generally cover a period of up to two years, with a funding ceiling of \$600,000. Approximately 30% of Phase I programs result in Phase II awards due to limited funding and a strong focus on only the most productive efforts which show potential for commercial application.

Phase III is the ultimate objective of all SBIR initiatives. In Phase III, a product or process developed during Phases I and II is successfully marketed and sold outside the SBIR Program. Small firms may achieve Phase III revenues through private sector commercialization or by obtaining non-SBIR government follow-on contracts. In fact, many of the Army's Phase III firms have pursued dual-use strategies which have resulted in sales of the same product to both the government and the private sector. The Army's emphasis on Phase III at all stages of an SBIR effort is best reflected in the fact that several Phase I efforts have progressed directly to Phase III without performing a Phase II effort.

Army SBIR Summary

Since the Army SBIR program was established in 1982, this program has steadily increased in size and importance within the Army's research community. The program has continually adapted to evolving Army research needs and worked closely with the dynamic small business industry to ensure that funded projects are focused towards products and services with commercial applications. This objective is fundamental to the goals set forth by Congress and the new emphasis on the transfer of military technologies into the civilian sector. The Army SBIR Program constantly promotes technology transfer and dual use initiatives which will benefit the Army and industry.

All research and development organizations within the Army participate in the SBIR Program to provide small businesses with the entire spectrum of opportunity within the Army. In FY93, 35 separate organizations across the country worked with small businesses to develop critical technologies and solve current technical problems. These organizations, representing the major commands shown in the figure below, coordinate with the Army SBIR Program Office to develop research topics, evaluate competing proposals, and manage small businesses during the performance of SBIR projects. Each organization is committed to providing each small business with the opportunity to develop new technology applications for the Army while establishing vital commercial positions.

The charts shown below demonstrate how Army SBIR funds are distributed among Phase I and Phase II efforts, and provide demographic data regarding the small businesses which participate in the program.

Army Technology Thrusts

Army SBIR efforts focus on ten Army Technology Areas which are defined in the Army's Science and Technology Master Plan as being critical to the success of the future Army. These areas are summarized below:

Advanced Materials and Manufacturing

Incorporates the synthesis, processing, characterization, and predictive modeling of materials, as well as manufacturing technologies to reduce the time, risk, and cost of acquiring materials. Increasing demands on future battlefield systems will require tailor-made materials and structures with major performance improvements. In addition, requirements for cost reduction and reliability enhancement will continue to push the limits of manufacturing science and technology.

Microelectronics and Photonics

Underpin all Army systems for signal acquisition, communication, computation, and processing. Microelectronics includes such technologies as smart high-resolution displays and hybridized integrated circuits. Photonics uses light to represent, manipulate, and transmit information which includes such technologies as integrated optics and fiber optic technology.

Sensors and Information Processing

Represent the brains of modern weapon systems by providing quick and accurate information about troop positions, target locations, and battlefield conditions. Sensors and information processing include the application of sensors and signal processing for acquiring, developing, fusing, and disseminating information on target identification and location. Sensors should operate throughout the electromagnetic and

acoustic spectrums. Information processing includes preparing and analyzing detector fronted signals, developing information and fusing information from multiband sensor networks, and forming communication links and networks where information is integrated and displayed.

High Performance Computing, Communications, Networking and Simulation

Necessary to achieve an electronic battlefield where material and doctrine development, training, and research can be accomplished synergistically. Focus on technology development to assure Army specific requirements are inserted into the Battlefield Distributed Simulation-Developmental (BDS-D) process and other simulation applications. This technology encompasses computing and communication, system representation and integration, physical environment representation, interface factors, and human characteristics and representation.

Advanced Propulsion Technology

Provides the muscle for Army land combat systems including aircraft, vehicles, guns, missiles, and soldiers. Increased (propulsion system) power-to-weight and reduced fuel consumption lead to more compact, better performing, less vulnerable platforms. Improvements in range and lethality of guns and missiles depend on the availability of propulsion systems and survivable, energetic materials with very high rates of energy output. Advanced propulsion technologies include such technologies as ground vehicle transmissions/engines and ballistic propulsion.

Power and Directed Energy

Will provide a distinct offensive and defensive advantage over adversaries. Critical areas for Army energetic power sources include a need for reduced cost, very high-energy density stealthy power sources for

C3I missions, laser countermeasures devices, night vision devices, laser designator, smart munitions, tank silent watch, and future soldier systems. Man-portable systems requirements desiring very high-power and energy densities, including reductions in weight and volume, must be met with safe and low-cost power sources. The three principal divisions of requirements for Army technology in directed energy include lasers, High-Power Radio Frequency (HPRF), and particle beams.

Biotechnology

Contributes to Army functions in many important ways from environmental remediation to improved soldier endurance and recovery. The Army uses biotechnology for medical and non-medical products and processes. The medical applications include disease prevention, defense against biological and chemical weapons, therapeutic interventions, diagnostics of infectious diseases, and sustainment of performance. The non-medical applications include chemical and biological (CB) defense, bioremediation, demilitarization, food technology, and materials design and manufacture.

Life, Medical, and Behavioral Sciences

Address the development of technologies to protect, sustain, and restore the health of soldiers and units. Research requirements include food and nutrition technologies as well as medical technologies for improved vaccines, drugs, therapies, diagnostics for infectious diseases, chemical and biological defense, traumatic battle injuries and casualty care, combat dentistry, and treatment of soldier stress. Research in behavioral science and technology enhances soldier-system performance.

Environmental and Geosciences

Encompasses the physical environment where the Army lives, trains, tests, and fights. Research also considers the effects of the environment on material, personnel, and tactics. Environment and geosciences technology includes environmental clean-up; identification of nuclear, biological, and chemical (NBC) hazard zones; and maintaining training and testing lands for continued safe use.

Engineering Sciences

Focus on structural mechanics, fluid dynamics, control theory and control systems, and systems engineering and integration. Engineering sciences offer significant improvements in system efficiency, durability, performance enhancements, and cost savings throughout the Army's infrastructure. Research in engineering sciences includes design, modeling, and fatigue and failure analyses in structural mechanics; fluid dynamics methodologies; control theory and integration; experimental simulation; and systems engineering.

Built-In Test Insertion

Alternative System Concepts, Inc.

The complexity and shrinking size of microelectronic devices used in today's Army battlefield equipment no longer allow test and maintenance equipment to be plugged into the operational equipment. The solution is to design circuits that contain internal built-in test (BIT) devices, modules and subsystems.

The U.S. Army Electronics Technology & Devices Laboratory (ETDL) awarded a Phase I contract to Alternative System Concepts, Inc. (ASC) of Pelham, New Hampshire, to develop a design tool that would support development of standard test interface protocols. ASC's novel approach was to support two emerging DoD standards: Very high speed integrated circuit Hardware Description Language (VHDL) and the Joint Test Action Group (JTAG) Boundary Scan Test Architecture.

ASC researched highlevel synthesis methods and the most promising method selected for Phase II development of a design tool, named VBIT(tm) (VDHL built-in test). ASC invented a new design paradigm which makes design automation tools easier to understand and use. VBIT tools also support high priority design form test requirements.

Following formal validation and products beta testing, defense contractors are considering using VBIT tools for new programs such as the Rapid prototyping of Application Specific Signal Processors (RASSP).

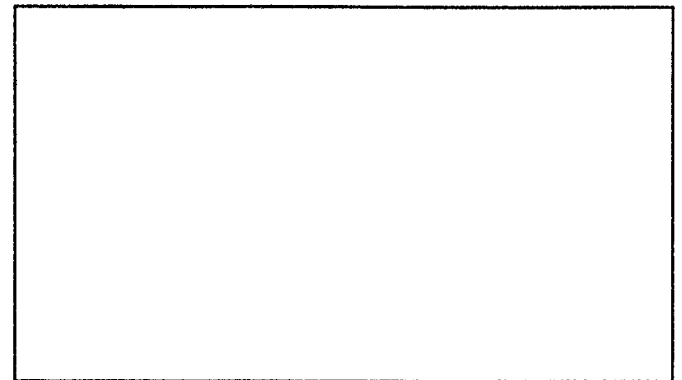
In the short term, VHDL modeling will be extended to microwave, millimeter wave and analog circuit applications. During the long term, modeling will be extended to mechanical and other engineering fields which is generically referred to as GHDL. The payoff for the Army will be to the soldier with dependable next generation weapon systems that use smart, built-in tests.

Principal Investigator

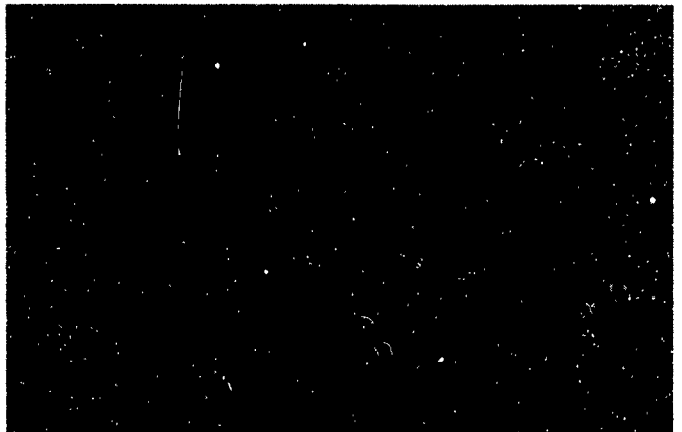
Jake Karrfalt
Alternative System Concepts, Inc.
2 Inwood Circle, P.O. Box 694
Pelham, NH 03076-0694
(603)635-3553

Army Project Manager

Pat McHugh
Electronic Power Systems Directorate
AMSRL-EP-RA
USARL
Fort Monmouth, NJ 07703
(908)544-3501



Phase III Impact



New Technologies in Multimedia and Telecommunications

Analytical Software, Inc.

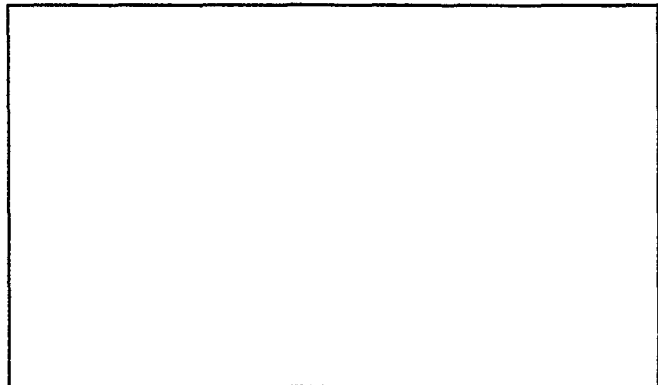
Telecommunications and multimedia are undergoing rapid changes which represent the convergence of video, computers and TV in the widely described "information highway." This SBIR effort sponsored by Army Research Laboratory (ARL), addresses the information system capabilities available on today's computer networks such as Internet or MCI Mail, and new technologies which will be available in the future, such as digital video.

In the telecommunications arena, Analytical Software Incorporated (ASI) of Dallax, Texas, developed an easy-to-use software package known as groupware. Groupware permits a group of geographically dispersed people to jointly work on word-processing documents and charts by easily sharing documents. During Phase II, Analytical Software linked 15 Army research sites in a system compatible with the DoD's electronic mail network for easy sharing of files and related information.

Analytical Software adapted its SBIR work to develop Nordstrom VIP Express, which links Nordstrom's key suppliers. This was one of MCI Mail's largest promotions during 1991, and it generated over \$5 million of new revenue for MCI, primarily new or expanded phone services, plus over \$150,000 of electronic mail services.

ASI also developed an easy-to-use multimedia Windows package which integrates high quality photographs, voice, stereo quality music, video and text. ASI developed two CD-ROMs in Phase II, and created two more for the Marines and the Army. Analytical Software's future primary focus will be on solutions which create, transmit and store video for multimedia presentations on PCs, workstations, VCRs or via teleconferencing.

Principal Investigator:
Mark Haley



Analytical Software, Inc.
10939 McCree Road
Dallas, Texas 75238
214-349-5977

Army Project Manager:

Dr. Michael Evans and Dr. Jim Gnat
Software Technology Branch of the Army Research
Laboratory
(STB-ARL)
115 O'Keefe Bld., Georgia Tech
Atlanta, Georgia 30332
404-894-3108

Phase III Impact



Gun Bor Evacuation Design

Computational Mechanics Corporation

Under SBIR funding, Computational Mechanics Corporation (CMC) of Knoxville, Tennessee, developed a general methodology for separating the two most difficult computational fluid dynamics (CFD) tasks, i.e. algorithm evolutionary development versus code evolution/

platform.

The AKCESS.BOREVAC design code will have modern X-window pull-down menus for access to preprocessing graphics. Similarly, model results will be viewed graphically and dynamically to ensure accurate interpretation of results. Benefits include the speed-up and cost reduction of prototyping by numerical investigations.

Direct commercialization applications include supersonic inlets and fuel injectors for the supersonic combustion ramjet and other injector flows of interest to the aerospace, automotive, and commercial engine industries.

Principle Investigator:
Ed Schaub

(615) 546-3664

Army Project Manager:
Dr. Charles Andrade
Benet Laboratories, ARDEC

spread. This separation results in greatly reduced time and expense for CFD model development.

Using CMC's AKCESS * software platform CMC is performing a Phase III effort for the Army Research Development and Engineering Center's Benet Laboratories at Watervliet Arsenal to model gun bore evacuation design. Both artillery and tank cannons employ bore evacuators to purge residual propellant gases from the barrel. After a projectile leaves the muzzle, the stored gas is subsequently ejected thru the barrel. CMC's is employing its modular AKCESS * software platform to study designs for more rapid, effective bore evacuation. Experiments have demonstrated that flows associated with gunbore evacuators can be accurately modeled using CMC's AKCESS.BOREVAC design

Phase III Impact



Personal Video & Teleconferencing

Delta Information Systems, Inc.

Historically, video teleconferencing has been beyond the reach of single-users due to bulky, expensive equipment. With the support of the SBIR program and sponsorship of the U.S. Army Research Laboratory (STB-ARL), Delta Information Systems, Inc. of Horsham, Pennsylvania has successfully combined video and audio teleconferencing with screen sharing in an IBM PC compatible to provide low-cost, personal, desktop video teleconferencing. The system is meant to be used like a telephone and allows two (or more) users to see and hear one another while collaborating on documents, spreadsheets, etc.

This non-proprietary system adheres to evolving video teleconferencing standards, and can communicate with compliant room equipments and multipoint control units using Basic Rate Integrated Services Digital Network (ISDN). By taking advantage of ISDN, Delta's system replaces the telephone for everyday communication needs.

Delta's system is designed to accept technology insertions as less expensive and more capable components become available. Video is displayed within a movable, scalable, and resizable window on the PC desktop.

Unlike other currently available desktop videoconferencing systems, Delta's system permits two users to "share" a PC desktop. Keyboard and mouse control can be shared by both users. As a result, a user can remotely operate software on the other user's PC. In addition, snapshots of all or a portion of a screen can be taken. The snapshots can be shared and can be drawn upon by either user. Other files may also be shared and transferred between users' systems.

Targeted customers for these technologies are federal, state and local governments, as well as companies and private parties.

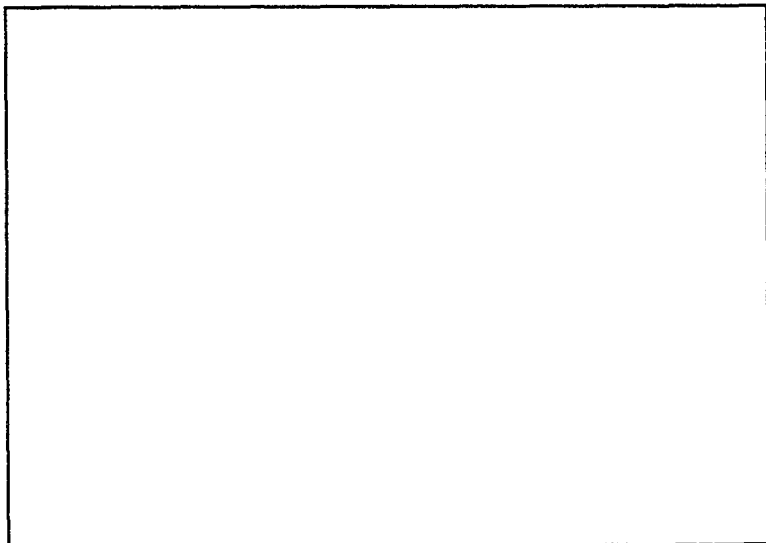
Principal Investigator:

Richard Schaphorst

Army Project Manager:

John W. Gowens, Ph. D.

U.S. Army Research Laboratory (STB-ARL)



Phase III Impact

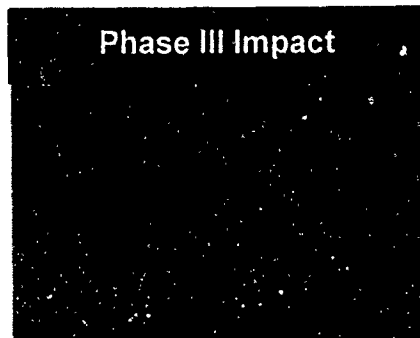


Image Viewing and Analysis System

ENSCO, Inc.

The Product Assurance and Test Directorate of the U.S. Army Armament Research, Development, and Engineering Center has developed a number of on-line automated Non-Destructive Inspection (NDI) systems for inspection of manufactured products. The digitized signal from the NDI sensor is analyzed by the system to identify defects in the manufactured item. Under normal production, gigabytes of data are analyzed and archived each day.

Inspection algorithm development and maintenance, as well as post-review of the quality of the on-line systems, have been a difficult, costly, and time consuming effort. To decrease the effort, ENSCO, Inc. of Springfield, Virginia, under an ARDEC SBIR, has developed an Image Viewing and Analysis System (IVAS). It is a powerful and yet inexpensive tool, operating on any Apple Macintosh II series computer or Quadra, with many applications above and beyond the Army's inspection requirements. It incorporates powerful and elegant data visualization routines enabling the user to quickly analyze and draw conclusions from raw and or processed data of any origin by sight.

IVAS is as simple to use with image and spectral data as most spreadsheets are with scalar data. A novice can experiment with powerful image processing functions and immediately see the results in a meaningfully interpretable format. Many "what if" scenarios can be tried and compared side-by-side.

IVAS is sufficiently generic to be useful for many applications. Scientific applications include analysis of NDI data, satellite data, laboratory data, medical data, and a host of similar data.

Principal Investigator:

John Perry

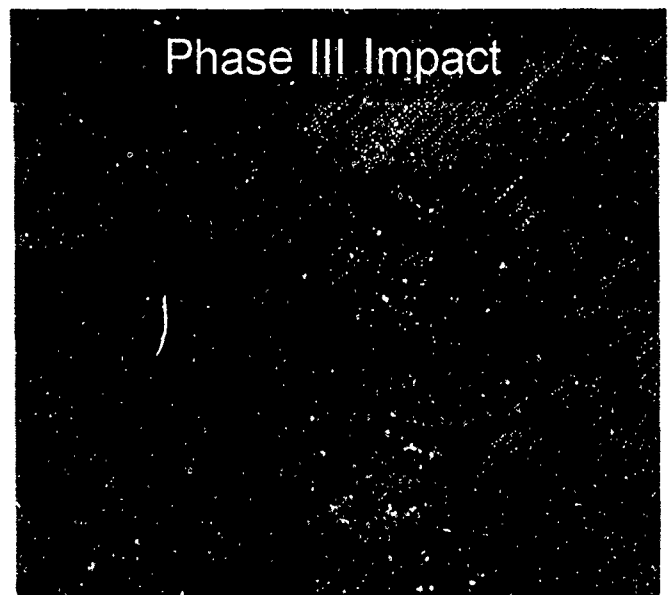
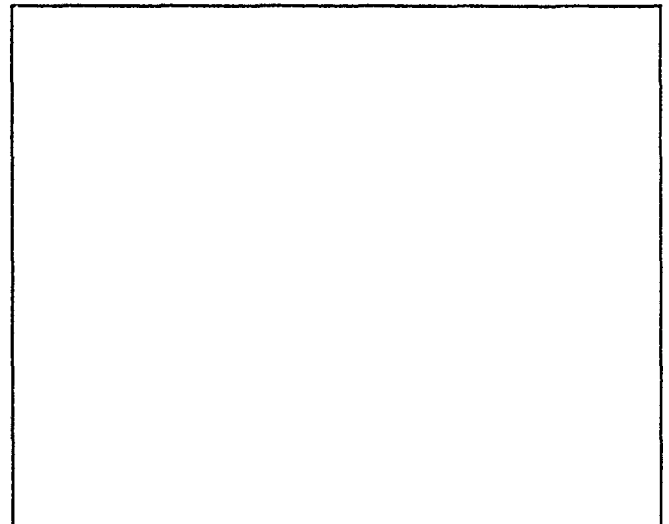
(703) 321-9000

Army Project Manager:

Paul D. Wilson

U.S. Army ARDEC

(201) 724-2135



Shielded Enclosures for Army Research Labs

EWS Ltd.

EWS Ltd.'s Phase I research contract for Harry Diamond Labs (now Army Research Labs) Adelphi, MD was to determine whether standard industrial enclosures meeting National Electrical Manufacturers Association (NEMA) type 3 or 4 specifications could be cost effectively modified to resist Electro magnetic pulse (EMP) under MIL SPEC 188-125. Now EMP enclosures are custom manufactured, and priced at a very high premium over standard designs. If cost effective modifications could be achieved, then considerable savings would be accomplished both in new and retrofit applications.

As part of research and development, EWS Ltd., located in Croton-on-Hudson, New York, held a Value Analysis/Engineering Workshop. The workshop examined how a standard NEMA Type 3 or 4 design electrical enclosure, sized at 1100mm x 1100mm x 225mm deep could be converted to resist EMP. Through the use of data obtained in the study, EWS Ltd. supplied 4 units instead of the original one unit as called for in the contract. This was without any additional cost to the Government.

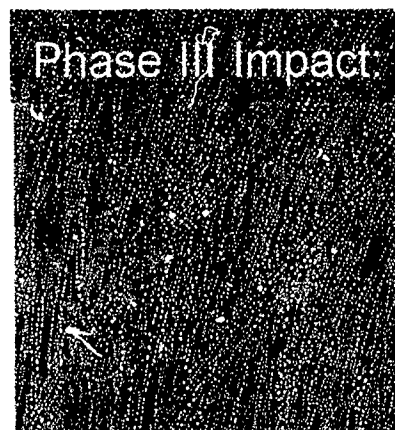
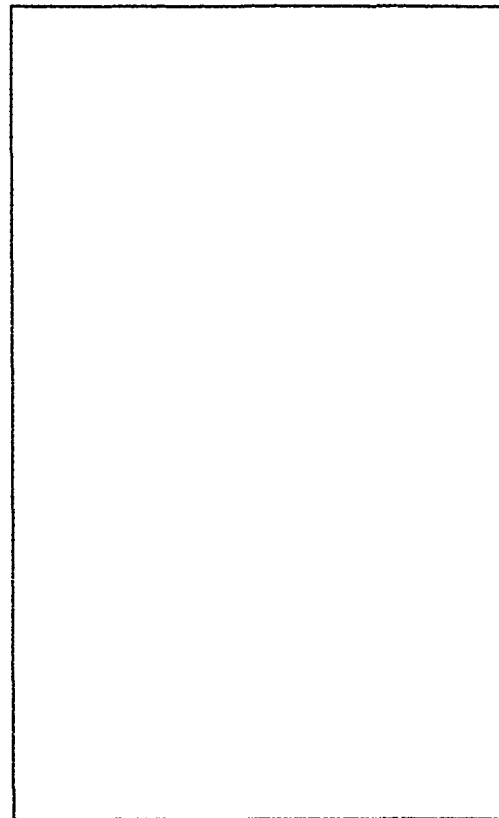
A topic covered under the Workshop and proposed for our Phase II is whether NEMA 4 metal and plastic enclosures can be modified to use inflatable gaskets developed by another Phase I contractor for HDL.

Though briefly covered at the Workshop, a Phase II request is to see whether plastic (polymeric) molded enclosures can be modified to meet EMP specifications. Polymeric enclosures have many advantages over metallic cases.

This is the second Phase I SBIR contract that EWS Ltd. has directly converted to a Phase III, commercially marketable product. The previous contract was for the US Army COE, Waterways Experiment Station, Vicksburg, MS. They have successfully marketed scale model armor units used for oceanographic research, and are now producing these units for international sales.

Principal Investigator:
Robert J. Richter

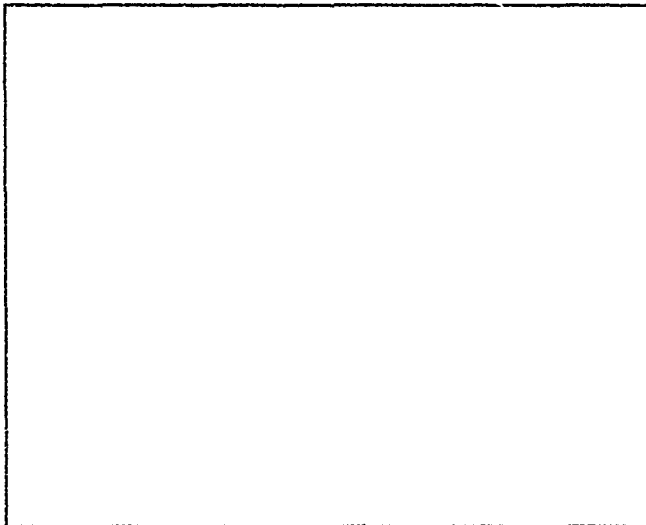
(914) 271-5356
Army Project Manager:
Thomas Bock
HDL



High Barrier Polymeric Thermostabilized Meal Tray

Foster-Miller, Inc.

Thermostabilized foods with a 3-year shelf life have successfully been used to feed military personnel at fixed locations where freshly prepared mess hall food is not available. Each meal tray contains a sufficient quantity of a single product to feed 12 to 18 individuals. The tray's unique size



and material of construction limit this industry to only one manufacturer who is equipped and willing to produce these non-microwaveable trays. This situation seriously limits the capability for surge production during mobilization such as Operation Desert Storm.

In an effort to increase industrial sources for tray/container procurement the U.S. Army Natick Research Development & Engineering Center (NRDEC) is presently funding a Phase II SBIR program with Foster-Miller, Inc (FMI) of Waltham, Massachusetts. By developing a tray that has desirable commercial features (i.e., dual oven reheating, recyclability, extended shelf life) NRDEC and FMI expect to meet the military's unique requirements with a commercially beneficial food packaging system. In Phase II, FMI has used a unique combination of biaxially oriented LCP film and CPET to form a thermostabilized meal tray that

provides outstanding water vapor and oxygen barrier properties.

FMI has begun forming a pathway to commercialized products through its subsidiary company, Superex Polymer, Inc. This commercial venture will bring FMI's LCP barrier film technology to the 300 million unit per year (\$36 million per year) shelf stable container market. Other commercial opportunities are being explored including medical and pharmaceutical products, cosmetic and chemical packaging, beverage containers, and polymeric fuel tanks.

Principal Investigator:
Leslie S. Rubin
(617) 290-0992

Army Project Manager:
Lauren Oleksyk
U.S. Army Natick RD&E Center
(508)651-4555

Phase III Impact

- Led to the formation of **Superex Polymer, Inc.**
- FMI Investment in Superex exceeds **\$600,000**
- Superex projects over **\$30 million commercial manufacturing and custom extrusion**

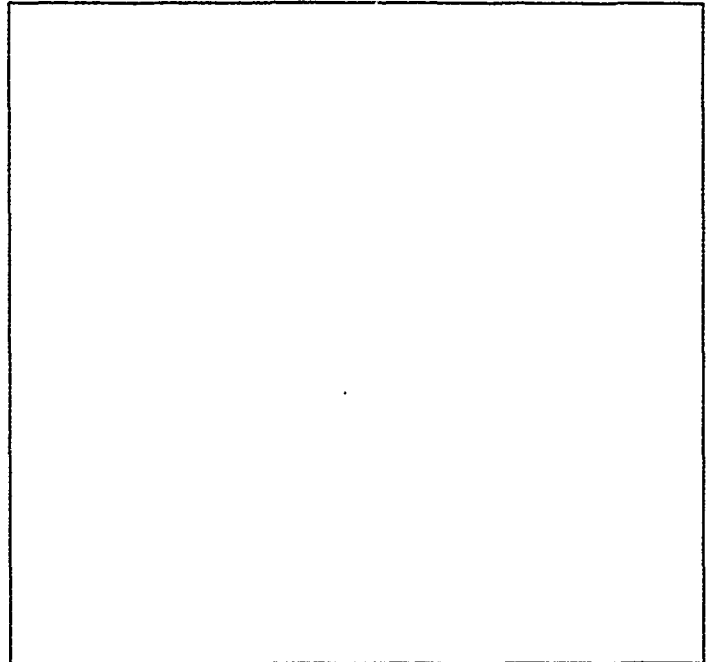
Materials Processing Analysis with In situ Ellipsometer

J.A. Woollam Co., Inc.

Thin solid films are used in thousands of commercial products ranging from coatings on bumpers of cars, to oxide layers in microelectronics, to magnetic layers in computer diskette manufacturing. As films become thinner and many layers of films are deposited on top of each other, the production of these materials becomes ever more difficult. Industry is looking for new ways to better control the thickness, composition, and film properties to improve the performance, lifetime, and quality of products while bringing down production costs.

Light beams are ideal probes of materials because they are totally non-destructive unless they are of very high intensity. J.A. Woollam Corp., of Lincoln, Nebraska, has developed a new process control instrument under Army and other agency Phase I and Phase II SBIR support. This instrument is called an ellipsometer and produces a pencil-like directed light beam, which is incident obliquely on a material under investigation. This beam is of controlled wavelength (from blue to red light), and is polarized. The changes due to reflection from the sample are measured. The ellipsometric technique is extremely sensitive to thin films and can potentially control depositions; atom layer by atom layer if needed. The instrument can monitor and control fast deposition processes as well.

Phase III commercialization is being achieved using internal funds, and the company has already sold five of the forty-four wavelength ellipsometers developed under SBIR support. Marketing surveys indicate that demand for this 44 wavelength ellipsometer will be quite high. It represents a major advance in low-cost, high accuracy thin film process control.



Principal Investigator:
Blane Johs
(402) 477-7501

Army Project Manager:
Jack Dinan
Night Vision and Electro Optics Directorate
(703) 704 3234

Broadband Laser Eye Protection

John Brown
Associates Inc.

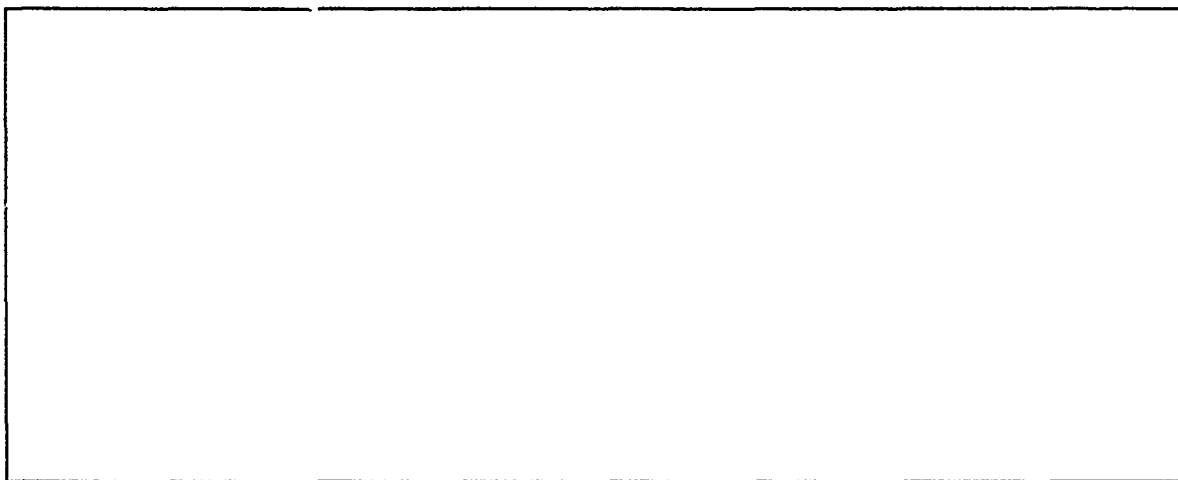
There is a growing need to provide laser eye protection to both military and civilian personnel. A laser beam can blind a person before he can blink, and the eye injury can be permanent. However, Army-issue laser-protective goggles protect against some but not all lasers, and interfere with the wearer's color perception.

With the support of the SBIR program and sponsorship by the US Army Medical R&D Command, John Brown Associates of Stirling, New Jersey has developed an innovative popular laser while maintaining full natural color vision. It transmits only three narrow spectral bands, one red, one green and one blue, and is opaque to the rest of the visible

currently under study by a major American Safety equipment firm for their product line. Targeted customers include military field personnel, civilian police, and medical and research laboratory workers.

Principal Investigator
John A. Brown
John Brown Associates Inc.

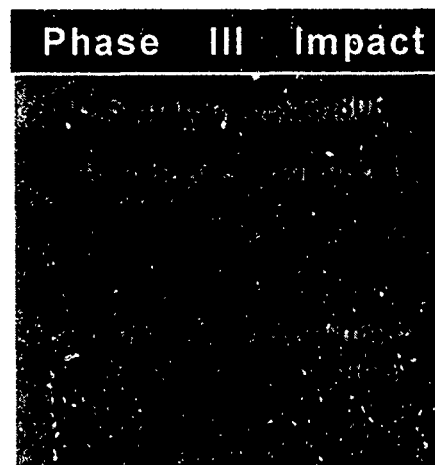
Army Project Manager
David J. Lund
Letterman Army Institute of Research
(@Brooks AFB) 210/536-4631



spectrum. The measured optical density between the passbands, especially at the laser wavelengths, is four or better.

Soldiers and police report that vision through this filter is excellent. Outdoor scenes are bright and clear and in full natural color. This effect is like that of a pair of fine sunglasses but without the sunglasses' color distortion.

Forty-eight pairs of goggles incorporating this filter have been supplied to the Army; several pairs have been sold to medical laboratories; and samples are



Advanced Team Decision Making Model

Klein Associates Inc.

Much of the work of the military is done by teams. For example, teams with an inter-agency membership often are assembled and assigned to plan for a potential crisis or problem. The need for effective team decision making has become particularly acute with reduced budgets and increased responsibilities. There is simply less room for inefficiency.

With the support of the SBIR program through the sponsorship of the Army Research Institute for the Behavioral and Social Sciences, Klein Associates Inc., of Fairborn, Ohio, developed a theory-based training program that enables U.S. Army Officers to achieve more effective strategic team decision making.

