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FINAL REPORT FOR PROJECT ENTITLED

**CUSTOMIZED BLUEPRINTS TO ENHANCE THE
PARTICIPATION OF HBCU/MI's IN DoD-RELATED R&D
PROGRAMS**

December 15, 1991

Submitted to:

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Office of the Secretary of Defense
Office of Small and Disadvantaged Business Utilization
Room 2A 340, The Pentagon
Washington, DC, 20310**

and the:

**National Association for Equal Opportunity in Higher Education
400 12th Street, N. E., Washington, D.C., 20002
DoD/NAFEO Grant: N00014-90-J-1525 P0001 (Letter Subcontract)**

Submitted by:

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FOREWORD

This Final Report by TRACTELL, Incorporated summarizes its experiences from the 1991 project with Historically Black Colleges and Universities and Minority Institutions (HBCU/MIs). This report provides a summary of the 1991 project goals and objectives, accomplishments relevant to all HBCU/MIs, and institution-specific technical assistance. The development of the much-needed software tools in the form of the Grant/Contract Tracking System (GCTS) and the Automated Research Capability System (ARCS) is a highlight of these accomplishments. We also provide summaries of the highly successful interactions by TRACTELL with DoD and non-DoD agencies, professional organizations and major businesses on behalf of HBCU/MIs.

As a value-added item in this report, we document "Lessons-Learned" which describe TRACTELL's views and opinions based on interaction with HBCU/MIs and DoD entities. This was done to provide an effective medium to communicate mutual concerns of the DoD and HBCU/MI audiences in view of the high turnover of personnel in both environments.

For example, we learned that specialized training in procurement-related issues is much more critical than first assumed. Many more HBCU/MIs than anticipated have the "raw" resources to build R&D infrastructures, but are systemically constrained by the inextricable combination of tradition and administrative organization. As a positive surprise, we learned that significant progress toward the goal of greater HBCU/MI participation could be effected through two-way interactions on technical issues regarding R&D procurement between DoD and HBCU/MI personnel. Equally important, we found an unusually high level of receptivity in the DoD environment for this type of interchange.

Based primarily on these lessons-learned, TRACTELL crafted a proposed project for 1992 which is presented in overview form at the end of this report. The 1992 project directly reflects our perception that the technical assistance needs by these institutions are rapidly changing. There is a critical need for an ordered sequence of planning events toward infrastructure building to be effected *within the HBCU/MIs* before the goal of acquiring and managing R&D projects can be fully realized. As in the past, TRACTELL will assist in achieving this objective as well as the latter goal.

Statement A per telecon
Tracey P. Dennis OSD/USDA-SADBU
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NWW 1/21/92

TRACTELL Final Report



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This report acknowledges each of the 700 or more persons at HBCU/MIIs and the dozens of persons within DoD and elsewhere who have provided feedback on the TRACTELL effort and its effectiveness within the HBCU/MI environment. Your objective support and cooperation are appreciated.

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INTRODUCTION AND OVERVIEW

INTRODUCTION

The 1991 TRACTELL project was a continuation of the highly successful 1990 effort entitled *Developed Methods to Help Mainstream Selected HBCU/MIs in the R&D Arena of the Department of Defense*. The basic assumption of this project is that there is a direct correlation between the presence or absence of R&D infrastructure at HBCU/MIs and the success or failure of DoD R&D programs at these institutions. Therefore, the TRACTELL project was designed to assist HBCU/MIs in devising a customized blueprint outlining strategic methods for enhancing the DoD-related research and development infrastructure.

With this customized blue print, top and middle level managers at HBCU/MIs, the staff, and researchers would be able collectively to make a comparative analysis of R&D infrastructure requirements and their current operations with the purpose of formulating goals and objectives for adaptation and organizational change.

BRIEF ANALYSIS OF THE PROBLEM

The existing research and development (R&D) infrastructure at Historically Black Colleges and Universities and Minority Institutions is quite limited. This infrastructure is affected by several factors that dominantly influence the ability of the institution to capitalize on R&D opportunities and to manage funded projects effectively. Based on TRACTELL's extensive interactions with HBCUs and MIs, some of the key interrelated factors are as follows:

R&D Program Development as Institutional Goal: Sponsored research and development are not integrated into the broader set of institutional goals at HBCUs and MIs. Moreover, these institutions do not plan or coordinate R&D programs specifically to strengthen their existing research capabilities or to develop new ones.

Economics of R&D Programs: Because of the traditional methods of academic-related accounting, HBCUs and MIs are unable to assess the gains and deficits of R&D acquisition. The fiscal management and reporting systems used to concurrently account for academic and R&D related efforts and to integrate the data into an institution's total financial management system are not in place at most HBCUs and MIs.

Incentives for Faculty Involvement in R&D: There are few overt incentives for HBCU and MI faculty to pursue R&D opportunities. This is due in part to the absence of R&D program development goals and the priority assigned to teaching as opposed to research. HBCUs and MIs generally have inadequate policies and procedures for faculty incentives.

Grant and Contract Management: Most HBCUs and MIs maintain financial records of sponsored grants and contracts as a part of their general ledger accounting systems. These systems cannot handle time-and-effort reporting and other specialized reporting of grant and contract transactions. Few, if any, maintain administrative records for R&D project management separate from the financial records. In some cases, sponsored program administration is a centralized function. In other cases, each research program is a project administered by respective departments with little organizational coherency. This factor directly relates to the issue of R&D as an institutional goal cited above.

Institutional R&D Capability Statements and Marketing: Capability information has not been compiled, reviewed, and made accessible for marketing purposes. This impediment is a consequence of the absence of institutional R&D goals and support infrastructure. However, some HBCUs and MIs have developed comprehensive institutional profile information for on-line computer systems such as FEDIX and possibly others.

R&D Project Management and Quality Control: Because of issues influencing the internal support infrastructure, there are major inadequacies in the daily management of projects already acquired (i.e., in the post-award arena). There is not a clear delineation of the roles of deans, department heads and faculty project directors for project management and research administrators for project administration.

R&D Development and Technology Transfer: The historical absence of strong R&D programs at HBCUs and MIs is the greatest impediment to future development of such programs. For example, the absence of links to the vast automated network of technical data and information is a major impediment to R&D development. In addition, HBCUs and MIs completely overlook technology transfer as a *business* opportunity and as an expected result of the funded activity.

These and other issues are the systemic reasons for the slow progress of HBCUs and MIs toward the mainstream of R&D in the federal arena and particularly within DoD. These are the problems which must inevitably be resolved on the campuses of HBCUs and MIs to achieve the goal of the present DoD initiatives. It is, therefore, in the context of the foregoing factors that the TRACTELL project for 1991 was designed and executed in accordance with the goals and objectives cited below.

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GOALS AND OBJECTIVES FOR 1991 TRACTELL PROJECT

The goal of the TRACTELL 1991 project was to help implement functional R&D infrastructures at HBCU/MIs that are capable of handling the full spectrum of DoD-related contracting and procurement requirements, to include internal fiscal and project management in agreement with applicable federal guidelines. The following objectives were stated in the TRACTELL 1991 proposal to support this goal:

R&D Capability Analysis and Baselineing: TRACTELL will analyze the current R&D infrastructure of HBCU/MIs and document the specific needs for enhancement through a continuation of the highly successful on-campus site visits by the TRACTELL team to selected HBCU/MIs. The R&D capability self-assessment component of this effort will be expanded to include eleven (11) additional HBCU/MIs for a total of forty-two (42) participating institutions during 1991.

PC-based Grant and Contract Tracking System (Added/Approved): Based expressly on the needs exhibited by almost all HBCU/MIs, TRACTELL will develop a PC-based Grant and Contract Tracking System (GCTS) to be integrated into the customized blueprints for selected institutions.

Automated Research Capability System (Added/Approved): TRACTELL will develop a software-based HBCU/MI research capability system for use by both HBCU/MIs and DoD. The system shall be provided at no cost to HBCU/MIs through the technical assistance efforts of TRACTELL.

Customized Blueprints: Based on its capability assessment and baselineing, TRACTELL will assist in the development of cohesive blueprints for at least four (4) HBCU/MIs to integrate R&D administration into the total infrastructure. Responsive internal organization, management information, contract and grant tracking, and use of appropriate tools to ameliorate impediments will be accented.

On-Site Technical Assistance: TRACTELL will provide to the selected HBCU/MIs the basic technical assistance needed to carry out recommendations for infrastructure enhancement. In particular, the aspects of infrastructure assessment and the GCTS initiative will be accented.

Project Documentation: TRACTELL shall document and report all methods, source data, plans and recommendations in the form of monthly activity reports and a final project report.

PROJECT ACCOMPLISHMENTS RELEVANT TO ALL HBCU/MIs

TRACTELL Documents and Services Delivered to HBCU/MIs: As an extension of the 1990 project deliverables, TRACTELL distributed approximately fifty-five (55) additional copies of the *Compendium of Questions and Answers Concerning R&D Acquisition and Management at HBCU/MIs in the DoD Arena* and seventeen (17) copies of the *TRACTELL GuideBook for R&D Acquisition and Management for HBCU/MIs in the DoD Arena*. In addition, responses to inquiries about solicitation-specific issues were continued over the toll-free TRACTELL *R&D HotLine* (1-800-292-3550). From December, 1990 to November, 1991, over 300 telephone responses have been made by TRACTELL to HBCU/MIs from its Dayton and Atlanta offices.

Grant/Contract Tracking System (GCTS): TRACTELL successfully completed and tested the initial design of the GCTS at Virginia State University (An overview of this event is included as an attachment). To date, the GCTS is complete in its three modules: proposal, award and project. Flow through testing with realistic data, and data transfer between modules is being accomplished with good success. Tentative deployment of the first GCTS pilot for Virginia State was originally intended for 22 November, 1991 but will slip to early December 1991. Four other HBCU/MIs have formally requested the GCTS in pilot form in the 1992 project year.

Automated Research Capability System (ARCS): The basic modules of the ARCS have been designed and tested: the *DoD-Central Module* which encompasses a composite data base for all relevant HBCU/MIs and the *HBCU/MI-Specific Module* to be used by HBCU/MIs to develop and update their own capabilities. For testing purposes only, segments of the NAFEO-supplied data were ported to the ARCS data base. However, due to the age, format and limited coverage of these data, the ARCS development for 1992 includes an update of a comprehensive DoD-Central Data base. An overview of the ARCS is included as an attachment.