The research staff of Klein Associates, trained in cognitive and experimental psychology, had years of prior experience observing, evaluating, and contrasting teams at a multitude of Army facilities. For the Phase II contract, Klein Associates ob-

served numerous teams engaged in a variety of decision-making exercises at the Air Force Institute of Technology (AFIT), U.S. Army War College (USAWC), and the Industrial College of the Armed Forces (ICAF). Based on the observation and research, Klein Associates identified 10 key behav-

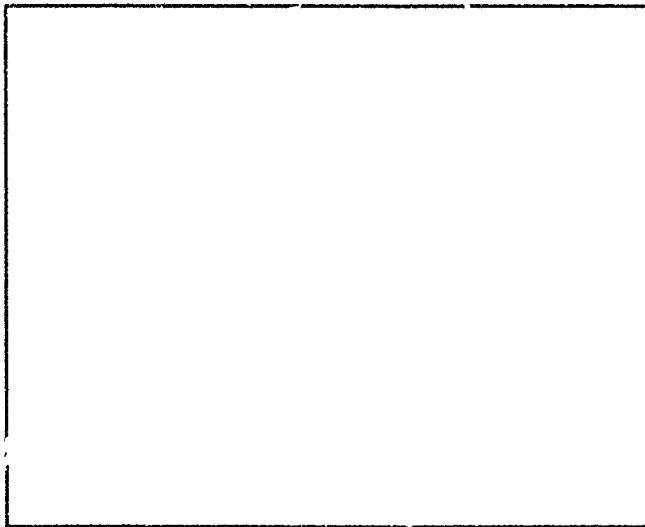
iors that are essential to high performance teams that are organized in a model of Advanced Team Decision Making (ATDM). Two Phase III successes occurred during the Phase II contract. First, as a result of the program's success, the ATDM model was embedded in the core curriculum for repeated future use at the Industrial College of the Armed Forces. Second, Klein Associates contracted with one outside client, the F-16 System Program Office at Wright-Patterson Air Force Base, Dayton, Ohio, to train its teams in ATDM.

Principal Investigator:

Caroline E. Zsombok, Ph.D.
Klein Associates Inc.
(513) 873-8166

Army Project Manager:

T. Owen Jacobs, Ph.D.
U.S. Army Research Institute for the Behavioral and Social Sciences
(703) 274-9136



served numerous teams engaged in a variety of decision-making exercises at the Air Force Institute of Technology (AFIT), U.S. Army War College (USAWC), and the Industrial College of the Armed Forces (ICAF). Based on the observation and research, Klein Associates identified 10 key behav-

Phase III Impact



Digital Compass Systems

KVH Industries, Inc.

Interested in the potential of overcoming the severe magnetic interference problems compasses encounter in armored vehicles, Picatinny Arsenal of the U.S. Army awarded KVH of Middletown, Rhode Island, a Phase I SBIR contract award in September, 1990. This required the development of a new technology compass which would work well on the M1 Abrams main battle tank and be compatible with the new Global Positioning System (GPS).

A Phase II contract awarded in July, 1992 enabled KVH to develop software which would accept vital steering information from GPS and display it

War, KVH has participated in extensive testing programs as the Army and Marines pursue improvements to their force navigation capabilities and ways to reduce fratricide.

KVH has leveraged basic research funded by the SBIR program to become one of the fastest growing small businesses in the country. In both 1988 and 1989 KVH was included on INC. Magazine's list of the 500 fastest growing companies in the United States. Currently, KVH is commercializing their compass technology enhancements developed during two Phase II SBIR Grants from the U.S. Navy and Army.

Principal Investigator:
KVH Industries, Inc.
(401) 847-3327

Army Project Manager:
Ted Panayotoff
Dept of U.S. Army AMCCOM
(201) 724-6028

in an easy-to-understand format for vehicle commanders and drivers. This technology was "spun-off" commercially and all of KVH's high-end commercial compass products now accept and display GPS steering information.

During Operation Desert Storm in the Persian Gulf, few U.S. Military units were prepared to navigate in the ocean-like desert environment. In response, the Marines used the latest generation of KVH technology during the buildup of Operation Desert Shield, and after much success, placed an additional \$1.5 million order for KVH compasses immediately prior to the Gulf War. Since the Gulf



Mixed Oxidant Disinfectant Technology

Los Alamos Technical Associates, Inc.

Safe water is vital to all Army operations, and treating the water found wherever the Army must operate is critical to the accomplishment of its mission. For the past twenty years, the Army has relied on calcium hypochlorite, commonly known as HTH, as a disinfectant. While effective, HTH also

including: water disinfection, removal of organic and metallic contaminants from ground water, treatment of waste water effluent, odor control for sewage systems.

Because of the great potential for this technology in Latin American countries, the Pan American Health Organization (PAHO) encouraged commercialization of MIOX in Latin American countries. Subsequently, 20 MIOX systems have been tested and demonstrated in Paraguay, Columbia, Peru, Mexico, Honduras, Guatemala, and Trinidad. Other commercial applications include its use in eliminating objectionable hydrogen sulfide gases from sewage lines for the City of Albuquerque Waste Water Division and in treating contaminated ground water.

Principal Investigator:

Dr. Wesley Bradford
Los Alamos Technical Associates, Inc.
(505) 662-1855

Army Project Manager:

Amos Coleman
U.S. Army Belvoir RD&E Center
(703) 704-3351

is not readily available, corrosive, flammable when in contact with oil, and releases chlorine gas when wet.

Because of these inherent disadvantages, in 1991 Belvoir R&D Engineering Center (BRDEC) awarded Los Alamos Technical Associates, Inc. (LATA) a Phase II SBIR contract to determine the feasibility of integrating the company's patented MIOX technology with Reverse Osmosis Water Purification Units (ROWPU's), to determine and optimize the performance characteristics of the electrolytic cell, and to determine its ability to disinfect water in laboratory and field conditions.

MIOX is a process that produces a very strong solution of Mixed Oxidants with many applications,



The VR-LINK™ DIS Networking Toolkit

MäK Technologies, Inc.

The development of Distributed Interactive Simulation (DIS) technology has revolutionized the training, simulation, and acquisition process throughout the DoD. MäK Technologies of Cambridge, Massachusetts, through the SBIR program, has produced the first commercial product in the DIS technology area, the VR-Link™ DIS networking toolkit.

DIS technology was developed in the mid 1980's, by DARPA's SIMNET Program, to provide a multiplayer virtual environment for combined arms tactical team training. This new networking paradigm enables large numbers of soldiers to practice warfighting against each other in an international and geographically dispersed simulation environment.

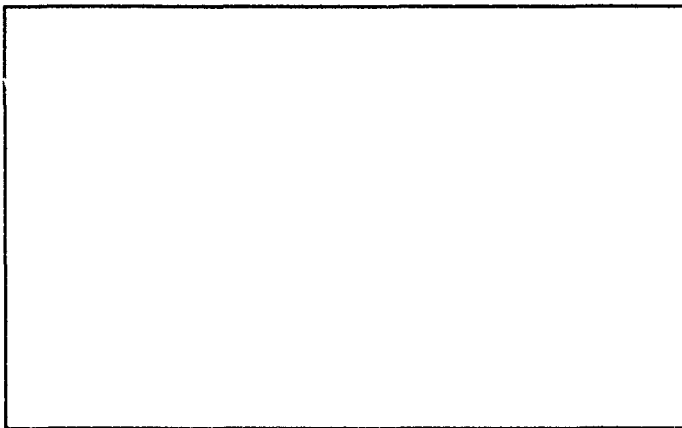
There has been over \$300,000 worth of labor invested in the software toolkit. Since each of MäK's approximately 30 customers does not have to invest labor in a DIS networking capability, the government has saved over \$9,000,000 in uncharged labor. MäK is currently marketing VR-Link™ to commercial entertainment and Virtual Reality companies.

Principal Investigator:

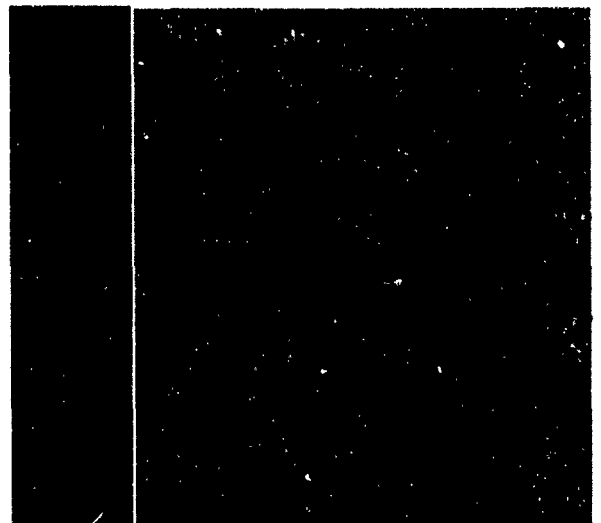
John Morrison
(617) 876-8085

Army Project Managers:

Admiral Piper, Mike Garnsey
STRICOM
(407) 380-4287



MäK's Phase I project ended in August 1992 with the development of a software toolkit design which is easily portable to new hardware platforms, provides all the needed DIS functions for a wide variety of applications, and is easily integrated into simulation by application developers. MäK has also entered Phase III commercialization directly out of Phase I. VR-Link™ has been selling well as the ONLY commercial DIS networking package available in the United States.



Producing Intermetallic Powders with Improved Sinterability

MER Corporation

The growing popularity of intermetallics as materials, aided by their superior specific (density-compensated) properties, presents an excellent market potential. These materials' properties, such as elevated temperature strength, modulus, etc. and excellent high temperature oxidation resistance, are especially marketable in the Powder Metallurgy (P/M) industry.

With the support of the SBIR program and the sponsorship of the US Army Research Laboratory (Materials Directorate), Materials and Electro-

chemical Research (MER) Corp. of Tucson, Arizona has successfully produced intermetallics powders with spherical shape and small particle sizes in the range 1-

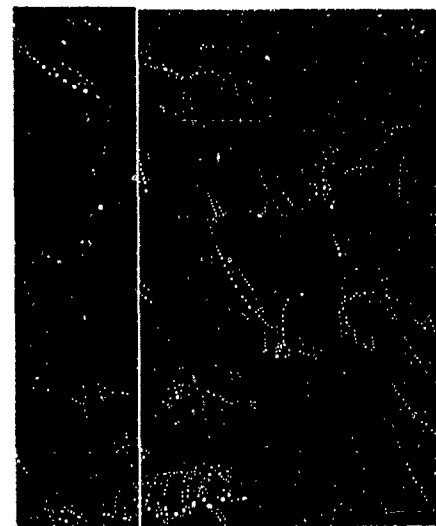
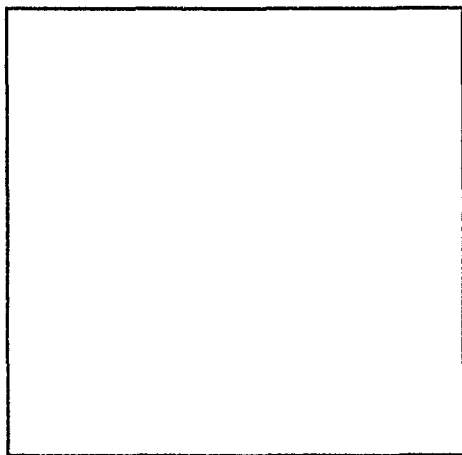
10mm. Starting with constituent elemental powders of different intermetallics, a wide range of intermetallic compounds, including binary, ternary as well as quaternary compositions, have been synthesized using its proprietary Plasma-initiated Self-propagating High temperature Synthesis (PSHS) reactions. The intermetallics synthesized through the PSHS reactions are then converted into spherical powders in the size range 1-10mm (mostly <5mm) by another proprietary process namely an arc/spark erosion process.

Thus, the Phase II research resulted in a technique highly suited to the production of spherical intermetallics powders with fine particle sized without

sacrificing purity and is particularly well suited to meet specialized research or production needs. The process is cost-effective in small (<1kg) or larger production runs, which is a major advantage for researchers. Research aimed at evaluating the mechanical properties of intermetallics produced from MER powder is presently in progress.

Principal Investigator:
Dr. Sumit Guha

Army Project Manager:
Mr. R. J. Dowding
Army Research Laboratory, Materials Directorate



Millimeter-Wave Solid-State Noise Source

Noise/Com

Solid-state noise sources have outstanding stability with temperature and voltage and ripple-free noise power output over standard waveguide bands. Stability, constant spectral density over wide bandwidths, ease of fabrication, compactness, and low biasing power requirements are the advantages of solid-state noise sources over cumbersome gas tube noise sources.

Solid-state noise sources have a large variety of uses. They are being used to: 1) Evaluate the performance of secure communications systems, telephones, and CATV; 2) Confuse enemy radar or communications for jamming purposes; 3) Imitate signals in threat-simulation systems 4) Obscure radar return from enemy targets and limit the radar's range; 5) Evaluate digital communications systems for dynamic range and sensitivity and tune for maximum performance by using noise as a test signal.

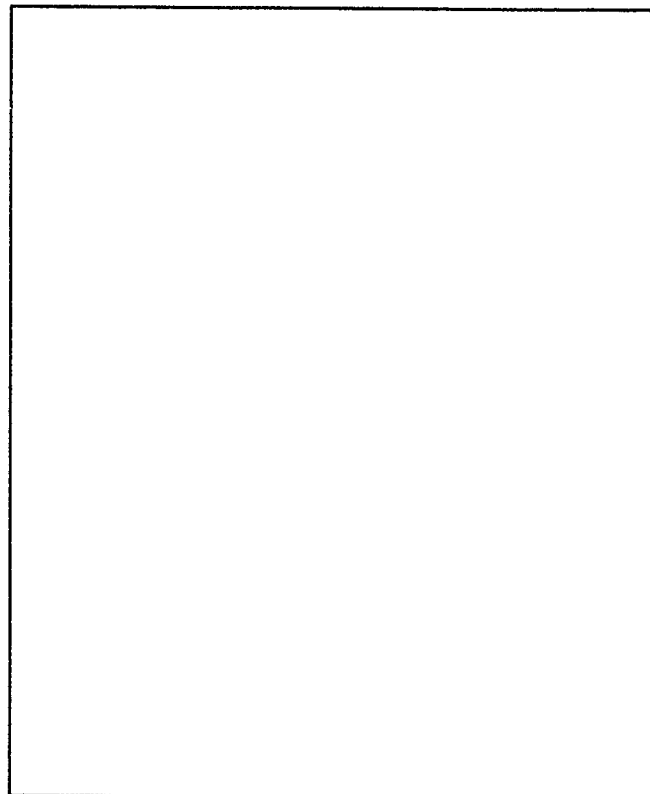
The wide variety of uses of noise sources and their lack of one in the 75-110 GHz range led to a Phase I SBIR effort by Noise/Com of Paramus, New Jersey under the Electronics & Power Sources Directorate (formerly ETDL). Development of W-band solid-state noise sources was continued under Phase II resulting in the establishment of the technology base for the quantity fabrication of W-band solid-state noise sources for a variety of military and commercial applications.

As a result of this program and a world wide demand, Noise/Com offers millimeter-wave solid-state noise sources covering full and customized bandwidth up to a frequency of 100 GHz.

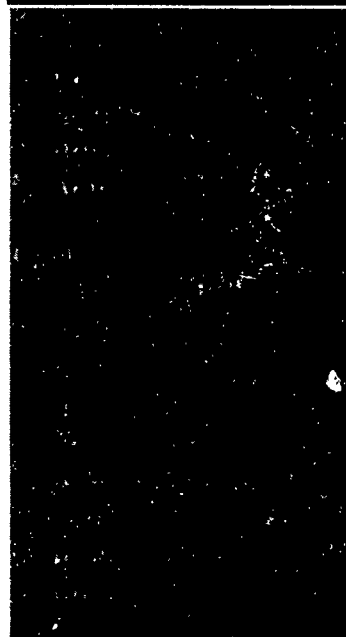
Principal Investigator:

Noise/Com
(201) 261-8797

Army Project Manager:
Elmer Freibergs/John Armata
Army Research Laboratory
Electronics & Power Sources
Directorate
(908) 544-2813/2259



Phase III Impact

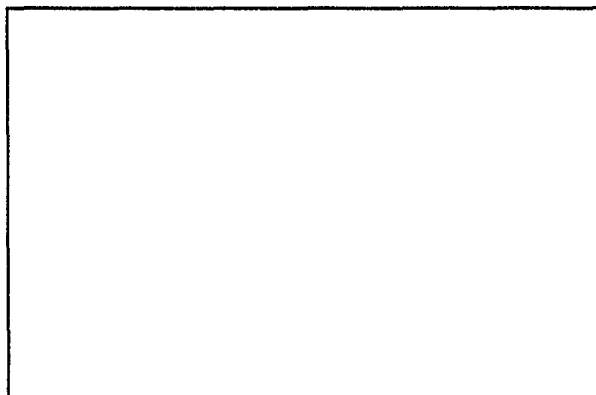


Ultra-Wide Band Optoelectronic Microwave Mixer for Phased Array Radar

Ortel Corporation

High-speed optoelectronic technology offers broad-band, lightweight, EMI immunity and flexibility features for phased array radar systems. Combining optoelectronics with MMIC technology will be extremely valuable for future phased array radar designs where tens of thousands of radiating and receiving elements are involved.

Sponsored by the U.S. Army Harry Diamond Laboratory, Ortel Corporation of Alhambra, California developed a 20 GHz photodiode and combined it with a low-noise GaAs MMIC amplifier to form an optical receiver. The photodiode based in InP was flip-chip mounted onto the GaAs MMIC



amplifier to achieve small size and to minimize parasitics. Compared to an optical receiver in which the photodiode and amplifier are separate units, the optical receiver developed in this program is more compact and has 6 dB better noise performance.

The 20 GHz photodiode developed has become a commercial product: the Model 2516A Photodiode Module. It has excellent bandwidth, responsivity and amplitude flatness for operation at 1310 and 1550 nm wavelengths. The photodiode is a p-i-n mesa structure which was optimally designed for high speed and high quantum efficiency. The responsivity is typically greater than 0.7 A/W and operates from -40° to +70°C. The amplitude flat-

ness is ± 2 dB from 1 to 20 GHz.

The Model 2516A Photodiode module has been available since mid 1992 and has already been sold for a variety of high-speed microwave applications. These include microwave delay lines, antenna remoting and EW systems.

Principal Investigator:

Dr. Carol Gee
Ortel Corporation
(818) 281-3636

Army Project Manager:

Dr. George Simonis
U.S. Army Harry Diamond
Laboratories, AMSRL-EP-EE
(301) 394-2042

Phase III Impact



A Continuous Muzzle Reference System for Tank Ballistics

Princeton Scientific Instruments

A Continuous Muzzle Reference System (CMRS) has been developed by Princeton Scientific Instruments of Monmouth Junction, New Jersey, that accurately measures the angular motion of the muzzle of a tank mounted cannon relative to its trunnion while the tank is in motion and as the round exits the muzzle. In Phase II of this SBIR, two of these CMRS systems were delivered to the Ballistic Research Lab (BRL) at Aberdeen, Maryland where they are now used regularly to evaluate tank cannons, ammunition, and fire control concepts.

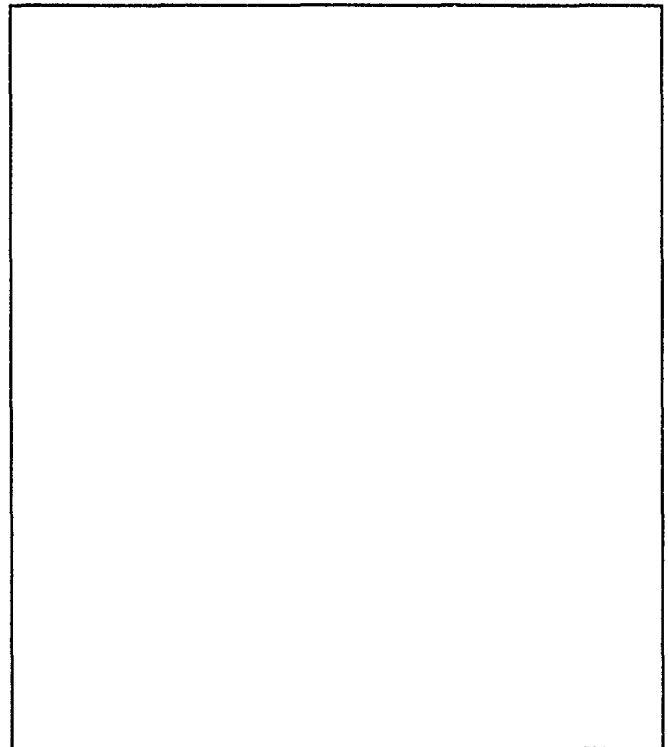
Figure 1 is a photograph of the CMRS system mounted on a M1A1 tank for a series of field tests at Aberdeen Proving Ground; the telescope optical assembly is mounted to the trunnion mantelet while the muzzle mirror is mounted on the existing MRS flange.

Figure 2 shows data from CMRS acquired at BDL/ Aberdeen Proving Ground, showing muzzle angle motion during a test firing of a 120mm M256 cannon on a M1A1 tank. Each component of the muzzle pointing angle is plotted versus time (with respect to shot exit). The ability of the CMRS to continuously monitor muzzle pointing can yield information to the ballistics researcher concerning dynamics of the gun tube and ammunition, and allow ammunition test results to be corrected for muzzle pointing angle variation on a shot by shot basis.

Since the delivery of the two BRL CMRS units in 1990, Princeton Scientific Instruments has been awarded with a commendation from the director of BRL for "exceptional and significant work" on this SBIR project. In addition, PSI has been involved in several Phase III projects.

Principle Investigator:
John L. Lowrance
(908) 274-0775

Army Project Manager:
Dr. Jon Bernstein
Ballistic Research Laboratory



Phase III Impacts:

- Award of Phase I & II contracts from ARDEC, Picatanny Arsenal for AMRS research
- AMRS Extended Range Technology has patent pending
- Delivery of 2 CMRS units to CSTA (\$180,000)
- Contract for Wide dynamic range AMRS for FMC Corporation (\$240,000)

Head Mounted Displays

Ralcon Development Lab

Head or helmet mounted displays (HMDs) have been in limited use for more than 20 years, with most designs yet to be produced in more than prototype quantities. Most of the existing high performance designs are either very expensive, too heavy to wear, or both. The Human Engineering Lab at Aberdeen Proving Grounds wants to use a wide angle HMD to drive a vehicle either remotely or from on-board.

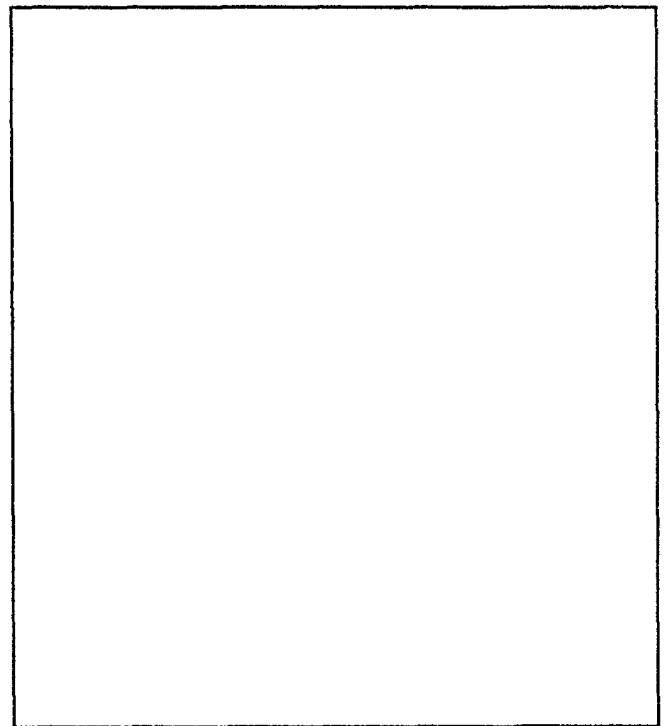
Ralcon Development Lab in Paradise, Utah, has been awarded phase I and phase II contracts to design and construct 2 prototype HMD systems complete with head tracker. The requirement for full color, VGA resolution, light weight, small size and wide angle of view with no aberrations or distortions has required new designs.

Ralcon made a very simple folded reflective design that was light weight and well corrected optically thanks to a curved fiber optic faceplate. They used their own plastic holographic combiners and fold mirrors to maximize light conservation and minimize weight. As of this date Ralcon has constructed 6 different prototypes, 2 for the army and 4 for a new commercial venture that began in May of 93. The commercial venture was well under way before Ralcon reached the end of the first year of the Army phase II work.

The phase III commercial venture is now driving the phase II DOD venture and has generated a few tens of thousands of dollars in prototype production for potential customers. By the time Ralcon has finished with Phase II, the Army may well be able to buy an inexpensive commercial system from a commercial venture, partially owned by Ralcon.

Principal Investigator:
Richard D. Rallison
(801) 245-4623

Army Project Manager:
Chris Smith
U.S. Army Research Lab
(410) 278-5857



Phase III Impact:

- A technically successful line of head mounted display designs has led to the formation of a Seattle based company that will make and market the best of the line.
- The early commercial funding has enabled more phase II research work to be done than was originally funded; many more potential system components have been sampled and tested for Army use.

Diffraction Optical Systems

Rochester Photonics Corporation

Acousto-optic (AO) signal processing architectures are of significant importance for electronic warfare systems and commercial communications. Recent innovations in diffractive (or binary) optics technology reveal that diffractive optical elements offer the potential to reduce significantly the size, weight, and cost of a variety of optical systems which currently utilize refractive and/or reflective components.

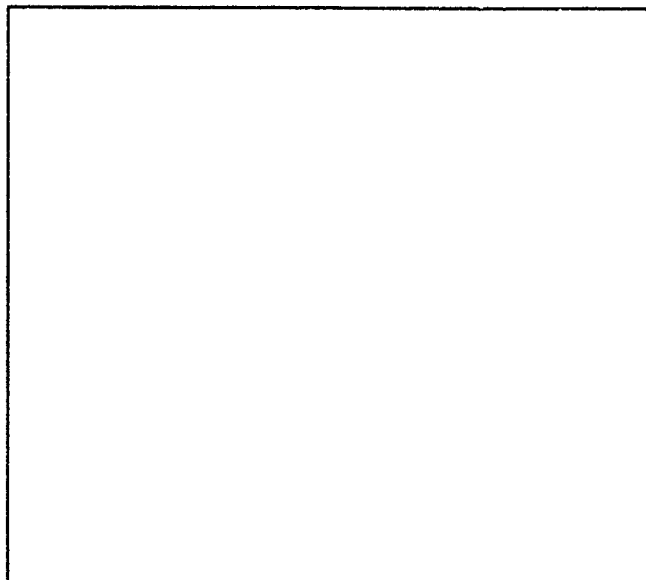
The U.S. Army Research Laboratory in Adelphi, MD (ARL) awarded a Phase I SBIR to Rochester Photonics Corporation (RPC), of Rochester, New York, to investigate the use of diffractive optics for signal processors. Special consideration was given to the use of diffractive optics in developing a thermalized design that could operate under extreme temperature conditions. Designs were developed for anamorphic beam shaping telescopes that can be used with signal processors. High diffraction efficiency is required for optimum system performance; hence a continuous surface relief profile is desired.

In Phase II, RPC is fabricating the designs identified in Phase I, along with other diffractive optical systems using laser pattern generation. In order to produce parts economically, they have utilized a replication process to make copies of a master element.

As a direct result of the SBIR program, RPC has commercialized several aspects of diffractive optics technology and delivered diffractive optical systems to industrial customers. There is also considerable interest from foreign companies for RPC products.

Principal Investigator:
Dr. John P. Bowen
716-227-3010

Army Project Manager:
Gregory P. Behrmann
Army Research Laboratory
301-394-3800



Phase III Impact

- Rochester Photonics has developed the capability to fabricate continuous surface relief masters in photoresist and generate replicated copies.
- To date, RPC has generated approximately \$675K in leveraged non-SBIR support for the fabrication of surface-relief diffractive optics.
- RPC has negotiated manufacturing agreements for the sale of diffractive elements in moderate volumes (i.e. 10K - 100K units per year).

Electronic Earplugs for Communication and Protection

Sensor Electronics, Inc.

The U.S. Army Aeromedical Research Laboratory, Fort Rucker, AL, established a Small Business Innovation Research (SBIR) contract with Sensor Electronics, Inc. of Mt. Laurel, NJ, in 1984, to develop devices to protect hearing and to enhance communication in high level noise environments.

Army pilots, tank and artillery crewmen, and soldiers performing many other military occupations work in high level noise environments which require them to wear hearing protection as well as understand speech communication. Research conducted by the Army indicates that excessive noise can degrade performance by causing stress and fatigue, and increase the risk of accidents by interfering with speech communication among crew members.

The MOD 1-1K Electronic Earplug, developed under the SBIR contract, is a three-flanged rubber cylinder which protects the ear from high level ambient noise. The hollow core of the cylinder houses a miniature earphone for voice communication. The earplugs were designed to protect against both continuous and impulse noise hazards, and to withstand vibration and shock. They are contained within the ear, and are compatible with eyeglasses, military helmets, and chemical defense ensembles, thereby offering advantages unavailable with earcup type hearing protection.

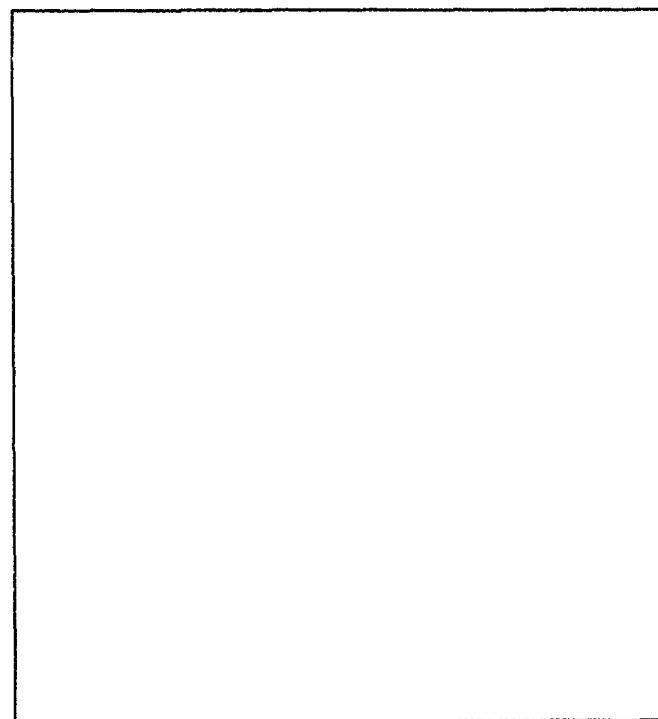
Civilian applications of the ear plugs include heavy industry and manufacturing, firemen and other emergency personnel, airport ground crews, and any other environment in which loud ambient noise is a hazard and communication among members of a team or crew is required.

Principal Investigator:
Edwin Langberg, Ph.D.
(609) 261-6777

Army Project Manager:

Ben Mozo

U. S. Army Aeromedical Research Laboratory
(205) 255-6828



Phase III Impact:

- **Awarded U.S. Patent No. 4,985,926 and corresponding foreign patents for the earplugs**
- **Work resulted in a new development in hearing aids which is being pursued under a grant with the National Institute of Health**
- **1993 fiscal year revenues of approximately \$300,000**

Near-infrared Diode Laser Hygrometer

Southwest Sciences, Inc.

Southwest Sciences, Inc. of Sante Fe, New Mexico, has developed a method for fast time response measurement of atmospheric humidity based on absorption of laser radiation emitted by near-infrared laser diodes. These lasers, initially developed for long-haul fiber optic communications, emit spectrally pure light that can be tuned in wavelength by variation of the laser temperature or drive current. Diode laser hygrometry offers rapid time response, high sensitivity, and long-term calibration stability. This method was first developed by Southwest Sciences with Phase I and Phase II SBIR funding from the U.S. Army Cold Regions Research and Engineering Laboratory (CRREL).

During the Phase II R&D effort, a prototype diode laser hygrometer was built and delivered to CRREL for ground-based field testing in the winter environment. Initial tests of the prototype diode laser hygrometer at CRREL focused on comparisons with simultaneous humidity measurements made using cooled-mirror hygrometers.

In Phase III, Southwest Sciences has developed an airborne version of the diode laser hygrometer under contract to the Northrop Corporation. The Phase III instrument consists of an evacuable multipass cell with the laser light coupled into the cell by an optical fiber. Presently this system is installed on an Air Force KC-135, and the instrument is used to collect atmospheric humidity data over a range of flight altitudes on several flights per week.

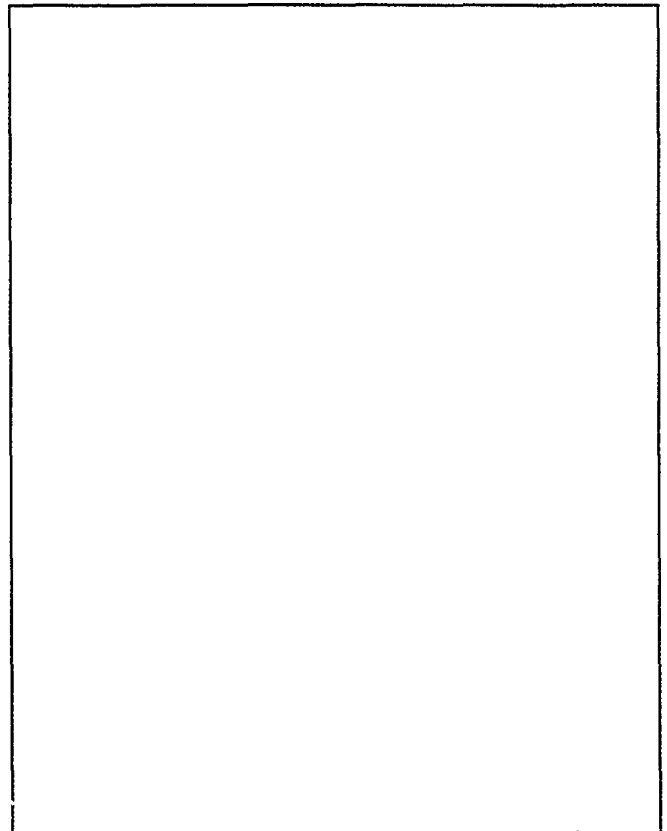
Southwest Sciences is pursuing other commercial applications for diode laser hygrometry in addition to meteorological instrumentation such as monitoring water vapor impurities in process gases used in the semiconductor industry. A near infrared diode laser system for this application is expected to have sensitivity in the part-per-billion range, which exceeds the sensitivities achieved with currently available analytical techniques.

Principal Investigator:

Alan Stanton
(505) 984-1322

Army Project Manager:

Roy E. Bates
U.S. Army Cold Regions Research & Engineering
Laboratory
(603) 646-4262



Phase III Impact:

- **\$185,000 has been given for development of an airborne humidity sensor for Northrop Corporation**

Human Engineered Real-time Graphic User Interfaces

SRS Technologies

As computer graphics workstations continue to have increased capability of displaying more information, the necessity for simple intuitive Graphics User Interfaces (GUI) for computer monitors are paramount. The display designs are a response to an overwhelming quantity of data that must be assimilated by personnel monitoring typical Department of Defense (DoD) missions.

To meet these needs SRS, Inc. and the U.S. Army Space and Strategic Defense Command (SSDC) of Huntsville, Alabama joined on a Phase I SBIR contract in 1990 to develop Ground Based Radar Displays for Kwajalein Missile Range. SRS performed human factors analysis to determine optimal display formats that minimize the time required for mission personnel to act on an event displayed on the monitor. This integrated hardware and computer monitor control panel, expert software display decision aids, touch screens, 3D visualizations, and virtual representations. The display included the ability to monitor missile tests of four missiles launched simultaneously.