TECHNICAL ASSISTANCE TO SPECIFIC HBCU/MIs

Virginia State University: TRACTELL completed the initial and follow-up visits to introduce the TRACTELL Grant and Contract Tracking System (GCTS). Pilot implementation for the GCTS is set for December, 1991. Also, TRACTELL provided information requested by the president for formulation of policy statements for faculty compensation from sponsored programs and returning a portion of indirect costs recovered through sponsored projects to departments.

North Carolina A&T: TRACTELL furnished sample organizational charts for research administration, particularly the position and responsibility of a vice president for research. TRACTELL assisted NCA&T in responding to urgent problems in satisfying reporting and performance requirements in five DoD contracts as cited in DoD's letter of concern to NCA&T. At the request of the president, TRACTELL provided a special session for the NCA&T staff to develop a strategy for responding to DoD in the short term and preventing the recurrence of such events in the long term.

Howard University: At the request of the Director of Research Administration, TRACTELL was asked to review and make recommendations for the improvement of the entire post-award process at Howard. On completion of this task, the TRACTELL team presented a set of recommendations that included the establishment of a sequence of quality control checkpoints, new post-award procedures, and staff realignments. Howard acknowledged its intent to resolve these issues by adopting some of the TRACTELL recommendations. Howard will be a one of the pilot sites for both the TRACTELL GCTS and the ARCS.

Morehouse School of Medicine: TRACTELL provided urgently-needed assistance to MSM in responding to an Army requirement for a Hazard Communication Program. Copies of appropriate guidelines were furnished as requested. These actions were required by MSM to finalize a contract award from the Army. Also, by request, TRACTELL interpreted Joint Travel Regulations that were included in the contractual provisions of an Army contract. It was explained that all per diem reimbursed under the contract must be paid according to the maximum rates allowed for the cities specified in the regulations. TRACTELL furnished a copy of the current rate schedule along with other explanatory information.

Fayetteville State University: TRACTELL furnished guidance on responding to an unrestricted DoD solicitation which was judged by TRACTELL to be outside of the capabilities at Fayetteville State.

Alabama A&M University: TRACTELL was asked to provide guidance in preparing an R&D enhancement plan. It was suggested that the institution delay preparing a formal R&D enhancement plan until after a TRACTELL-DoD site visit. The Vice President for Research and Development will compile various documentation for review and comment by TRACTELL.

Southern University: TRACTELL responded to Southern University's urgent request for the TRACTELL GCTS by providing an extemporaneous demonstration of the GCTS for three Southern University principals while attending the White House Initiatives Conference in Washington in September. A follow-up by Southern accented the critical need for this product due to the rapidly

growing R&D efforts at Southern and the absence of a centralized tool for control. As a direct result of TRACTELL's interactions, a formal plan has been developed by the faculty and staff at Southern and presented to the administration for the development of a more well-defined infrastructure support system for R&D acquisition and management.

TRACTELL acknowledged the request for consultative services for Southern's R&D Assessment Teams's formulation of a list of proposed policy statements regarding research programs that have been formally presented to the administration for approval. This is a highly positive and unique event among the institutions with TRACTELL has interacted.

Jackson State University: TRACTELL furnished the new dean of research the TRACTELL GuideBook and other relevant materials for the development of an academic research programs.

Norfolk State University: TRACTELL furnished boilerplate formats for consulting agreements to be used with a DoD contract and continued assistance to NSU in regard to award competition for DoD-sponsored Civilian Personnel Administration project. A pricing strategy was developed for Norfolk State for use in its amended proposal on a DoD effort. Several shortfalls in the budget were cited, most notably the voluntary reduction in overhead rates with the intent to increase their cost-competitiveness. (TRACTELL finds this practice prevalent among HBCU/MIs. Our advice is that this is most often an unacceptable practice yielding no advantage and may potentially be a major disadvantage to the institution).

Fort Valley State College: TRACTELL completed a previously-postponed site visit from the 1990 project period. The President immediately suggested a follow-up visit to deal with a range of R&D administration issues, including assistance in developing strategies to assist the FVSC faculty in developing and submitting proposals to the Department of Defense. TRACTELL completed this follow-on visit which was judged by the faculty and staff as highly successful.

Florida A&M University: TRACTELL responded to a faculty researcher's questions concerning resources for locating research opportunities in DoD. This was a new faculty member in the physics department who was referred to TRACTELL by a colleague at Florida Atlantic University as a result of TRACTELL's participation in the NCURA conference in May 1990.

Central State University: TRACTELL made a presentation on R&D infrastructure and capability matching for HBCU/MIs at the Third Annual Central State-DoD Procurement Conference on 23 April, 1991 at Central State University in Wilberforce, Ohio. TRACTELL also participated in the initial review of

the Center for Integrated Manufacturing, Protocols, Architectures and Logistics (CIMPAL), a project sponsored by the Department of Defense, Wright Aeronautical Laboratories, Manufacturing Technology Directorate. CIMPAL comprises an integrated manufacturing research facility in which manufacturing and computing equipment will be electronically networked to achieve a high degree of automation.

Shaw University: By request, TRACTELL included Shaw University among the institutions to receive the Grants and Contracts Tracking System. Shaw also expressed an interest in receiving technical assistance from TRACTELL on a variety of research administration matters. Due to the lateness of this request, a site visit has been planned for the 1992 project year.

Morris Brown College: TRACTELL conducted a preliminary site visit with the R&D Self-Assessment Team and other administrators to assess issues to be included in a formal site visit and to provide feedback concerning the establishment of the Morris Brown Research Institute. A formal site visit is being scheduled for 1992. Morris Brown submitted a research capability video for review by TRACTELL.

Texas Southern University: Initial and follow-up site visits were completed. There was excellent interaction by president and each of the top administrators on the initial visit. TSU was highly commended as having one of the best documents on proposal development; conversely, the capacity to execute these procedures was judged by TRACTELL to be severely limited. By request, a follow-up site visit by TRACTELL was directed at personal incentives to perform research. Both visits were judged highly successful on the basis of feedback from the audience.

Miles College: TRACTELL completed preliminary interactions with Miles College. An organizational chart and a brief statement of research program impediments were sent to TRACTELL. Miles College requested to be included in the 1992 site visit schedule.

Oakwood College: TRACTELL fielded several inquiries from Oakwood on the Commerce Business Daily solicitations sent by Dr. Ford of Southern. In each case, the inquiry was either near the deadline or, in TRACTELL's view, beyond the scope of the institution. Increasing motivation for research is noticed, but very limited staff and virtually no R&D infrastructure support are also evident. TRACTELL made a preliminary visit to Oakwood College to address these and other solicitation-specific issues. Oakwood will be on the TRACTELL site visit schedule for 1992.

Prairie View A&M University: Contacts were established at Prairie View for a TRACTELL site visit which was to be a joint visit with personnel from the Texas A&M University and Research Foundation. The manager of the Texas A&M Research Foundation requested TRACTELL's participation in a planning meeting with Prairie View A&M University, and more specifically to conduct a technical assistance workshop to facilitate the development of its collaborative research programs which will involve several Texas public institutions.

University of the District of Columbia: TRACTELL was consulted to explain the nature of a cost-plus-fixed-fee contract which had been recommended in a DoD contract award. TRACTELL advised UDC on a more appropriate contract type for non-profit institutions. The TRACTELL team visited UDC for follow-up on this issue, as well as to make an analysis and critique of a proposal being developed for the Navy.

National Center of Indian Affairs: Mr. Glen Wright of the NCIA, Mesa, AZ, contacted TRACTELL for copies of the R&D GuideBook and Compendium of Questions and Answers, which may be copied for further distribution as desired. TRACTELL also advised Mr. Wright of its availability for technical assistance for minority institutions as well as HBCUs.

New Mexico State University: At the request of personnel from Fort Huachuca (USAISC), TRACTELL interacted with a representative of New Mexico State University for the purpose of a potential teaming arrangement for the USAISC HBCU/MI set-aside.

Texas Pan American University: Texas Pan Am responded favorably to participation in the TRACTELL ARCS project and has already initialized personnel research capabilities in compatible format for the ARCS.

INTERACTIONS WITH DOD AGENCIES ON BEHALF OF HBCU/MIs

Department of the Army

Army Research Office (1): TRACTELL interacted with the Army Research Office on RFP DAAL03-91-R-0001 to amend the solicitation to include the latest DFAR reference applicable to HBCU/MIs. TRACTELL recommended to the ARO contracting officer the inclusion of DFAR clauses 52.219-8 and 52.219-9 and Part 226.10 (Under Other Socioeconomic Programs) which specifically include HBCU/MIs.

Army Research Office (2): Dr. Jerry Anderson of ARO invited TRACTELL to attend the meetings of an ad hoc committee of the Army Science Board in Atlanta at Spelman and Clark-Atlanta. At the further request of Dr. Wesley Harris, the chairman of this committee, TRACTELL was asked to provide an overview of its technical assistance services to both HBCU/MIs, DoD agencies and commercial entities on behalf of HBCU/MIs.

Army Research Office (3): TRACTELL responded to questions and answers from recent ARO conferences regarding ARO's interpretation of "partnership" and "party" as being legal rather than non-legal entities. The intent was to clarify whether HBCU/MIs could or could not include non-HBCU subcontractors and/or subgrantees in proposals.

Information Systems Command (1): TRACTELL responded to a request for clarification concerning standard proposal budget categories and indirect costs for research at HBCU/MIs from Mr. Joe Grieco, Cost Analyst. The objective is to seek to make the Army's independent cost estimate as realistic as possible for an impending HBCU/MI set-aside.

Information System Command (2): TRACTELL participated in the USAISC presolicitation conference in Atlanta on November 21 - 22, 1991. Following is a summary of the highly successful interactions at this conference:

- The TRACTELL team chaired two sessions entitled *Preparing Cost Proposals* and *Teaming Arrangements*.
- TRACTELL received thirteen (13) requests from the following institutions for the TRACTELL-designed LOTUS 123 template to develop proposal budgets, track costs by time or task order, and assimilate invoicing data:

Albany State University
Tennessee State University
Jackson State University
Clark-Atlanta University
Morgan State University
Morris Brown College
Florida International University
Fayetteville State University
Oakwood College
Howard University
Norfolk State University
Southern University
Chicago State University

- TRACTELL developed and distributed forty (40) copies of a teaming agreement specifically geared to the needs of the USAISC solicitation and received requests for an additional five (5) copies.
- The TRACTELL team provided clarity on two key issues: (1) the DFAR basis for the 51% rule governing the percentage of contract personnel costs that must be subsumed by the HBCU/MI prime within an HBCU/MI set-aside involving subcontracting; (2) the source where HBCU/MIs as contractors can quickly acquire military standards at no cost (i.e., Naval Publications Office, Philadelphia).
- TRACTELL met informally with two potential teams of HBCU/MI personnel to outline strategies for proposal development and provided interface for MI representatives with one of these teams.