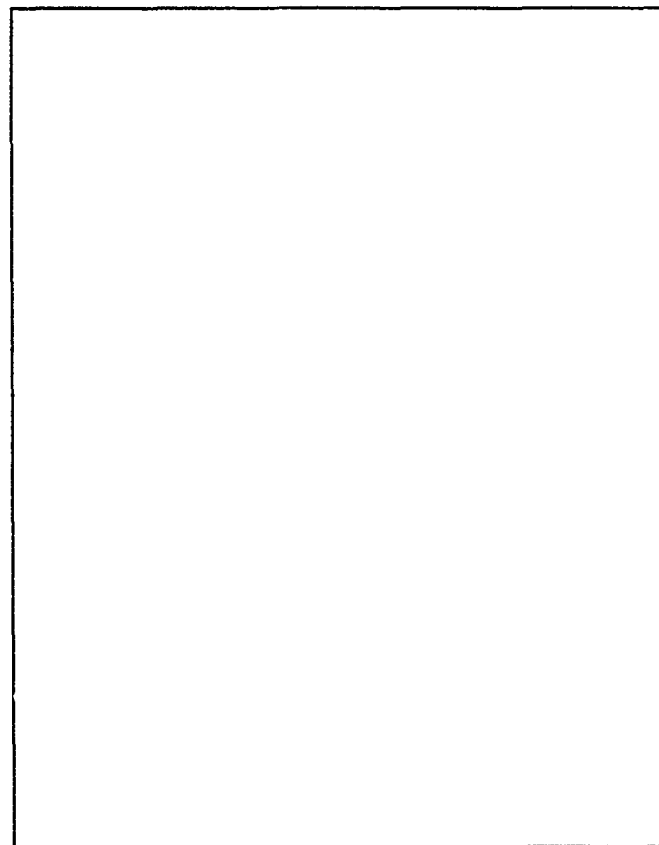
SRS extended the research in June of 1992 when they began work on a Phase II contract to write software to generate the display concepts which generates innovative display formats. Prior to completion of Phase II, the Ground Base Radar (GBR) office has granted SRS \$202k for use of the program. The GBR contractor, Raytheon, is developing a family of radars for GBR, Theater Missile Defense (TMD) and National Missile Defense (NMD). Raytheon will incorporate this technology in their displays for these radars.

Principal Investigator:

Dick Steinberg
(205) 971-7000

Army Project Manager:

Kachesh M. Pathak
US Army Space and Strategic Defense Command
(205) 955-4172



Phase III Impact:

-\$202k funded by the US Army Ground Based Radar Office for display developments for radars

Multi-Channel Precision Temperature Measurement

IPITEK (A Division of TACAN Corp.)

The high resolution fiberoptic thermometry SBIR project was initiated to meet a need for an accurate, fast-response, reliable micrometeorological thermometer. The fiberoptics-quartz thermometer was conceived as a logical combination of high-precision quartz crystal thermometry with interference-free fiberoptic data transmission suitable for micrometeorological temperature measurements applications in flammable, explosive, or otherwise hazardous or harsh environments.

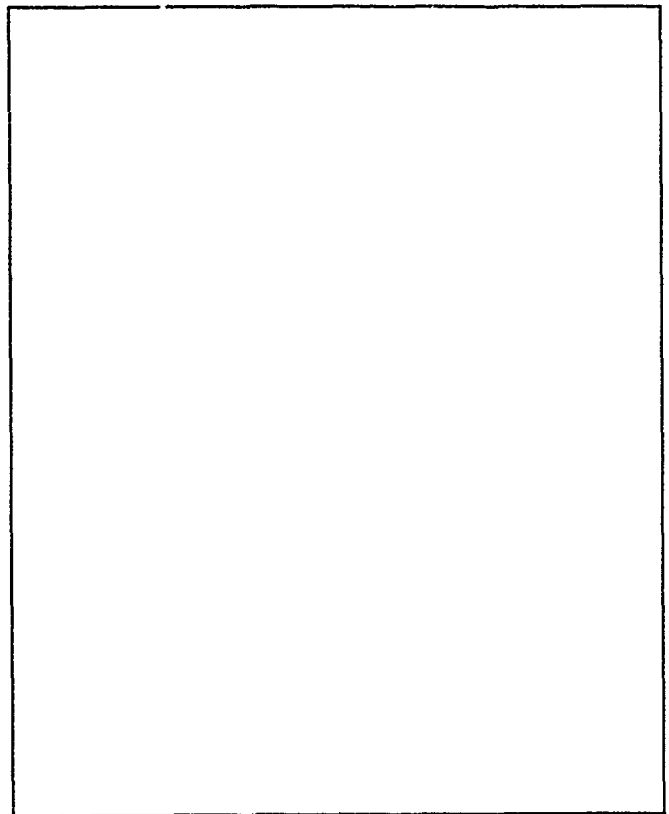
TACAN Corp. in Carlsbad, California joined with the U.S. Army Meteorology Division of Dugway Proving Grounds in a Phase I project that developed a prototype thermometer system with excellent thermal, mechanical, and electrical properties. The thermometer consisted of a crystal-stabilized oscillator circuit, an optical fiberlink, and a micro-processor-based thermometer unit.

Phase II of the SBIR program saw further refinement of the thermometer system, to include the addition of multiple probes, miniaturization and sealing of the probe elements against moisture intrusion, and the design of a user-friendly interface.

Phase III of the SBIR program has seen the emergence of a versatile, inexpensive thermometer product line. IPITEK, Inc., a division of TACAN, has had success marketing the LUMITHERM 104 Precision Thermometer which provides very accurate, high resolution temperature measurements that exceed the accuracy, resolution, and repeatability of many other temperature sensors. Applications include meteorology, analysis of chemical reaction temperatures, measurement of thermal currents in fluids, food storage, and calibration of temperature sensitive equipment.

Principal Investigator:
Jim Bechtel
(619) 438-8362

Army Project Manager:
Chris Biltoft
Meterology Division
Dugway Proving Ground
(801) 831-5101



Phase III Impact:

- New product line for the IPITEK division, the Lumitherm 104, has been developed.
- Sales began in third quarter of FY93

In-line Defect Inspection System for Optical System for Optical Fiber Drawing

TAI, INC.

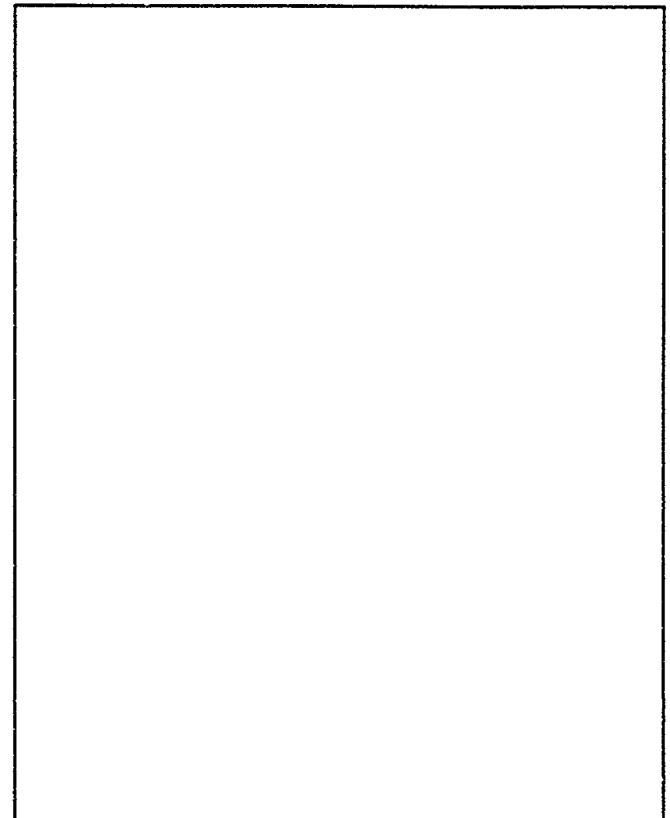
Improvements in optical fibers strength and attenuation over the last decade have made optical fibers suitable for various military and civil long term applications. In some instances, the optical fibers are exposed to a harsh environment, such as water, hydrogen or stress, which can affect long term reliability. Hermetic coatings have been introduced as an answer, but there remains a question about the completeness and integrity of the coating. Hermetic coating have small voids ("pinholes") that cannot be readily detected until the fiber actually fails. There is a need to be able to monitor on-line the integrity of the carbon/hermetic coating and to allow immediate feedback for process control.

TAI, Inc. of Huntsville, Alabama, and the U.S. Army Communication and Electronics Command (CECOM) addressed these problems in a Phase I SBIR project entitled 'Method for Detecting Pinholes in Hermetic Coatings of Optical Fibers'. During work on Phase II, TAI adopted its LaserENTIS (Edge and Needle Tip Inspection System) and developed an "Application Specific Version" to detect ALL surface and imbedded defects on buffer coating IN PARALLEL.

The technology principle of LaserENTIS is Holographic Electro-Optical Processing. TAI is currently beginning to market the LaserENTIS system in both domestic and international arenas. Customers may also acquire the companion system, MicroENTIS, to measure fiber concentricity, circularity and OD with sub-micron precision while the fiber is moving at 20 meters per second and vibrating.

Principle Investigator:
Loy W. Shreve, II
(205) 881-4999

Army Project Manager
Sam Divita
US ARMY Communication and Electronics Command
(908) 544-4490



Phase III Impact:

- \$5k in sales
- Shared technology was used in developing the spin-off project MicroENTIS

Open Systems Applications

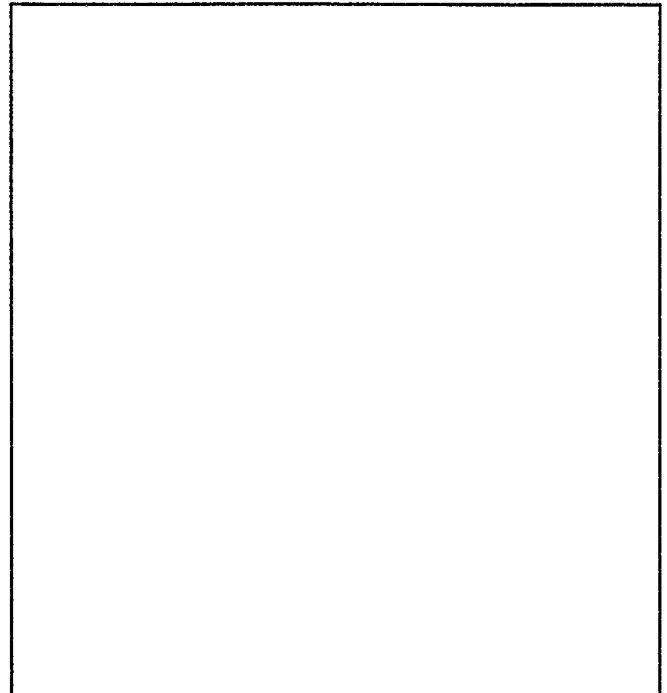
Technical Solutions, Inc.

In 1987 ARDEC Awarded an SBIR Phase I contract to Technical Solutions, Inc. (TSI) of Mesilla Ave., New Mexico to develop tools for integrating intelligent components/subsystems of a weapons system. Entitled "Open Systems Integration of Intelligent Subsystems", the effort moved to Phase II in 1988 and resulted in the initial defining, development, testing and delivery of the Open Systems Architecture Generation Environment (OSAGE). An additional SBIR Phase I was awarded by ARDEC in 1988 entitled Advanced Weapon Station Automation, with a corresponding 1990 Phase II award, for extensions of OSAGE to include improvements in the previously developed tools and the addition of a new component (LIDD).

OSAGE is a collection of tools and network software for use by the developer of complex open systems applications. As such, the OSAGE environment allows the user to design open systems such that a single application may be distributed across a network using multiple, different CPU's running multiple processes on a single CPU, and using multiple programming languages. The architecture of the open system is defined and configured by the OSAGE user. OSAGE aids the user in defining, configuring, testing, and running the final open system.

Principal Investigator:
Dr. Alton L. Gilbert
(505) 524-2154

Army Project Manager:
Dr. Norman Coleman
U.S. Army ARDEC
(201) 724-6279



Phase III Impact:

- **The OSAGE family of tools and integration concepts have resulted in the following Phase III awards:**
 - One contract with a major Defense contractor,
 - Two major Army development contracts,
 - A teaming relationship with a major aircraft engine manufacturer, and
 - Pending overseas export.

These Phase III contract awards to date exceed \$10M with others pending.

- **The major application of OSAGE in Phase II efforts have been in two ARDEC programs: Crew Station Automation and Intelligent Minefields.**

Ultrox D-Tox Process

Ultrox International

In a proposal to the Army Construction Engineering Research Laboratory (CERL), Ultrox International of Santa Anna, California indicated that there was a need for a low temperature, cost-effective versatile system for oxidizing volatile organic compounds including volatile halogenated organic compounds (VHOC's). The most economical approach at that time appeared to be the use of a catalytic process.

In November of 1986 Ultrox accepted a Phase I SBIR contract with CERL to conduct research and development to ascertain the feasibility of using a low temperature catalytic air pollution control system, called D-TOX, to destroy the VHOCs.

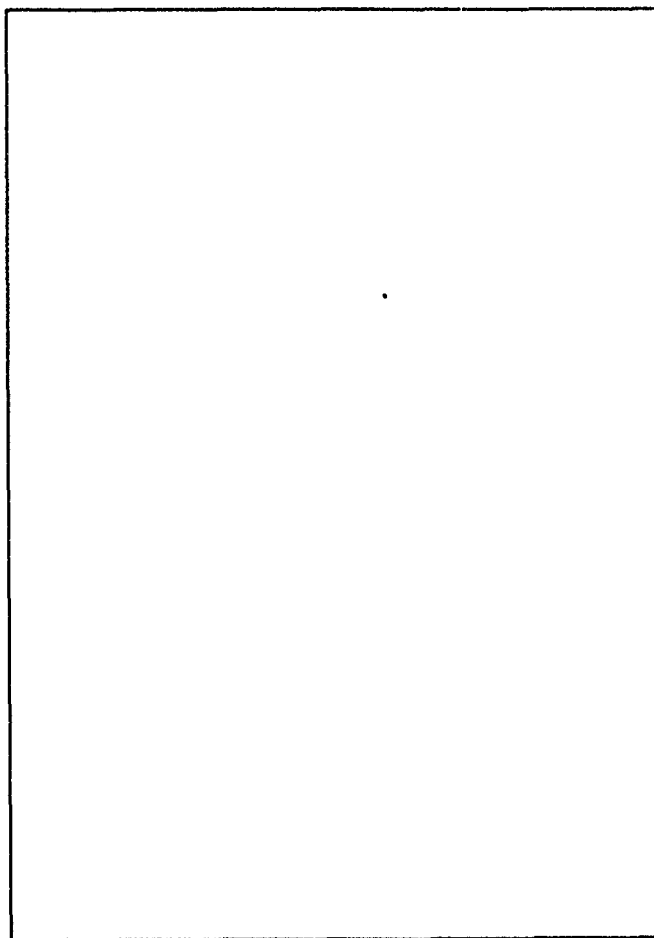
CERL solicited Ultrox for a Phase II SBIR program at Phase I completion. In the three year hiatus between Phase I and Phase II, Ultrox carried out additional studies with their own money. Two patents were submitted and approved covering the results of the work done between the first and second Phases.

In July of 1990 the Phase II program was initiated and over the next two years the bench work and pilot plant work was completed. In this program Ultrox expanded from air stripping treatment to air extraction of volatiles in soils. Ultrox also expanded the number of volatile organic pollutants that the D-TOX system can destroy in air.

As a result of the Phase I and II studies, Ultrox has developed, patented, marketed and sold these catalytic systems called D-TOX. Applications for the process include stripping towers, industrial off-gases, soil evacuations, biotreatment plants and landfills. Full-scale D-TOX systems are divided into two skids. The first skid includes the D-TOX catalytic reactors, scrubber unit, and the control panels. The other skid includes the air preparation unit and ozone generator.

Principal Investigator:
Jack Zeff
Executive Vice President

Army Project Manager:
Steve Maloney
Construction Engineering Research Lab (CERL)



Phase III Impact:

- units sold to the U.S. Army Corp Engineers for a total of \$150k

Nested-High-Voltage Generator

North Star Research Corp.

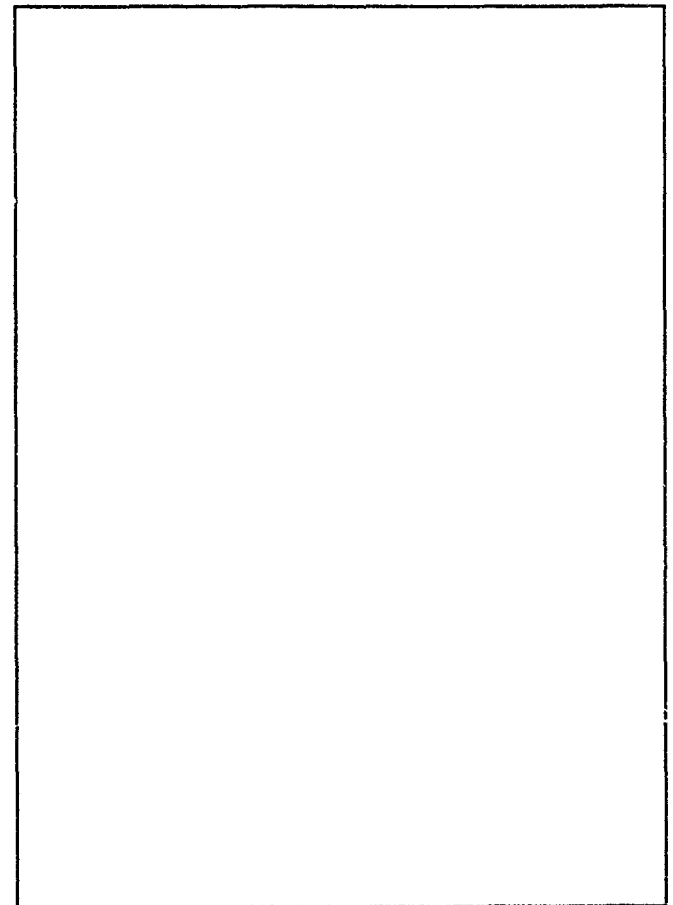
The technology developed in the Nested-High-Voltage Generator SBIR project (North Star Research (NSRC) for the Weapons Technology Directorate (Adelphi)) is of wide applicability when a high-voltage electron beam in a compact package is required. Additionally, it is especially relevant and cost competitive where the efficient generation of high average power electron beams is required. Phase III activity for NSRC of Albuquerque, New Mexico, has begun even though Phase II began in only April of 1993. The main commercial applications of this technology will be in the fields of medical isotope generation and oil well logging.

For medical isotope generation, the Nested-High-Voltage Generator is configured to operate as a tandem linear accelerator producing an ion beam of several hundred keV to MeV energies. NSRC received an R&D100 award for the development of this device. For oil well logging, the Nested-High-Voltage Generator is configured to operate as a continuous operation X-ray tube. The entire system is compact enough to fit into the bore hole of an exploratory oil well.

The specific use of the Nested-High-Voltage Generator of interest to the Army is that of a compact modulator and electron beam generator to drive high peak power, high repetition rate, and high average power microwave tubes. Currently, a SLAC (Stanford Linear Accelerator) representative is looking into the suitability of the Generator as a replacement for current SLAC modulator technology in future accelerator upgrades. A concurrent Army use of the Nested-High-Voltage Generator could be in repetitive flash X-radiography of terminal ballistic systems.

Principal Investigator:
Dr. Richard Adler
(505) 296-3596

Army Project Manager:
Alan Bromborsky
Weapons Technology Directorate (Adelphi)
(301) 394-4143



Phase III Impact:

- Sold a commercial 500 kV device to Pracsys Corp. of Boston for approximately \$100,000
- Received purchase orders for \$300,000 worth of equipment

CONTINUING SUCCESS IN PHASE III

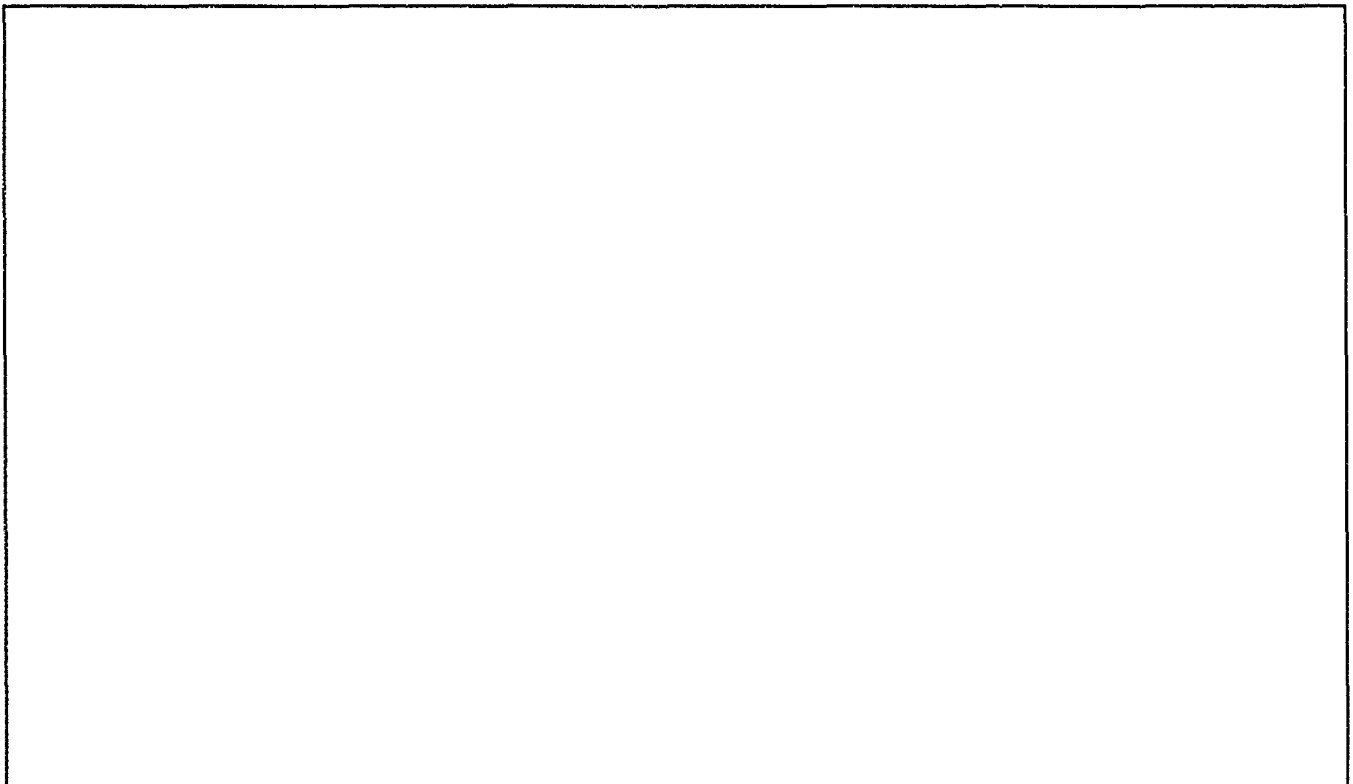
In the first three volumes of the Army SBIR Phase III Booklet, 77 companies have been featured for transferring their SBIR Phase I awards to Phase III commercialization, the ultimate goal of the SBIR program. These companies have utilized the SBIR funds and technology as a vehicle to expand their companies, export and patent their products, and promote the concept of dual use technologies.

As a follow up to Volume I and II of the Army SBIR Phase III Booklet, the previously featured companies were contacted to update their Phase III stories. The responses received are presented in the following brief highlights of the resulting Phase III successes. The first three of these companies have distinguished themselves as exceptional examples of the SBIR program and were deserved of additional details.

U.S. Composites Corporation

U.S. Composites Corporation, founded in 1979, developed a wet braiding system under the SBIR program contracts awarded by the U.S. Army Research Laboratory's Materials Directorate in Watertown, Massachusetts. They became the Army's first Phase III SBIR success in May 1986 with a license/commercialization agreement with DuPont. U.S. Composites validated the wet braiding system by producing 300,000 high temperature jet engine components (proprietary) per year on one automated assembly line under a DuPont contract beginning in 1988.

In late 1992, U.S. Composites Corporation received a \$3.7 million order from Alliant Tech Systems, Inc. to manufacture anti-tank missile storage/launch tubes for use by the U.S. Marine Corps with the Shoulder-mounted Multipurpose Assault Weapon (SMAW), a modern bazooka. To fulfill this request U.S. Composites Corporation opened a new facility and tripled their floor space. The 20 employee firm anticipates that follow on orders and contracts will create 20 additional production and technical jobs over the next 5 to 8 years.



Wyatt Technology

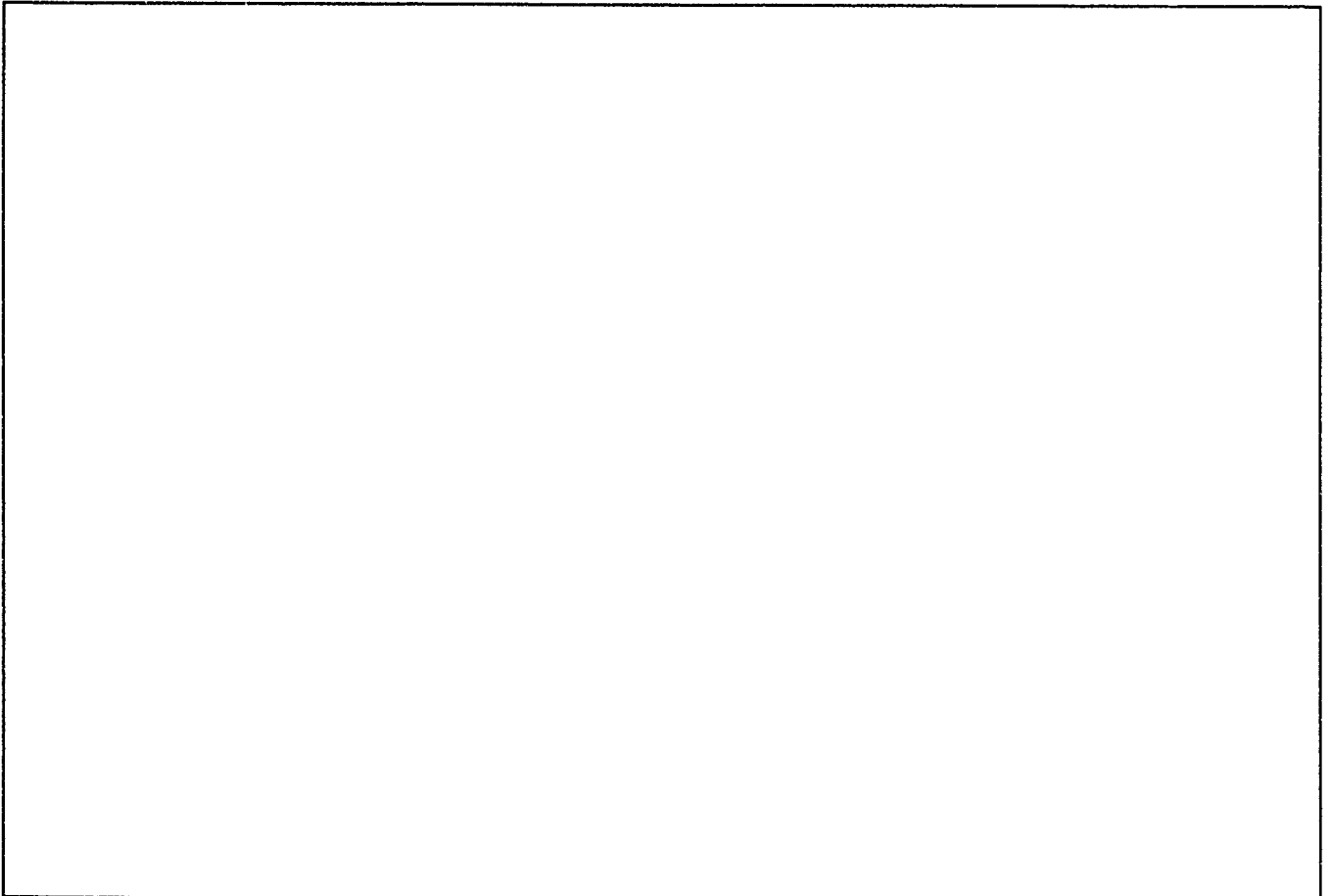
Wyatt Technology Corporation (WTC) of Santa Barbara, CA along with the U.S. Army Chemical Research Development Laboratory utilized the SBIR program to provide soldiers with better and faster drinking water testing methods. WTC's success in Phase I & II led to development of the DAWN (Dual Angle Weighted Nephelometry) Instruments. Dual use applications of DAWN includes quality control, process control, molecular weight and size determinations, and a host of other possibilities.

Since receiving the Army SBIR (DESAT) contract, WTC has had great success with this technology. Sales are between \$10M and \$20M with 30% of sales exported to over 26 countries. At least 6 US, and several foreign, patent applications have been filed. The project's impact has allowed for company staff growth from two (before) to 28 (after). The company has been profitable for each of the preceding five years, has no debt, and has sustained a good level of growth despite the current recessionary climate.

Technical Solutions, Inc.

TSI has an extensive history of technology development and transitioning for commercial and defense applications, including exports. In particular, the success in transitioning Phase I SBIR efforts to Phase II & III in the areas of computer vision/real-time tracking and simulation and modeling of robotic systems. Thru 1993, Technical Solutions has received 10 Phase I grants for \$501,075 and 7 Phase II grants for \$3,427,930. These grants have generated approximately \$11M in Phase III sales, including \$187,500 in exports.

Through the SBIR program, TSI has developed the necessary technical resources to bring the VisionMate and VisionWare products to the imaging marketplace, the TSI Battle Graphics Station to the defense community, and the OS-AGE family of integration tools to complex problems in distributed integration control. The VisionMate image processing board was featured in Vol. 2 of the Army SBIR Phase III booklet, and the OSAGE is featured in this booklet, Vol. 3.



August Design, Inc.

Automated All-weather Cargo Transfer System (AACTS); Increase from 3 to 7 employees; U.S. patent
Sales: \$940,000

Band, Lavis & Associates, Inc.

High-Sea-State Container-Transfer System (HISEACOTS); Continued tech demos in '94
Sales: \$1,150,000

BSI Surface Modification Sciences

Pinch Test; Liscensed the Pinch Test for human fluid testing
Sales: \$700,000

Carlow Associates

Integrated Decision/Engineering Aid (IDEA); Exports to the UK, Germany, France, Hollans & Canada
Sales: \$3,000,000

Command Control, Inc.

Goal Oriented Pattern Detection (GOPAD); Staff increased
Sales: \$250,000

Creative Optics

Mobile Army Camouflage Evaluation (MACE) System; Spinoffs projects created 3 Phase I's & 2 Phase II's
Sales: \$183,000

Decision-Science Applications, Inc.

Helicopter Air-to-Air Valud-Driven Engagement Model; Product currently used by the Aviaiton Applied Technology Directorate
Sales: \$760,000

Exterior Wall Systems Ltd.

Scale model units for erosion control; 80% of sales are to labs and Universities overseas
Sales: \$250,000

Foster-Miller, Inc.

Micro-climate cooling backpack; A unit will fly on the space shuttle
Sales: \$860,000

Foster-Miller, Inc.

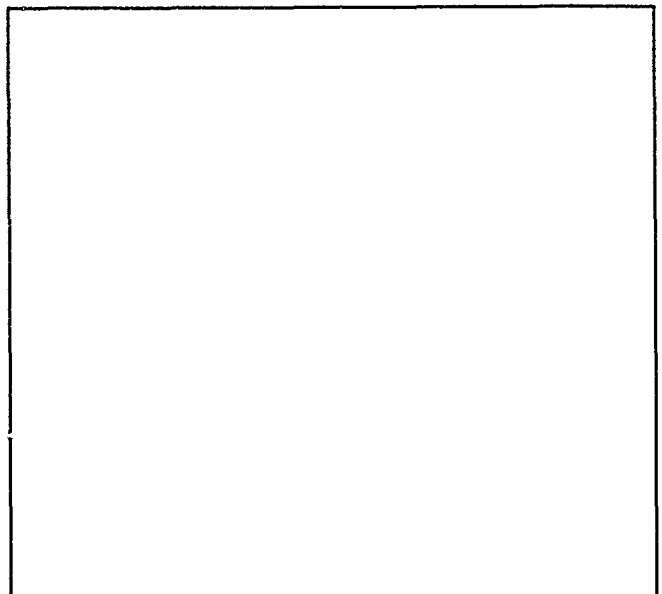
Lightweight Compostie Material Deck System; Product applied to roadway plates in the commercial sector
Sales: \$5,00000

Gaertner Research

Artificial Intelligence Module; SAIC incorporates technology into an experimental field jamming system
Sales: \$300,000

Guild Associates, Inc.

Field Medical Oxygen Generation & Distribution System; Won \$30M production contract; Staff increase from 10 to 25 employees
Sales: \$40,000,000



HNC, Inc.

SIMD Numerical Array Processor (SNAP); SNAP product line - one, two or four linear array boards

Sales: \$100,000 to \$300,000

Information Research Laboratory

Spectroscopy System for Nondestructive Evaluation; Spinoff project concerning neural networks predicting stock market data.

Sales: \$60,000

Klein Associates

Critical Decision method; Staff has increased from 13 to 20

Sales: 2,000,000

Lightwave Electronics

Single Frequency Laser; 131 lasers shipped to Government labs

Sales: \$2,227,000

Ralcon, Inc.

Applied Diffractive Optics;

Sales: \$900,000

RASCO, Inc.

Water purification using Reverse Osmosis Multi-Element Modules; Patent acquired

Sales: \$900,000

Schwartz Electro Optics

Active IR Sensor; Tree sensor spin-off product produced for chemical spraying in agricultural use

Sales: 3890,000

SETS Technology, Inc.

Hyperspectral Image Processing System product; Sales include exports to Germany

Sales: \$100,000

Susquehanna Resources & Environment, Inc.

Automated Target Recognition System; Spinoff products produced

Sales: \$400,000

Symbiotics, Inc.

NetWorks! software to link applications on a network; technology licensing agreement with IBM for NetWorks!

Sales: \$1,000,000

Technical Solutions, Inc.

Processor architecture for Fire Control Applications of NI/VD; Company growth from 15 to 30 people.

Sales: \$11,000,000

UES, Inc.

Diamond-like Carbon Coating for Optical Systems; Patent granted

Sales: \$665,000

Ultramet, Inc.

Powder Coating Technology; Sales in commercial R&D for cutting tools

Sales: \$68,000

U.S. Composites Corp.

Wet braiding system of composites; \$3.7M order for storage/launch tubes for a "modern bazooka"

Sales: \$3,700,000

Vector Vision, Inc.

Automatic GIS Data Conversion; Created at least a dozen jobs as a licensing product

Sales: \$300,000

Wyatt Technology, Inc.

DAWN (Dual Angle Weighted Nephelometry) Instruments; \$3 to \$6 million in exports

Sales: \$10,000,000 to \$20,000,000

For more information about the Army SBIR Program, please contact:

Name

Address

Phone Number

FAX Number

Built-In Test Insertion

Alternative System Concepts, Inc.

The complexity and shrinking size of microelectronic devices used in today's Army battlefield equipment no longer allow test and maintenance equipment to be plugged into the operational equipment. The solution is to design circuits that contain internal built-in test (BIT) devices, modules and subsystems.

paradigm which makes design automation tools easier to understand and use. VBIT tools also support high priority design form test requirements.

Following formal validation and products beta testing, defense contractors are considering using VBIT tools for new programs such as the Rapid prototyping of Application Specific Signal Processors (RASSP).

In the short term, VHDL modeling will be extended to microwave, millimeter wave and analog circuit applications. During the long term, modeling will be extended to mechanical and other engineering fields which is generically referred to as GHDL. The payoff for the Army will be to the soldier with dependable next generation weapon systems that use smart, built-in tests.

The Army Project Manager for this endeavor was Pat McHugh from the Electronic Power Systems Directorate of USARL. Mr. McHugh can be reached at (908)544-3501.