Army Corps of Engineers: TRACTELL responded to a request from Mr. Robert Rosenthal of the Vicksburg Corps of Engineers for information on TRACTELL services to HBCU/MIs. Mr. Rosenthal was sent copies of the GuideBook and other TRACTELL literature. Mr. Rosenthal requested, and TRACTELL accepted, participation in an upcoming conference for HBCU/MIs in the Mississippi area.

Department of the Navy

SADBU, Department of the Navy: TRACTELL participated in the Department of Navy HBCU/MI Training Program in Silver Spring, MD in response to a formal invitation from Mr. Robert Goodman. This was an excellent program that vividly shows the critical and continuing need to train and update DoD personnel on the key regulatory issues concerning HBCU/MIs.

Office of Naval Research: There was an inquiry by Dr. Harold Guard on TRACTELL's knowledge of summer programs for high school students at HBCUs in the science and engineering areas. TRACTELL responded with a search of the FEDIX system and supplied Dr. Guard with these results. TRACTELL also recommended that Dr. Ford include this request on the cover sheet of his sendouts to all HBCU/MIs.

SADBU Conference, Naval Air Station, FL: At the request of the Office of the Secretary of the Navy, TRACTELL provided handout materials for 125 attendees at this conference which was held November 12 - 14, 1991. In addition copies of the TRACTELL R&D GuideBook and Compendium of Questions and Answers were provided for copy and handout.

Department of the Air Force

Wright-Patterson AFB, OH (Wright Aeronautical Laboratories): TRACTELL responded to a request from the DoD principal for HBCU/MI interactions at WPAFB/WAL to provide an overview of TRACTELL's procedures to evaluate the R&D infrastructure of HBCU/MIs. TRACTELL provided copies of its Site Visit Protocol, R&D Infrastructure Checklist, and a skeletal outline of the infrastructure assessment report that TRACTELL provides to each institution visited.

Defense Logistics Agency

Defense Technical Information Center (DTIC) (1): TRACTELL interacted with Mr. James Norwood of the DTIC in regard to developing Technical Information Packages (TIPs) for solicitation-specific efforts applicable to HBCU/MIs. Mr. Norwood suggested an innovative way to incorporate the TIPs concept into the TRACTELL-proposed Automated HBCU/MI Capability Assessment System based on established accession codes assigned to each HBCU/MI. TRACTELL recommended and Mr. Norwood accepted the idea that such TIPs should be developed for the November 20 - 21 pre-proposal conference in Atlanta sponsored by the Army Information System Command (USAISC), Ft. Huachuca, AZ.

Defense Technical Information Center (2): TRACTELL represented Mr. James Norwood of DTIC who could not personally attend the USAISC pre-solicitation conference in Atlanta. Mr. Norwood diligently accumulated, packaged and delivered solicitation-specific search sample and other information for this audience. TRACTELL distributed and explained the Technical Information Packages (TIPs) developed by Mr. James Norwood, DTIC, related to a specific area of the USAISC solicitation, but intended to demonstrate the wealth of services available through DTIC to HBCU/MIs at no cost. Mr. Norwood is to be commended for his excellent work to make this event successful.

Defense Advanced Research Projects Agency (DARPA)

On the basis of the interest shown by several HBCU/MIs in the DARPA BAA on *Concurrent Engineering*, TRACTELL formed a teaming arrangement with HBCU/MIs to participate and presented a proposal which made the initial cut from 141 responses to 40. This final proposal was not successful for funding, but in TRACTELL's estimation, did provide an inroad to the DARPA super-

structure that will be beneficial in the next proposal submission. TRACTELL requested, but has not yet received, a response on a debriefing for this effort. Of special note, the announced awards made under this effort on November 10, 1991 were made to large businesses and majority academic institution; no small businesses, HBCUs or other minority institutions were included.

Department of Defense (OSADBU):

TRACTELL provided to OSADBU copies of all TRACTELL progress reports, technical overviews, and status reports on the TRACTELL ARCS and GCTS software systems. TRACTELL kept OSADBU apprised of issues potentially affecting the DoD-HBCU/MI interface and made recommendations for resolutions where appropriate. In particular, OSADBU has been apprised of all TRACTELL interactions with DoD and major business entities in the interest of HBCU/MIs. TRACTELL initiated a "Lessons-Learned" segment within its monthly activity reports with the intent to more efficiently interact across the DoD-HBCU/MI boundary; we view this as a formidable event for advancing DoD's R&D goals with HBCU/MIs. TRACTELL provided to DoD/OSADBU a proposed outline for "A Cooperative Strategy for the Successful Implementation of Section 832 of Public Law 101-510.

INTERACTION WITH NON-DOD AGENCIES ON BEHALF OF HBCU/MIs

White House Initiatives Office: TRACTELL made a presentation at the WHI Conference during National Black College Week, September 9, 1991. This presentation, entitled *TQM Approaches to R&D Enhancement at HBCU/MIs*, accented the need for a Federal-HBCU Master Plan-2000 to exploit the America 2000 impetus and was supported by the WHI Initiative Office. A prior synopsis of such a plan was presented to WHI by TRACTELL in 1990.

U. S. House of Representatives: TRACTELL responded to an invitation for public comment on proposed legislation to create a central surplus property distribution system with the sole authority to distribute surplus property directly from federal agencies in the form of grants to certain schools and non-profit entities. The definition of "minority" institutions as included in this bill did not appear to include HBCUs as defined in the Department of Education guidelines.

General Dynamics, Groton, CT: TRACTELL participated in a training seminar for program managers and procurement personnel at General Dynamics in

Groton, CT on April 26, 1991 at the request of Mr. Robert Goodman, SES, Department of the Navy. TRACTELL described the general contracting climate at HBCU/MIs, discussed the potential contracting opportunities, and recommended strategies for effective interaction by businesses with these institutions in prime-subcontractor relationships. As a direct result of this interaction, General Dynamics increased its subcontracted participation with HBCU/MIs from zero to \$120,000 as reported by Mr. Goodman on November 20, 1991.

Meeting of Society of Research Administrators (SRA): TRACTELL participated as a presenter in the Southern Section meeting of the Society of Research Administrators (SRA) on May 16, 1991 at Jekyll Island. The TRACTELL session dealt with R&D administrative structures against the background of TRACTELL's participation with HBCU/MIs. Quite unexpectedly, several discussions evolved concerning interactions with HBCUs in research programs. TRACTELL also responded to questions from agencies and larger institutions that are interested in collaborating more fully with HBCUs.

National Council of Research Administrators (NCURA): The TRACTELL staff chaired a concurrent session at the annual NCURA conference held at the Hyatt on Capital Hill on November 3 - 6, 1991. The title of this session was Forging Linkages Between Minority and Majority Institutions, with a sub-panel discussion entitled The Climate of R&D on HBCU campuses.

OTHER SIGNIFICANT ACCOMPLISHMENTS

Technical Paper Development: TRACTELL initialized a uniquely innovative technical paper which is tentatively titled "*A Total Quality Management Approach to Implementing Section 832 of PL 101-510 to Enhance Participation by HBCU/MIs in DoD Funded Programs*". The intent of this paper is to provide an experiential perspective of, and a practical plan for, the systematic, closed-loop translation of the regulatory intent of Public Laws 99-661 and 101-510 into operational procedures effected by DoD personnel on a day-to-day basis on behalf of HBCU/MIs. (TRACTELL has already received four (4) written requests for this paper when completed).

SUMMARY OF KEY LESSONS LEARNED IN 1991 PROJECT YEAR

Beginning in 1991, TRACTELL noted that several problems and issues occurred frequently in the DoD and HBCU/MI environment that could possibly be ameliorated if the "lessons-learned" from prior experiences were known to both of these audiences. Listed below are some of the more important observations. *It must be explicitly noted that these observations represent TRACTELL's opinions and are not intended to reflect current or future DoD policy.*

Significance of the TRACTELL On-Campus Site Visits

One of the premiere aspects of the TRACTELL project is its *on-campus perspective* whereby all aspects of the TRACTELL technical assistance are directed to the HBCU/MI campus, and each institution is treated as an individual entity with its unique issues. To assure that this project is directed only to the most significant issues as decided by the institution, TRACTELL requires a formal *Site Visit Protocol* to be followed which must be coordinated through the president or chancellor of each institution.

While the general theme of TRACTELL's assistance is R&D infrastructure enhancement, within that theme, each institution decides the most significant issues to be addressed in advance of the site visit. For all follow-up site visits, the institutions have requested TRACTELL's dedicated attention to one or more persistent problem areas that were highlighted in the initial TRACTELL site visit report. We view the latter event as most significant because, heretofore, most HBCU/MIs did not have a forum to internally verbalize, analyze and help resolve such issues. Of greatest significance, the interactions by TRACTELL easily cut across departmental boundaries and organizational strata in such a way that HBCU/MI management, staff and faculty are beginning to work toward common R&D goals.

Professional Development in R&D at HBCU/MIs

Having concurrently examined the R&D infrastructures at several HBCU/MIs, and having interacted with personnel in the R&D administration at non-HBCU/MIs through professional meetings, there are some highly visible disparities between the professional development at these two types of institutions. Even at small non-HBCU/MIs -- those comparable in size to HBCU/MIs -- specialized skills and professional development in the R&D administration areas are increasing in priority. By contrast at HBCU/MIs, there does not appear to be a realization of the need for greater specialization than a grants officer, development officer, proposal development officer, or similar entity -- typically in a part-time capacity.

There is a need to counter this systemic yet overlooked problem with significantly greater emphasis at HBCU/MIs on attendance at professional meetings and institutional registrations with professional organizations such as Society of Research Administrators (SRA), National Council of University Research Administrators (NCURA), Council on Governmental Relations (COGR), and others.

In addition to the formal development of expertise in internal research administration, there is a much greater need for HBCU/MI personnel to understand the interactions of government contracting in general and specifically DoD contracting than can ever be attended through such initiatives as the TRAC-TELL on-site visits.

Competitive Proposal Developments Within HBCU/MIs

There are some significant lessons-learned in the one HBCU/MI's pursuit of the Navy's Civilian Personnel project that other HBCU/MIs should consider in competitive price negotiations for DoD awards as follows:

- ° Downward adjustments of pre-approved overhead rates to make the proposal price-competitive may not be a good strategy for an academic institution. In fact, it may have a negative effect since rates used in proposals by the institution must be pre-approved by a federal agency.
- ° Project budgets for major DoD awards are subjected to exacting scrutiny and, as a result, the institution must have a good rationale for, and formal documentation of, all rates listed in a cost proposal. In the case of the Navy's Civilian Personnel project, the cost proposal was evaluated by DHHS although the project is a DoD effort.
- ° During the price negotiation stage, the institution should already have a preset cost level (i.e, a floor), below which the project becomes a liability rather than an asset to the institution. In particular, during negotiations, some proposed costs may not be "allowable costs" and downward adjustments will have to be made in the proposed budget in a relatively short time period.
- ° In cost negotiations with DoD, a stream of responses will most likely occur in a rapid time succession. The critical need for quick turnaround on these requested responses from the institution to the DoD contracting office cannot be overstated.

Performance Monitoring of Acquired R&D Contracts

As more HBCU/MIs acquire contracts with DoD, the more routine contract interactions will become between these institutions and DoD contracting personnel. This means that the same standards for contract performance will be expected from HBCU/MIs as other institutions. Many DoD agencies have begun to monitor all contracts by performance which, in turn, will definitely affect future acquisitions; this applies to HBCU/MIs and otherwise. That is, the past reputation of the institution in its R&D performance will be a dominant factor in any future awards.

There are, in the observations of TRACTELL through its many interactions with HBCU/MIs, significant shortfalls in the actual execution and *management* of contract awards at HBCU/MIs (This is to be distinguished from the systemic problems of the *acquisition* of such awards.) While the source of these problems relates to R&D infrastructure at HBCU/MIs, this issue becomes more focused with a detailed look: the specific problem is R&D project management after the award has been attained, which is a dual function of the principal investigator and the research administrator, but defaults to the institution in all cases.

Experience in DoD Contracting and Procurement Processes

In the past three months, several DoD agencies, three major businesses, one small business, and one non-profit entity have inquired about TRACTELL's role with HBCU/MIs in the DoD R&D arena. In the extensive dialogue between TRACTELL and these contacts, *all were concerned about the level of skills and knowledge of DoD/federal contracting and procurement processes and procedures at almost all HBCU/MIs.* These concerns were raised within the context that, despite the existing legislative initiatives for HBCU/MIs, DoD as well as major prime contractors are moving to a more competitive environment where the demands for increase procurement-related skills will increase correspondingly. Moreover, past contract performance by institutions -- including HBCU/MIs -- is becoming a major criteria for future awards wherein the state of the internal infrastructure to properly administer a contract becomes even more critical. In effect, a complete spectrum of knowledge and skills is needed at each HBCU/MI seeking to do business with DoD.

To address these concerns, the source of the problem has to be understood. It could simply be stated that, as a rule, HBCU/MIs as a group have not had much DoD/federal contract experience and that this inexperience is being manifested in the pre-award arena, but this is not enough. Some of the most experienced

HBCU/MIs in DoD contracting are also having problems with DoD contracting on the post-award side.

In TRACTELL's view, the real problem is the continual *absence of specialized skills* in procurement and contracting at HBCU/MIs. Few if any of the more than 20 different HBCU/MIs visited by TRACTELL had personnel with formal training in federal contracting or contract administration, or even informal training as provided through professional contacts, etc. (One HBCU/MI did evolve a job description for such services at TRACTELL's recommendation; two others are expected to follow this lead shortly). We also noted that the turnover of personnel in these positions was extraordinarily high and most often, these are part-time or extra-duty positions. This issue appears to be based on each institution's tradeoff of personnel expenses and the potential gains from interacting on DoD/federal opportunities, particularly in the contract-based competitive R&D arena (to include set-asides). This tradeoff is not balanced since most HBCU/MIs tend to be risk-avoiding as it relates to expenditures.

Major emphasis will be placed on this problem area -- professional training -- in the 1992 project year. The proposed update of the R&D GuideBook and the follow-on development of a Project Managers' HandBook will help ameliorate this problem in both the pre- and post-award areas. Nevertheless, TRACTELL believes that this problem must receive *much greater emphasis from within the DoD structure*.

Specialized Training in the HBCU/MI Environment

The GCTS pilot visits to Virginia State and NCA&T were uniquely successful. A portion of this success, however, had not been anticipated. Specifically, these GCTS pilot sessions dually served as a group training session in post-award execution, and accordingly, filled a void that was missing. This presentation before four administrative levels (the Chancellor, Vice Chancellors for Academic Affairs and Finance, Academic Dean, and Sponsored Programs) was especially revealing. For the first time, we believe, each of these levels noticed the interdependencies needed for R&D post-award management. The comments of the audience directly reflected this observation.

Of equal significance, use of the GCTS provides an excellent gauge of the user's knowledge of the language of contracts and grants. We suspect that, with minor exceptions, the highly important Contract Data Requirements Lists (CDRLs), for example, were not being interpreted properly. This shortfall, in turn, negates the development of schedules of deliverables which is the most important determinant of contract accomplishment.

In addition, we learned in the brief GCTS exposure that the proposed HBCU/MI R&D Project Management HandBook is direly needed. At most HBCU/MIs with whom TRACTELL has interacted, there are disjunctures between sponsored programs offices and researchers that should never exist. As a result, unnecessary effort is needed to bridge these junctions which tends to stretch already limited resources. This proposed HandBook will be targeted to this interface and will directly complement the proposed revision of the TRACTELL HBCU/MI R&D GuideBook.

The GCTS Role in Improved R&D Management at HBCU/MIs

After the introduction of the GCTS to key personnel at four HBCUs, we are certain that this product will have immense value at all HBCU/MIs who opt to use it. Moreover, the GCTS value is greatly increased with the observation that none of the HBCU/MIs have methodologies (either manual or automated) to interlink the institution's R&D operations with academic accounting. This is one of the main reasons why the cost of R&D execution and its attendant ramifications on an institution's overhead rates are not addressed properly at almost all HBCU/MIs, and questions concerning overhead rates are becoming much more prevalent as HBCU/MIs produce more proposals.

The latter observation may also help to explain why overhead rates at HBCU/MIs appear to be increasing at a must faster rate than other institutions. There are further indications that many if not most HBCUs may not actually recover enough overhead to cover actual R&D expenses.

Even with established automated R&D accounting systems at major institutions, which are geared to capture the expenses of a successful proposal and the attendant R&D activity generated, it is much more difficult to capture the expenses for resources expended on an unsuccessful proposal. If an institution is mostly unsuccessful in proposals and also has no mechanism for tracking the associated costs of these attempts, there may be little if any formal justification for increasing overhead rates in accordance with the existing cost accounting regulations for academic institutions. This represents a "catch-22" for most HBCU/MIs getting into R&D for the first time.

The TRACTELL GCTS, when completed, will contain the mechanism for the institution to help validate the stages of proposal development (submitted, awarded, declined, pending, etc.) in such a way that estimates of resources involved in both successful and unsuccessful proposal can be made. Equally important, the GCTS will provide the capability to track current and pending awards over time to show progress and productivity within the institution. The

latter capability was expressly noted as a crucial need by Dr. Edward Fort, President, NCA&T; Dr. Nathaniel Pollard, Provost, Virginia State and Dr. Avis Pointer, Associate VP, Research Administration, Howard University.

On the Economics of R&D Execution at HBCU/MIs Collectively

TRACTELL notes a total of fourteen (14) amendments were issued on one DoD HBCU/MI set-aside solicitation in a period of little over 18 months since its inception. Without knowledge of why these iterations occurred, the negative impact of such lengthy iterations on responding HBCU/MIs can be directly estimated. For example, if only two HBCU/MIs responded to this solicitation, and the cost of responding to each of these 14 changes was estimated to be \$2000 each, a hypothetical total of \$58,000 would have been *extracted from* the resources of those institutions. Similarly, if eight institutions responded, a total of nearly a quarter of a million dollars would have been *extracted from* the collective resources of these institutions.

These hypothetical amounts would be needed as an award just to break even. However, similar solicitations with many iterations do not always terminate in an award, and there can typically be only one winner of an award. Of course, these postulated costs are in addition to the internal-to-DoD expenses for these iterations; very likely equal or greater costs are accrued inside DoD.

While such procurement iterations are the normal price of competition, and the actual costs of such iterations are unknown, it also shows why there is an urgent need for DoD to hone its capacity to quickly isolate and screen capable HBCU/MIs for a given solicitation. This capacity would represent a cost-avoidance process for those HBCUs who are screened out early and painlessly, as well as for DoD. The TRACTELL ARCS, when completed, will help fill this void for DoD.

Participation in Pre-Solicitation and Pre-Proposal Conferences

As a general rule, TRACTELL requests copies of, and provides written comments in response to, all HBCU/MI set-aside procurements when the situation permits. In response to recent inquiries from six persons at HBCU/MIs, TRACTELL has explained the differences between pre-solicitation and pre-proposal conferences, the expectations of each event from both the government and the attendee/respondee perspectives, and how to prepare to attend and/or send in written questions to obtain maximum benefits. It is expressly accented that

these conferences are designed to provide *technical* clarifications of a pending or existing solicitation. As a result, *technical* rather than administrative persons should attend. Moreover, the aura of competition to win in the procurement environment must be tantamount for each attendee; typically, there can only be one winner.

As a result of this apparent need, TRACTELL will expand its existing coverage of issues regarding pre-solicitation and pre-proposal conference preparation and attendance in its on-site visits to HBCU/MI campuses. We shall seek to help HBCU/MI personnel maximize the utility of these critically important events -- *the only events where they can help shape a procurement for their competitive advantage.*

Key Issues Related HBCU/MI and MRI "Partnerships":

TRACTELL's recent interactions with three different DoD procurement offices suggest that, for proposal development purposes at HBCU/MIs, the term "*partnership*" should be replaced in favor of the more precise term "*contractor team arrangement*" as defined in Section SubPart 9.6 of the FAR entitled Contractor Team Arrangements. Even so, it appears that teaming arrangements with non-HBCU academic entities may actually be a double-edged sword if applied to HBCU/MI *set-asides* as opposed to *full-and-open* solicitations. These tradeoffs must be carefully weighted by the HBCU/MI institution on a case-by-case basis.

OVERVIEW OF THE PROPOSED TRACTELL PROJECT FOR 1992

The TRACTELL proposal for 1992, which was submitted in September 1991, builds on lessons-learned from the 1989 - 1991 projects. Based on these hands-on experiences on the campuses of over twenty HBCU/MIs with direct interactions with over 700 persons, *our assessment of technical assistance needs for these institutions has changed.*

For those HBCU/MIs active with TRACTELL, we no longer consider that a limitation of internal resources (research capabilities, people, equipment, etc.) is the *prime* factor that precludes greater participation in R&D programs with the Department of Defense. On the contrary, we conclude that resources and raw materials are available, but the use of these resources is not adequately exploited *within* the HBCU/MI. Some of these reasons are covered under the section entitled Brief Analysis of the Problem in this report and include such issues as lack of R&D commitment at the institutional level, inadequate use of automation, and

several other factors including the lack of incentives to participate in R&D by individual HBCU/MI personnel.