The President of Alternative System Concepts is Ms. So and So can be reached at (xxx) xxx-xxxx.

The caption goes here

The U.S. Army Electronics Technology & Devices Laboratory (ETDL) awarded a Phase I contract to Alternative System Concepts, Inc. (ASC) of Pelham, New Hampshire, to develop a design tool that would support development of standard test interface protocols. ASC's novel approach was to support two emerging DoD standards: Very high speed integrated circuit Hardware Description Language (VHDL) and the Joint Test Action Group (JTAG) Boundary Scan Test Architecture.

ASC researched highlevel synthesis methods and the most promising method selected for Phase II development of a design tool, named VBIT(tm) (VDHL built-in test). ASC invented a new design

Phase III Impact

New Technologies in Multimedia and Telecommunications

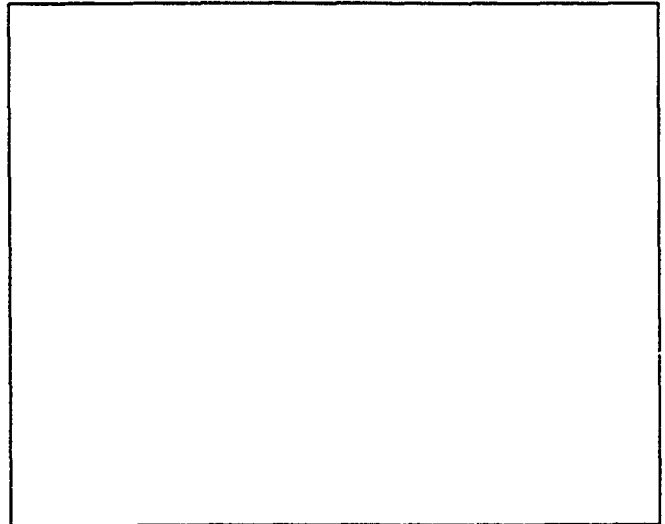
Analytical Software, Inc.

Telecommunications and multimedia are undergoing rapid changes which represent the convergence of video, computers and TV in the widely described "information highway." This SBIR effort sponsored by Army Research Laboratory (ARL), addresses the information system capabilities available on today's computer networks such as Internet or MCI Mail, and new technologies which will be available in the future, such as digital video.

In the telecommunications arena, Analytical Software Incorporated (ASI) of Dallax, Texas, developed an easy-to-use software package known as groupware. Groupware permits a group of geographically dispersed people to jointly work on word-processing documents and charts by easily sharing documents. During Phase II, Analytical Software linked 15 Army research sites in a system compatible with the DoD's electronic mail network for easy sharing of files and related information.

Analytical Software adapted its SBIR work to develop Nordstrom VIP Express, which links Nordstrom's key suppliers. This was one of MCI Mail's largest promotions during 1991, and it generated over \$5 million of new revenue for MCI, primarily new or expanded phone services, plus over \$150,000 of electronic mail services.

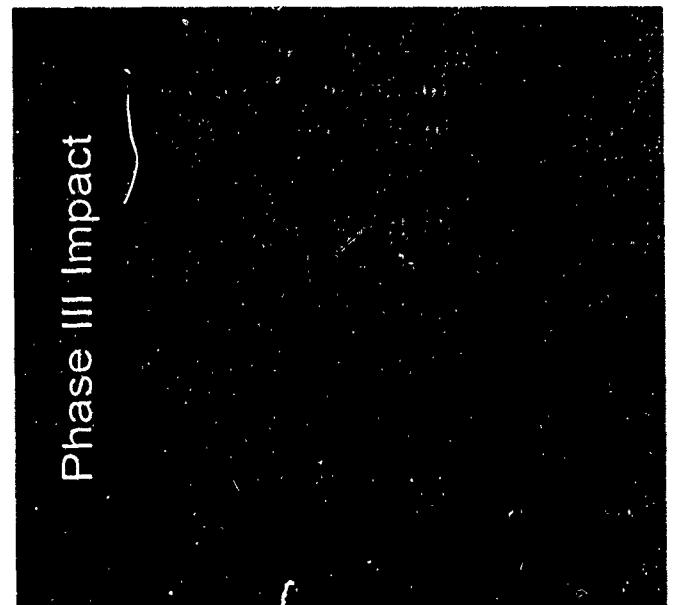
ASI also developed an easy-to-use multimedia Windows package which integrates high quality photographs, voice, stereo quality music, video and text. ASI developed two CD-ROMs in Phase II, and created two more for the Marines and the Army. Analytical Software's future primary focus will be on solutions which create, transmit and store video for multimedia presentations on PCs, workstations, VCRs or via teleconferencing.



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The Army Project Managers on this endeavor were Dr. Michael Evans and Dr. Jim Gnatt from the Software Technology Branch at ARL. They can be reached at (404) 894-3108.

The President of Analytical Software, Inc. is Mark Haley. Mr. Haley can be reached at (xxx) xxx-xxxx.



Gun Bor Evacuation Design

Computational Mechanics Corporation

Under SBIR funding, Computational Mechanics Corporation (CMC) of Knoxville, Tennessee, developed a general methodology for separating the two most difficult computational

and Engineering Center's Benet Laboratories at Watervliet Arsenal to model gun bor evacuation design. Both artillery and tank cannons employ bore evacuators to purge residual

AKCESS * software platform to study designs for more rapid, effective bore evacuation. Experiments have demonstrated that flows associated with gunbore evacuators can be accurately modeled using CMC's AKCESS.BOREVAC design platform.

The AKCESS.BOREVAC design code will have modern X-window pull-down menus for access to preprocessing graphics. Similarly, model results will be viewed graphically and dynamically to ensure accurate interpretation of results. Benefits include the speed-up and cost reduction of prototyping by numerical investigations.

Direct commercialization applications include supersonic and fuel injectors for the supersonic combustion ramjet and other injector flows of interest to the aerospace, automotive, and commercial engine industries.

Principle Investigator:
Ed Schaub

(615) 546-3664

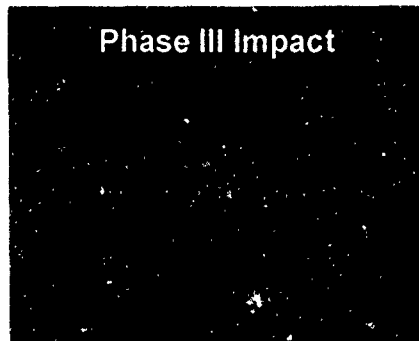
Army Project Manager:
Dr. Charles Andrade
Benet Laboratories, ARDEC

fluid dynamics (CFD) tasks, i.e. algorithm evolutionary development versus code evolution/spread. This separation results in greatly reduced time and expense for CFD model development.

Using CMC's AKCESS * software platform CMC is performing a Phase III effort for the Army Research Development

propellant gases from the barrel. After a projectile leaves the muzzle, the stored gas is subsequently ejected thru the barrel. CMC's is employing its modular

Phase III Impact



Personal Video & Teleconferencing

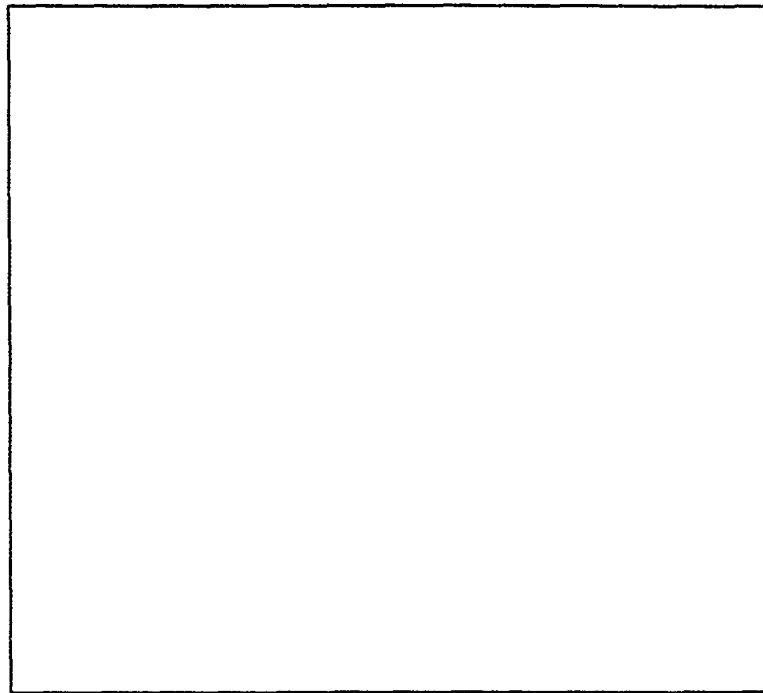
Delta Information Systems, Inc.

Historically, video teleconferencing has been beyond the reach of single-users due to bulky, expensive equipment. With the support of the SBIR program and sponsorship of the U.S. Army Research Laboratory (STB-ARL), Delta Information Systems, Inc. of Horsham, Pennsylvania has successfully combined video and audio teleconferencing with screen sharing in an IBM PC compatible to provide low-cost, personal, desktop video teleconferencing. The system is meant to be used like a telephone and allows two (or more) users to see and hear one another while collaborating on documents, spreadsheets, etc.

This non-proprietary system adheres to evolving video teleconferencing standards, and can communicate with compliant room equipments and multipoint control units using Basic Rate Integrated Services Digital Network (ISDN). By taking advantage of ISDN, Delta's system replaces the telephone for everyday communication needs.

Delta's system is designed to accept technology insertions as less expensive and more capable components become available. Video is displayed within a movable, scalable, and resizable window on the PC desktop.

Unlike other currently available desktop videoconferencing systems, Delta's system permits two users to "share" a PC desktop. Keyboard and mouse control can be shared by both users. As a result, a user can



remotely operate software on the other user's PC. In addition, snapshots of all or a portion of a screen can be taken. The snapshots can be shared and can be drawn upon by either user. Other files may also be shared and transferred between users' systems.

Targeted customers for these technologies are federal, state and local governments, as well as companies and private parties.

Principal Investigator:

Richard Schaphorst

Army Project Manager:

John W. Gowens, Ph. D.

U.S. Army Research Laboratory
(STB-ARL)

Phase III Impact

Image Viewing and Analysis System

ENSCO, Inc.

The Product Assurance and Test Directorate of the U.S. Army Armament Research, Development, and Engineering Center has developed a number of on-line automated Non-Destructive Inspection (NDI) systems for inspection of manufactured products. The digitized signal from the NDI sensor is analyzed by the system to identify defects in the manufactured item. Under normal production, gigabytes of data are analyzed and archived each day.

Inspection algorithm development and maintenance, as well as post-review of the quality of the on-line systems, have been a difficult, costly, and time consuming effort. To decrease the effort, ENSCO, Inc. of Springfield, Virginia, under an ARDEC SBIR, has developed an Image Viewing and Analysis System (IVAS). It is a powerful and yet inexpensive tool, operating on any Apple Macintosh II series computer or Quadra, with many applications above and beyond the

Army's inspection requirements. It incorporates powerful and elegant data visualization routines enabling the user to quickly analyze and draw conclusions from raw and or processed data of any origin by sight.

IVAS is as simple to use with image and spectral data as most spreadsheets are with scalar data. A novice can experiment with powerful image processing functions and immediately see the results in a meaningfully interpretable format. Many "what if" scenarios can be tried and compared side-by-side.

IVAS is sufficiently generic to be useful for many applications. Scientific applications include analysis of NDI data, satellite data, laboratory data, medical data, and a host of similar data.

Principal Investigator:

John Perry

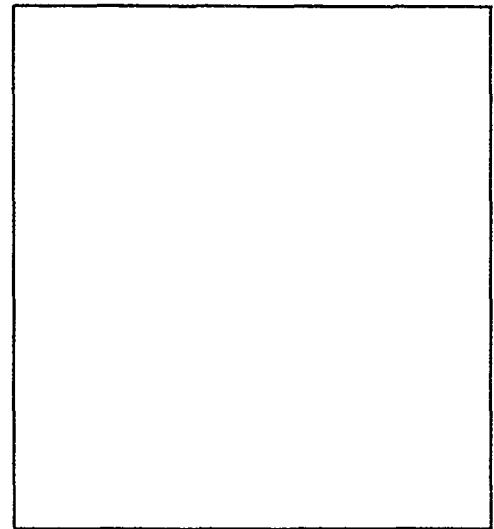
(703) 321-9000

Army Project Manager:

Paul D. Wilson

U.S. Army ARDEC

(201) 724-2135



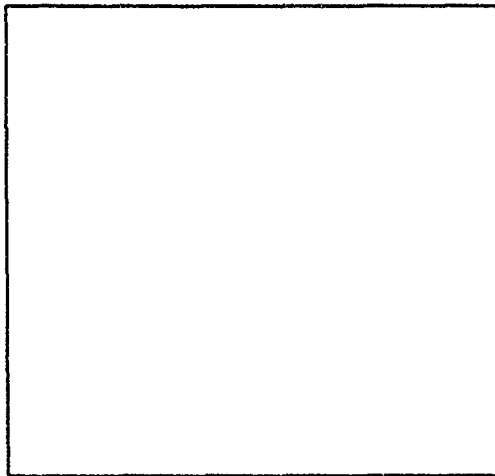
Shielded Enclosures for Army Research Labs

EWS Ltd.

EWS Ltd.'s Phase I research contract for Harry Diamond Labs (now Army Research Labs) Adelphi, MD was to determine whether standard industrial enclosures meeting National Electrical Manufacturers Association (NEMA) type 3 or 4 specifications could be cost effectively modified to resist Electro magnetic pulse (EMP) under MIL SPEC 188-1.25. Now EMP enclosures are custom manufactured, and priced at a very high premium over standard designs. If cost effective modifications could be achieved, then considerable savings would be accomplished both in new and retrofit applications.

As part of research and development, EWS Ltd., located in Croton-on-Hudson, New York, held a Value Analysis/Engineering Workshop. The workshop examined how a standard NEMA Type 3 or 4 design electrical enclosure, sized at 1100mm x 1100mm x 225mm deep could be converted to resist EMP. Through the use of data obtained in the study, EWS Ltd. supplied 4 units instead of the original one unit as called for in the contract. This was without any additional cost to the Government.

A topic covered under the Workshop and proposed for our Phase II is whether NEMA 4 metal and plastic enclosures can be modified to use inflatable gaskets developed by another Phase I contractor for HDL.



Though briefly covered at the Workshop, a Phase II request is to see whether plastic (polymeric) molded enclosures can be modified to meet EMP specifications. Polymeric enclosures have many advantages over metallic cases.

This is the second Phase I SBIR contract that EWS Ltd. has directly converted to a Phase III, commercially marketable product. The

previous contract was for the US Army COE, Waterways Experiment Station, Vicksburg, MS. They have successfully marketed scale model armor units used for oceanographic research, and are now producing these units for international sales.

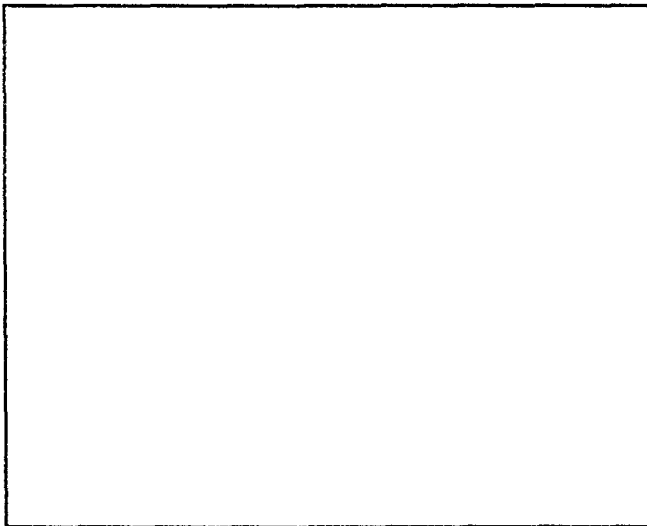
Principal Investigator:
Robert J. Richter
(914) 271-5356

Army Project Manager:
Thomas Bock
HDL



High Barrier Polymeric Thermostabilized Meal Tray

Thermostabilized foods with a 3-year shelf life have successfully been used to feed military personnel at fixed locations where freshly prepared mess hall food is not available. Each meal tray contains a sufficient quantity of a single product to feed 12 to 18 individuals. The tray's unique size



and material of construction limit this industry to only one manufacturer who is equipped and willing to produce these non-microwaveable trays. This situation seriously limits the capability for surge production during mobilization such as Operation Desert Storm.

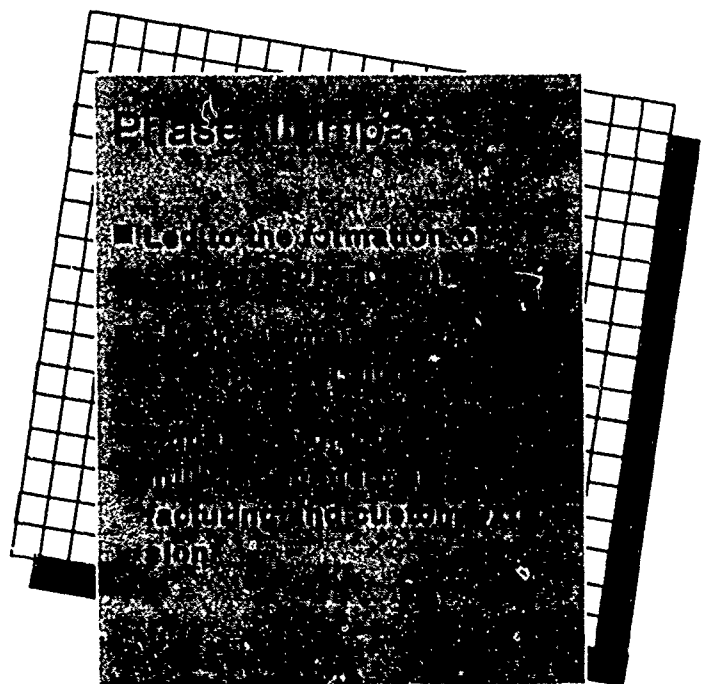
In an effort to increase industrial sources for tray/container procurement the U.S. Army Natick Research Development & Engineering Center (NRDEC) is presently funding a Phase II SBIR program with Foster-Miller, Inc (FMI), of Waltham, Massachusetts. By developing a tray that has desirable commercial features (i.e., dual oven reheating, recyclability, extended shelf life) NRDEC and FMI expect to meet the military's unique requirements with a commercially beneficial food packaging system. In Phase II, FMI has used a unique combination of biaxially oriented LCP film and CPET to form a thermostabilized meal tray that

provides outstanding water vapor and oxygen barrier properties.

FMI has begun forming a pathway to commercialized products through its subsidiary company, Superex Polymer, Inc. This commercial venture will bring FMI's LCP barrier film technology to the 300 million unit per year (\$36 million per year) shelf stable container market. Other commercial opportunities are being explored including medical and pharmaceutical products, cosmetic and chemical packaging, beverage containers, and polymeric fuel tanks.

Principal Investigator:
Leslie S. Rubin
Foster-Miller, Inc.
(617) 290-0992

Army Project Manager:
Lauren Oleksyk
U.S. Army Natick RD&E Center
(508)651-4555

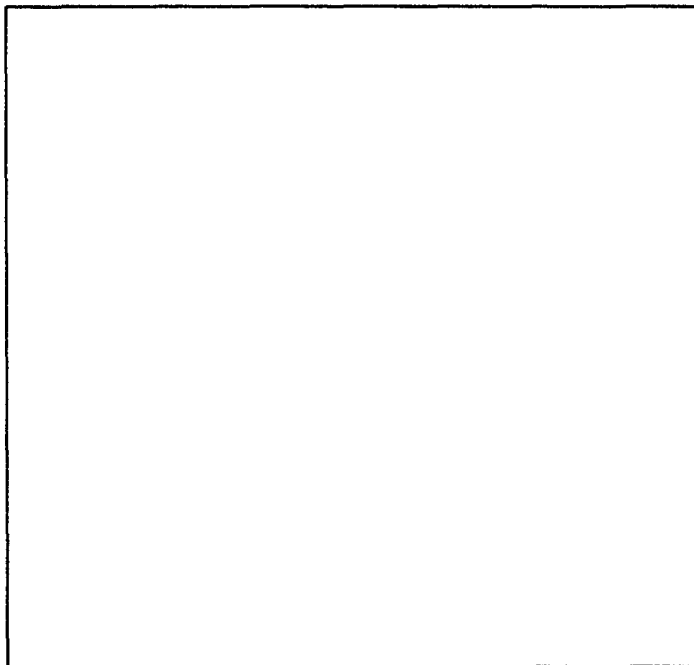


Materials Processing Analysis with In situ Ellipsometer

Thin solid films are used in thousands of commercial products ranging from coatings on bumpers of cars, to oxide layers in microelectronics, to magnetic layers in computer diskette manufacturing. As films become thinner and many layers of films are deposited on top of each other, the production of these materials becomes ever more difficult. Industry is looking for new ways to better control the thickness, composition, and film properties to improve the performance, lifetime, and quality of products while bringing down production costs.

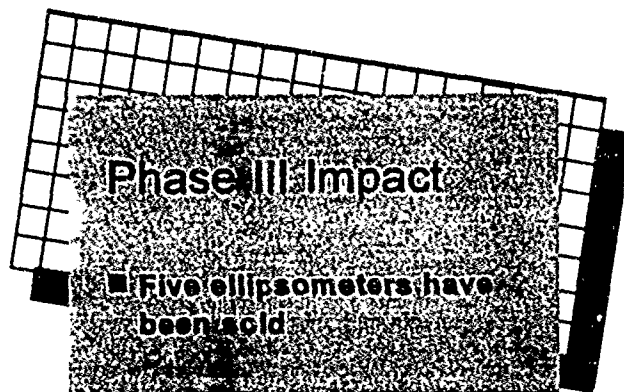
Light beams are ideal probes of materials because they are totally non-destructive unless they are of very high intensity. J.A. Woollam Corp., of Lincoln, Nebraska, has developed a new process control instrument under Army and other agency Phase I and Phase II SBIR support. This instrument is called an ellipsometer and produces a pencil-like directed light beam, which is incident obliquely on a material under investigation. This beam is of controlled wavelength (from blue to red light), and is polarized. The changes due to reflection from the sample are measured. The ellipsometric technique is extremely sensitive to thin films and can potentially control depositions; atom layer by atom layer if needed. The instrument can monitor and control fast deposition processes as well.

Phase III commercialization is being achieved using internal funds, and the company has already sold five of the forty-four wavelength ellipsometers developed under SBIR support. Marketing surveys indicate that demand for this 44 wavelength ellipsometer will be quite high. It represents a major advance in low-cost, high accuracy thin film process control.



Principal Investigator:
Blane Johs
J.A. Woollam Co., Inc.
(402) 477-7501

Army Project Manager:
Jack Dinan
Night Vision and Electro Optics Directorate
(703) 704 3234



Broadband Laser Eye Protection

John Brown
Associates Inc.

There is a growing need to provide laser eye protection to both military and civilian personnel. A laser beam can blind a person before he can blink, and the eye injury can be permanent. However, Army-issue laser-protective goggles protect against some but not all lasers, and interfere with the wearer's color perception.

With the support of the SBIR program and sponsorship by the

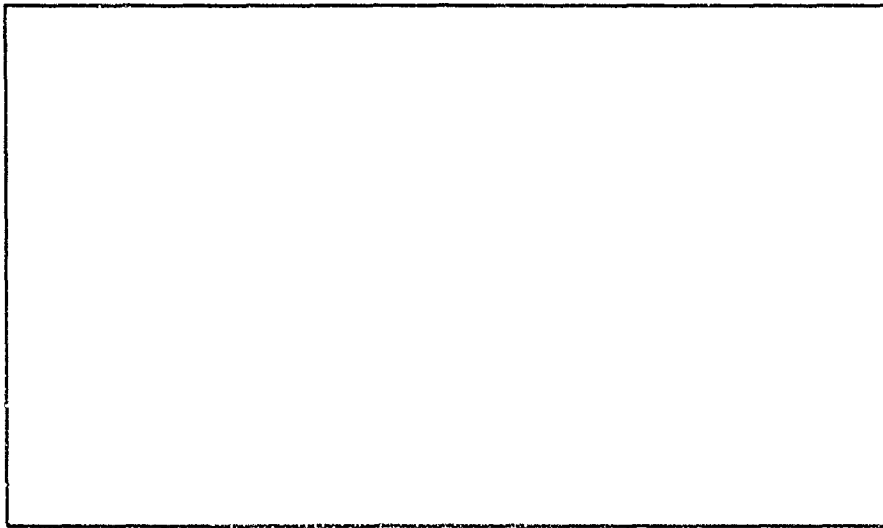
red, one green and one blue, and is opaque to the rest of the visible spectrum. The measured optical density between the passbands, especially at the laser wavelengths, is four or better.

Soldiers and police report that vision through this filter is excel-

Forty-eight pairs of goggles incorporating this filter have been supplied to the Army; several pairs have been sold to medical laboratories; and samples are currently under study by a major American Safety equipment firm for their product line. Targeted customers include military field personnel, civilian police, and medical and research laboratory workers.

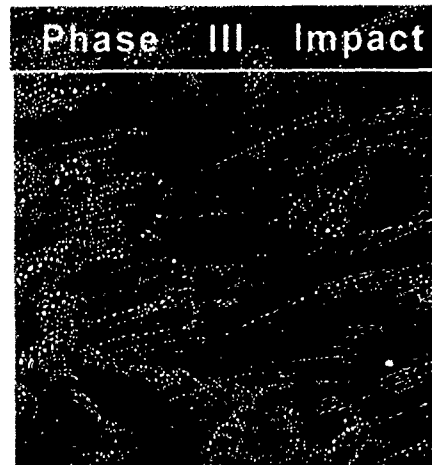
Principal Investigator
John A. Brown
John Brown Associates Inc.

Army Project Manager
David J. Lund
Letterman Army Institute of
Research
(@Brooks AFB) 210/536-4631



US Army Medical R&D Command, John Brown Associates of Stirling, New Jersey has developed an innovative popular laser while maintaining full natural color vision. It transmits only three narrow spectral bands, one

lent. Outdoor scenes are bright and clear and in full natural color. This effect is like that of a pair of fine sunglasses but without the sunglasses' color distortion.



Phase III Impact

Advanced Team Decision Making Model

Klein Associates
Inc.

Much of the work of the military is done by teams. For example, teams with an inter-agency membership often are assembled and assigned to plan for a potential crisis or problem. The need for effective team decision making has become particularly acute with reduced budgets and increased responsibilities. There is simply less room for inefficiency.

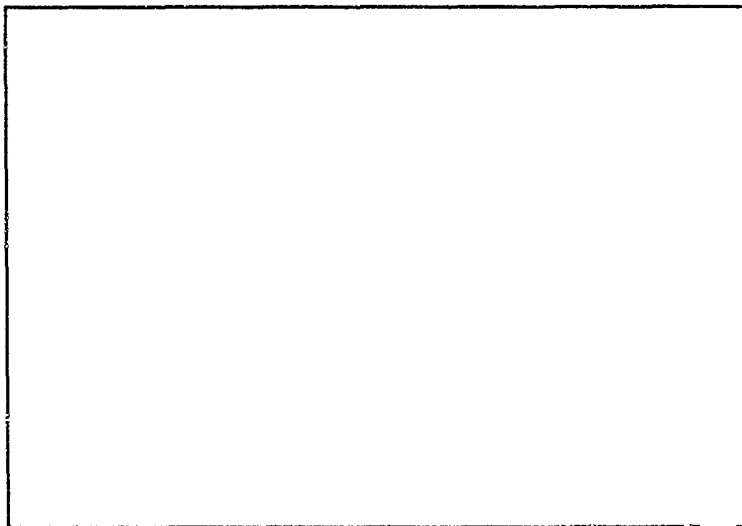
With the support of the SBIR program through the sponsorship of the Army Research Institute for the Behavioral and Social Sciences, Klein Associates Inc., of Fairborn, Ohio, developed a theory-based training program that enables U.S. Army Officers,

had years of prior experience observing, evaluating, and contrasting teams at a multitude of Army facilities. For the Phase II contract, Klein Associates observed numerous teams engaged in a variety of decision-making exercises at the Air Force Institute of Technology (AFIT), U.S. Army War College (USAWC), and the Industrial College of the Armed Forces (ICAF). Based on the observation and research, Klein Associates identified 10 key behaviors that are essential to high performance teams that are

success, the ATDM model was embedded in the core curriculum for repeated future use at the Industrial College of the Armed Forces. Second, Klein Associates contracted with one outside client, the F-16 System Program Office at Wright-Patterson Air Force Base, Dayton, Ohio, to train its teams in ATDM.

Principal Investigator:
Caroline E. Zsombok, Ph.D.
Klein Associates Inc.
(513) 873-8166

Army Project Manager:
T. Owen Jacobs, Ph.D.
U.S. Army Research Institute for the Behavioral and Social Sciences
(703) 274-9136



to achieve more effective strategic team decision making.

The research staff of Klein Associates, trained in cognitive and experimental psychology,

organized in a model of Advanced Team Decision Making (ATDM).

Two Phase III successes occurred during the Phase II contract. First, as a result of the program's

Phase III Impact



Digital Compass Systems

KVH Industries, Inc.

Interested in the potential of overcoming the severe magnetic interference problems compasses encounter in armored vehicles, Picatinny Arsenal of the U.S. Army awarded KVH of Middletown, Rhode Island, a Phase I SBIR contract award in September, 1990. This required the development of a new technology compass which would work well on the M1 Abrams main battle tank and be

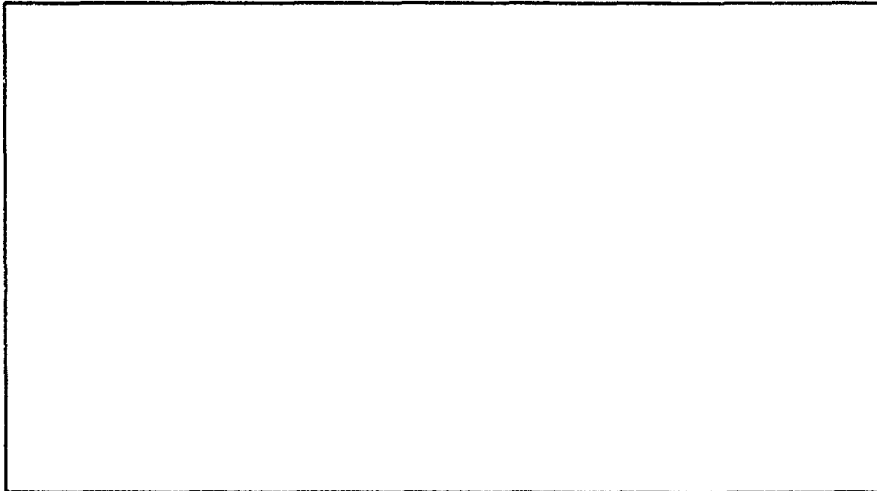
GPS steering information.

During Operation Desert Storm in the Persian Gulf, few U.S. Military units were prepared to navigate in the ocean-like desert

KVH has leveraged basic research funded by the SBIR program to become one of the fastest growing small businesses in the country. In both 1988 and 1989 KVH was included on INC. Magazine's list of the 500 fastest growing companies in the United States. Currently, KVH is commercializing their compass technology enhancements developed during two Phase II SBIR Grants from the U.S. Navy and Army.

Principal Investigator:
KVH Industries, Inc.
(401) 847-3327

Army Project Manager:
Ted Panayotoff
Dept of U.S. Army AMCCOM
(201) 724-6028



compatible with the new Global Positioning System (GPS).

A Phase II contract awarded in July, 1992 enabled KVH to develop software which would accept vital steering information from GPS and display it in an easy-to-understand format for vehicle commanders and drivers. This technology was "spun-off" commercially and all of KVH's high-end commercial compass products now accept and display

environment. In response, the Marines used the latest generation of KVH technology during the buildup of Operation Desert Shield, and after much success, placed an additional \$1.5 million order for KVH compasses immediately prior to the Gulf War. Since the Gulf War, KVH has participated in extensive testing programs as the Army and Marines pursue improvements to their force navigation capabilities and ways to reduce fratricide.

Phase III Impact



Mixed Oxidant Disinfectant Technology

Los Alamos
Technical
Associates, Inc.

Safe water is vital to all Army operations, and treating the water found wherever the Army must operate is critical to the accomplishment of its mission. For the

countries, the Pan American Health Organization (PAHO) encouraged commercialization of MIOX in Latin American countries. Subsequently, 20 MIOX systems have been tested and demonstrated in Paraguay, Columbia, Peru, Mexico, Honduras, Guatemala, and Trinidad. Other commercial applications include its use in eliminating objectionable hydrogen sulfide gases from sewage lines for the City of Albuquerque Waste Water Division and in treating contaminated ground water.

Principal Investigator:

Dr. Wesley Bradford
Los Alamos Technical Associates,
Inc.
(505) 662-1855

Army Project Manager:

Amos Coleman
U.S. Army Belvoir RD&E Center
(703) 704-3351

past twenty years, the Army has relied on calcium hypochlorite, commonly known as HTH, as a disinfectant. While effective, HTH also is not readily available, corrosive, flammable when in contact with oil, and releases chlorine gas when wet.

Because of these inherent disadvantages, in 1991 Belvoir R&D Engineering Center (BRDEC) awarded Los Alamos Technical Associates, Inc. (LATA) a Phase II SBIR contract to determine the feasibility of integrating the company's patented MIOX technology with Reverse Osmosis

Water Purification Units (ROWPU's), to determine and optimize the performance characteristics of the electrolytic cell, and to determine its ability to disinfect water in laboratory and field conditions.

MIOX is a process that produces a very strong solution of Mixed Oxidants with many applications, including: water disinfection, removal of organic and metallic contaminants from ground water, treatment of waste water effluent, odor control for sewage systems.

Because of the great potential for this technology in Latin American

Phase III Impact

The VR-LINK™ DIS Networking Toolkit

The development of Distributed Interactive Simulation (DIS) technology has revolutionized the training, simulation, and acquisition process throughout the DoD. MäK Technologies of Cambridge, Massachusetts, through the SBIR program, has produced the first commercial product in the DIS technology area, the VR-Link™ DIS networking toolkit.

DIS technology was developed in the mid 1980's, by DARPA's SIMNET Program, to provide a multiplayer virtual environment for combined arms tactical team training. This new networking paradigm enables large

numbers of soldiers to practice warfighting against each other in an international and geographically dispersed simulation environment.

MäK's Phase I project ended in August 1992 with the development of a software toolkit design which is easily portable to new hardware platforms, provides all the needed DIS functions for a wide variety of applications, and is easily integrated into simulation by application developers. MäK has also entered

Phase III commercialization directly out of Phase I. VR-Link™ has been selling well as the ONLY commercial DIS networking package available in the United States.

There has been over \$300,000 worth of labor invested in the software toolkit. Since each of MäK's approximately 30 customers does not have to invest labor in a DIS networking capability, the government has saved over \$9,000,000 in uncharged labor. MäK is currently marketing VR-Link™ to commercial entertainment and Virtual Reality companies.

Principal Investigator:

John Morrison
MäK Technologies, Inc.
(617) 876-8085

Army Project Managers:

Admiral Piper, Mike Garnsey
STRICOM
(407) 380-4287

Phase III Impact

Producing Intermetallic Powders with Improved Sinterability

The growing popularity of intermetallics as materials, aided by their superior specific (density-compensated) properties, presents an excellent market potential. These materials' properties, such as elevated temperature

strength, modulus, etc. and excellent high temperature oxidation resistance, are especially marketable in the Powder Metallurgy (P/M) industry.

With the support of the SBIR program and the sponsorship of the US Army Research Laboratory (Materials Directorate), Materials and Electrochemical Research (MER) Corp. of Tucson, Arizona has successfully produced intermetallic powders with spherical shape and small particle sizes in the range 1-10mm. Starting with constituent elemental powders of different intermetallics, a wide range of intermetallic compounds, including binary, ternary as well as quaternary compositions, have been synthesized using its proprietary Plasma-initiated Self-propagating High temperature Synthesis (PSHS) reactions. The intermetallics synthesized through the PSHS reactions are then converted into spherical powders in the size

range 1-10mm (mostly <5mm) by another proprietary process namely an arc/spark erosion process.

Thus, the Phase II research resulted in a technique highly suited to the production of spherical intermetallics powders with fine particle sized without sacrificing purity and is particularly well suited to meet specialized research or production needs. The process is cost-effective in small (<1kg) or larger production runs, which is a major advantage for researchers. Research aimed at evaluating the mechanical properties of intermetallics produced from MER powder is presently in progress.

Principal Investigator:
Dr. Sumit Guha
MER Corporation

Army Project Manager:
Mr. R. J. Dowding
Army Research Laboratory, Materials Directorate

materials Directorate), Materials and Electrochemical Research (MER) Corp. of Tucson, Arizona has successfully produced intermetallic powders with spherical shape and small particle sizes in the range 1-10mm. Starting with constituent elemental powders of different intermetallics, a wide range of intermetallic compounds, including binary, ternary as well as quaternary compositions, have been synthesized using its proprietary Plasma-initiated Self-propagating High temperature Synthesis (PSHS) reactions. The intermetallics synthesized through the PSHS reactions are then converted into spherical powders in the size



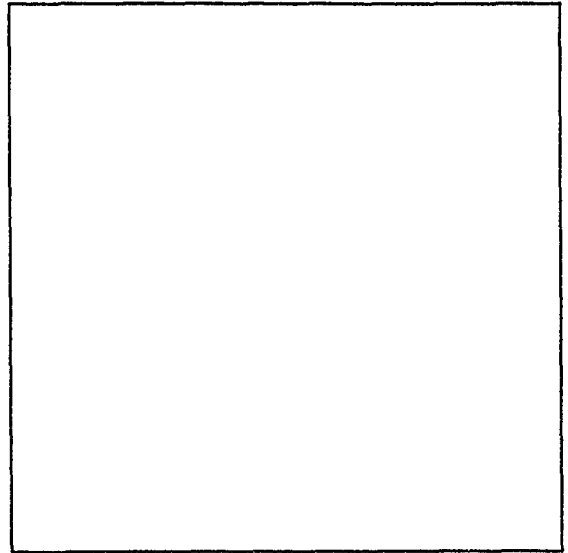


Millimeter-Wave Solid-State Noise Source

Noise/Com

Solid-state noise sources have outstanding stability with temperature and voltage and ripple-free noise power output over standard waveguide bands. Stability, constant spectral density over wide bandwidths, ease of fabrication, compactness, and low biasing power requirements are the advantages of solid-state noise sources over cumbersome gas tube noise sources.

Solid-state noise sources have a large variety of uses. They are being used to: 1) Evaluate the performance of secure communications systems, telephones, and CATV; 2) Confuse enemy radar or communications for jamming purposes; 3) Imitate signals in threat-simulation systems 4) Obscure radar return from enemy targets and limit the radar's range; 5) Evaluate digital communications systems for dynamic range and sensitivity and tune for maximum performance by using noise as a test signal.



Phase III Impact



The wide variety of uses of noise sources and their lack of one in the 75-110 GHz range led to a Phase I SBIR effort by Noise/Com of Paramus, New Jersey under the Electronics & Power Sources Directorate (formerly ETDL). Development of W-band solid-state noise sources was continued under Phase II resulting in the establishment of the technology base for the quantity fabrication of W-band solid-state noise sources for a variety of military and commercial applications.

As a result of this program and a world wide demand, Noise/Com offers millimeter-wave solid-state noise sources covering full and customized bandwidth up to a frequency of 100 GHz.

Principal Investigator:
Noise/Com
(201) 261-8797

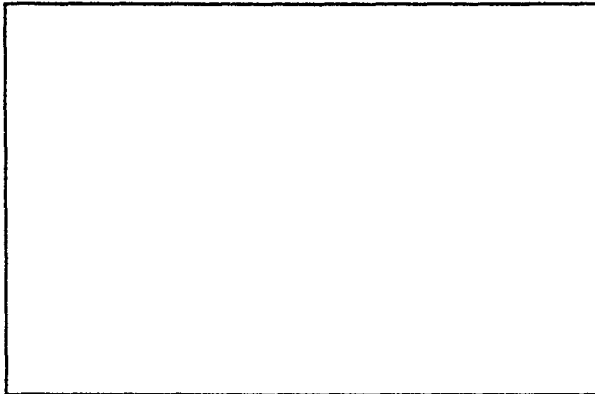
Army Project Manager:
Elmer Freibergs/John Armata
Army Research Laboratory
Electronics & Power Sources
Directorate
(908) 544-2813/2259

Ultra-Wide Band Optoelectronic Microwave Mixer for Phased Array Radar

Ortel Corporation

High-speed optoelectronic technology offers broadband, lightweight, EMI immunity and flexibility features for phased array radar systems. Combining optoelectronics with MMIC technology will be extremely valuable for future phased array radar designs where tens of thousands of radiating and receiving elements are involved.

Sponsored by the U.S. Army Harry Diamond Laboratory, Ortel Corporation of Alhambra, California developed a 20 GHz photodiode and combined it with a low-noise GaAs MMIC amplifier to form an optical receiver. The photodiode based in InP was flip-chip mounted onto the GaAs MMIC amplifier to achieve small size and to minimize parasitics. Compared to an optical receiver in which the photodiode and amplifier are separate units, the optical receiver developed in this program is more compact and has 6 dB better noise performance.



The 20 GHz photodiode developed has become a commercial product: the Model 2516A Photodiode Module. It has excellent bandwidth, responsivity and amplitude flatness for operation at 1310 and 1550 nm wavelengths. The photodiode is a p-i-n

mesa structure which was optimally designed for high speed and high quantum efficiency. The responsivity is typically greater than 0.7 A/W and operates from -40° to $+70^{\circ}$ C. The amplitude flatness is ± 2 dB from 1 to 20 GHz.

The Model 2516A Photodiode module has been available since mid 1992 and has already been sold for a variety of high-speed microwave applications. These include microwave delay lines, antenna remoting and EW systems.

Principal Investigator:

Dr. Carol Gee
Ortel Corporation
(818) 281-3636

Army Project Manager:

Dr. George Simonis
U.S. Army Harry Diamond
Laboratories, AMSRL-EP-EE
(301) 394-2042

Phase III Impact



APPENDIX D
STTR TRACKING SYSTEM

STTR User Guide



STTR Installation

Insert the STTR disk into the disk drive and type [drive letter]:install, where [driveletter] is the letter of the drive you are installing from. For example, if you are installing from drive b:, type:

```
b:install  
and press <Enter>.
```

The program will then ask for the destination drive. This is the drive that the program will be located. Simply type the destination drive letter in the following format:

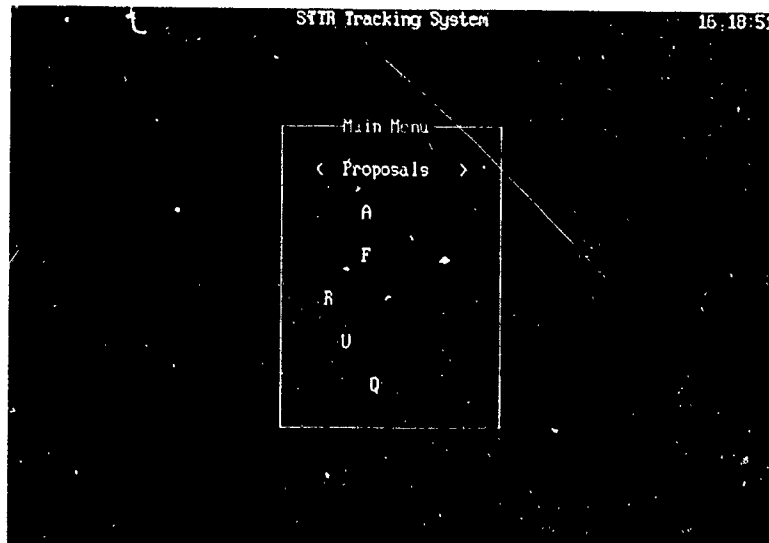
```
[drive letter]:
```

where [drive letter] is the letter of the drive you wish to install STTR. For example, if you want to install STTR on drive C, simply type "c:" at the prompt, then press <Enter>.

The installation program will then go through a series of steps to install STTR. The install program will create a directory 'C:\STTR' and place all program files into that directory. When the installation is complete, the message "STTR has successfully installed, type 'STTR' to start program" will be displayed. If this message is not displayed, call BRTRC immediately.

STTR User Tips

- Switch to the STTR directory (C:\STTR) and type 'sttr' to start the program.
- Bottom line help will inform you as to how to move around the screen.
- Use <tab> and <shift>+<tab> to move around in the program.
- Press <Alt>+ the highlighted letter to "hot-key" to an option on the screen or top-line menu, then press <Enter> to access the option.
- Selecting a button with a mouse will move to the button and execute its function.
- Press <F1> for on-line help in the program.
- Press PgUp/PgDn to move to the previous/next record.
- Call BRTRC immediately if you get an error message.



Proposals Module

STTR Requirements

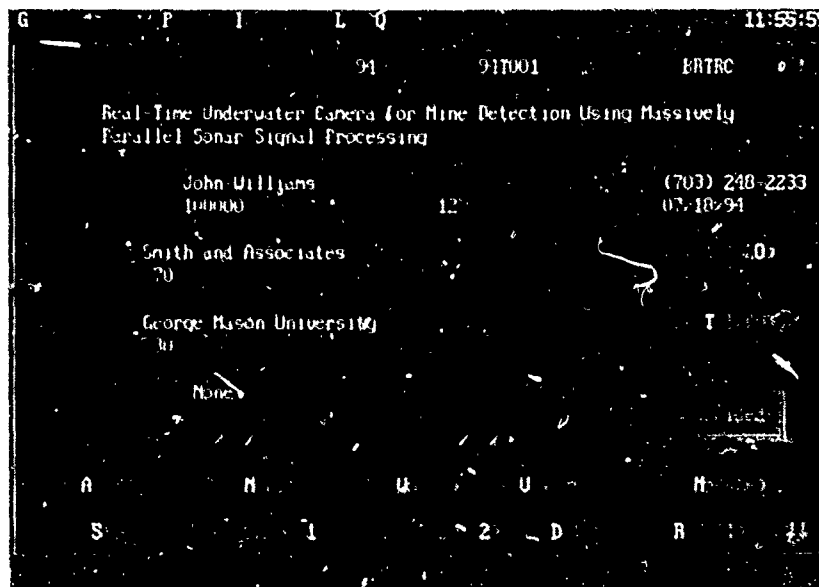
Proposal information is reported in a two-step process:

- 1) Appendix A Requirements: DoD requires that Appendix A data be reported for all Phase I proposals received, and
- 2) Appendix B Requirements: DoD requires that Appendix B data be reported for all selected or awarded proposals.

Appendix B information includes the Technical Abstract, Anticipated Benefits, and the Keywords.

Getting Started

Select 'Proposals' from the Main Menu. When you enter the Proposals Module from the Main Menu, the proposals data entry screen will appear as shown below. The proposals screen contains all the Appendix A, Appendix B, Status, Evaluation, and General Comment information for each proposal.



Empty Database

If no proposals have been input, a message will display from the Main Menu that the database is empty. The option is given to add a proposal. Select 'Yes' to add a proposal, add this time or 'No' to enter proposals at a later time.

Adding Proposals

Phase 1

To add a phase 1 proposal, move to the button 'Add Phase 1', by using the <tab> key or using the hot-key combination <Alt>+<1>, then press <Enter>. All of the data fields will be cleared. This will allow you to add your new data. Until the proposal is saved or aborted, the program will be in 'add mode'.

Adding the Firm

When the cursor reaches the 'Firm Name' field, a pick-list of firms will be displayed. Simply maneuver through the list by using the arrow up/down keys or the PgUp/PgDn keys. Select a firm by pressing the <Enter> key when the correct firm is highlighted. All of the address information will be filled in automatically. It is then necessary to select the 'Firm Info' button (hot-key <Alt>+<O>) to fill in the 'Corporate Official', 'Title', and 'Telephone' fields for the firm.

ADD NEW FIRM

In some cases, the firm will not exist on the firm pick-list and it will need to be added. The first item on the firm pick-list will be 'ADD NEW FIRM'. Simply maneuver to this item and select it. A screen will be provided to add the new firm information. When the firm information is complete, select the 'Save' button and press <Enter>. This will add the firm to the proposal as well as to the firm pick-list. The newly entered firm will now always appear on the firm pick-list for future use.

Aborting the 'Add Firm' screen during proposal entry by selecting the 'Cancel' button will enter a Firm Name of 'ADD NEW FIRM'. This is because the firm name is a required field and it will notify the user that no firm has been entered for the proposal.

Adding the Research Institute

As with the 'Firm Name' field, when the cursor reaches the 'Institute' field during 'add mode', an institute pick-list will be displayed. Maneuver to the institute to be selected and press <Enter>. This will select the research institute and automatically fill in the address information. It is then necessary to select the 'Inst Info' (hot-key <Alt>+<T>) button to fill in the 'Institute Official Name', 'Title', and 'Telephone' fields for the research institute.

ADD NEW RESEARCH INSTITUTE

In some cases, the institute will not exist on the pick-list and it will need to be added. The first item on the list will be 'ADD NEW RESEARCH INSTITUTE'. Simply maneuver to this item and select it. A screen will be provided to add the new institute information. When the research institute information is complete, select the 'Save' button and press <Enter>.

This will add the institute to the proposal as well as to the pick-list. The newly entered institute will now always appear on the institute pick-list for future use.

Aborting the 'Add Institute' screen during proposal entry by selecting the 'Cancel' button will enter an Institute of 'ADD NEW RESEARCH INSTITUTE'. This is because the institute name is a required field and it will notify the user that no institute has been entered for the proposal.

Once all of the Appendix A information has been entered, the proposal needs to be saved. This is done by selecting the 'Save' button (hot-key <Alt>+<S>) and pressing <Enter>. Selecting the save option will write the new proposal to the database and assign it a unique identification number.

*****WARNING*****

If the record is not saved by selecting the 'Save' button, the information for the proposal will **NOT** be written to the database. It is important to save each record after the data has been entered.

Aborting Phase 1 Entry

To abort proposal entry, simply select <Alt>+<Q> to quit the proposal module or press the <PgUp> or <PgDn> key. Pressing <PgUp> or <PgDn> will cause a screen to appear that alert the user that a new record has been created. To abort the new record, select 'No' from the screen and the data that was typed in will not be added to the database.

Phase 2

To add a phase 2 proposal, move to the 'Add Phase 2' button by using the <tab> keys or by using the hot-key combination of <Alt>+<2>, then select it by pressing <Enter>. A screen will appear that will ask if a Phase 2 for the current record (shown by ID#) is to be added. Selecting 'Yes' will add a phase 2 for the current phase 1 proposal. A unique identification number will be assigned to this new proposal. The Appendix A information will be copied to the new phase 2 and the Appendix B information will be left blank.

Once a phase 2 has been added, the only way to remove it is by using the 'Delete' option which will be covered later in this section.

NOTE

When adding numerous phase 1 proposals, it is important to always select the 'Save' option so that the data is stored to the database and a unique identification number is assigned for that record.

Editing a Proposal

To modify a proposal, locate the proposal for modification and make necessary changes. Use the <tab> or <Shift>+<tab> keys to maneuver around the screen.

Changing the Firm

To change the firm, simply maneuver to the firm field. Once the cursor is on the firm field, press the <F3> key to display the firm pick-list. Highlight the new firm from the pick-list and select it by pressing <Enter>. If the firm needed does not appear on the pick-list, highlight and select 'ADD NEW FIRM' from the top of the pick-list and fill in and save the new firm information on the screen provided.

Changing the Research Institute

To change the research institute, simply maneuver to the institute field. Once the cursor is on the institute field, press the <F3> key to display the institute pick-list. Highlight the new institute from the pick-list and select it by pressing <Enter>. If the institute needed does not appear on the pick-list, highlight and select 'ADD NEW RESEARCH INSTITUTE' from the top of the pick-list and fill in and save the new institute information on the screen provided.

Saving Changes

It is important to save all changes made to a proposal. This can be done by moving to the 'Save' button (hot-key <Alt>+<S>) and pressing <Enter>. If the save button is not selected, no changes that were made to the proposal will be saved.

Status

All proposals start with an 'undecided' status and, once evaluated, must be changed to either 'rejected' or 'selected'. To change your proposal's status, selected the box marked 'Undecided' by moving to the box and pressing <Enter>. A drop down list then appears with the three choices for status. Highlight the appropriate choice and press <Enter>. Then save changes using the 'Save' button. Only proposals with the status of 'Selected' may be awarded.

Quickly Locating a Proposal

Proposals can be quickly located by using the Goto/Browse option. Select the top-line menu option 'Goto' (hot-key <Alt>+<G>). Highlight the 'Browse' option and press <Enter>. A browse list of all the proposals in the database is displayed in order by the current index. Highlight the proposal to goto by using the PgUp/PgDn or the arrow keys and press <Enter>. This will then move the database to the selected proposal.

Deleting a Proposal

Deleting proposals is a two-step process. First, proposals are "marked" for deletion and second, proposals are eliminated from the database using the 'Pack Data' utility.

To mark a proposal for deletion, maneuver to the button marked 'Delete' (hot-key <Alt>+<D>) and press <Enter>. A field marked 'DELETED' in light blue text will appear near the bottom right-hand corner of the screen near the 'Status' field. The proposal is now marked for deletion.

To eliminate the proposal from the database, it is necessary to exit out of the Proposals Module to the Main Menu. Select the 'Utilities' option from the Main Menu. Now select the 'Pack Data' menu option from the Utilities Menu. A warning screen appears to verify the elimination of all data marked for deletion. Selecting 'Yes' will eliminate **ALL** data that is marked for deletion.

*****WARNING*****

The 'Pack Data' utility will eliminate **ALL** data that is marked for deletion in the entire database. This includes data marked for deletion in the Awards, Firms, Proposals and Research Institute Modules.

Recalling a Proposal

Only proposals that have been marked for deletion can be recalled. To recall a proposal, select a proposal that is marked for deletion, maneuver to the 'Recall' button (hot-key <Alt>+<R>) and press <Enter>. The selected proposal that was marked for deletion will no longer be marked. The light blue text 'DELETED' should no longer appear on the proposal. The 'Pack Data' utility can now be selected safely without the selected proposal being eliminated permanently from the database.

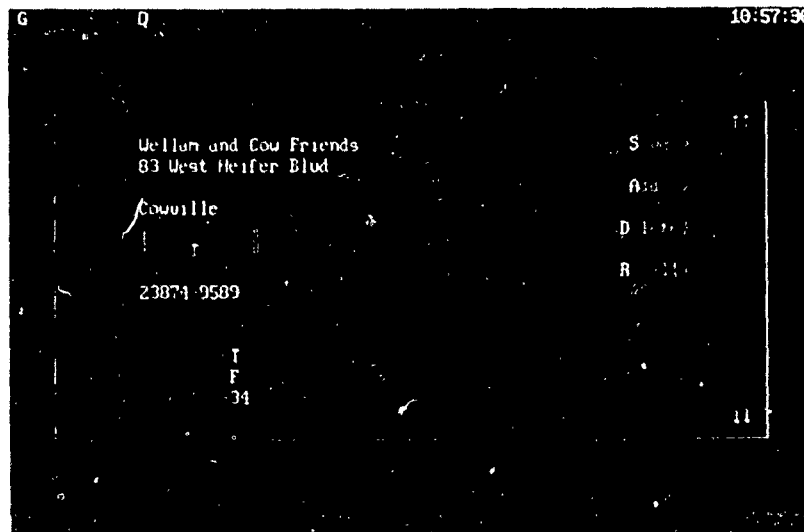
Firms Module

Overview

The firms module contains information about all of the firms in the database. Firms are only stored once in STTR and proposals and awards simply "point" to the existing firm. Firm information is not stored with each proposal or award, only which firm the proposal or award "points to" is stored. Therefore, when firm information is modified, it is modified for **ALL** proposals and awards which are "pointing to" that particular firm. The advantages of this are 1) if information about a firm is modified, it only needs to be changed in one place rather than on every proposal or award and 2) the data is only once for a firm, thus saving disk space.

Firms Screen

Select 'Firms' from the Main Menu. The firms data entry screen will appear as shown below. Firm information is entered/modified on this screen.



Adding Firms

Firms can be added in two places, the proposals module during the proposal 'add mode', and in the Firms Module.

Adding Firms from Proposals Module

Adding firms from the proposals module is covered under 'Adding Proposals' in the Proposals Module section of this manual.

Adding Firms from the Firms Module

To add a firm from the firms module, maneuver to the 'Add' button and press <Enter>. The firms screen is cleared and ready for a new firm to be input. Fill in all the firm information and select the 'Save' button when completed. The new firm will be added and will appear on the firm pick-list when adding/modifying new proposals in the Proposals Module.

To change the 'State' field, maneuver to the box containing the state and press <Enter>. This will bring up a pick-list of states from which to choose. Highlight the state of choice by using the arrow keys and press <Enter> to select the state. Using the <Shift>+<letter> key combination will move to the first state, alphabetically, for that letter. For example, pressing the key combination of <Shift>+<C> once the pick-list has been selected will move the highlighted box to 'CA', for California.

Editing Firms

To edit a firm, move to the firm to be modified and edit the necessary data. Use the <tab> and <Shift>+<tab> keys to maneuver around the screen.

Saving Changes

It is important to save all changes made to a firm. This can be done by moving to the 'Save' button (hot-key <Alt>+<S>) and pressing <Enter>. If the save button is not selected, no changes that were made to the firm will be saved.

Quickly Locating a Firm

Firms can be quickly located by using the Goto/Browse option. Select the top-line menu option 'Goto' (hot-key <Alt>+<G>). Highlight the 'Browse' option and press <Enter>. A browse list of all the firms in the database is displayed in alphabetical order. Highlight the firm to go to by using the PgUp/PgDn or the arrow keys and press <Enter>. This will then move the database to the selected firm.

Deleting a Firm

Deleting firms is a two-step process. First, firms are "marked" for deletion and second, firms are eliminated from the database using the 'Pack Data' utility.

To mark a firm for deletion, maneuver to the button marked 'Delete' (hot-key <Alt>+<E>) and press <Enter>. A field marked 'DELETED' in light blue text will appear near the bottom right-hand corner of the screen near the 'Status' field. The firm is now marked for deletion.

To eliminate the firm from the database, it is necessary to exit out of the Firms Module to the Main Menu. Select the 'Utilities' option from the Main Menu. Now select the 'Pack Data' menu option from the Utilities Menu. A warning screen appears to verify the elimination of all data marked for deletion. Selecting 'Yes' will eliminate **ALL** data that is marked for deletion.

*****WARNING*****

The 'Pack Data' utility will eliminate **ALL** data that is marked for deletion in the entire database.

This includes data marked for deletion in the Awards, Firms, Proposals and Research Institute Modules.

Recalling a Firm

Only firms that have been marked for deletion can be recalled. To recall a firm, select a firm that is marked for deletion, maneuver to the 'Recall' button (hot-key <Alt>+<R>) and press <Enter>. The selected firm that was marked for deletion will no longer be marked. The light blue text 'DELETED' should no longer appear on the firm. The 'Pack Data' utility can now be selected safely without the selected firm being eliminated permanently from the database.

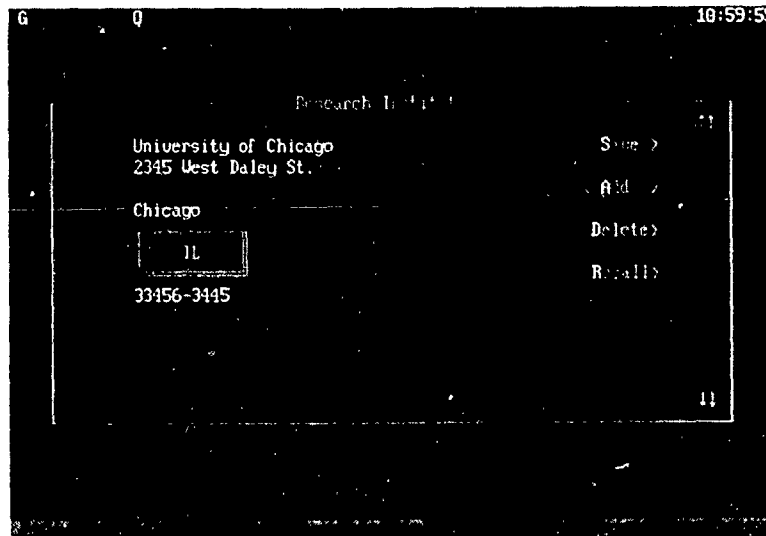
Research Institute Module

Overview

The Research Institute module contains information about all of the institutes in the database. Institutes are only stored once in STTR and proposals and awards simply "point" to the existing institute. Institute information is not stored with each proposal or award, only which institute the proposal or award "points to" is stored. Therefore, when institute information is modified, it is modified for **ALL** proposals and awards which are "pointing to" that particular institute. The advantages of this are 1) if information about an institute is modified, it only needs to be changed in one place and 2) the data is only stored once for each institute, thus saving disk space..

Research Institute Screen

Select 'Research Inst.' from the Main Menu. The institute data entry screen will appear as shown below. Institute information is entered/modified on this screen.



Adding Research Institutes

Institutes can be added in two places, the proposals module during the proposal 'add mode', and in the Research Institute Module.

Adding Institutes from Proposals Module

Adding institutes from the proposals module is covered under 'Adding Proposals' in the Proposals Module section of this manual.

Adding Institutes from the Research Institute Module

To add an institute from the institute module, maneuver to the 'Add' button and press <Enter>. The institute screen is cleared and ready for a new institute to be input. Fill in all the institute information and select the 'Save' button when completed. The new institute will be added and will appear on the institute pick-list when adding/modifying new proposals in the Proposals Module.

To change the 'State' field, maneuver to the box containing the state and press <Enter>. This will bring up a pick-list of states from which to choose. Highlight the state of choice by using the arrow keys and press <Enter> to select the state. Using the <Shift>+<letter> key combination will move to the first state, alphabetically, for that letter. For example, pressing the key combination of <Shift>+<C> once the pick-list has been selected will move the highlighted box to 'CA', for California.

Editing Research Institutes

To edit an institute, move to the institute to be modified and edit the necessary data. Use the <tab> and <Shift>+<tab> keys to maneuver around the screen.

Saving Changes

It is important to save all changes made to an institute. This can be done by moving to the 'Save' button (hot-key <Alt>+<S>) and pressing <Enter>. If the save button is not selected, no changes that were made to the institute will be saved.

Quickly Locating a Research Institute

Institutes can be quickly located by using the Goto/Browse option. Select the top-line menu option 'Goto' (hot-key <Alt>+<G>). Highlight the 'Browse' option and press <Enter>. A browse list of all the institutes in the database is displayed in alphabetical order. Highlight the institute to go to by using the PgUp/PgDn or the arrow keys and press <Enter>. This will then move the database to the selected institute.

Deleting a Research Institute

Deleting institutes is a two-step process. First, institutes are "marked" for deletion and second, institutes are eliminated from the database using the 'Pack Data' utility.

To mark a firm for deletion, maneuver to the button marked 'Delete' (hot-key <Alt>+<E>) and press <Enter>. A field marked 'DELETED' in light blue text will appear near the bottom right-hand corner of the screen near the 'Status' field. The firm is now marked for deletion.

To eliminate the institute from the database, it is necessary to exit out of the Research Institute Module to the Main Menu. Select the 'Utilities' option from the Main Menu. Now select the 'Pack Data' menu option from the Utilities Menu. A warning screen appears to verify the elimination of all data marked for deletion. Selecting 'Yes' will eliminate **ALL** data that is marked for deletion.

*****WARNING*****

The 'Pack Data' utility will eliminate **ALL** data that is marked for deletion in the entire database.

This includes data marked for deletion in the Awards, Firms, Proposals and Research Institute Modules.

Recalling a Research Institute

Only institutes that have been marked for deletion can be recalled. To recall an institute, select an institute that is marked for deletion, maneuver to the 'Recall' button (hot-key <Alt>+<R>) and press <Enter>. The selected institute that was marked for deletion will no longer be marked. The light blue text 'DELETED' should no longer appear on the current institute. The 'Pack Data' utility can now be selected safely without the selected firm being eliminated permanently from the database.

Awards Module

Overview

Awards are generated from selected proposals and contain both Appendix A and B information.

Awards Screen

Select the 'Awards' option from the Main Menu. The awards screen will appear as shown below.

The screenshot shows a terminal window titled 'Awards' with a time of 10:53:06. The window displays the following information:

```
G      P      I      Q      10:53:06
-----
          Awards
          94      94T001      BRTRC      11
          38308
Elner's proposal for radar enhanced rabbit detectors.

          Mike Fudd      (394) 739-4747
          A1234-56B      05/30/94
          200000      05/01/95
          94

          Jim's Firm      Firm Info>
          23

          University of Alabama      Inst Info>
          44

<Abstract> <Benefits> <Keywords> <Comments> <Funding>
<Save> <Add> <Delete> <Reset> 11
```

Adding an Award

All awards are created from selected proposals. Therefore, you need to be sure that the proposal is marked 'Selected' in the Proposal Module.

To add an award, enter the awards module and select the 'Add' button. A window containing all of the proposals that are marked 'Selected' will appear. Highlight the proposal to add and press <Enter>. All information will be copied from the Proposal Module. In addition, the status of the proposal will be changed to 'Awarded'. Enter the Contract Number, Amount, FY Reported and Award start and end dates. Once all information is entered, select the 'Save' button (hot-key <Alt>+<S>) and press <Enter>.

Editing Awards

To edit an institute, move to the award to be modified and edit the necessary data. Use the <tab> and <Shift>+<tab> keys to maneuver around the screen.

It is important to save all changes made to an award. This can be done by moving to the 'Save' button (hot-key <Alt>+<S>) and pressing <Enter>. If the save button is not selected, no changes that were made to the award will be saved.

Funding Screen

Selecting the 'Funding' button in the Awards Module will result in the following screen

```
15:01:15
20000015 1 94 94T001 BTRC
38308
Funding
94 100000 S P This is a comment
94 50000 S C
94 30000 M C This is a test
0
0
0
0
<Ctrl>+<Enter> to Save and Exit
S D E R
```

Funding Data

All funding information for each award should be entered. STTR allows for eight lines of funding. This allows the tracking of an awards' funding history. In general, phase 1 awards have one fiscal year of funding and phase 2 awards can have one, two, or more years of funding.

Each line of data corresponds to a funding amount. The 'Source' and 'Status' fields can be entered as follows:

Source

S - SBIR money

M - Mission money, any non-STTR money.

Status

P - Planned, money that is committed or will be spent in the following fiscal years.

C - Committed.

O - Obligated, money that has already been awarded.

Once the funding information has been entered, press <Ctrl>+<Enter> to save the data and return to the award screen.

Utilities Module

Overview

The Utilities Module contains a menu containing the items 'Control Vars', 'About' and 'Pack Data'. The 'Control Vars' option contains program setup and printer information, 'About' contains information about STTR, and the 'Pack Data' option allows the user to eliminate all data marked for deletion from the database.

Control Vars

Select the 'Control Vars' button from the Utilities Menu and the Control Variables Screen appears. Variables changed or filled in on this screen will work throughout the entire scope of the program. These variables are:

Agency - The agency to be assigned to all the proposals that are entered.

Command - The command that the program is working under.

Printer (LPT1, LPT2, PRN) - The printer port to which reports and letters are sent.

Margins - Report and letter margins.

Page - The width and height of printed pages.

These variables can be changed by simply filling in values and moving to the next field. Only one printer port can be selected from the listed ports. This is done by moving to the desired port and pressing the <Enter> key. To save modifications, select the 'Ok' button to exit. To abort changes, select the 'Cancel' button.

About

Selecting this option will cause a screen to appear with BRTRC address information.

Pack Data

The 'Pack Data' option permanently eliminates data that is marked for deletion from the database. The Proposals, Research Inst., Firms and Awards Modules all have 'Delete' options. Selecting 'Delete' on a particular proposal, award, firm or research institute will "mark" that proposal, award, firm or research institute for deletion. The data remains in the database, that record is simply "marked". When the 'Pack Data' option is selected, **ALL** records that are marked for deletion throughout the entire program are **permanently** eliminated from the database. Records which have been marked and permanently eliminated cannot be recovered. Records may be "unmarked" in a module if the 'Recall' button is selected on a record that is marked for deletion.

Other Utilities

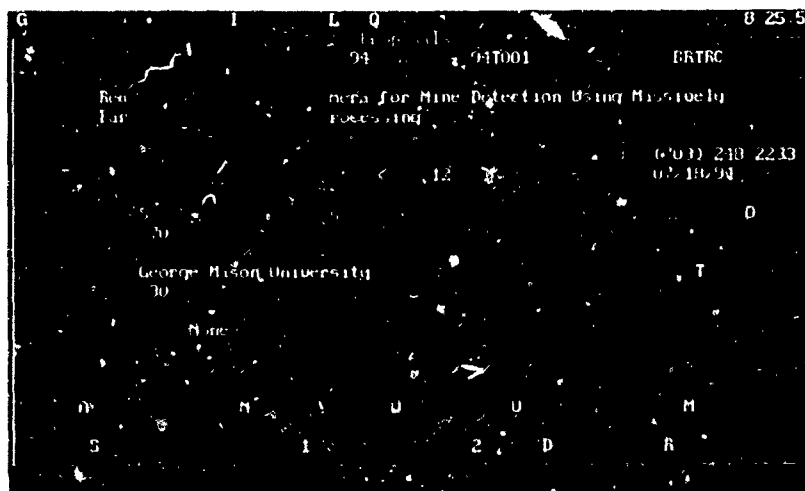
This section will cover other useful utilities available in STTR. These utilities are:

- Printing Reports
- Printing Letters
- Changing the Index
- Exporting Appendix A and B information

Printing Reports

Reports can be generated and sent to either a text-file or to a printer. This section will give a step by step example of sending a report to a printer from the Proposals Module.

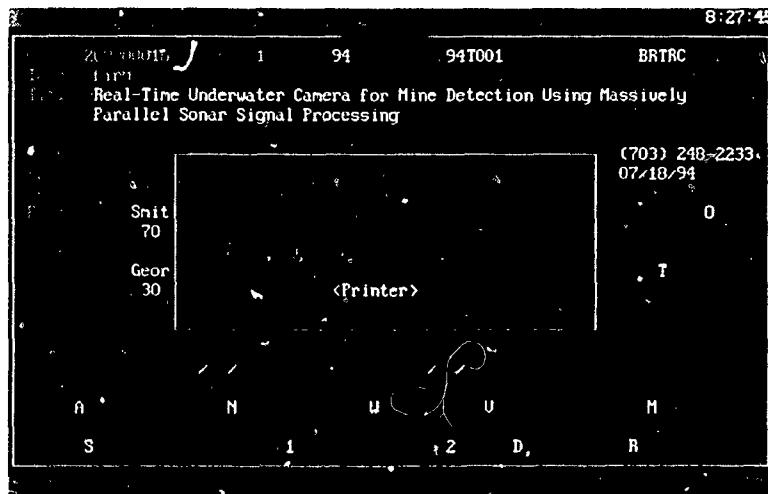
Select the proposal menu-bar option 'Reports' (hot-key :Alt>+<P>) and the screen will appear as shown below.