We conclude, therefore, that if the current DoD outreach initiative is to be successful, there must be considerable change in the deployment of available resources within HBCU/MIs to include both management and operational personnel. The entire thrust of this proposal is for TRACTELL to act as a catalyst to help each institution better exploit its internal resources. For this purpose, the much-applauded TRACTELL *R&D Infrastructure Model*, with its emphasis on the internal HBCU/MI actions, is used as a substructure for this proposal.

Based on this R&D Infrastructure Model, TRACTELL seeks a commitment from HBCU/MI top management before interacting at the institution; this will continue. In the 1991 effort, we helped several institutions develop customized blueprints for R&D management with excellent results (Howard, NCA&T, Virginia State, and Southern are documented examples). This thrust will continue in the 1992 effort, but will be directed concurrently to both high level management and operational personnel. We have learned conclusively that when both levels receive the benefit of our technical assistance at the same time, very definitive and positive results occur. In other cases, we simply cannot measure the results.

We also conclude that several HBCU/MIs can *graduate* from external technical assistance on the *pre-award* side, but these same institutions show pressing needs for technical assistance and guidance on the *post-award* side. In several cases, these needs are critical since current operations are actually detrimental to sustaining a credible R&D program at these institutions. For example, TRACTELL's assistance in ameliorating problems at two HBCU/MIs in 1991 can be conservatively valued at saving four million dollars by the institutions involved. As this post-award segment of the internal R&D infrastructure is strengthened, these institutions should be able to enter the mainstream of R&D on their own.

For other HBCU/MIs (i.e., Central State, Norfolk State, Rust College, Bennett College, etc), however, the pangs of post-award are just being initialized. For this reason, we propose an R&D Project Managers HandBook as a deliverable directed expressly to this *emerging* HBCU/MI audience. Similarly, other institutions are just becoming active in the pre-award arena. An updated version of the TRACTELL R&D GuideBook for R&D Acquisition and Management is targeted for this latter audience.

For almost all HBCU/MIs, much greater advantage can be made of available personnel if the proper training can be provided. This training need not be extensive but must be relevant since most persons in R&D-related administration at HBCU/MIs have no prior experience in that arena and have little or no professional contacts in that medium. Specifically, none of the HBCU/MIs with whom TRACTELL interacted had job descriptions for personnel matching those needed in the R&D support arena in which they worked. In this proposal, TRACTELL combines the technical assistance to support this need by expanding the scope of its site visits as a cost-effective way to reach and train a large HBCU/MI audience.

From our experiences, we also conclude that far greater advantage can be made of automation at HBCU/MIs. Most HBCUs have, in TRACTELL's estimation, been saturated with computers, primarily because such purchases could be continually subsumed in certain entitlement programs year after year. As a result, a wealth of automation capability exists, but this capacity is primarily used for academic and clerical matters; very little of this capacity is directed to improving the R&D infrastructure.

As a result, we plan to complete the Grant/Contract Tracking System (GCTS) and the Automated Research Capability System (ARCS). The GCTS is expressly for HBCU/MIs and may be linked to their existing computer systems. The ARCS is intended for dual use by both HBCU/MIs to develop and organize research capability, and by DoD to easily access these capabilities in collated form. The technical assistance to implement the GCTS and ARCS is included in this proposal.

Finally, solicitation-specific technical assistance will continue through both on-site visits and the currently-established TRACTELL *R&D Technical Assistance HotLine*. We also note that this HotLine was used quite frequently by new researchers seeking proposal development strategies.

The 1992 TRACTELL proposal presents a solid foundation that adequately represents the Department of Defense interest in and commitment to HBCU/MIs, and also expresses the need for measurable progress to be made in its outreach program within the HBCU/MI community. While it is inappropriate to consider all HBCU/MIs in the same class, some of these institutions possess greater research capabilities than others; this difference must be exploited while at the same time the R&D capacity of others is increased. In effect, the technical assistance proposed by TRACTELL in this proposal is tailored to the individual HBCU/MI's need and by doing so, a cost-effective method for R&D infrastructure enhancement at HBCU/MIs can be attained for which the payoffs and results are measurable.

End of Body of Report

APPENDICES

- Response Form to Establish R&D Self-Assessment Teams
- TRACTELL HBCU/MI Clients (R&D Self-Assessment Teams-1991)
- The TRACTELL Task Plan for Self-Assessment Teams-1991
- R&D Infrastructure Self-Assessment CheckList (Short Form)
- On-Campus Site Visit Protocol for TRACTELL Visits to HBCUs
- Overview of the TRACTELL GCTS Project (VSU Pilot Implementation)
- Overview of the TRACTELL ARCS Project

RESPONSE FORM

Institution: _____

This form acknowledges receipt of TRACTELL correspondence regarding participation of subject institution in the 1992 TRACTELL/DoD project. Our response is as follows (check one)

 We DO NOT wish to be included in the 1992 TRACTELL project (skip all items below, sign, and return form)

 We wish to be included in the 1992 TRACTELL project. The names, titles and phone numbers of the three R&D Self-Assessment Team members are as follows:

MANAGEMENT: Name: _____
 Title: _____
 Mailing Address: _____
 Phone: _____ Fax: _____

TECHNICAL: Name: _____
 Title: _____
 Mailing Address: _____
 Phone: _____ Fax: _____

FINANCIAL: Name: _____
 Title: _____
 Mailing Address: _____
 Phone: _____ Fax: _____

This form is to be signed only by the President, Chancellor or an official Designee. The Designee should assure that a copy of this document is reviewed by the President or Chancellor before transmittal to TRACTELL.

Signed: _____
 President, Chancellor, or Designee

Date (on or before January 30, 1992)

[This form may be faxed to TRACTELL: Fax Number: (513) 233-9766]

HBCU/MI R&D ASSESSMENT TEAMS - 1991

Entries are listed alphabetically by institution name

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Assoc Professor Physics

Business: Mr. Arthur Henderson, 205 851-5200
Assoc VP Financial Services

President: Dr. Carl H. Marbury, 205 752-7880

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VP for Fiscal Affairs

President: Dr. Samuel D. Cook, 504 283-8822

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President: Dr. Lee E. Monroe, 305 623-4100

FORT VALLEY STATE COLLEGE
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Business: Mr. Wilbur Shuler, 912 825-6400

Liason: Dr. W. D. Moorhead, 912 825-6369

President: Dr. Oscar L. Prater, 912 825-6315

HAMPTON UNIVERSITY
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Business Manager

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Business Manager

President: Dr. Albert J. H. Sloan, II, 205 923-2771

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Asst Prof Chemistry & Physics

Business: Mr. George Hedgespeth, 804 683-8011
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Business: Ms. Lavonne Matthews, 919 334-7683
Director, Contracts and Grants

Chancellor: Dr. Edward B. Fort, 919 334-7940

PAINE COLLEGE

1235 - 15th Street
Augusta, GA 30910

Management: Mr. Mohammed Yimam, 404 821-8342
Fax: 404 821-8333

Technical: Dr. John T. Hayes, 404 821-8342

Business: Mrs. Brenda Carroll, 404 821-8318

Liason: Dr. James M. Hinton, 404 722-4471

President: Dr. Julius S. Scott, Jr., 404 722-4471

RUST COLLEGE

Rust Avenue
Holly Springs, MS

Management: Dr. M. I. Shafi, 601 252-4661
Chair Science Division
Fax: 601 252-6107

Technical: Dr. El Sayed Arafat, 601 252-4661
Assoc Prof Chemistry

Business: Mr. Alfred Moore, 601 252-4661
Business Manager

Liason: Dr. Paul C. Lampley, 601 252-4661

President: Dr. William A. McMillan, 601 252-4661

SOUTH CAROLINA STATE COLLEGE

Orangeburg, SC 29117

Management: Dr. Roy J. Isabel, 803 536-8212 or 7112
Director Research Administration
Fax: 803 536-8066

Technical: Dr. Ashland Brown, 803 536-8212
Dean of Engineering Technology

Business: Mr. Leon Sanders, 803 536-8550
Asst VP Business and Finance

President: Dr. Albert E. Smith, 803 536-7013

SOUTHERN UNIVERSITY
Baton Rouge Campus
Baton Rouge, LA

Management: Dr. Rose Glee, 504 771-2809
Director Grants and Contracts
Fax: 504 771-2026

Technical: Dr. Robert Ford (CEES), 504 771-2809
Director, CEES

Business: Mr. William Ordone, 504 771-5550
Systems Analyst

President: Dr. Dolores Spikes, 504 771-4680

STILLMAN COLLEGE
P.O. Box 1430
Tuscaloosa, AL 35403

Management: Dr. Joseph A. Gore, 205 349-4240
VP for Academic Affairs
Fax: 205 758-0821

Technical: Dr. Charlotte Carter, 205 349-4240
Chairperson Math and Science

Business: Mr. T. R. Collins, 205 349-4240
Business Manager

President: Dr. Cordell Wynn, 205 349-4240

TENNESSEE STATE UNIVERSITY

3500 Centennial Boulevard
Nashville, TN 37203

Management: Dr. Annie W. Neal, 615 320-3410
VP Academic Affairs
Fax: 615 320-3114

Technical: Dr. Robert Newkirk, 615 320-3410
Director Sponsored Programs

Business: Ms. Connie Wilkison, 615 320-3450
VP Business Affairs

Liason: Dr. David Walker, 615 320-3464

President: Dr. James A. Hefner, 615 320-3432

TEXAS SOUTHERN UNIVERSITY

3100 Cleburne Avenue
Houston, TX 77004

Management: Dr. Joseph Jones, 713 527-7232
Dean Research and Graduate Studies
Fax: 713 639-1876

Technical: Dr. Bobby Wilson, 713 527-7232
VP Academic Affairs

Business: Mr. Howard Turnley, 713 527-7050
VP Fiscal Affairs

President: Dr. William Harris, 713 527-7036

TOUGALOO COLLEGE

Tougaloo, MS 39174

Management: Dr. Delores Bolden-Stamps, 601 977-7840
VP Institutional Advancement
Fax: 601 977-7866

Technical: Dr. James Smith, 601 977-7840
Director of Development

Business: Ms. Lillie Woods, 601 977-7716
VP Fiscal Affairs

President: Dr. Adib A. Shakir, 601 977-7730

UNIVERSITY OF ARKANSAS (PINE BLUFF)
North Cedar Street
Pine Bluff, AR 71601

Management: William M. Willingham, 501 541-6899

Technical: Joseph O. Owasoyo, 501 541-6899

Business: Charles O'Dour, 501 541-6851

Chancellor: Dr. Charles A. Walker, 501 541-6500

UNIVERSITY OF TEXAS-PAN AMERICAN
1201 W. University Drive
Edinburg, TX 78539

Management: Dr. Earnest Baca, 512 381-2111
Actg VP Academic Affairs
Fax: 512 381-2150

Technical: Dr. Edwin LeMaster, 512 381-2111
Director Special Programs

Business: Mrs. Paula Zepeda, 512 381-2711
Supervisor Grants and Contracts

President: Dr. Miguel A. Nevarez, 512 381-2111

VIRGINIA STATE UNIVERSITY
Box KKK
Petersburg, VA 23803

Management: Dr. Nathaniel Pollard, 804 524-5997
Provost
Fax: 804 524-5738

Technical: Ms. Judy Marchand, 804 524-5997
Exec Director Information Resource

Business: Mr. C. Gary Burke, 804 524-5156
Controller

Liason: Ms. Jean Bass, 804 520-6402

President: Dr. Wesley C. McClure, 804 524-5070

VOORHEES COLLEGE
Denmark, SC 29042

Management: Dr. Sneb Veena, 803 793-3351
Actg VP for Academic Affairs
Fax: 803 793-4584

Technical: Dr. Fariborz Parsi, 803 793-3351
Asst Professor Physics

Business: Mr. Eddie Montgomery, 803 793-3351
VP for Fiscal Affairs

Liason: Dr. Laura R. Dawson, 803 793-3351

President: Dr. Leonard E. Dawson, 803 793-3544

WEST VIRGINIA STATE COLLEGE
P.O. Box 336
Institute, WV 25112

Management: Steve W. Batson, 304 766-3020
VP Planning and Advancement
Fax: 304 768-9842

R&D Self-Assessment Teams - 1991

Technical: Craig Spaniol, 304 766-3020
ASOP Industrial Technology

Business: Pamela Sturn, 304 766-3003
Director of Research and Grants

President: Dr. Hazo W. Carter, Jr., 304 766-3111

WINSTON-SALEM STATE UNIVERSITY
Winston-Salem, NC

Management: Mr. Perry Leazer, 919 750-2130
Title III Coordinator
Fax: 919 750-2049

Technical: Dr. Maurice Odine, 919 750-2130
Chairperson, Mass Communications

Business: Ms. Bessie Paige, 919 750-2738
Accountant

Llason: Dr. Wilveria Atkinson, 919 750-2600

Chancellor: Dr. Cleon F. Thompson, Jr., 919 750-2041

TASK PLAN FOR SELF-ASSESSMENT TEAMS - 1991

This Task Plan consists of a sequence of tasks and/or events to be undertaken by the R&D Self-Assessment Team at each HBCU/MI participating in the TRACTELL technical assistance effort. The primary goal of this effort is to develop an institution-specific **R&D Infrastructure Enhancement Plan** -- an organized strategy that prioritizes the actions to be accomplished in a specific time period. This Task Plan consists of two major activities:

- ° **An R&D Infrastructure Self-Assessment of the Institution:** This is a means of determining the extent to which the institution can perform the minimum pre-award and post-award functions which are characteristic of effective research administration relevant to R&D in the DoD arena. The R&D Self-Assessment Checklist (enclosed) can be used to initialize this activity. This checklist is expressly designed to give a quick self-assessment of the institution's strengths and weaknesses in the R&D administrative infrastructure.
- ° **An Institutional R&D Infrastructure Enhancement Plan:** The primary goal of this effort is develop an institution-specific R&D Infrastructure Enhancement Plan. Based on the outcome of the above self-assessment, the institution needs to develop an organized strategy -- in written form -- to improve the R&D-related infrastructure by outlining, in order of priority, those actions that need to be accomplished within the scope of the administrative structure. After development, this document should be formally presented by the R&D Self-Assessment Team to the President/Chancellor for action. Ideally, the R&D Self-Assessment Team should form the core of an ad hoc research advisory committee comprised of the chief academic officer, a dean and a department head to complete this activity. Chapter 5 of the TRACTELL **GuideBook**, entitled *R&D Infrastructure Requirements for HBCU/MIs*, should be used as the basis for this Plan. This chapter covers the following key topics:

Commitment to R&D Program Development
Organizational Model for R&D Program Administration
The R&D Contracting Process (DoD and Internal Perspectives)
Guidelines (Tools) for Contract Management.

To accomplish these key activities, the following tasks are outlined for development by the R&D Self-Assessment Team with technical assistance by TRACTELL.

Task 1. R&D Infrastructure Assessment Checklist

The purpose of the R&D Infrastructure Checklist (enclosed) is to determine which basic pre-award and post-award activities are being performed at the institution. Each of the three Self-Assessment Team members should fill out this checklist *independently*. After a review of these forms, the Team Principal should note the common "NO" responses as target areas for follow-up with TRACTELL.

Task 2. Organizational Structure for R&D Management

Please prepare and submit to TRACTELL a schematic overview of the institution's organization structure for R&D management. This schematic need not be elaborate, but the descriptions should include a current organizational chart with emphasis on the pre-award and/or post-award functions performed. Chapter 5 of the TRACTELL R&D GuideBook can be used for guidance in this task.

Task 3. Define R&D Capabilities on DD Form 1630

Use the attached DD Form 1630 to define the strongest research capabilities at your institution (only selected pages may be relevant). There will be the need to consult other persons at your institution to complete this form since the responses will be based on faculty expertise, prior performance on research grants and/or contracts, facilities, research centers, memberships in consortia, etc.

Task 4. List Impediments to R&D Participation

Prepare a list of known problems in, and/or impediments to, the participation in R&D activities by persons at your institution. Be specific. This information is needed to help develop recommended strategies for accomplishing the institution's research program.

Task 5. Linkages With the Defense Technical Information Center (DTIC)

The Assessment Team is encouraged to use and publicize the DTIC HBCU/MI program which offers defense-related research summaries and other data at no cost. Faculty can obtain summaries of research projects which have been funded in their area of interest to assist them in proposal development. However, a significant lead time (2-3 weeks) is needed to acquire DTIC documents after they have been requested.

Each institution is encouraged to designate a single point of contact to request and receive DTIC reports. Moreover, it is suggested that the summary reports be housed

in a central location and made accessible to all faculty researchers as a reference tool. (At present, DTIC will send all requested DTIC documents to the institution's library). Information regarding the DTIC program should be directed to Mr. James Norwood, DTIC HBCU/MI Program Manager, (703) 274-3848. (See enclosed DTIC Summary Sheet on the HBCU/MI Program)

Task 6. Development of R&D Infrastructure Enhancement Plan

- **HBCU/MI Self-Assessment Teams:** Complete Tasks 1 - 5. Submit to TRACTELL by *May 31, 1991* the organization structure schematic (Task 2) and the list of problems/impediments (Task 4). Maintain a complete copy of the DD Form 1630 (Task 3); this document will be used later.
- **TRACTELL Technical Assistance:** Based on the responses from the Self-Assessment Team and, at the institution's option, TRACTELL will plan an on-campus site visit to provide hands-on assistance in the development of the institution's R&D Infrastructure Enhancement Plan. This visit is described in the attached Site Visit Protocol. *However, due to the number of pending site visits for project year 1991, this protocol enclosure is included in this package only if the institution has already been contacted by TRACTELL for a site visit.* Institutions not presently scheduled for site visits in 1991 should make their preference known to TRACTELL for planning in the 1992 project year; all TRACTELL site visits are arranged on a first-come first-served basis.
- **Action Items for Institution:** For the institutions to be visited in 1991, the following actions are required:
 1. **Acknowledgement:** Formally acknowledge understanding of the attached Site Visit Protocol by May 31, 1991.
 2. **Coordination of Site Visit:** Coordinate the personal attendance of the institution's president/chancellor at the planned site visit by TRACTELL. The Principal for the Self-Assessment team should coordinate a site visit date with TRACTELL in the period June 1 - November 30, 1991.
 3. **Approval to Make Site Visit:** Understand clearly that the site visit can be accepted by TRACTELL *only* with the approval of the president or chancellor only. This visit and assistance are performed at no cost to the institution.
- Direct inquiries and questions to the toll-free R&D HotLine: 1-800-292-3550, or (513) 233 6550. The fax number is (513) 233 9766.

R&D INFRASTRUCTURE SELF-ASSESSMENT CHECKLIST FOR HBCU/MIs

ACQUIRING RESEARCH OPPORTUNITIES

Subscription to the Commerce Business Daily and the Federal Register ☐ Yes ☐ No

Support to faculty for research program development ☐ Yes ☐ No

Library of research reference information, e.g. Catalog of Federal Domestic Assistance, DoD Agency Long-Range Plans, Federal Directories, FAR/DFAR ☐ Yes ☐ No

Capability to conduct searches for funding opportunities using key words ☐ Yes ☐ No

Centralized receipt and timely internal distribution of solicitations, program announcements, other research news ☐ Yes ☐ No

Commercial and Governmental Entity Code (CAGE) Number ☐ Yes ☐ No

PROPOSAL DEVELOPMENT, PROCESSING, SUBMISSION

Formal procedure for internal proposal routing and approval ☐ Yes ☐ No

Standard procedures for Internal Human Subjects Review Board and Animal Care and Use Committee ☐ Yes ☐ No

Standard proposal budget format ☐ Yes ☐ No

Points of contact to handle technical, administrative, and financial matters communicated to sponsoring agencies ☐ Yes ☐ No

Standard procedure for review and approval of cost-sharing and indirect cost ☐ Yes ☐ No

Procedure for interdisciplinary proposal development and submission ☐ Yes ☐ No

Procedure for maintaining proposal records ☐ Yes ☐ No

Approved negotiation agreements for indirect costs and fringe benefit rates ☐ Yes ☐ No

Approved rates for faculty, and research assistants ☐ Yes ☐ No

GRANT/CONTRACT NEGOTIATION

Designated official to negotiate award agreements ☐ Yes ☐ No

Policy regarding classified research, intellectual property, confidentiality ☐ Yes ☐ No

GRANT/CONTRACT AWARDS

Designated official (and alternate) to sign award documents ☐ Yes ☐ No

Formal procedures for receiving, accepting, and returning signed agreements to sponsoring agencies ☐ Yes ☐ No

Procedure for notifying project director, deans and department heads of awards ☐ Yes ☐ No