From this menu, three different reports can be selected.

- Short form report, proposals printed in short form, ordered by current index.
- Current report, a detailed report of the current proposal.
- Long form report, proposal detail reports for all proposals, ordered by current index.

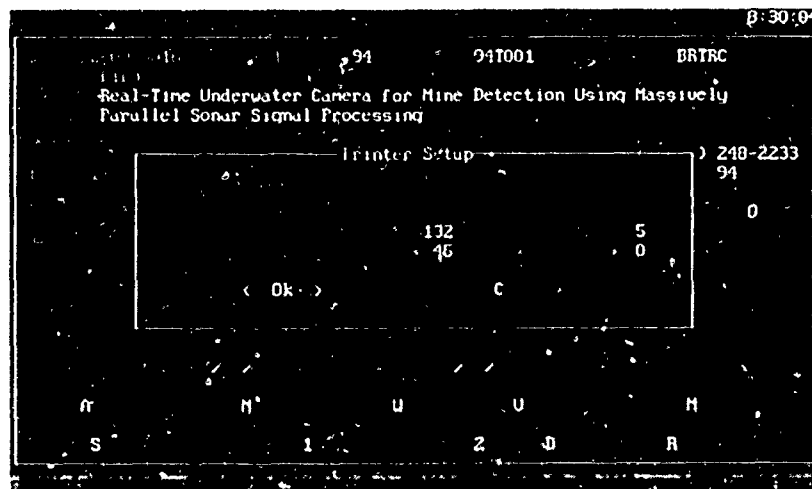
From this menu, select the menu option '**short form report**'. When this option is selected, a new screen appears. This new screen prompts the user to have the report printed to either a file or a printer. It will appear as shown on the next page.



From this screen, select the option marked 'Printer'. This will send the output to the current printer.

The next screen that appears is the 'Printer Setup' screen. This screen gives the user the options to setup the margins properly for the current report. For this report, the margins will be set at a width of 132. The printer must be setup manually for portrait or landscape. In general, letters and detail reports work best in portrait mode with a width of 72-80, and short form reports are printed best in landscape mode with a width of at least 132.

The 'Printer Setup' screen is shown below.



Once the margins have been entered, select the 'Ok' button. This will send the report to the printer and a message will appear indicating that printing is in progress. The same steps used to print this report will also be taken when printing the current and long form reports.

Printing Letters

Letters can be generated and sent to either a text-file or to the printer. Three types of letters can be selected; acknowledgement letters, selection letters, and rejection letters. Printing letters is a three step process.

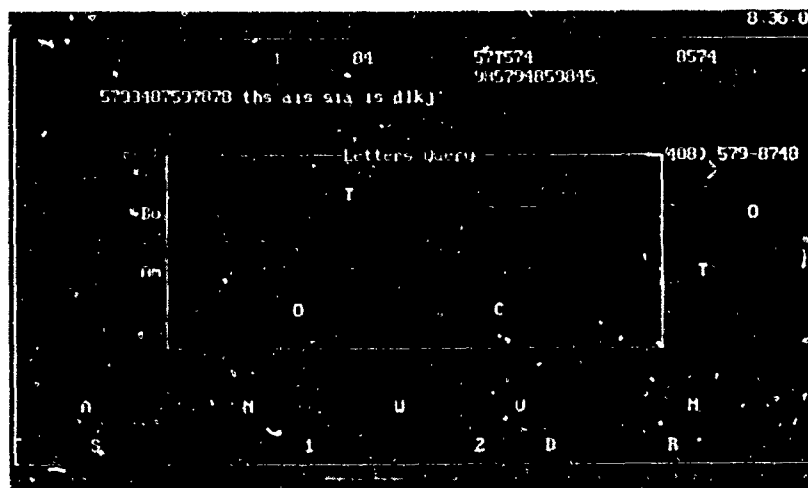
- 1) Select file or printer for output, along with the margins.
- 2) Perform the letter query.
- 3) Modify and print the letter text.

This section will provide a step by step example of sending an acknowledgement letter to the printer from the Proposals Module.

Select the 'Reports' option from the top-line menu in the Proposals Module. Select the bottom option which is the 'Letters' sub-menu. This will display the sub-menu with three options, 'Acknowledgement letter(s)', 'Selection letter(s)', and 'Rejection letter(s)'. Select the first option, 'Acknowledgment letter(s)'. When this option is selected, a new screen appears. This screen prompts the user to have the letter printed to a file or a printer. Select the option marked 'Printer'. This will send the output to the current printer.

The next screen that appears is the 'Printer Setup' screen. This screen gives the user the options to setup the margins properly for the current report. For this letter, the margins will be set at a width of 70. The printer must be setup manually for portrait or landscape. In general, letters and detail reports work best in portrait mode with a width of 65-80 depending on the font size, and short form reports are printed best in landscape mode with a width of at least 132.

Once the margins have been input, select the 'Ok' button and the letter query screen will appear as shown .



The letters query screen enables the user to "query" the databases by filtering out proposals that do not meet the criteria. Proposals can be narrowed down by the 'Topic #', 'Solicitation', and 'Phase'. Entering a topic number into the 'Topic #' field will filter out all proposals that do not have that topic number. Entering a topic number and phase will filter out all proposals that do not have that topic number and phase, and so on. Leaving all three query fields blank will query every proposal in the database for printing.

Select the topic number '94T001', phase '1', and solicitation '94', and all proposals that meet these criteria will be print out.

Select 'Ok' when the query has been selected. The letter text screen will appear as shown.



This screen contains the format of the letter to be sent. Variables on this screen appear along with the letter text. These variables represent information about the "current" proposal. The letter text should be modified to read properly and the following rules should be applied when modifying the text.

- Always begin variables with capital letters.
- Never put the variable 'Proptitle' in the text of the paragraph.
- Use @FORMAT and @UNFORMAT before and after each paragraph.
- Press <Ctrl>+<Enter> to print the letters in the query.

LETTER VARIABLES

The letter variables that are/can be used in the letters and their functions are listed below:

- @Firm - The firm of the current proposal
- @Street - The firm street address of the current proposal
- @City - The firm city of the current proposal
- @State - The firm state of the current proposal
- @Zipcode - The firm zipcode of the current proposal
- @Agency - The agency of the current proposal
- @Topicnum - The topic number of the current proposal
- @Proptitle - The current proposals' title
- @Idnum - The current proposals unique identification number

-
- @*Salutation* - The salutation of the firm corporate official
 - @*FORMAT* - The variable to turn on paragraph formatting
 - @*UNFORMAT* - The variable to turn off paragraph formatting.

NOTE

The variables @FORMAT and @UNFORMAT **MUST** be before and after each paragraph in order to format the paragraph text to adhere to the current margins. Placing the variable @FORMAT on the line where the paragraph should begin is the correct placement of the variable. Place the text on the line below the variable and the text will be formatted at the location of the @FORMAT variable.

For example, the following letter text

- 1 @FORMAT
- 2 This is the first indented line of text
- 3 There is more text on this line, but it is not indented.
- 4 @UNFORMAT

will result in the following being printed:

- 1 This is the first line of text
- 2 There is more text on this line, but it is not indented.

Edit the text letter appropriately or leave it in its original format and press <Ctrl>+<Enter> to send the letters to the printer.

Changing the Index

In the Awards and Proposals Modules, it is possible to change the index of the records. Changing the index will simply order all records in the database by the selected index. The default index is Firm. Using the all reports will be printed in the order of the current index. The current index appears in the upper left-hand of the screen in kight-blue text. Possible indexes are:

- ID number
- Firm
- Research Institute
- Topic number
- Command
- Local ID number

Exiting a module and returning will set the index back to the default (Firm). The Research Institute Modules are ordered alphabetically and their indexes cannot be changed.

STTR REPORTING SCHEDULE

DATE	WHAT IS DUE
01SEP93	FY94 STTR Topic Descriptions (Solicitation opens Dec 1993 and closes April 1, 1994)
01JUN94	FY94 STTR Phase I Appendix A data for all proposals
01SEP94	FY95 STTR Topic Descriptions (Solicitation opens Dec 1994 and closes April 1, 1995)
01OCT94	FY94 STTR Phase I Appendix B data for selected/awarded projects
01DEC94	Funding and Contract data for all STTR awards; Agency STTR Annual Report
01JUN95	FY95 STTR Phase I Appendix A data for all proposals
01SEP95	FY96 STTR Topic Descriptions (Solicitation opens Dec 1995 and closes April 1, 1996)
01OCT95	FY95 STTR Phase I Appendix B data for selected/awarded projects
01NOV95	Appendix A, Appendix B, contract and funding data for all STTR Phase II awards made in FY95
01DEC95	Funding and Contract data for STTR Phase I awards; Agency STTR Annual Report
01JUN96	FY96 STTR Phase I Appendix A data for all proposals
01SEP96*	FY97 STTR Topic Descriptions (Only if the STTR pilot program is extended past FY96)
01OCT96	FY96 STTR Phase I Appendix B data for selected/awarded projects
01NOV96	Appendix A, Appendix B, contract and funding data for all STTR Phase II awards made in FY96
01DEC96	Funding and Contract data for STTR Phase I awards; Agency STTR Annual Report

STTR Data Reporting Requirements and Formats

STTR APPENDIX A

- Phase I:
 - Due 01 June of each year (2 months after the solicitation closes).
 - One record for each Phase I proposal received in the solicitation
- Phase II:
 - Due 01 November of each year
 - One record for each Phase II proposal selected or awarded
- Report Phase I and Phase II Appendix A's in separate ASCII text files. Filenames should be [First three letters of Agency Name]A[Phase]STR.[FY]. For example:

ARMA1STR.94 -- Army STTR Appendix A's from Phase I Solicitation 94 proposals

NAVA2STR.94 -- Navy STTR Appendix A's from Phase II Solicitation 94 proposals

AFA1STR.94 -- Air Force STTR Appendix A's from Phase I Solicitation 94 proposals

RECORD DESCRIPTION

<u>Field Description</u>	<u>Length</u>	<u>Position</u>
1. Proposal ID # (assigned by Agency)	9	1-9
2. Topic Number	3	10-12
3. Solicitation Year	2	13-14
4. Agency	4	15-18
5. Phase	1	19
6. Proposal Title	200	20-219
7. Principal Investigator	25	220-244
8. PI Phone Number	14	245-258
9. Proposed Cost	6	259-264
10. Proposed Duration	2	265-266
11. Firm Name	40	267-306
12. Firm Street Address	40	307-346
13. Firm City	20	347-366
14. Firm State	2	367-368
15. Firm Zip	10	369-378
16. Firm Corporate Official	25	379-403
17. Firm CO Phone Number	14	404-417
18. Firm -- Minority-Owned	1	418
19. Firm -- Woman-Owned	1	419
20. Firm -- Number of Employees	3	420-422
21. Firm Percentage	2	423-424
22. Research Institution	40	425-464
23. Research Inst. Street Address	40	465-504
24. Research Inst. City	20	505-524
25. Research Inst. State	2	525-526
26. Research Inst. Zip	10	527-536
27. Research Inst. Official	25	537-561
28. Research Inst. Official Phone Number	14	562-575
29. Research Inst. Percentage	2	576-577

STTR Data Reporting Requirements and Formats

<u>Field Description</u>	<u>Definition</u>
Proposal ID # (assigned by Agency)	9-digit alphanumeric ID number used to track proposal through all STTR phases.
Topic Number	3-digit Topic Number with leading zeroes (i.e. 001).
Solicitation Year & Number	Fiscal Year of Solicitation (i.e. 94).
Agency	Name of Agency receiving proposal. Maximum 5 uppercase letters.
Phase	Phase of Proposal.
Proposal Title	Title of Proposal.
Principal Investigator	Name of Principal Investigator. Use periods after each initial but do not insert spaces between a set of initials (i.e. B.E. Thomas).
PI Phone Number	Phone Number of Principal Investigator. Use the following format (999) 999-9999.
Proposed Cost	Dollar amount of proposed cost of proposal. Numbers only; no commas, dollar signs, or periods.
Proposed Duration	Proposed duration of work effort (report in months, 2-digit field, use leading zeroes)
Firm Name	Name of the firm. See page 5 and 6 of Enclosure 7 for detailed guidelines.
Firm Street Address	Street address of firm. See page 5 and 6 for detailed guidelines.
Firm City	City where firm is located.
Firm State	State where firm is located. A complete list of 2 character state abbreviations is provided on page 7 of Enclosure 7.
Firm Zip	Zip code of firm. When possible use a complete zip code (i.e. 37651-4554)
Firm Corporate Official	Name of corporate official of firm. Use periods after each initial but do not insert spaces between a set of initials (i.e. B.E. Thomas)
Firm CO Phone Number	Phone number of firm's corporate official. Use the following format (999) 999-9999.
Firm -- Minority-Owned	Minority-Owned indicator, either "M"=yes, " "=no.
Firm -- Woman-Owned	Woman-Owned indicator, either "W"=yes, " "=no.
Firm -- Number of employees	Number of employees in firm including all affiliates.
Firm Percentage	Percentage of proposed work effort for firm. Numbers only; no percentage signs or periods.
Research Institution	Name of Research Institution. See page 5 and 6 of Enclosure 7 for detailed guidelines.
Research Inst. Street Address	Street address of Research Institution. See page 5 and 6 for detailed guidelines.
Research Inst. City	City where Research Institution is located.
Research Inst. State	State where Research Institution is located. A complete list of 2 character state abbreviations is provided on page 7 of Enclosure 7.
Research Inst. Zip	Zip code for Research Institution. When possible use a complete zip code (i.e. 37651-4554).
Research Inst. Official	Name of Research Institution's Official. Use periods after each initial but do not insert spaces between a set of initials (i.e. B.E. Thomas)
Research Inst. Official Phone Number	Phone Number for Research Institution Official. Use the following format (999) 999-9999.
Research Inst. Percentage	Percentage of proposed work effort for Research Institution. Numbers only, no percentage signs or periods.

STTR Data Reporting Requirements and Formats

STTR APPENDIX B

- Phase I:
 - Due 01 October of each year (3 months after Appendix A due)
 - One record for each Phase I proposal selected/awarded in the solicitation
- Phase II:
 - Due 01 November of each year
 - One record for each Phase II proposal selected or awarded
- Report Phase I and Phase II Appendix B's in separate ASCII text files. Filenames should be [First three letters of Agency Name]B[Phase]STR.[FY]. For example:

ARMB1STR.94 -- Army STTR Appendix B's from Phase I Solicitation 94 proposals

NAVB2STR.94 -- Navy STTR Appendix B's from Phase II Solicitation 94 proposals

AFB1STR.94 -- Air Force STTR Appendix B's from Phase I Solicitation 94 proposals

RECORD DESCRIPTION

<u>Field Description</u>	<u>Length</u>	<u>Position</u>
1. Proposal ID # (assigned by Agency)	9	1-9
2. Topic Number	3	10-12
3. Solicitation Year	2	13-14
4. Agency	4	15-18
5. Phase	1	19
6. Proposal Title	200	20-219
7. Principal Investigator	25	220-244
8. Firm Name	40	245-284
9. Technical Abstract	2500	285-2784
10. Commercial Benefits	1500	2785-4284
11. Technical Keywords	100	4285-4384

<u>Field Description</u>	<u>Definition</u>
Proposal ID# (assigned by Agency)	9-digit alphanumeric ID number used to track the proposal through all STTR phases.
Topic Number	3-digit Topic Number with leading zeroes (i.e. 001).
Solicitation Year	Fiscal Year of Solicitation (i.e. 94).
Agency	Name of Agency receiving proposal. Maximum 5 upper case letters.
Phase	Phase of Proposal.
Proposal Title	Title of Proposal.
Principal Investigator	Name of Principal Investigator. Use periods after each initial but do not insert spaces between a set of initials (i.e. B.E. Thomas).
Firm Name	Name of the firm. See page 5 and 6 of Enclosure 7 for detailed guidelines.
Technical Abstract	Technical description of proposal.
Commercial Benefits	Proposed commercial benefits of proposal.
Technical Keywords	Significant words used to categorize or index a proposal. Separate keywords with commas.

STTR Data Reporting Requirements and Formats

STTR CONTRACT AND FUNDING

- Due 01 December of each year for both Phase I and Phase II
- Report Phase I and Phase II STTR contract/funding information in separate ASCII text files. Filenames should be [First three letters of Agency Name]FNDST.[FY][Phase]. For example:
 ARMFNDST.941 -- Army 1994 STTR Phase I contract/funding information
 NAVFNDST.942 -- Navy 1994 STTR Phase II contract/funding information
 AFFNDST.941 -- Air Force 1994 STTR Phase I contract/funding information
- One record for each contract which used STTR funds in the previous fiscal year.

RECORD DESCRIPTION

<u>Field Description</u>	<u>Length</u>	<u>Position</u>
1. Proposal ID # (assigned by Agency)	9	1-9
2. Topic Number	3	10-12
3. Solicitation Year	2	13-14
4. Agency	4	15-18
5. Phase	1	19
6. Proposal Title	200	20-219
7. Firm Name	40	220-259
8. Award Amount	6	260-265
9. Award Begin Date	7	266-272
10. Award End Date	7	273-279
11. Contract Number	20	280-299
12. Year of Funding	2	300-301
13. Fund Amount	6	302-307
14. STTR Funds	1	308

Field Description

Definition

Proposal ID# (assigned by Agency)	9-digit alphanumeric ID number used to track the proposal through all STTR phases.
Topic Number	3-digit Topic Number with leading zeroes (i.e. 001).
Solicitation Year	Fiscal Year of Solicitation. (i.e. 94).
Agency	Name of Agency receiving proposal. Maximum 5 upper case letters.
Phase	Phase of Proposal.
Proposal Title	Title of Proposal.
Firm Name	Name of the firm. See page 5 and 6 of Enclosure 7 for detailed guidelines.
Award Amount	Dollar amount of award. Numbers only; no commas, dollar signs, or periods.
Award Begin Date	Project begin date. Use the following format: DDMMYY (i.e. 01JAN94).
Award End Date	Project end date. Use the following format: DDMMYY (i.e. 01DEC94).
Contract Number	Contract number of proposal.
Year of Funding	Fiscal Year from which project funding was used. (i.e. 94)
Fund Amount	Dollar amount of funding. Numbers only; no commas, dollar signs, or periods.
STTR Fund	Indicates whether funding was STTR funds or other program funds. "S" = STTR, " " = Other program funds.

STTR Data Reporting Requirements and Formats

GUIDELINES & ABBREVIATIONS

NAMES – FIRMS AND RESEARCH INSTITUTIONS

Some firms that play frequently in the SBIR program have their firm name reported in a variety of ways. Below is a list of companies names as they should be reported to maintain uniformity. If you are reporting a firm name which does not appear in the following list, please use the "Name Guidelines" below.

AB-TECH CORP.
ACCURATE AUTOMATION CORP.
ACOUSTICAL RESEARCH & APPLICATION
ADAPTIVE SENSORS, INC.
ADTECH SYSTEMS RESEARCH, INC.
ADVANCED FUEL RESEARCH, INC.
ADVANCED INFORMATION & DECISION SYSTEMS
ADVANCED MATERIALS CORP.
ADVANCED MATERIALS LAB., INC.
ADVANCED RESEARCH & APPLICATIONS CORP.
ADVANCED RESOURCE DEVELOPMENT CORP.
ADVANCED ROTORCRAFT TECHNOLOGY, INC.
ADVANCED SCIENTIFIC CONCEPTS, INC.
ADVANCED SYSTEM TECHNOLOGIES, INC.
ADVANCED TECHNOLOGY & RESEARCH, INC.
ADVANCED TECHNOLOGY MATERIALS, INC.
AERO-CHEM RESEARCH LAB., INC.
AERODYNE PRODUCTS CORP.
AERODYNE RESEARCH, INC.
AEROSPACE SYSTEMS, INC.
AMERICAN GNC CORP.
AMERICAN RESEARCH CORP. OF VIRGINIA
AMERICAN SCIENCE & ENGINEERING, INC.
BEND RESEARCH, INC.
BERKELEY APPLIED SCIENCE & ENGINEERING
BERKELEY RESEARCH ASSOC., INC.
BIO-DYNAMICS RESEARCH & DEVELOPMENT CORP
BIO-IMAGING RESEARCH, INC.
BIO-METRIC SYSTEMS, INC.
BRIMROSE CORP. OF AMERICA
CALIFORNIA JAMAR, INC.
CORP. FOR STUDIES AND ANALYSIS
CREARE, INC.
CREATIVE OPTICS, INC.
DANIEL H. WAGNER ASSOC., INC.
E-TEK DYNAMICS, INC.
E.R.G. SYSTEMS, INC.
EIC LABORATORIES, INC.
HY-TECH RESEARCH CORP.
INNOVA LABORATORIES, INC.
INNOVATION ASSOC., INC.
INNOVATIVE DYNAMICS
INNOVATIVE RESEARCH, INC.
INTEGRATED APPLIED PHYSICS, INC.
J.A. WOOLLAM COMPANY
J.B.S. TECHNOLOGIES, INC.
J.K. RESEARCH
JOHN R. BAYLESS COMPANY
JORDAN & ASSOC.
KVH INDUSTRIES, INC.
LASER TECHNOLOGY ASSOC., INC.
MEMBRANE TECHNOLOGY & RESEARCH, INC.
METRO-LASER
MICROWAVE LABORATORIES, INC
MICROWAVE MEDICAL SYSTEMS, INC.
MISSION RESEARCH CORP.
NEOCERA, INC.
PACIFIC-SIERRA RESEARCH CORP.
PHOTO-METRICS, INC.
PHYSICAL OPTICS CORP.
PHYSICAL RESEARCH, INC.
PHYSICAL SCIENCES, INC.
PHYSICON, INC.
PHYSICS MATHEMATICS & COMPUTERS, INC.
PLANAR SYSTEMS, INC.
QUEST INTEGRATED, INC.
REYNOLDS INDUSTRIES SYSTEMS, INC.
SAT-CON TECHNOLOGY CORP.
SCHMIDT INSTRUMENTS, INC.
SCIENCE HORIZONS, INC.
SCIENCE RESEARCH LAB., INC.
SCIENTIFIC RESEARCH ASSOC., INC.
UNIVERSITY RESEARCH ENGINEERS & ASSOC.
W.J. SCHAFFER ASSOC., INC.
W.W. GAERTNER RESEARCH, INC.
XACTON CORP.
XEMET, INC.
XSIRIUS SUPERCONDUCTIVITY, INC.
YANKEE SCIENTIFIC, INC.
ZALLEN INTERNATIONAL ASSOC.
ZEGER-ABRAMS, INC.
ZOBRON, INC.

STTR Data Reporting Requirements and Formats

Here are a few guidelines to follow when reporting a firm/research institution name in Appendix A (if the firm name does not appear in the previous list).

1. THE FIRM/RESEARCH INSTITUTION NAME MUST APPEAR EXACTLY THE SAME FOR EACH PROPOSAL SUBMITTED.
2. If the firm is incorporated, when reporting the firm name separate the 'Inc.' from the name with a comma. (i.e. ABC, Inc.)
3. If the firm/research institution name contains a set of initials, use only periods between the initials and leave the initials at the beginning of the name (i.e. W.C. Wright Corp.). Also use a period following a single initial (i.e. David E. Morings, Inc.).
4. If the firm/research institution name contains the word "and" use the ampersand sign (&).
5. Below is a list of common business abbreviations. If space does not permit the use of a full word in the firm/research institution name (i.e. Technology, Laboratory, Engineering) please use the following common business abbreviations when reporting Appendix A information. Always use a period after an abbreviation.

Company	Co.	Limited	Ltd.
Incorporated	Inc.	Research	Res.
Corporation	Corp.	Institution	Inst.
Association	Assoc.	Associates	Assoc.
Laboratories	Lab.	Technologies	Tech.

ADDRESSES – FIRMS AND RESEARCH INSTITUTIONS

Here are a few guidelines to follow when reporting a firm/research institution address in Appendix A.

1. THE FIRM/RESEARCH INSTITUTION ADDRESS MUST APPEAR EXACTLY THE SAME FOR EACH PROPOSAL SUBMITTED.
2. Firm/Research institution addresses which contain a post office box number should be report as follows: P.O. BOX 1234 (no space between "P" and "O")
3. ALWAYS place a suite number or unit number at the end of the street address, separated off by a comma (i.e. 123 South Bank Street, Suite 200)
4. When reporting firm/research Institution street information on Appendix A include the department if appropriate.
5. Below is a list of common street abbreviations. If space does not permit the use of a full word in the street address (i.e. Boulevard, Building, Avenue) please use the following common street abbreviations when reporting Appendix A information. Always use periods following address abbreviations.

Road	Rd.	Drive	Dr.
Street	St.	Route	Rte.
Avenue	Ave.	Post Office Box	P.O. Box
Court	Ct.	Circle	Cir.
Lane	Ln.	Boulevard	Blvd.
Building	Bldg.	Place	Pl.
Center	Ctr.	Highway	Hwy.
South	S.	North	N.
East	E.	West	W.

STTR Data Reporting Requirements and Formats

State Abbreviations

Alaska	AK	Montana	MT
Alabama	AL	North Carolina	NC
Arkansas	AR	North Dakota	ND
Arizona	AZ	Nebraska	NE
California	CA	New Hampshire	NH
Colorado	CO	New Jersey	NJ
Connecticut	CT	New Mexico	NM
Washington, DC	DC	Nevada	NV
Delaware	DE	New York	NY
Florida	FL	Ohio	OH
Georgia	GA	Oklahoma	OK
Hawaii	HI	Oregon	OR
Iowa	IA	Pennsylvania	PA
Idaho	ID	Puerto Rico	PR
Illinois	IL	Rhode Island	RI
Indiana	IN	South Carolina	SC
Kansas	KS	South Dakota	SD
Kentucky	KY	Tennessee	TN
Louisiana	LA	Texas	TX
Massachusetts	MA	Utah	UT
Maryland	MD	Virginia	VA
Maine	ME	Vermont	VT
Michigan	MI	Washington	WA
Minnesota	MN	Wisconsin	WI
Missouri	MO	West Virginia	WV
Mississippi	MS	Wyoming	WY

APPENDIX E
SBIR QUICK REFERENCE SYSTEM

SBIR QUICK REFERENCE

USER'S GUIDE

SBIR
QUICK REFERENCE

User's Guide

BRTRC Technology Research Corporation
8260 Willow Oaks Corp. Drive
Suite 800
Fairfax, VA 22031

Phone: (703) 204-9277
FAX: (703) 204-9447

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INTRODUCTION

1.1 WHAT IS QUICK REFERENCE?

Quick Reference is a tool that allows you to easily view and search Department of Defense Small Business Innovative Research (SBIR) program award information. Quick Reference is menu driven with on-line help available. It supports a mouse, or you can use the keyboard to maneuver. Quick Reference is provided with SBIR Phase II award data from fiscal years 1990 through 1992. For each Phase II award, the firm name, address, title, technical description of the project, awarding agency, topic number and keywords are presented. In addition, information is included to assist you in contacting a representative from the Phase II company, in most cases the principal investigator and corporate official are named, or the DoD point of contact.

Think of Quick Reference as your personal on-line library of SBIR research and development projects. It is a tool for easily and conveniently viewing, but does not provide functions for adding, deleting, or editing.

1.2 SYSTEM REQUIREMENTS

Before you begin installing Quick Reference, please make sure that you have the following computer hardware and software capability:

- 80286 processor or better
- DOS version 3.3 or higher
- A minimum of 4.1 MB of available hard disk space
- A minimum of 512K random-access memory (RAM). Quick Reference will utilize additional expanded/extended memory if it is available.

GETTING STARTED

2.1 INSTALLATION

Step 1. Create a SBIR Quick Reference directory on your hard drive.

```
C:> MKDIR QUICK
```

Step 2. Move to the newly created directory.

```
C:> CD QUICK
```

Step 3. Insert the SBIR Quick Reference diskette into the floppy drive. (We will refer to the floppy drive as drive A in this documentation, but it may be a different drive on you computer.)

Step 4. Invoke SBIR Quick Reference installation with the following command:

```
C:\QUICK> A:QUICKREF
```

The SBIR Quick Reference installation program will copy and unarchive the system software and data files into your current directory.

2.2 STARTING SBIR QUICK REFERENCE

From the Quick directory use the following command to run SBIR Quick Reference:

```
C:\QUICK> QUICKREF
```

The first screen to appear introduces SBIR Quick Reference. Once you have viewed this screen press any key to continue. The next screen provides version information and a software support phone number. Again, after viewing press any key to continue. The "Awards" window is then displayed.

USING SBIR QUICK REFERENCE

3.1 "AWARDS" WINDOW

Once the information screens have been viewed the "Awards" window is displayed on the screen with the horizontal menu on the top line and an information bar at the bottom, as shown below.

The "Awards" window displays all fields pertinent to a DoD SBIR award. To provide as much information as possible on a single screen, longer text information in the "Technical Abstract" and "Keywords" fields is displayed in a small highlighted box with only the beginning of the information appearing. Selecting the highlighted "Technical Abstract" or "Keywords" field brings up a text view box for viewing all text information.

Query		Goto		Index		Help		eXit	
"Awards" Ⓜ									
Title:		Contract #: F33657-92-C-2035							
ABDUCTIVE NETWORKS FOR COMPLEX AERONAUTICAL SYSTEMS DEVELOPMENT									
Topic #: 90-070			Agency: AF			POC: MR TONY KIM			
Phase: 2			Command: XRX			Phone: (513) 255-6261			
Firm: AB-TECH CORP.					Minority Owned: N				
700 HARRIS ST					Woman Owned: N				
City: CHARLOTTESVILLE			State: VA		Zip: 22901		# Employees: 6		
Project Manager: (804) 977-0686					Corporate Official: (804) 977-0096				
Name : KEITH C DRAKE					Name : GERARD J. MONTGOMERY				
Title: DIRECTOR OF R&D					Title: PRESIDENT				
Technical Abstract					Keywords				
ADAPT Phase I demonstrated the feasibility of applying abductive modeling - an innovative and practical technology - to air borne and ground target recognition. Phase II will use Phase I results and concept to produce an innovative					Ground Target Recogn Hierarchical Modeling Algorithm Developmen				
Index: Firm Name					Query OFF Ⓜ				
F1 Help Enter Open view window									

3.2 "AWARDS" WINDOW FIELDS AND STATUS LINES

Each information field is prefaced with a description field name to help identify data quickly. Below is a brief explanation of each field in the "Awards" window.

SBIR Quick Reference User's Guide

Field	Description
Title:	title of awarded project
Contract:	contract number of awarded project
Topic #:	solicitation topic number for awarded project
Phase:	phase of awarded project
Agency:	awarding agency (i.e. Army, Navy, Air Force, ARPA, DNA, BMDO)
Command:	sub-command or research laboratory of awarding agency (There are no sub-commands for ARPA and BMDO.)
POC: Phone:	government point of contact's name and phone number
Firm: City: State: Zip:	firm name, street address, city, state, and zip of awarded project
Minority Owned:	indicates whether awarded firm is minority owned
Woman Owned:	indicates whether awarded firm is woman owned
# employees:	number of employees of awarded firm
Project Manager: Name: Title:	awarded firm's principal investigator's phone number, name, and title
Corporate Official: Name: Title:	awarded firm's corporate official's phone number, name, and title
Technical Abstract:	technical description of awarded project
Keywords:	significant word(s) used to categorize or index the award

On the last line of the "Awards" screen are two database status indicators, "Index:" and "Query". The "Index:" status indicator is used to indicate which index is currently in use. The "Query" status indicator shows whether a query of the database has been performed. "Query ON" means a query is active, "Query OFF" indicates that no query is in effect.

3.3 VIEWING AWARD DATA


Information for one award at a time is displayed in the "Awards" window. To view other awards, use **PgUp** or **PgDn** to move to the previous or next award, respectively. (Another faster method for viewing other awards uses the **GoTo** menu function and is described in section 4.3.)

In Quick Reference you have the option of using the keyboard to enter a key or using the mouse to click on a window icon to navigate through the database. A list of Quick Reference navigation keys and icons are listed below.

PgDn or  Page down icon -- Move to the next record in database.

PgUp or  Page up icon -- Move to the previous record in database.

One other icon visible on the "Awards" screen is:

 Close box icon -- Quit SBIR Quick Reference.

It performs the same function as the option "eXit" from the top-line menu. (See section 3.7)

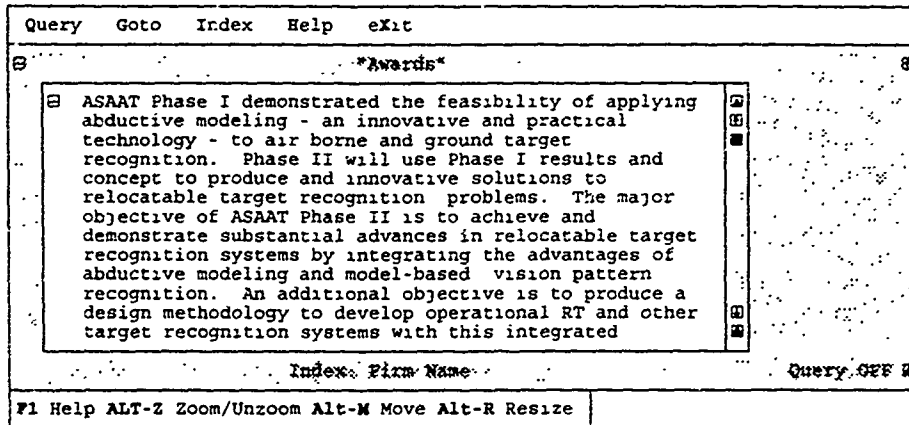
3.4 TOP-LINE MENU

To select a top-line menu option simultaneously press the **Alt** key and the highlighted letter of the option desired. For example, pressing **Alt-Q** highlights and activates the **Query** option. Each option is explained in detail in Chapter 4. To exit the top-line menu and return to the "Awards" window without selecting an option press **ESC**.



3.5 VIEWING "TECHNICAL ABSTRACTS" AND "KEYWORDS"

To provide as much information as possible on a single screen, only a part of the "Technical Abstract" and "Keywords" fields are displayed in the "Awards" window. To view the entire "Technical Abstract" field or "Keywords" field press **Enter** for the highlighted field to display a scrolling window that contains the entire text. Use the arrow keys to move back and forth to highlight each field.



For example, position the cursor on the "Technical Abstract" field and press **Enter**. Another window will appear containing the entire "Technical Abstract" field, as shown below.



Use the scroll bar (on the right side of the window) or the arrow keys to scroll text. Notice the information bar at the bottom of the "Awards" window has changed. There are now three window functions that may be performed on the "Technical Abstract" window. They are listed below:

Alt-Z or  Zoom the "Technical Abstract" or "Keywords" window out to fill the entire screen or unzoom back to original size. Clicking on the zoom button () at the top of the scroll bar has the same effect.

Alt-M Move the "Technical Abstract" or "Keywords" window to anywhere on the screen. Use the arrow keys to relocate window and then press **Enter**. If you have a mouse, position the cursor at the top of the text box (above the text), hold down the left mouse button and drag the text box to where you want it then release the mouse button.

Alt-R or  Resize the "Technical Abstract" or "Keywords" window. Use the arrow keys to enlarge or reduce the window size then press **Enter**, or hold down the left mouse button, drag the resize button ( at the bottom of the scroll bar) to enlarge or reduce window. Once window is at the desirable size release the mouse button.

After reading the "Technical Abstract", you may return to the "Awards" window by pressing **ESC**. The "Technical Abstract" window will disappear.

3.6 SBIR QUICK REFERENCE ON-LINE HELP

The "Help" screen is displayed by pressing **F1** at any time while running SBIR Quick Reference or selecting **Help** from the top-line menu (**Alt-H**). The SBIR Quick Reference "Help" screen gives navigation and query set information.

SBIR Quick Reference User's Guide

```
SBIR Quick Reference Help

From the Main Data Display
=====
<,>   move between fields
Enter  active view window
PgUp   previous record
PgDn   next record
Ctrl-PgUp first record
Ctrl-PgDn last record

From the Menu Bar
=====
<,>   move along menu bar
↑,↓   move within current sub-menu
Enter  select current item
Esc    exit menu

Options on the menu bar are activate by pressing Alt and the highlighted
letter of the desired option.

How to perform a Query
=====
1. Select Query from the menu bar.
2. Select Keyword search from the Query menu.
3. Enter the keyword(s) that you are searching for (separated by commas).
4. If you want titles searched, check the Titles option with Alt-T
5. To also search narratives, check the Narrative option with Alt-N
6. Press Enter (or select OK) to begin the search
   or
   press Esc (or select Cancel) if you do not want to perform the query.
   + for more
```

3.7 EXITING SBIR QUICK REFERENCE

To exit SBIR Quick Reference choose the menu option eXit by typing Alt-X or click on the close box (☒) in the top left corner of the "Awards" window. The following pop-up window will appear to confirm your intent to quit SBIR Quick Reference.

```
Query Goto Index Help eXit
☒ *Awards* #

Exit and Return to DOS requested
Are you sure?
Yes No

Index: Firm Name Query OFF #
F1 Help Enter Open view window
```

Press "Y" or click on the "Yes" button using the mouse to exit Quick Reference. Press "N" or select the "No" button to return to the program. The default selection is "No".

MENU OPTIONS

4.1 OVERVIEW

Specific functions to help you search, locate and sort the database are available from the top-line menu. Each menu option and submenu will be described in detail later in this chapter. To activate the menu press ESC or Alt and the highlighted letter to select a specific menu option. The top-line menu options are:

- Query** Set a query by specifying a keyword or keywords and search the database for awards in which the word or words are found.
- GoTo** Display a list of project awards corresponding to a query if a query is set, or the entire database, from which the user can quickly select an award to view.
- Index** Index awards by the specified field.
- Help** Provides online user assistance.
- eXit** Quit SBIR Quick Reference.

4.2 QUERY

A query defines a subset of the entire database by selecting records that share a common keyword. To activate the Query option, press Alt-Q. The following Query submenu will be displayed.

Query		Goto	Index	Help	eXit
Keyword search Query by example Clear query		"Awards" Contract #: 733637-92-C-2038 AIR FORCE AERONAUTICAL SYSTEMS DEVELOPMENT			
Topic #: 95-075 Phase: 2		Agency: AF Command: XXX		FOM: NY TOWT XIA FANNO: 4533-222-5263	
Technical Abstract ASAAI Phase I demonstrated the feasibility of applying inductive modeling - an innovative and practical technology - to air borne mid-ground target recognition. Phase II will use these results and concept to produce an innovative			Keyword Ground Target Ecogol Hierarchical Modeling Identifiable Development		
Index: File Edit			Query OFF #		
F1 Help		Enter Open view window		Find records based on one or more keywords	

SBIR Quick Reference User's Guide

The Query submenu options are:

- | | |
|------------------|---|
| Keyword Search | Searches through the database for awards containing a specific word or words. |
| Query by Example | Not available at this time. |
| Clear Query | Clears query and allows all database awards to be viewed. |

4.2.1 Setting a Query

Selecting "Keyword Search" from the Query submenu brings up a pop-up window like the one shown below.

The screenshot shows a window titled "Awards" with a menu bar containing "Query", "Goto", "Index", "Help", and "eXit". The window has a title bar with a close button and a maximize button. The main area is titled "Keyword to Locate" and contains a text input field with the prompt "keyWord(s). (Use comma to separate multiple keywords)" and the text "laser" entered. Below the input field are two checkboxes: "search Titles" (unchecked) and "search Narratives" (checked). At the bottom of the window are three buttons: "oK", "Cancel", and "Help". The status bar at the bottom of the window displays "Index: Firm Name" and "Query OFF". A footer bar contains the text "F1 Help Enter Open view window" and "Find records based on one or more keywords".

Enter the word or words (separated by commas) that you are interested in viewing. If you wish to search just the "Keywords" field press Enter. If you wish to search the "Titles" and/or the "Narrative:" in addition to the "Keywords" field, select the appropriate box by typing Alt and the highlighted letter or use the mouse and click on the "Titles" and/or "Narratives" box. A check mark indicates if the Titles/Narratives options are active. Pressing Enter or selecting oK begins a search for the word(s) you entered. All awards that contain the typed in words will belong to the query set, all other awards will not be displayed until the query is cleared.

A query is active if the query status indicator in the bottom right corner of the "Awards" screen displays "Query ON". Otherwise, the query status indicator displays "Query OFF". In the screen above, we are searching the "Keywords" and "Narratives" fields for the word "laser". Note that keyword searches are not case sensitive. Records with "LASER", "Laser", or "laser" will be placed in the query set.

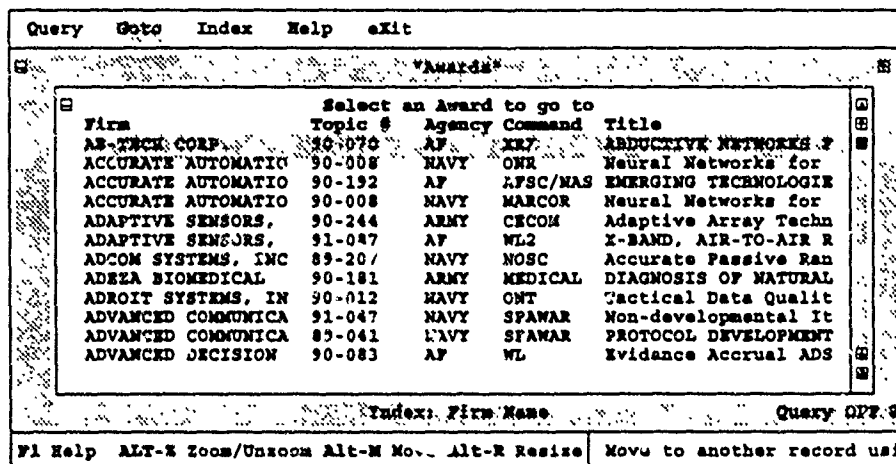
If you perform a query while the query status indicator displays "Query ON", the previous query will be cleared and all database awards will be used for the current query.

4.2.2 Clearing a Query

To clear a query and display all database awards, select "Clear Query" from the Query submenu. The query status indicator in the bottom right corner of the "Awards" window will then display "Query OFF".

4.3 GOTO

You can rapidly advance through the database or a query to a specific record by using the GoTo menu option. After pressing Alt-G to activate the GoTo menu option, a GoTo window like the one shown below is displayed.



As you can see, the GoTo window displays the firm, topic number, agency, command, and title for each award in the database. If a query of the database is active (if "Query ON" is in the lower right corner), only those records meeting the query criteria will be displayed in the GoTo window.

Scroll through the list by using the arrow keys or use the mouse on the scroll bar on the right edge of the GoTo window. Select an award to display by hitting enter or clicking the left mouse button. The GoTo window will disappear and the selected award's data will appear in the "Awards" window for viewing.

Quick Find Feature:

Another way of moving to a specific record utilizes the current index. By default the database is indexed by firm name, as indicated at the bottom of the "Awards" screen. However, the Index menu option allows the user to select a different index. See Index for the available indices.

SBIR Quick Reference User's Guide

If "Firm" is the current index, just start typing a firm name in the GoTo window. Your input will appear at the bottom of the GoTo window and the cursor will jump to specific records matching your input. Once the cursor is on the correct record press Enter. The current index is always the first column displayed in the GoTo window and is specified at the bottom of the "Awards" window. If you try to enter a sequence of characters for which there is no match in the current database or query set the computer will beep to alert you.

For example, if the data is indexed by agency and you are only interested in awards from the Navy, but the GoTo window is positioned at the beginning of the Air Force awards. A quick way of moving to the beginning of the Navy awards is to start typing "Navy". The word will appear at the bottom of the GoTo screen and the cursor will automatically jump to the first Navy award. The Quick Find feature works for all character fields, therefore, it can be used with all indices except "Topic number".

4.4 INDEX

By default awards are indexed in alphabetical order by firm. You can change the index key by typing Alt-I to select Index from the top-line menu. The Index submenu, shown below, displays the four indices available.

Query	GoTo	Index	Help	eXit
G		Firm Name	"Awards"	
Title: ABDUCTIVE REIN	Topic #	Agency	Contract #: F33557-92-C-2635	
Topic #: 90-07	Lab (command)	Command: XXX	POC: MR TOMY KIM Phone: (513) 258-6261	
Phase: 2				
Technical Abstract		Keywords		
ASAR Phase I demonstrated the feasibility of applying abductive modeling - an innovative and practical technology - to air horns and ground target recognition. Phase II will use Phase I results and concept to produce an innovative		ALGORITHM DEVELOPMENT GROUND TARGET RECOGNITION HIERARCHICAL MODELING		
Index: Firm Name		Query OFF		
F1 Help	Enter Open view window	View data 'sorted' by Firm name		

The Index submenu options are:

- Firm name Sorts database or query set by firm name
- Topic # Sorts database or query set by topic number.
- Agency Sorts database or query set by agency. Current database agencies are Army, Navy, Air Force, ARPA, DNA, and BMDO.

SBIR Quick Reference User's Guide

Lab (command) Sorts database or query by agency sub-commands/research laboratories.

As an example, you can index the database or a query in alphabetical order by agency by selecting "Agency" from the Index submenu. The index status indicator at the bottom of the "Awards" window changes to "Index: Agency" and "agency" is now the first column displayed in the GoTo window.

4.5 HELP

Quick Reference provides a quick source of online help to refresh your memory on commonly used keys and functions. Select the Help option by pressing Alt-H.

Query Goto Index Help eXit		
[X] Title: Using SBIR Quick-Ref Help index About		
ABDUCTIVE NETWORKS FOR ntrant #: F32657-92-C-2025 STEM DEVELOPMENT		
Topic #: 50-070	Agency: AF	POC: MR TONY KIM
Phase: 2	Command: XXX	Phone: (813) 255-6262
Technical Abstract:		Keywords:
ASAT Phase I demonstrated the feasibility of applying abductive modeling - An innovative and practical technology - to air borne and ground target recognition. Phase II will use Phase I results and concept to produce an innovative		ALGORITHM DEVELOPMENT GROUND TARGET RECOGNITION HIERARCHICAL MODELING
Index: Firm Name		Query OFF
F1 Help	Enter Open view Window	General help about the program

The Help submenu options are:

Using SBIR Quick Ref Displays the SBIR Quick Reference Help screen. (See section 3.6 for an example of this screen. It is the same screen that appears when you press F1.

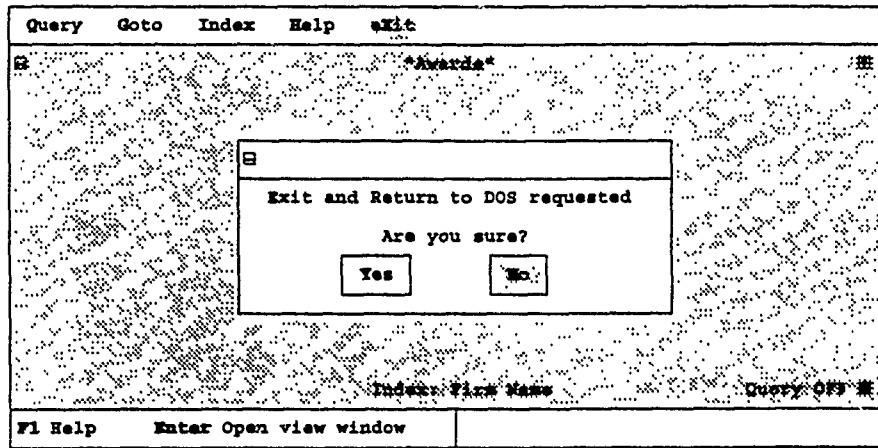
Help Index Not available at this time.

About Provides version information and software support numbers.

4.6 EXIT

To exit SBIR Quick Reference choose the menu option eXit by typing Alt-X or click on the close box (X) in the top left corner of the "Awards" window. The following pop-up window will appear to confirm your intent to quit SBIR Quick Reference.

SBIR Quick Reference User's Guide



Press "Y" or click on the "Yes" button using the mouse to exit Quick Reference. Press "N" or select the "No" button to return to the program. The default selection is "No".

SBIR Quick Reference Questionnaire

We would like to know how you like the SBIR Quick Reference program. Please fill out this questionnaire and return it at your convenience. We also welcome any additional comments regarding the program. Thank you.

Name: _____
Firm: _____

Return to: BRTRC, Inc.
8260 Willow Oaks Corp. Drive, Suite 800
Fairfax, VA 22031

- | | | |
|---|-------------------------------|------------------------------------|
| 1. Did you have any problems installing Quick Reference on your computer? | <input type="checkbox"/> No | <input type="checkbox"/> Yes |
| 2. While using Quick Reference, did you think it was: | <input type="checkbox"/> Easy | <input type="checkbox"/> Difficult |
| 3. Does the SBIR Phase II information meet your needs? | <input type="checkbox"/> Yes | <input type="checkbox"/> No |
| 4. Is the information displayed in a format that is easy to understand? | <input type="checkbox"/> Yes | <input type="checkbox"/> No |
| 5. Are you able to locate and/or query for the information you want? | <input type="checkbox"/> Yes | <input type="checkbox"/> No |
| 6. Is the Quick Reference documentation clear and helpful? | <input type="checkbox"/> Yes | <input type="checkbox"/> No |
| 7. Have any errors occurred while using Quick Reference? | <input type="checkbox"/> No | <input type="checkbox"/> Yes |

Please describe on the back for entries in this column ▲

8. Please offer any comments, recommendations or criticisms that can help us improve the program to meet your needs.

APPENDIX F

**DOCUMENTATION FOR IMPLEMENTATION OF
SBIR REVIEW PROCESS**

U.S. ARMY

**Small Business Innovation Research/
Small Business Technology Transfer
(SBIR/STTR)**

**PROGRAM MANAGER'S
HANDBOOK**

April 1994

SECTION 1

ARMY SBIR/STTR PARTICIPANTS

ORGANIZATIONAL STRUCTURE

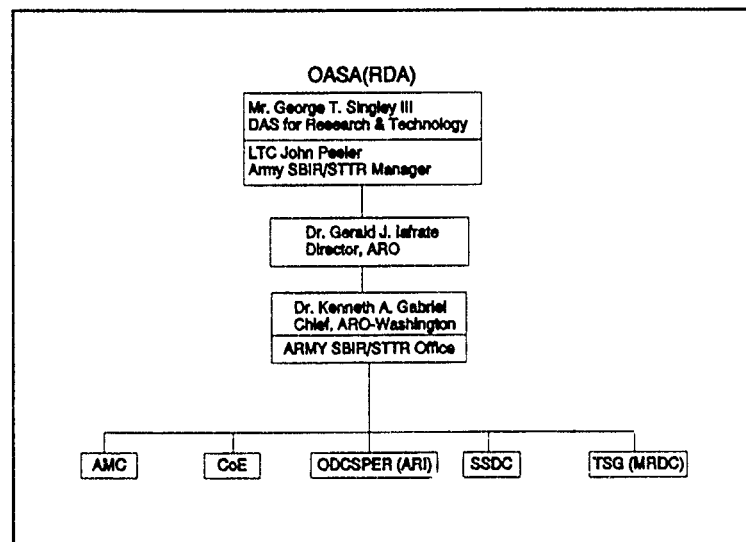
Figure 1 presents the key participants in the Army SBIR/STTR Program:

a. OASA(RDA): The Office of the Assistant Secretary of the Army for Research, Development and Acquisition, OASA(RDA), is responsible for overall management, administration, and execution of the Army SBIR and STTR programs. Final decision authority for the programs is assigned to this office. OASA(RDA) is responsible for all actions which represent the Army and the SBIR/STTR programs to DoD, the Administration, and Congress.

b. ARO: The U.S. Army Research Office (ARO) is the execution agent for the Army SBIR and STTR programs. ARO supports OASA(RDA) in all aspects of the programs to include chairing the SBIR Evaluation Board, developing policy and funding options for the SBIR General Officer Steering Committee (GOSC), and providing procurement and legal support for the programs.

c. ARO-Washington: The ARO-Washington Office oversees the Army SBIR/STTR Program Management Office coordinating field execution of the SBIR and STTR programs. It has the day-to-day management responsibility for program administration throughout topic generation, proposal receipt and evaluation, contract awards, contract administration, SBIR/STTR data management, and external reporting to OSD and other organizations outside the Army.

d. Army Labs and Centers: The Army labs and centers are responsible for topic generation, proposal evaluation, and execution/administration of SBIR and STTR contracts. The field is also responsible for providing all relevant information regarding SBIR and STTR contracts to ARO-Washington for data automation, tracking, and reporting.



Army SBIR/STTR Organization

ARMY SBIR/STTR PARTICIPANTS

FY94

OASA(RDA):

NAME	SYMBOL	PHONE	FAX
Mr. George Singley DAS for Research and Technology	SARD-ZT	(703) 697-1646	(703) 697-0207
LTC John Peeler Army SBIR/STTR Manager	SARD-ZT	(703) 614-0434	(703) 614-7475

ARO:

NAME	SYMBOL	PHONE	FAX
Dr. Gerald J. Iafrate Director, ARO	AMXRO-D	(919) 549-4203	(919) 549-4348
Mr. Larry Travis Contracting Officer	AMXRO-PR	(919) 549-4271	(919) 549-4310
Mr. Mark Rutter Legal Advisor	AMXRO-LO	(919) 549-4292	(919) 549-4310

ARO-Washington (Army SBIR/STTR Program Office):

NAME	SYMBOL	PHONE	FAX
Dr. Kenneth Gabriel	AMXRO-W	(703) 274-9240	(703) 274-8261
Mr. Joseph Forry	AMXRO-W	(703) 617-7425	(703) 274-8274

AMC SBIR POINTS OF CONTACT

ORG	CONTACT	PHONE	FAX	ADDRESS
ARDEC	Tony Desmond Jim Greenfield	201-724-6448 201-724-4668	201-724-2934	Commander US Army Armament RD&E Center ATTN: SMCAR-ASC (Tony Desmond) Picatinny Arsenal, NJ 07806-5000 ATTN: SMCAR-ASM (Tim Ryan)
ARL	Dean Hudson	301-394-4808 301-394-5500	301-394-5818	Director Army Research Laboratory ATTN: AMSRL-CP-TA (Dean Hudson) 2800 Powder Mill Road Adelphi, MD 20783-1145
ARL- AC&ISD	Rich Dimmick	410-278-6955	410-278-5820	Director US Army Institute for Research in Management Information, Communications and Computer Science ATTN: AMSRL-CP-TA Aberdeen Proving Ground, MD 21005-5066
ARL-BED	Odell Johnson	505-678-3608	505-678-2432	Director US Army Research Battlefield Environment Directorate ATTN: AMSRL-CP-TA (Odell Johnson) White Sands Missile Range, NM 88002-5501
ARL- E&PSD	Rick Stern	908-544-4666	908-544-4306	Director Army Research Lab US Army Electronics and Power Sources Directorate ATTN: AMSRL-CP-TA (R. Stern) Meyer Center Ft. Monmouth, NJ 07703-5302
ARL- HR&ED	Joanne Sissum	410-278-5815	410-278-3548	Army Research Laboratory Human Research & Engineering Directorate ATTN: AMSRL-HR/Joanne Sissum (Bldg. 459) Aberdeen Proving Ground, MD 21005-5425
ARL-MD	Bob Morrissey	617-923-5522	617-923-5445	Director US Army Research Laboratory Materials Directorate ATTN: AMSRL-CP-TT (R. Morrissey) 405 Arsenal Street Bldg. 131, Room 144 Watertown, MA 02172-2719
ARL-S3ID	Shirley Corbett	301-394-4603	301-394-5818	(Sensors, Signatures, Signals and Information Processing) Director Army Research Laboratories ATTN: AMSRL-CP-TA (Shirley Corbett) 2800 Powder Mill Road Adelphi, MD 20783-1145

AMC SBIR POINTS OF CONTACT

ORG	CONTACT	PHONE	FAX	ADDRESS
ARL-SLAD	Odell Johnson	505-678-3508	505-678-8720	Commander US Army Survivability/Lethality Analysis Directorate ATTN: AMSRL-CP-TA (Ed Zarrett) White Sands Missile Range, NM 88002-5513
ARL-VPD	Pete Meitner	216-433-3715	216-433-3720	Army Research Laboratory Vehicle Propulsion Directorate ATTN: AMSRL-VP-D (Pete Meitner) NASA Lewis Research Center 2100 Brookpark Road Mail Stop 77-12 Cleveland, OH 44135-3191
ARL-VSD	John Cline	804-864-3966	804-864-3970	US Army Laboratory Vehicle Structures Directorate NASA Langley Research Center Mail Stop 266 ATTN: AMSRL-VS-D (John Cline) Hampton, VA 23681-0001
ARL-WTD	Richard Dimmick	410-278-6955	410-278-5820	Director Army Research Laboratory Weapons Technology Directorate ATTN: AMSRL-CP-TA (Rich Dimmick) Edgewood Site, Bldg. E4455 Aberdeen Proving Ground, MD 21005-5066
ARO	Mel Brown	919-549-4336	919-549-4248	Director Army Research Office ATTN: AMXRO-RT (Mel Brown) P.O. Box 12211 4300 S. Miami Blvd. Research Triangle Park, NC 27709-2211
AVRDEC	Roy Warhover	314-263-1465	314-263-1397	Commander US Army Aviation and Troop Command ATTN: AMSAT-R-NSJ (Roy Warhover) 4300 Goodfellow Blvd. St Louis, MO 63120-1798
BRDEC	Karen Gordon	703-704-2279	703-704-1810	Commander US Army Belvoir RD&E Center ATTN: STRBE-HS (Karen Gordon) Ft. Belvoir, VA 22060-5606
CECOM	Joyce Crisci Suzanne Weeks	908-544-2665 908-544-3275	908-544-2392	Headquarters US Army Communications Electronics Command ATTN: AMSEL-RD-AS-TD (Joyce Crisci) RM 2D117 Ft. Monmouth, NJ 07703-5201
ERDEC	Ron Hinkle	410-671-2031	410-612-6529	Commander Edgewood Research, Development and Engineering Center ATTN: SCBRD-ASC (Ron Hinkle) Aberdeen Proving Ground, MD 21010-5423

AMC SBIR POINTS OF CONTACT

ORG	CONTACT	PHONE	FAX	ADDRESS
MICOM	Buddy Thomas Tammy Letson	205-842-9227 205-876-2811	205-876-8866	Commander US Army Missile Command ATTN: AMSMI-RD-TI (Otho Thomas) Bldg. 5400 Redstone Arsenal, AL 35898-5243
NATICK	Bob Rosenkrans Joe Smith	508-651-5296	508-651-5297	Commander US Army Natick RD&E Center ATTN: SATNC-AEC (R. Rosenkrans) Natick, MA 01760-5015
STRICOM	Admiral Piper	407-380-4287	407-381-8638	STRICOM US Army Simulation, Training, and Instrumentation Command ATTN: AMSTI-EI (A. Piper) 12350 Research Parkway Orlando, FL 32826-3276
TACOM	Alex Sandel	313-574-7545	313-574-6941	Commander Tank Automotive Command ATTN: AMSTA-ZH (Alex Sandel) SBIR Program Bldg. 200A (Room A1012) Warren, MI 48397-5000
TECOM	Rick Cozby	410-278-1481	410-278-4989 410-278-1475	Commander Test and Evaluation Command ATTN: AMSTE-CT-T (Rick Cozby) Aberdeen Proving Ground, MD 21005-5055

CoE SBIR POINTS OF CONTACT

CMD	CONTACT	PHONE	FAX	ADDRESS
CERL	Dave Moody	217-373-7205	217-373-7222	Commander US Army Construction Engineering Research Laboratory ATTN: CECER-PPP (Dave Moody) P.O. Box 9005 Champaign, IL 61826-9005
CRREL	Sharon Borland	603-646-4244	603-646-4695	Commander US Army Cold Region Research & Engineering Laboratory ATTN: CECRL-PP (Sharon Borland) 72 Lyme Road Hanover, NH 03755-1290
TEC	June Jamieson	703-355-2631	703-355-3176	Director US Army Topographic Engineering Center ATTN: CETEC-TP (June Jamieson) 7701 Telegraph Road Alexandria, VA 22310-3864
WES	Phil Stewart	601-634-4113	601-634-4180	Commander US Army Engineer Waterways Experiment Station ATTN: CEWES-FV-T (Phill Stewart) 3909 Hallsferry Road Vicksburg, MS 39180-6199

ODCSPER (ARI) SBIR POINT OF CONTACT

CMD	CONTACT	PHONE	FAX	ADDRESS
ARI	Mike Drillings	703-274-5572	703-274-5162	Commander US Army Research Institute for Behavioral and Social Science ATTN: PERI-BR (M. Drillings) 5001 Eisenhower Avenue Alexandria, VA 22333-0001

TSG (MRDC) SBIR POINTS OF CONTACT

CMD	CONTACT	PHONE	FAX	ADDRESS
MEDICAL	Audrey Wolfe Pat Fritz Nancy LaVigne	301-619-7216	301-619-2982	US Army Medical Research Development Acquisition and Logistics Command (Provisional) ATTN: SGRD-ACQ (Audrey Wolf) Ft. Detrick, Bldg. 521 Frederick, MD 21702-5012

SSDC SBIR POINT OF CONTACT

CMD	CONTACT	PHONE	FAX	ADDRESS
SDC	Eddie Roy	205-955-4393	205-955-3958	Deputy Commander US Army Strategic Defense Command ATTN: CSSD-AT-E (E. Roy) P.O. Box 1500 Huntsville, Al 35807-3801

TMDE SBIR POINT OF CONTACT

CMD	CONTACT	PHONE	FAX	ADDRESS
TMDE	Charlie Bosco	205-876-1132	205-876-6014	Director US Army Test, Measurement, and Diagnostic Equipment Activity ATTN: AMXTM-A (Charlie Bosco) Redstone Arsenal, Alabama 35898-5400

ARMY ENVIRONMENTAL CENTER (AEC) SBIR POINT OF CONTACT

CMD	CONTACT	PHONE	FAX	ADDRESS
AEC	Tony Perry	410-671-1565	410-671-1680	Commander US Army Environmental Center Bldg. E4435 ATTN: CETHA-TS-D (Tony Perry) Aberdeen Proving Grounds, MD 21010- 5401

SECTION 2
FY94/FY95 MILESTONES AND SCHEDULE

This section presents significant milestones of activities which affect the FY94 and FY95 SBIR/STTR programs. The following pages provide you with SBIR and STTR schedules for your planning purposes. The SBIR/STTR Coordination Office at ARO-Washington will provide you with updates to these schedules and milestones as they are modified.

The SBIR/STTR milestone charts provide all major milestones related to topic generation, proposal evaluation, and contract award activities. Milestones are also provided for the SBIR Phase II Quality Awards Program, which recognizes those Phase II efforts ending in each fiscal year which best exemplify the goals of the program and provided benefits to the Army.

ARMY SBIR MILESTONES FY95 CYCLE (ESTIMATED)

EVENT	J	F	M	A	M	J	J	A	S	O	N	D
TOPICS												
SOLICIT TOPICS FROM FIELD									▲			
TOPIC GENERATION								○				
RECEIVE/LOG TOPICS										▲		
SBIR SEB PRIORITIZATION										○	▲	
COORDINATE/SUBMIT TO OSD											○	▲
PHASE I												
94.2 SBIR SOLICITATION				○								
LOG/DISTRIBUTE PH I PROPS						▲	○					
FIELD EVAL OF PH I PROPS							○	▲				
GENERATE FIELD PH I OMLS								○	▲			
GENERATE TAC PH I OMLS									○	▲		
SBIR SEB											○	▲
EXECUTE PH I CONTRACTS												○
PHASE II												
FY94 PHASE I AWARD DATES												
INVITE PHASE II PROPOSALS									▲			
PROPOSAL GENERATION								○				
LOG/DISTRIBUTE PH II PROPS										○	▲	
FIELD EVAL OF PH II PROPS										○	▲	
GENERATE TAC PH II OMLS											○	▲
SBIR SEB												○
EXECUTE PH II CONTRACTS												○
SBIR/STTR GOSC												▲

FY94 SBIR Milestones and Schedule

ARMY STTR MILESTONES FY94 CYCLE (ESTIMATED)

EVENT	J	F	M	A	M	J	J	A	S	O	N	D
STTR SOLICITATION (OPENED 1 DEC 93)			▲									
LOG/DISTRIBUTE PHASE I PROPOSALS			○	▲								
PHASE I PROPOSAL EVALUATIONS				○	▲							
DEVELOP OMLs					○	▲						
STTR TEB						▲						
OASA(RDA) STTR GUIDANCE						◆						
FIELD EXECUTES PHASE I CONTRACTS						○		▲				

ARMY PHASE II QUALITY AWARDS MILESTONES

EVENT	J	F	M	A	M	J	J	A	S	O	N	D
OASAIRDA) REVIEW/APPROVAL OF PHASE II QUALITY AWARDS					▲							
PHASE II QUALITY AWARDS PRESENTED AT ARMY SCIENCE CONF						◆						

STTR and SBIR Awards Program Milestones and Schedule

AMCRD-SBIR

MEMORANDUM THRU MG THOMAS L. PRATHER, JR., DCSRDE

MEMORANDUM FOR AMCPA

SUBJECT: Press Release

Enclosed is a press release with statistics from the Army Small Business Innovation Research (SBIR) 93.2 Solicitation. Please give widest dissemination in government and industry. Contact me if you have any questions or require additional information. Phone: (703) 617-7425 or Fax (703) 274-8274.

Enclosure

Joseph P. Forry
Army SBIR Program Manager

PRESS RELEASE

The U.S. Army Small Business Innovation Research (SBIR) Program has completed its review of proposals received under the 93.2 SBIR Solicitation, which closed August 2, 1993. This second solicitation of the fiscal year presented 309 research opportunities, formulated by 32 participating Army research organizations, grouped into the following high priority science and technology areas:

- Advanced Materials and Manufacturing
- Micro Electronics and Photonics
- Sensors and Information Processing
- High Performance Computing and Simulation
- Advanced Propulsion Technologies
- Power Generation, Storage and Conditioning
- Biotechnology
- Life, Medical and Behavioral Sciences
- Environmental and Geo Sciences
- Engineering Sciences

The Army received 2,836 proposals from 1,578 small businesses in 48 states, the District of Columbia, and Puerto Rico in response to the solicited topics. After a thorough and highly competitive evaluation process, the best 156 proposals from 133 small businesses in 32 states were selected for Phase I awards to determine the feasibility of their proposed technology solutions. These 156 awards represent an Army investment of \$11M in the innovative capabilities of these successful small firms. Key statistics for this solicitation are presented in the table below:

	PROPOSALS	AWARDS
All firms	2,836	156
Minority/disadvantaged firms	561	19
Woman-owned firms	327	16
States/Territories represented	50	32
Average dollar value	\$ 74,258	\$ 70,319
Average Size (# Employees)	36	28

A list of small businesses selected for Army SBIR awards is attached. For more information on the Army SBIR Program, contact Mr. Joseph P. Forry, Army SBIR Program Coordinator, at (703) 617-7425.