Procedure for assigning project/account numbers for sponsored projects ☐ Yes ☐ No

PROJECT MONITORING

Written procedure for handling requests to sponsoring agencies for no-cost extensions, equipment purchases, budget redistribution, travel, etc. ☐ Yes ☐ No

Standardized administrative support to project directors in interpreting agency regulations and other requirements (instructions summarized) ☐ Yes ☐ No

Mechanism for monitoring institution's compliance with reporting requirements ☐ Yes ☐ No

Coordination among research support departments (accounting, property management, purchasing) ☐ Yes ☐ No

Procedures for subcontracts and consulting agreements under sponsored projects ☐ Yes ☐ No

Procedures for handling internal subprojects and for reconciling main project budgets and award periods ☐ Yes ☐ No

RECORD KEEPING

Procedure for maintaining project records ☐ Yes ☐ No

Procedure for retaining project records per sponsoring agency requirements ☐ Yes ☐ No

Cooperation with library for project record archiving ☐ Yes ☐ No

ACCOUNTING, REPORTING

Formal transactional procedures for fund accounting ___ Yes ___ No

Records of amounts budgeted, expended, encumbered, expended by line item ___ Yes ___ No

Procedures for monthly budget status reporting ___ Yes ___ No

Interactive system for processing billables and receivables according to project requirements
___ Yes ___ No

Expeditions processing of final invoices/financial reports with internal distribution of copies to
project director and office of sponsored programs ___ Yes ___ No

PROJECT CLOSEOUT

Mechanism for determining project status ___ Yes ___ No

Procedure for conducting pre-closeout review ___ Yes ___ No

Formal procedure for distributing closeout notice to project director, dean, department head, and
support departments ___ Yes ___ No

Procedure for submitting closeout documents per sponsor regulations ___ Yes ___ No

OTHER

Office of Sponsored Programs or equivalent office with similar functions ___ Yes ___ No

Professional personnel trained in grants/contracts administration ___ Yes ___ No

ON-CAMPUS SITE VISIT PROTOCOL

INITIAL SITE VISIT

BACKGROUND OF THIS INITIATIVE

TRACTELL, Incorporated, through a subcontract to the National Association for Equal Opportunity in Education (NAFEO) from the Department of Defense (DoD), is engaged in a *results-oriented effort* to significantly increase the number of Historically Black Colleges and Universities (HBCUs) and Minority Institutions (MIs) in funded research and development (R&D) programs of DoD.

Prior engagements by HBCUs in R&D with DoD have been limited due to two interleaved factors: (1) limited engagements by HBCU/MIs in applied research, and (2) a mismatch in the infrastructures at HBCU/MIs relative to the basic, yet increasingly stringent, requirements for DoD R&D contract acquisition and management.

To assess the true nature of these factors from the perspective of the HBCU/MIs, TRACTELL developed and administered a quantitative self-assessment of R&D capabilities for 39 HBCU/MIs which was presented and discussed in summary form at the TRACTELL technical assistance seminars in Atlanta in December 1988 and in Washington in April 1989. The R&D Capability Self-Assessment Checklist used in the 1989 TRACTELL effort was also used to make measurements for the 1990 period.

During the 1991 project period, TRACTELL will emphasize the systematic development of an institution-specific *R&D Infrastructure Enhancement Plan*. Accordingly, the newly-developed *R&D Infrastructure Self-Assessment Checklist* will be used to gather baseline data for each participating institution. To initialize this plan, a list of impediments to R&D participation, organization charts, and other documentation will be needed by TRACTELL.

This TRACTELL initiative is open to all HBCU/MIs, and participation in, and response to, this initiative by HBCU/MIs is on a purely voluntary basis. However, this effort is limited by resources and time. Technical assistance will be provided by TRACTELL on a first-request first-serve basis.

SPECIFIC SITE VISIT OBJECTIVE

The prime objective of the TRACTELL site visit is to assist HBCU/MIs in satisfying the minimum requirements for DoD R&D infrastructure as described in Chapter 5 of the **GuideBook for R&D Acquisition and Management for HBCU/MIs in the DOD Environment**. At least two copies of the **GuideBook** were sent to all HBCU/MIs during the 1989-1990 project periods. An additional copy is enclosed.

SITE VISIT PROTOCOL EVENTS

- **HBCU/MI President/Chancellor:** Appoint a single-point of contact to coordinate site visit interactions with the TRACTELL team. This person should be one of the predesignated Self-Assessment team members:
- **HBCU/MI President/Chancellor:** Formally request a site visit by TRACTELL by letter. A site visit can only be conducted by formal request by the President or Chancellor.
- **TRACTELL:** Acknowledge site visit request by letter to president/chancellor, with courtesy copies to each of the designated R&D Self-Assessment team members.
- **TRACTELL:** Assure a copy of the *TRACTELL R&D GuideBook for HBCU/MIs* has been delivered to each HBCU/MI. Assure one copy of the *Compendium of Questions and Answers Concerning R&D Acquisition and Management at HBCU/MIs* has been delivered to each HBCU/MI.
- **HBCU/MI:** Review the entire *GuideBook* and *Compendium*, concentrating on Chapters 4 and 5 of the *GuideBook* in preparation for the TRACTELL site visit.
- **TRACTELL:** Assure a copy of the *Task Plan for Self-Assessment Teams - 1991* is distributed to the R&D Assessment Team members.
- **HBCU/MI:** Provide to TRACTELL the results of the Infrastructure Self-Assessment Checklist and a list of institution-specific impediments to R&D participation.

- **HBCU/MI:** Complete the DD Form 1630 entitled *Research and Development Capability Index, Scientific and Technological Fields of Interest*. Maintain a copy of this document for R&D marketing to all DoD agencies.
- **HBCU/MI:** Provide to TRACTELL copies of the current organizational charts for the institution.
- **HBCU/MI:** Provide to TRACTELL copies of reports of proposals submitted and awards received during the last fiscal year.
- **TRACTELL:** Review capability narratives, organizational charts, and other documentation provided by institution.

PROPOSED HBCU/MI PARTICIPANTS FOR SITE VISIT

The President and/or Chancellor: TRACTELL suggests no substitutions at this level since the personal views, comments and suggestions by the Chief Executive Officers *are deemed critical to the overall success of this effort*. Chapter 5 of the **GuideBook** will be the baseline for discussion. Some suggested discussion questions at this level include:

- What are the desirable R&D goals of the institution and what are the relative priorities of these goals?
- To what degree does the pursuit of sponsored R&D fit into the economic future of the institution?
- What are the known limitations of the current R&D infrastructure?
- To what degree are strategies to alleviate internal impediments to R&D engagements being implemented?
- In what ways do faculty and staff communicate impediments to R&D participation?
- In what ways could a cohesive R&D *Infrastructure Enhancement Plan* benefit the institution?

Business Manager, VP for Finance, and/or Director of Accounting: Chapters 3, 4 and 5 of the GuideBook are relevant. Some suggested discussion questions include:

- To what degree is financial management of R&D projects a routine function within the institution?
- To what degree can the institution satisfy the audit and financial reporting requirements for federal programs?
- In what ways could a comprehensive *R&D Infrastructure Enhancement Plan* benefit you and/or your office?

Director of Sponsored Programs: The entire GuideBook is relevant, with emphasis on Chapters 3, 4 and 5. Some relevant discussion questions include:

- To what degree does a useful R&D infrastructure currently exist to assist in the orderly acquisition and management of sponsored R&D programs.
- What are the desirable improvements in the institution's infrastructure to support R&D?
- In what ways could a comprehensive *R&D Infrastructure Enhancement Plan* benefit you and/or your office?

Academic Officers, Deans, Chairpersons: The entire GuideBook is relevant, but place key emphasis on Chapters 4 and 5. Some relevant discussion questions include:

- To what degree does a useful R&D infrastructure currently exist to assist in the orderly acquisition and management of sponsored R&D programs. What are the desirable improvements?
- What are the *internal impediments* (factors that could be influenced from inside the institution) to R&D participation by faculty and staff?
- What are the *perceived external impediments* (factors over which the institution has no control) to R&D participation by faculty and staff?
- In what ways could a comprehensive institution-wide *R&D Infrastructure Enhancement Plan* benefit you and/or your office or department?

Key Faculty Researchers: The entire GuideBook is relevant, but place emphasis on Chapters 3, 4 and 5. Some suggested discussion topics include:

- To what degree are personal R&D capabilities marketed inside and outside of the institution?
- To what degree are institutional R&D capabilities marketed outside of the institution?
- What are your roles in marketing personal and institutional R&D capabilities?
- What are your *personal impediments* to the participation in sponsored R&D efforts? (Be specific; do not generalize!)
- To what degree does the institution seek to alleviate personal impediments to participation in R&D projects?
- What are your personal views of the institution's internal R&D support system (infrastructure), and how can it be improved?
- In what ways could a comprehensive institution-wide R&D *Infrastructure Enhancement Plan* benefit you and/or your office or department?

Librarian: The entire GuideBook is relevant, especially Chapter 4 entitled *Marketing HBCU/MI R&D Capabilities* and the appendices which identify key information sources needed for R&D activities. Some suggested discussion topics include:

- Are relevant DoD-related information sources readily available to all faculty, staff and students?
- Are links established to the Defense Technical Information Center (DTIC) to expedite literature searches? (At present, this service from DTIC is available at no cost for HBCU/MIs.)
- Are subscriptions to the *Commerce Business Daily*, *Federal Register*, and *Federal Acquisition Regulations*, etc., available for reference?
- Are linkups available to well-known electronic data bases such as DIA-LOG, IRIS, etc.?

- Does the library serve as a repository for faculty-generated research reports?
- What role does the library play in marketing the institution's R&D capabilities to the outside world?

PLANNING ISSUES FOR SITE VISIT

- **Visit Dates:** Thursday or Friday, May 15, 1991 - November 30, 1991, preferably afternoons on Thursday and mornings on Fridays.
- **Site Visit Duration:** Three (3) hours, 9 - 12 a.m or 1:30 - 4:30 p.m.
- **Place of Visit:** On-campus conference room suitable for seating for 10 - 25 persons.
- **Equipment Needed:** Overhead projector with screen (or clear projection area on wall within view of all attendees). An extension cord and a small table will also be needed.

KEY AGENDA TOPICS

- Review objectives of site-visits and results desired.
- Review, compare and contrast HBCU/MI infrastructure with model in Chapter 5 of GuideBook for minimal compatibility with DoD R&D requirements.
- Discuss institution-specific results of HBCU/MI Self-Assessments and TRACTELL's review of these data.
- Provide open and candid discussions regarding strengths and limitations of current infrastructure in relation to DoD needs and/or requirements. Make suggestions for improvements.
- Request personalized sessions with the TRACTELL team if desired
- Make decision on need for follow-up visit by the TRACTELL team.