**Army Small Business Innovation Research (SBIR) Program
93.2 Solicitation Award Selections**

COMPANY	ST TOPIC	PROJECT TITLE
3C Systems, Inc.	PA A93-076	Simulation of Critical Interior Ballistic Effects
Adiabatics, Inc.	IN A93-337	Advanced Military Diesel Engine
Advanced Materials Corporation	PA A93-159	Permanent Magnets with Extremely High Energy Product for Electromechanical Devices
Advanced Refractory Technologies	NY A93-069	Diamond-Like Nanocomposites as Tailorable, Hard, Low Friction Coatings
Advanced Refractory Technologies	NY A93-098	Component Development for Improved Pulse Power Batteries
Advanced Rotorcraft Technology	CA A93-164	Application of Parallel Processing Technology to Complex Helicopter Analysis
Advanced Technology Associates	TX A93-114	Thermomechanical Processing of Tungsten Alloys to Enhance Ballistic Performance
Advanced Technology Inc.	CA A93-330	Active Metal Joining of Thermoplastic Matrix Composites
Advanced Technology Materials	CT A93-084	CVD of BaSrTiO ₃ for High Performance Cryogenic IR Detector Arrays
Advanced Technology Materials	CT A93-090	SiC Accelerometers for Harsh Environments
AeroChem Research Laboratories	NJ A93-064	Droplet Welding - An Environmentally Acceptable Alternative to Soldering for High Strength Electrical Connections

**Army Small Business Innovation Research (SBIR) Program
93.2 Solicitation Award Selections**

COMPANY	STATE	TOPIC	PROJECT TITLE
ALPHATECH, Inc.	MA	A93-104	Human Performance Issues in Automatic Target Recognition and Situation Awareness Displays
American Power Jet Company	NJ	A93-265	Logistics - Sustainment Technical Assessment Simulation
Amerinex Artificial Intelligence	MA	A93-124	Using the Image Understanding Architecture and Knowledge Based Reasoning to Recognized Vehicle Types from Multisensor Data
Amherst Systems Inc.	NY	A93-129	Hierarchical Foveal Algorithm Development for ATR
Analog/Digital Integrated Circuits	FL	A93-199	Large Well Capacity Input for Staring FPA
Analytical Spectral Devices	CO	A93-230	Field-Portable Reflective Spectrometer
Aspen Systems, Inc.	MA	A93-111	Agile Laser and Ballistic Impact Resistant High Performance Polycarbonate Polymers for Transparent Eye and Sensors Safety Shields
ASTRON Corporation	VA	A93-206	Solar Power Array/Satellite Communications Antenna
Aurora Associates	CA	A93-192	Soldier Identification (SID)
Avatar Partners	CA	A93-321	Next Generation Dismounted Infantry Interactive Simulation
Aware, Inc.	MA	A93-260	Wavepacket Detectors and Waveforms for Scale Separation of Low Altitude Targets from Clutter

**Army Small Business Innovation Research (SBIR) Program
93.2 Solicitation Award Selections**

COMPANY	STATE	TOPIC	PROJECT TITLE
Beltran, Inc.	NY	A93-214	Heavy Metal Ion Removal and Wastewater Treatment by Combined Magnetic Particle and 3-D Electrochemical Technology
Biological Components Corp	CA	A93-063	Molecular Holographic Sensor
Electronics Technologies, Inc.	WI	A93-216	Self Scanning on Line Sensor System for Automatic Control of Cooling and Boiler Water Treatment
Cambridge Scientific, Inc.	MA	A93-249	Delivery of Vaccines by Biodegradable Polymeric Microcapsules with Bioadhesion Properties
Canetics, Inc.	CA	A93-221	High-Speed Transient Waveform Acquisition System
CF TECHNOLOGIES, Inc.	MA	A93-222	Evaluation of Supercritical Fluid Extraction Technology for NBC Decontamination of Small Military Equipment
Charles River Analytics Inc.	MA	A93-198	Man-Machine Model for ATR Performance Prediction
Charles River Analytics Inc.	MA	A93-281	A Hybrid Approach Autotracker Design
Cherrystone Corporation, Inc.	PA	A93-245	Systems to Detect Bacterial Contamination of Banked Blood In A Rapid, Non-invasive, Low Technology Manner
CHI Systems, Inc.	PA	A93-320	Augmenting DIS Player Units With COGNET Technology
CHI Systems, Inc.	PA	A93-037	Development of Integrated Tactical Decision Aid for Battle Management

**Army Small Business Innovation Research (SBIR) Program
93.2 Solicitation Award Selections**

COMPANY	STATE	TOPIC	PROJECT TITLE
CHI Systems, Inc.	PA	A93-262	Human Operator Model Baseline Architecture Simulation (HOMBAS)
CMTG Research Inc.	CT	A93-151	Helicopter Rotor Blade Trailing Edge Control Surfaces
Computer Graphics Systems Development Corporation	CA	A93-316	Force/Tactile Feedback for Virtual Reality Environment
Conax Florida Corporation	FL	A93-064	Development of Nonpolluting Soldering Technology for Large Production Volume, High Shock Loaded Electronic Circuit Boards
Continuum Dynamics, Inc.	NJ	A93-153	Individual Blade Control for Helicopter Rotor Blade One/Rev Vibration Reduction
Creare Inc.	NH	A93-266	An Innovative Approach to Cost Effective Superplastic Forming of Precision MMW Components in Production Quantities
Cruachem, Inc.	VA	A93-073	Transfer RNA - Mediated Synthesis of Novel Materials
CSA Engineering, Inc.	CA	A93-154	Composite Rotor Blade Sectional Analysis Software
Daniel H. Wagner Associates	CA	A93-048	Neural Network Based Speech Identification/Transcription Model
Decision Science Associates	VA	A93-168	Methods for Pre-Flight Risk Assessment in Army Aviation
DI/MAC Technologies, Inc.	FL	A93-272	Real Time Lossless Data Compression Techniques

**Army Small Business Innovation Research (SBIR) Program
93.2 Solicitation Award Selections**

COMPANY	STATE	TOPIC	PROJECT TITLE
Displaytech, Inc.	CO	A93-131	Architectures and Components for Two-Dimensional Optical Signal Processing
Dynetics, Inc.	AL	A93-192	A Photonic Soldier Identification System
Ekeltron Systems Inc.	FL	A93-041	Fiber Optic Gyro Based Night Finder for Towed Artillery and Mortars
Electronic Concepts & Engineering	OH	A93-270	Universal Propulsion System Controller
Encapsulight, Inc.	NJ	A93-046	Self-Luminous Microspheres: The Next Generation Radioluminescent Source
Environmental R & D, Inc.	ID	A93-214	Metallic Ion Removal via Neutral Precipitation and Cross Flow MicroFiltration
FASTMAN, Inc.	TX	A93-272	Adaptive Wavelet Data Compression
FGM Inc.	VA	A93-357	Cartographic Animation System
Flow Inc.	OR	A93-247	Parasite Lactate Dehydration for Diagnosis of Plasmodium Falciparum
Foster-Miller Inc.	MA	A93-327	In Situ Technology for Cradle-to-Grave Monitoring of Composite Structures
Fred M. Lightfoot and Associates	WA	A93-193	Millimeter Wave (MMW) Radar Measurement of Ice Formation on Aircraft Wings

**Army Small Business Innovation Research (SBIR) Program
93.2 Solicitation Award Selections**

COMPANY	STATE	TOPIC	PROJECT TITLE
Future Technologies, Inc.	CA	A93-128	Wideband Frequency Selective Limiter
GARICO, Inc.	TX	A93-213	Programmable Logic Controller Energy Management Program
General Sciences, Inc.	PA	A93-150	Advanced Light Armor for Helicopter and Other Applications
Gorca Systems, Inc.	NJ	A93-123	Fast Computation of Iterative Maximum =m Likelihood Estimator for Continuous Wave Tone Extraction
H & N Instruments, Inc.	OH	A93-218	Receptor Mimotopes for Generic Biodection
Hawaii Biotechnology Group	HI	A93-220	Expression of Antibodies in Neurospora
HI-Z Technology, Inc.	CA	A93-149	Electrical Energy Recovery from Gas Turbine Exhaust
Hittite Microwave Corporation	MA	A93-094	Millimeter Wave Sensor for Identification of Friend or Foe
HNC, Inc.	CA	A93-130	Neural Based Automatic Target Recognition
Hypres, Inc.	NY	A93-093	A Reliable, Self-Contained, Metrology Qualified Voltage Standard System
Hysitron Inc.	MN	A93-115	Micromechanical Measurement System for Thin Films on Polymeric Substrates
ICET, Inc.	MA	A93-285	Improved CP Gloves Through Surface Grafting
Implant Sciences Corporation	MA	A93-138	Improved Tribological Coatings for Gas Turbine Brush Seals

**Army Small Business Innovation Research (SBIR) Program
93.2 Solicitation Award Selections**

COMPANY	STATE	TOPIC	PROJECT TITLE
Industrial Sensors and Actuators	CA	A93-052	An EMAT System for Non-Destructive Inspection of Cannon Tubes
Information Research Laboratory, Inc.	MA	A93-260	Study of a Class of Wavelets Transforms for Clutter Characterization for Enhanced Target Detection and Identification
Innovative Dynamics, Inc.	NY	A93-162	Smart Inlet Protection System for Helicopters
Intelligent Automation, Inc.	MD	A93-185	MIDIS/BIT Design System
Intelligent Automation, Inc.	MD	A93-038	Robot Pose Measurement System
InterDigital Telecom, Inc.	NY	A93-182	Soldier's Radio: Innovative Communication and Networking Technologies for the Individual Warrior
JHF Inc. & Associates	VA	A93-103	Fire Support Suppression Effects in Battlefield Simulation
Kulite Semiconductor Products	NJ	A93-090	Advanced Packaging and Integration Technologies for Microsensors
Lanxide Corporation	DE	A93-165	Interlaminar Shear Strength Enhancements for Cost-Effective 2-D Fiber Reinforced Ceramic Matrix Composites
Lanxide Corporation	DE	A93-163	Development of Metal-to-SiCf/Al2O3 Composite Brazing Methods for Turbine Engine Components
Life Systems, Inc.	OH	A93-147	A Smart Sensor for Monitoring the Condition of Rolling Element Bearing and Gears

**Army Small Business Innovation Research (SBIR) Program
93.2 Solicitation Award Selections**

COMPANY	STATE	TOPIC	PROJECT TITLE
LSA, Inc.	VA	A93-040	Micro-Mechanically Steerable Optical/IR Scanner
Management Research Institute	MD	A93-070	Executive-Level Decision Skill Enhancement: Development Theory and Measures
Materials & Electrochemical Research	AZ	A93-107	Low Cost Fabrication Technique to Produce Dense Boron Carbide Ballistic Tiles
Materials & Electrochemical Research	AZ	A93-324	Novel Large Area Passive Broadband Laser Filters Based on Fullerenes
Materials Modification Inc.	VA	A93-110	Consolidation Methods for Nanoparticulate Materials
Materials Modification Inc.	VA	A93-341	C-C Pistons for High Temperature Engines
Materials Resources Inc.	PA	A93-057	Controlled Atmosphere Plasma Spray Forming of Claddings for High K-E Tungsten Penetrators
Materials Sciences Corporation	PA	A93-276	Non-Eroding Nozzle Materials
Maxdem Inc.	CA	A93-095	High Use Temperature Solid Polymer Electrolyte
Merlin Technologies, Inc.	CA	A93-116	Ambient-Temperature-Storeable Thermostat Resin
Millitech Corporation	MA	A93-326	Preview Sensor Development
Millitech Corporation	MA	A93-094	Millimeter Wave Sensor for Identification of Friend or Foe

**Army Small Business Innovation Research (SBIR) Program
93.2 Solicitation Award Selections**

COMPANY	STATE	TOPIC	PROJECT TITLE
MJR Scientific Corporation	UT	A93-340	Filterless Heat Exchanger Precleaner Based on Guide Vane Approach
MK Research, Inc.	FL	A93-282	Multispectral Camouflage Printed Uniforms
MMTC, Inc.	NJ	A93-192	Double-Passive Battlefield IFF System
MOCO, Inc.	MA	A93-286	Biomechanics of Military Tasks Through Ambulatory Monitoring
MRJ, Inc.	VA	A93-353	GPS-Driven Battlefield Simulation
NAVSYS Corporation	CO	A93-308	Precise GPS Positioning for Post-Mission Trajectory Estimation
OmniTek	NY	A93-043	Development of an Adaptive Two-Degree-of-Freedom Control System for Weapon Systems with a New Piezoceramic Actuation Device
Onyx Sciences Corporation	MA	A93-356	Massively Paralleled Graphics Workstation for Battlefield Visualization
OPTICS 1, Inc.	CA	A93-323	Double Focus Unity Magnification Vision System
Orbital Technologies Corp (ORBITEC)	WI	A93-148	Miniature In Situ Smart Fatigue Monitor (MISSFM)
ORINCON Corporation	CA	A93-352	Prognostic Methodologies for Electronics or Mechanical Systems Model-Free Estimators Applied to Fatigue Life Modeling
Pacific-Sierra Research Corp	CA	A93-349	Automatic FLIR Resolution Measurement Using Fuzzy Logic and Neural Networks

**Army Small Business Innovation Research (SBIR) Program
93.2 Solicitation Award Selections**

COMPANY	STATE	TOPIC	PROJECT TITLE
Parmatech Corporation	CA	A93-057	Development and Properties of Novel Coated Tungsten-Based Composites for Penetrators
Petrelli Research	NJ	A93-219	Low Density Foam Utilized as a Bioaerosol Collector
Phasex Corporation	MA	A93-222	Decontamination of Delicate Equipment Using Supercritical Fluid Technology
Phoenix Scientific Inc.	CA	A93-366	Laser System for Rolling Wheel Pavement Deflection Testing
Piasecki Aircraft Corporation	PA	A93-139	Electromotive Propulsion Concepts for Rotorcraft
Propulsion Science and Technology	NJ	A93-280	Unstructured Grids for Computational Fluid Dynamics Applications
Pulse Radar, Inc.	TX	A93-365	Ground Penetrating Radar for Pavement Applications
Q-DOT. Photonics Inc.	CO	A93-040	Micromachined Mirror for an Optical/IR Scanner System
Quantix Corporation	MD	A93-260	Clutter Reduction and Target Detection Enhancement Using Wavelet Transform Techniques
QUEST Integrated, Inc.	WA	A93-051	Automated Visual Inspection of Threaded Weapon Systems
R.L. Bielawa Associates, Inc.	NY	A93-152	Damperless Helicopter Rotor Blade
Receptor Laboratories, Inc.	IL	A93-237	Neutralizing Peptide Vectors Against Ricin Toxin

**Army Small Business Innovation Research (SBIR) Program
93.2 Solicitation Award Selections**

COMPANY	STATE	TOPIC	PROJECT TITLE
Reifenrath Consulting and Research	CA	A93-238	Urethane Copolymer Formulations as Reactive Topical Skin Protectants
S-TRON	CA	A93-182	Soldier's Local Area Network Terminal: Slant
SARA, Inc.	CA	A93-176	Non-Lethal Weapons for Helicopter Use
SatCon Technology Corporation	MA	A93-132	Micromachined Cylindrical Acoustic Resonator for Angular Rate Sensing
Schladitz Technology, Inc.	VA	A93-225	Thin Disks of Conducting Polymers for Screening in the Microwave Region of the Electromagnetic Spectrum
Schwartz Electro-Optics, Inc.	FL	A93-039	Compact, Low Cost Laser Radar (LADAR) for Smart Submunition Target Sensing
Scientific Monitoring, Inc.	AZ	A93-156	Surge Control for Turboshift Engines
Scientific Research Associates	CT	A93-074	Affordable Design of Electronic Structures Incorporating Resonant Tunneling Elements
SDL, Inc.	CA	A93-083	Wavelength Controlled High Power Laser Diode Arrays with Reduced Temperature Sensitivity
Sepracor, Inc.	MA	A93-235	Feasibility Assessment of a Structurally Closable, Automatable Technique, for the Deglycerization of Frozen RBC (Human)

**Army Small Business Innovation Research (SBIR) Program
93.2 Solicitation Award Selections**

COMPANY	STATE	TOPIC	PROJECT TITLE
Signal Processing Technology	CA	A93-044	Passive Aero-Acoustic Sensor Self-Interference Cancellation
Signal Separation Technologies	VA	A93-044	Passive Aero-Acoustic Sensor Self Interference Cancellation
Simula Inc.	AZ	A93-287	Improved Body Armor for Multiple Threats
Simula Inc.	AR	A93-253	Development of an Improved Aviator Restraint System Locking Device
Sinclair Optics, Inc.	NY	A93-045	Simulation of Optical Surface errors Resulting from Manufacturing Process
SOL-3 Resources, Inc.	MA	A93-157	High Velocity Variables Residence Time Combustor for Small Gas Turbine Engines
Solar Car Corporation, Inc.	FL	A93-179	Reduced Weight Power Generation and Air Conditioning Units to Improve Mobility with Electric Vehicle Technology
Spectra Research, Inc.	OH	A93-279	Visual Porting Executive (VP*Exec) for Windows Phase I SBIR
SRS Technologies	AL	A93-261	Personal Computer Based, Graphical User Interface Configured, Generic Air Breathing Propulsion System Cycle Deck
Structured Materials Industries, Inc.	NJ	A93-069	Production of Morphologically Smooth And Transparent Diamond Like Films for Wear Resistant Coatings
Surface Optics Corporation	CA	A93-067	Non Destructive Inspection by Infrared Imaging Spectroscopy

**Army Small Business Innovation Research (SBIR) Program
93.2 Solicitation Award Selections**

COMPANY	STATE	TOPIC	PROJECT TITLE
Surfaces Research & Applications	KS	A93-337	Advanced Military Diesel Engine Tribology
Technetics Corporation	FL	A93-138	Brush Seal Shaft Wear Resistant Coatings
Technochem Company	NC	A93-085	Lithium Battery Polymer Electrolytes
Technology Assessment & Transfer	MD	A93-337	Super Lubricity Boron Nitride Nanostructure Coatings for Diesel Components
Technology Development Assoc.	PA	A93-264	Innovative Annular Motorcase Shell Designs
Technology Development Assoc.	PA	A93-276	Non Eroding Nozzle Throat Material Design and Development
Technology Systems, Inc.	ME	A93-315	Development of an Enhanced Audio Replication System (EARS)
TeleRobotics international	TN	A93-172	Light Weight Small Volume Stereoscopic Visual Sensors for Telepresence on Robotic Rotorcraft Research Vehicles
Test Devices, Inc.	MA	A93-277	Portable Static Test Facility for Small, Expendable Turbojet Engines
Thermocore, Inc.	PA	A93-339	Heat Pipe Radiator For M-109 A6 Howitzer
Tienzyme, Inc.	PA	A93-238	Use of Fungal Peroxidases for Neutralization of Mustard Gas
TPL, Inc.	NM	A93-257	Insert Hearing Protector with Communications Enhancement for High Intensity Impulse Noise Environments

**Army Small Business Innovation Research (SBIR) Program
93.2 Solicitation Award Selections**

COMPANY	STATE	TOPIC	PROJECT TITLE
Tribology Systems, Inc.	PA	A93-174	Auxiliary Bearings for Turbine Engine Magnetic Bearing Systems
UBC, Inc.	FL	A93-047	An MMW Imaging System for Multipath Reduction in Ground-to-Ground Fire-Control Environments
Unistry Associates, Inc.	PA	A93-137	Exploratory Design of a Depleted Oxygen Gas Turbine Combustor
Veritay Technology, Inc.	NY	A93-068	Extended Barrel Life
Veritay Technology, Inc.	NY	A93-219	Innovative Techniques for Biosampling
Whalen Biomedical Inc.	MA	A93-240	Tissue Adhesives for Battlefield Hemorrhage Control
Wilfred Baker Engineering	TX	A93-233	High Explosive Structural Damage Assessment Computer Code
Witten Company, Inc.	OK	A93-332	Appurtance Attachments for Composite Systems

PRESS RELEASE

The U.S. Army Small Business Innovation Research (SBIR) Program has completed its review of Phase II proposals received during FY93. These proposals represent continuations of Phase I contract efforts which were completed during FY93 and which show promise for successful product development in Phase II and subsequent commercialization outside the SBIR program. The Army reviewed Phase II proposals grouped into the following high priority science and technology areas:

- Advanced Materials and Manufacturing
- Micro Electronics and Photonics
- Sensors and Information Processing
- High Performance Computing and Simulation
- Advanced Propulsion Technologies
- Power Generation, Storage and Conditioning
- Biotechnology
- Life, Medical and Behavioral Sciences
- Environmental and Geo Sciences
- Engineering Sciences

The Army received 116 proposals from 105 small businesses in 22 states. After a thorough and highly competitive evaluation process, the best 50 proposals from 49 small businesses in 14 states were selected for Phase II awards to perform research and development of the technologies explored in Phase I efforts. These 50 awards represent an Army investment of \$28M, over the next two fiscal years, in the innovative capabilities of these successful small firms. Key statistics for this review are presented in the table below:

	PROPOSALS	AWARDS
All firms	116	50
Minority/disadvantaged firms	12	5
Woman-owned firms	8	4
States/Territories represented	22	14
Average dollar value	\$ 552,856	\$ 557,855
Average Size (# Employees)	45	49

A list of small businesses selected for Army SBIR awards is attached. For more information on the Army SBIR Program, contact Mr. Joseph P. Forry, Army SBIR Program Coordinator, at (703) 617-7425.

**Army Small Business Innovation Research (SBIR) Program
93.2 Solicitation Award Selections**

COMPANY	ST	PROJECT TITLE
AbTech Corporation	VA	Abductive Expert System Controller
Advanced Technology and Research	MD	Generic Methodology & Environment for Sensor Base Control Applied to Military Logistics
Applied Research Associates	NM	Modular Armor Attachments
Automated Analysis Corporation	MI	Structure Generated Noise Modeling
Bio-Technical Resources	WI	Optimized Production of Bacterial Agent-Degrading Enzymes
Chemgen Corporation	MD	Optimized Production of Bacterial Agent-Degrading Enzymes
Coleman Engine Corporation	WA	Single Rotor Turbine Expander
Covalent Associates, Inc.	MA	High Rate, Solid Inorganic Polymer Electrolyte-Based Bipolar Lithium Battery
Cybernet Systems Corporation	MI	GPS Based Digital Image & Video Capture Editing & Transmission System
Damilic Corporation	MD	Radiation Cured Composites
Decision-Science Applications	VA	HAVDEM Air-to-Ground and Cooperative Behavior Enhancements
Dr. Weight and Associates	CA	Automatic Fuzzy System Generation
EIC Laboratories, Inc.	MA	Compact Raman Spectrograph with Fiber Optic Sampling

**Army Small Business Innovation Research (SBIR) Program
93.2 Solicitation Award Selections**

COMPANY	ST	PROJECT TITLE
Epsilon Lambda Electronic Corp.	IL	Combined Arms Command and Control (CAC2)
Foster-Miller, Inc.	MA	Braided Technology for High Rate Production of Complex Composite Preforms
Green Mountain Radio Research	VT	RF Transmitter/Locator
Hittite Microwave Corporation	MA	Microwave Monolithic Integrated Circuits Power Protection
Intelligent Automation, Inc.	MD	Ground Based Mobile Mine System
Intelligent Reasoning Systems	NM	Resolution & Motion-Detection Enhancement
LICA Systems, Inc.	VA	Vehicular Mounted Passive Target Detection System
Materials & Electrochemical Research	AZ	Novel Materials for Hydrogen Supply and Storage for Fuel Cells
Materials Modification, Inc.	VA	Synthesis of Nanocrystalline Tungsten Powder
Orincon Corporation	CA	Signal Decomposition
Photonics Research, Inc.	CO	Optical Signal Processing Using Megapixel Laser Diode Arrays
Physical Sciences, Inc.	MA	Directed Energy Damage Assessment and Repair
Planning Systems, Inc.	VA	Acoustic Array Technique for Wind Tunnel Applications
Princeton Microwave Technology	NJ	Low Cost Microwave/Millimeter Wave Drop-In Ferrite Components

**Army Small Business Innovation Research (SBIR) Program
93.2 Solicitation Award Selections**

COMPANY	ST	PROJECT TITLE
Princeton Scientific Enterprises	NJ	Conductive Polymer Igniters for Large Gun Propellant Charges
Quest Integrated, Inc.	WA	A Real-Time Vision System to Monitor/Analyze the Changes in Composite Specimens During Mechanical Testing
Radix Technologies, Inc.	CA	HF Demonstration System for Blind Array/Wavelet-based Dominant Mode Prediction
Redzone Robotics, Inc.	PA	Distributed Vehicle Control System
Research Associates of Syracuse	NY	Implementation of Real-time Ionospheric Error for Kwajalein Missile Range (KMR)
Reticular Systems, Inc.	CA	Covert Terrain/Obstacle Avoidance System for Helicopters
Robert Levi Associates	CA	Personal Navigation and Reporting
SatCon Technology Corporation	MA	Integrated Actuation System for Control of Helicopter Rotor Blades
Seidcon, Inc.	CA	Evolutionary Programming Applied to Pattern Recognition
Sigma Laboratories, Inc.	AZ	Scale-Up of Plasma Treatment Process for High Density Capacitor Applications
Silhouette Technology, Inc.	NJ	Low Cost PC Based Diffractive Optical Element Mask Generator and Fabricator
Software Productivity Solution	FL	A Reconfigurable Automated Software Metrics Environment (RASME)

**Army Small Business Innovation Research (SBIR) Program
93.2 Solicitation Award Selections**

COMPANY	ST	PROJECT TITLE
Spectral Sciences, Inc.	MA	Gallium Arsenide Semiconductor-Laser Multigas Analyzer (GASMAN)
Starfire Systems, Inc.	NY	Fabrication of Ceramic Matrix Composites by Vacuum Polymer Infiltrations
Steroids, Ltd.	IL	Synthesis of Phosphorus Based Haptens for Monoclonal Catalytic Antibody Production
Stirling Technology	WA	Development of Lightweight Quiet Power Source
Systems Technology, Inc.	CA	Atmospheric Modeling for Simulation of Nap-of-the-Earth (NOE) Flight
Techno-Sciences	MD	Nonlinear Adaptive Control of Weapon Systems
Thermacore, Inc.	PA	Heat Pipe Cooling of Turboshaft Engines
Torrey Science & Technology	CA	Tracking and Reporting System (TRS)
Toyon Research	CA	Real-time Drag Determination for Kwajalein Missile Range (KMR)
Trident Systems, Inc.	VA	Full-Scale Development of an Inference Engine Test and Evaluation Environment
Ultralife Batteries, Inc.	NY	High Energy Density, Ultrasafe Li-MnO2 Pouch Cell



REPLY TO
ATTENTION OF

DEPARTMENT OF THE ARMY
HEADQUARTERS, U.S. ARMY MATERIEL COMMAND
5001 EISENHOWER AVENUE, ALEXANDRIA, VA 22333 - 0001



AMCRD-SBIR

29 October 1993

MEMORANDUM FOR SEE DISTRIBUTION

SUBJECT: Minutes of SBIR Evaluation Board

1. The Small Business Innovation Research (SBIR) Evaluation Board (SEB) was convened on 18 October 1993 through 22 October 1993. Attendance for the meeting is at attachment 1. The purpose of the board was to assemble findings and results from the Technology Area Chiefs' (TACs) review and compose recommendations for selection and funding of contract continuations and awards to the General Officer Steering Committee (GOSC).

2. On 18 October 1993, The board began with opening remarks by Maj Peeler on behalf of SARD-ZT. Dr. Iafrate (SEB Chairman) followed with a briefing on the evaluation process, funds situation and focus of the SEB. Dr. Iafrate opened a discussion with the TACs on conducting and improving the evaluation process.

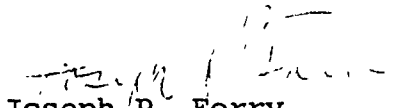
3. The TACs presented their findings and recommendations for the continuation of Phase II contracts and the funding of Phase II awards within each of their technology areas. All ongoing Phase II contracts were recommended for continuation. A discussion was held on new start Phase II proposals and recommendations were composed. The day finished with more deliberation on evaluation process improvement.

4. On 19 October 1993, Dr. Iafrate discussed conducting a mini SEB in January to award Phase II contracts for proposals submitted after this SEB and to review the Army research topics for Program Solicitation 94.2. The SEB agreed that each proposed topic should have a brief statement identifying how the topic supports R&D of the "Host" organization.

5. The TACs briefed their results and recommendations for Phase I awards. Discussions were conducted on Phase I proposals and recommendations to the GOSC composed. Other aspects of evaluation process improvement were deliberated and suggestions noted. The SEB finally discussed options for distributing available funds to the new start Phase I and II awards and the board was closed. The TACs departed and members of the SEB Executive Committee remained to prepare SEB findings and recommendations for the GOSC meeting of 27 October 1993.

6. 20-22 October 1993 was used to prepare the recommendations of the SEB and compute relevant information for the GOSC. The briefing (Attachment 2) from the SEB Chairman to the GOSC was drafted and presented to the SEB Executive Committee. Read aheads were prepared for the GOSC.

Atch


Joseph P. Forry
Army SBIR Program Manager

DISTRIBUTION LIST:

U.S. Army Research Office
ATTN: AMXRO-D (Dr. Gerald Iafrate)

U.S. Army Materiel Command
ATTN: AMCRD-SBIR (Mr. Forry)

SBIR Representative
ATTN: SARD-ZT (MAJ John Peeler)

U.S. Army Research Office
ATTN: AMXRO-RA (Mr. Jack Harless)

U.S. Army Research Office
ATTN: AMXRO-LO (Mr. Mark Rutter)

U.S. Army Research Office
ATTN: AMXRO-W (Dr. Ken Gabriel)

U.S. Army Materials Directorate
ATTN: AMSEL-MA (Gary Hagnauer)

U.S. Army Research Office
ATTN: AMXRO-EL (Michael Stroschio)

Night Vision and Electro-Optics Directorate
ATTN: AMSEL-RD-NV-D (James Ratches)

U.S. Army Aviation and Troop Command
ATTN: NASA-AMES Res. Ctr. (William McCrosky)

U.S. Army Tank-Automotive Command Research Development and
Engineering Center
ATTN: AMSTA-RGR (Walter Bryzik)

U.S. Army Electronic and Power Sources Directorate
ATTN: AMSRL-EP (Arthur Ballato)

U.S. Army Edgewood Research, Development and Engineering Center
ATTN: SBRD-RT (James Valdes)

U.S. Army Medical R&D Command
ATTN: SGRD-UIZ-C (Fred Tyner)

U.S. Army Engineer Waterways Experiment Station
ATTN: CEWES-GV-Z (Ellis Krinitzsky)

U.S. Army Research Office
ATTN: AMXRO-EN (Robert Singleton)

U.S. Army Research Office
ATTN: AMXRO-EN (Dr. David Mann)

U.S. Army Research Office
ATTN: AMXRO (Mel Brown)

SEB ATTENDANCE

Dr. Iafrate (Chair)	ARO
Mr. Forry (Deputy Chair)	AMCRD-SBIR
Maj John Peeler	SARD-ZT
Mr. Jack Harless	ARO
Mr. Mark Rutter	ARO
Mr. Ken Gabriel	ARO-W
Dr. Gary Hagnauer	ARL-MD
Dr. Michael Stroschio	ARO
Dr. James Ratches	CECOM-NVESD
Dr. William McCroskey	ATCOM
Dr. Walter Bryzik	TARDEC
Dr. Arthur Ballato	ARL
Dr. James Valdes	CBDC
Col Fred Tyner	MRDC
Dr. Ellis Krinitzsky	CE WES
Dr. Robert Singleton	ARO
Dr. David Mann	ARO
Dr. Mel Brown	ARO

GOSC BRIEFING

NOT INCLUDED

(COMPETITION SENSITIVE)



REPLY TO
ATTENTION OF

DEPARTMENT OF THE ARMY
HEADQUARTERS, U.S. ARMY MATERIEL COMMAND
5001 EISENHOWER AVENUE, ALEXANDRIA, VA 22333 - 0001



AMCRD-SBIR

3 November 1993

MEMORANDUM FOR SEE DISTRIBUTION

SUBJECT: Minutes of SBIR General Officer Steering Committee

1. The Small Business Innovation Research (SBIR) General Officer Steering Committee (GOSC) was convened on 27 October 1993 from 0930-1130. Attendance for the meeting is at Attachment 1. The purpose of the meeting was to review and approve the SBIR Evaluation Board (SEB) recommendations for selection and funding of Army SBIR contract continuations and awards.

2. Mr. Singley (SARD-ZT) opened the meeting by setting the focus of the GOSC on the following issues:

- a. Review Technology Area Chief (TAC) upper level review adjustments to the field Order of Merit lists (OMLs) and evaluations.
- b. Option 1 - approve SEB recommendations without deviation.
- c. Option 2 - reduce the number of SEB recommended Phase I awards and increase the number of SEB recommended Phase II awards with available funds.
- d. Emphasis on Minority Businesses (MBs) and Small and Disadvantage Businesses (SDBs).
- e. Initial review of the Draft SBIR Standard Operating Procedures (SOP).

Mr. Singley charged the GOSC to provide direction on how to proceed on these issues and dictate any other GOSC intentions.

3. Dr. Iafrate (SEB Chairman) briefed the GOSC on the overall Army SBIR evaluation process, conduct of the SEB, and findings and recommendations of the SEB. During his briefing several other issues were presented and discussed as follows:

- a. Mr. Singley emphasized the need to document the return on investment for the separate Army MACOMs. Mr. Gill (SADBU) expressed concern as to how the Army was attracting and encouraging SDBs to participate in SBIR.

The GOSC proposed informational conferences and a pamphlet targeting SDBs to attract their participation in SBIR.

- b. Mr. Singley highlighted that moving the Phase II research or product to commercialization (Phase III) is the ultimate goal of the Army SBIR program. He remarked that the Air Force contracts an agent to help SBIR companies place their technology after Phase II. Mr. Singley recommended the Army seek a similar solution and proposed a goal of 25% of Army SBIR Phase II projects successfully transitioning to Phase III.
- c. Mr. Singley suggested two possible solutions to reduce the time gap between a company finishing Phase I and starting Phase II. The first and more viable solution is to increase the priority and importance of SBIR awards with cognizant contracting offices through policy. The second and less viable is to have one contracting office dedicated to awarding SBIR and STTR contracts. The GOSC approved the first solution.
- d. The role of the Scientists and Technologists (STs) as Technology Area Chiefs (TACs) during the SEB and in general was discussed. The GOSC decided that a meeting of all STs and Technical Directors was needed to define the ST role and support of Army research goals and objectives.
- e. The initial budget strategy of an equal distribution (1/3,1/3,1/3) of funds between Phase I awards, Phase II awards, and continuing Phase II contracts was addressed. The GOSC resolved to have a 1/4 to 3/4 split of the funds between Phase I (awards) and Phase II (awards and ongoing contracts) respectively by FY95. When money is released for new Phase II awards, Mr. Singley recommended sending to the appropriate laboratory or center a list of the high quality Phase II proposals that were not SBIR funded. An accompanying letter should suggest support through mission funds.
- f. The GOSC also discussed and resolved that the field should send only their best proposal evaluations to the TACs. Recommended percentages were the top 33% for Phase I and the top 50% for Phase II.
- g. All ongoing Phase II contracts were approved for continuation. The GOSC approved Option 2 (Attachment 2) for distributing awards for Phase I and Phase II and limiting the Phase I awards to 1/4 of the Army SBIR Budget.

h. As a last issue, the GOSC reviewed the costs for administering the Army SBIR Program and approved a set aside of 5 percent of the Army SBIR annual budget for program administration.

4. Mr. Singley closed the GOSC by reviewing the results and taskings (attachment 3) and directed that minutes of the proceedings be drafted within seven days of the meeting.

Atch

Joseph P. Forry
Joseph P. Forry
Army SBIR Program Manager

DISTRIBUTION LIST:

HQ Department of Army
ATTN: SARD-ZT (Mr. George T. Singley III)

U.S. Army Medical Research and Development Command
ATTN: SGRD-ZA (MG Travis)

U.S. Army Materiel Command
ATTN: AMCRD (MG Thomas L. Prather, Jr.)

U.S. Army Corps of Engineers
ATTN: CERD-ZA (Dr. Oswald)

U.S. Army Research Office
ATTN: AMXRO-D (Dr. Gerald Iafrate)

U.S. Army Materiel Command
ATTN: AMDCG-T (Dr. Richard Chait)

U.S. Army Research Institute
ATTN: ARI (Dr. Hiller)

Deputy Assistant Secretary for Procurement
ATTN: SARD-ZP (Mr. Varady)

Small and Disadvantaged Business Utilization
ATTN: SADBUI (Mr. Gill)

U.S. Army Materiel Command
ATTN: AMCRD-SBIR (Mr. Forry)

U.S. Army Research Office
ATTN: AMXRO-W (Dr. Ken Gabriel)

SBIR Representative
ATTN: SARD-ZT (MAJ John Peeler)

GOSC ATTENDANCE

Mr. Singley (Chairman)	SARD-ZT
MG Travis	SGRD-ZA
MG Prather	AMCRD
Dr. Oswald	CERD-ZA
Dr. Iafrate (Briefer)	ARO
Dr. Chait	AMCDCG-T
Dr. Hiller *	ARI
Mr. Varady **	SARD-ZP
Mr. Gill	SADBU
Mr. Forry	AMCRD-SBIR

* Did not attend

** Attended for Mr. Dausman

OVERALL ARMY SBIR ALLOCATIONS FOR FY94 FUNDING

OPTION 2

ARMY MACOM	PHASE I		NEW PHASE II		ONGOING PH II		TOTALS	
	#	FY94 \$	#	FY94 \$	#	FY94 \$	#	FY94 \$
AMC	132	9146157	42	11751952	142	23549100	316	44447209
DCSPER	1	98554	0	0	3	596000	4	694554
COE	10	739554	2	814000	20	2498223	32	4051777
SSDC	1	70000	4	1706802	14	2971382	19	4750184
TSG	10	741229	2	500000	17	3376584	29	4617813
OTHER	2	169297	0	0	0	0	2	169297
Totals	156	10964791	50	14774754	196	32991289	402	58730834

GOSC TASKINGS

<u>RESPONDING ORGANIZATION</u>	<u>TASK</u>
AMCRD-SBIR	Minutes from the GOSC meeting.
AMCRD-SBIR	Execute Option 2, notify award winners, and distribute Army SBIR funds.
MACOM Commanders	Letter and list of high quality Phase II that were not funded to Laboratory and Center Commanders to suggest contract award using mission funds.
SARD-ZT	Meeting with STs to define their role in Army research and development.
GOSC	Review SBIR SOP and provide comments to AMCRD-SBIR by 15 Nov 93.
AMCRD-SBIR	Revise SOP to incorporate GOSC meeting and member comments and suggestions. Provide SARD-ZT with draft for review by 30 Nov 93.
SARD-ZT	Edict from SARD-ZP to Laboratory and Center Commanders emphasizing the priority of Army SBIR contracts and the importance of awarding Phase I contracts within two weeks prior to 1 Feb 94.
AMCRD-SBIR	Conference and Pamphlet targeting SBDs and MBS to participate in STTR.
AMCRD-SBIR	Statistics on the amount of Command funds spent on the Army SBIR program versus the amount of Army SBIR funding received for Command Phase I and Phase II contracts.
SARD-ZT	Letter of Appreciation for TACs and SEB participants.