REPORTING PROCEDURES

- **TRACTELL Site Visit Report to the Institution:** A copy of the Site Visit Report will be sent to the President/Chancellor with a courtesy copy to each of the R&D Assessment Team members. The contents of this report will include a summary of the institution's expectations in the R&D arena of DoD, synopses of questions originating during the site visit, and TRACTELL's responses to these questions. In the past, the contents of this report have addressed such issues as:

- Staffing for R&D infrastructure requirements
- On-campus contract and/or grant management procedures
- Organization and/or responsibility enhancements
- Allocation of resources for R&D support
- Need for additional resources attainable through R&D efforts
- Other issues, as appropriate

- **TRACTELL Monthly Activity Report to NAFEO and to DoD:** In its monthly reports to NAFEO, TRACTELL shall include a copy of each Site Visit Report. In addition, a copy of each Site Visit Report is sent to key personnel at the DoD and agency levels. The objective of this latter procedure is to convey to key DoD personnel the *current* R&D perspectives of HBCU/MIs in both institution-specific and collective terms. The desired result is a better understanding by DoD personnel of the overall strengths and limitations of HBCU/MIs in the R&D arena with the intent that a better understanding of such issues will facilitate an improved, more compatible structuring of R&D opportunities for HBCU/MIs.

End of On-campus Site Visit Protocol Document

TECHNICAL ASSISTANCE SITE VISIT

**OVERVIEW OF THE TRACTELL GRANT AND
CONTRACT TRACKING SYSTEM (GCTS): INITIAL
PILOT IMPLEMENTATION**

**Friday, 31 May 1991
10:00 a.m. - 1:30 p.m.**

**VIRGINIA STATE UNIVERSITY
Petersburg, VA**

Presenters:

**Dr. Earnestine P. Smith
Dr. Eugene E. Jones**

**TRACTELL, Incorporated
4490 Needmore Road, Dayton, Ohio, 45424**

This project is sponsored by the Department of Defense (DoD) as an initiative to assist HBCU/MIs enter the mainstream of competitive research. This effort is administered under a subcontract to TRACTELL, Incorporated through a grant to the National Association for Equal Opportunity in Higher Education (NAFEO). TRACTELL, Incorporated is solely responsible for the content of this presentation and/or document.

OVERVIEW OF THE TRACTELL GRANT AND CONTRACT TRACKING SYSTEM (GCTS)

PRELIMINARY DESIGN OVERVIEW

The TRACTELL Grant and Contract Tracking System (GCTS) is a PC-based software system designed to maintain basic administrative and accounting records of proposals, awards, and sponsored projects such that sponsored program activity can be monitored throughout the life cycle of a grant/contract. A separate administrative record for each grant/contract is established at the time of award and includes the minimum data pertinent for project management by research administrators as well as accounting personnel.

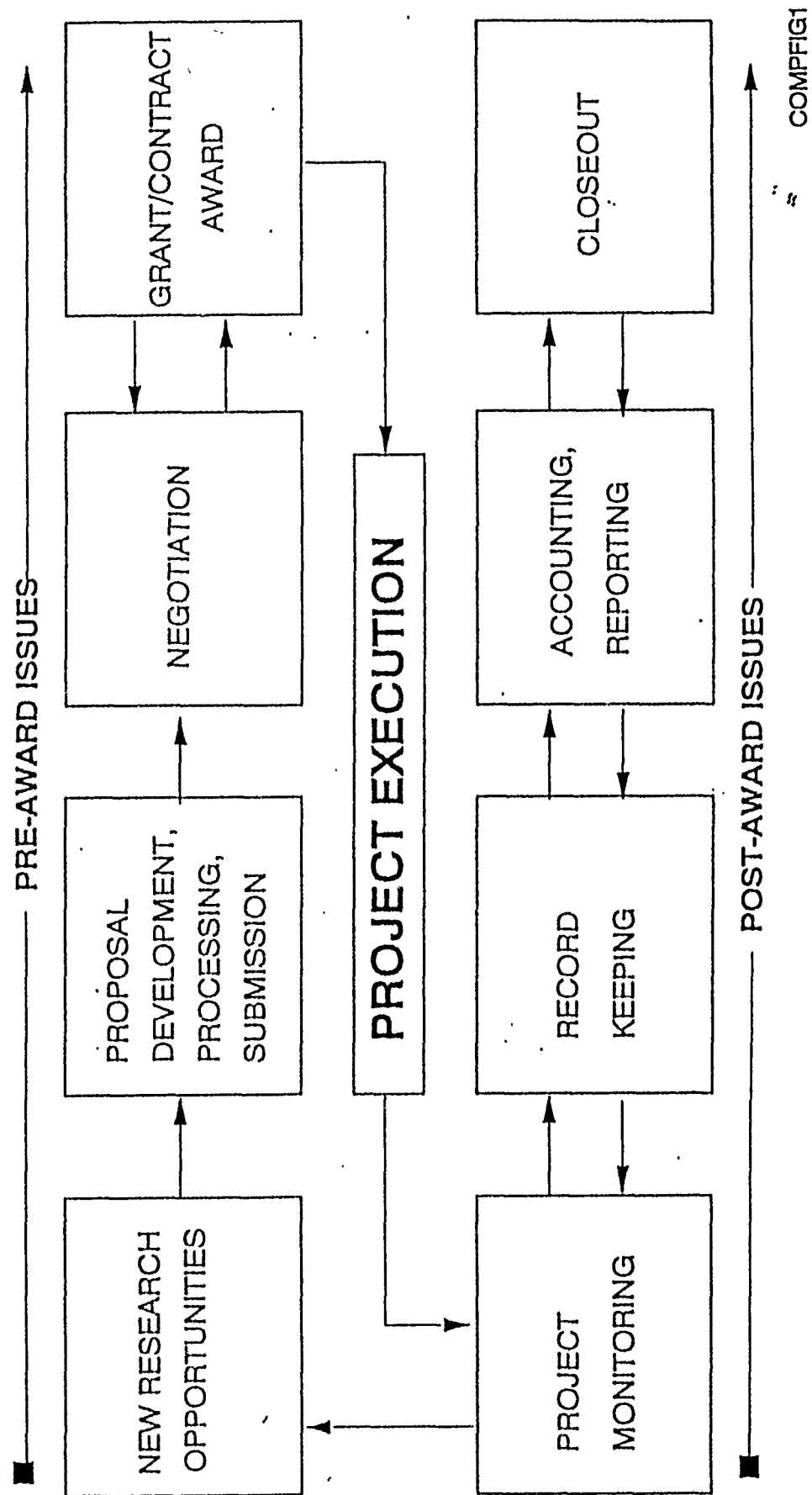
Linkages are established among key fields to identify potential relationships among existing proposal, award, and project records. These linkages serve as checks and balances throughout the GCTS to minimize duplicate records, invalid departments, incorrect project director names, and critical data entry errors. The linkages also ensure that changes made in key data elements flow to each record containing the same data elements. In addition, proposal and project data are related so that (1) fields from proposal records are pulled into award records automatically without duplicate data entry; (2) separate proposal, award, and project records are maintained; (3) records are not duplicated in separate systems.

Historical records are maintained to reflect initial grant/contract status and revised status based on amendments to the original grant/contract agreement. These records serve as the official source of data for administrative reporting of basic sponsored program activity and can provide on-line information for multiple departments. This is accomplished via a reports generator.

FUNCTIONAL DESIGN OF THE GCTS

The GCTS is a process design based on the TRACTELL Life Cycle of an R&D Program (see graphic on next page) that incorporates pre-award and post-award functions. The process is a delineation of the functions that have been developed, and it provides the operational premise for all of the system's requirements and functional specifications. The following functions are included in this initial (alpha) version of the GCTS software system:

LIFE CYCLE OF AN: R&D PROGRAM



- **Select proposal, award, or project record. Generate a report.**

The MAIN MENU displays the optional functions for proposal, award, and project record transactions. It includes also a reports generator which allows routine administrative reports to be created for any reporting period specified.

- **Create and Maintain Proposal Data**

The purpose of this function is to create and maintain proposal records. A proposal is defined as an institutional request for support from an external sponsor and contains a statement of work, budget, and supporting documentation which have been reviewed and approved for submission by authorized officials as required by the institution.

The function is used to add a new record and to edit or delete an existing record. It records basic information to facilitate data retrieval and shows the current status of proposals, i.e. PENDING, AWARDED, WITHDRAWN, or DECLINED.

- **Create and Maintain Award Data**

The purpose of this function is to create and maintain records of new and amendment proposal and non-proposal awards. Proposal awards result from previously submitted proposals. Non-Proposal awards are not preceded by proposals, e.g. incremental funding and many sponsored instruction awards. The function is used also to update the status of proposal records to DECLINED or WITHDRAWN.

- **Create and Maintain Sponsored Project Data**

This function is used to create and maintain records of sponsored projects. The project records contain administrative, financial, and reporting information which are based on the requirements of grant and contract agreements. The function is used to record initial project data and all subsequent revisions resulting from grant/contract amendments (FORMAL) and from internal administrative changes (INFORMAL). Formal revisions include no-cost extensions, change in project director, and increased funding and require an amendment to the grant/contract agreement. Informal revisions include changes in name of department, some budget adjustments, and subprojects. The function is used also to update the status of project records from ACTIVE to TERMINATED.

- **Create and Maintain Sponsored Project Accounting Data**

This function is used to create and maintain separate restricted fund accounting records for each grant/contract. The accounting records contain a subset of project data, a detailed budget, subcontract data, and invoicing and billing information such that the validity of expenditures and encumbrances can be determined.. Transactions are recorded by budget line item based on standard budget categories for colleges and universities and account for exclusion levels on categories such as subcontracts and equipment in calculating indirect costs.

The accounting records serve as the primary source of data for generating budget summaries for project directors, periodic fiscal reports for administrators, and financial reports for federal agencies. The records also document receipts, expenditures, encumbrances and fund balance for each grant/contract.

The function is used also to financially close sponsored project accounts. It allows grants and contracts accounting to:

- Review the appropriateness of expenditures incurred,
- Reconcile fringe benefit and indirect cost calculations,
- Adjust entries as required, and
- Prepare final invoices and final financial reports as required.

- **Generate reports of sponsored program activity.**

This function is used to produce periodic reports of proposals submitted; proposals pending, declined, and withdrawn; and proposal and non-proposal awards received. The function facilitates the preparation and distribution of fiscal year-end administrative reports.

OVERVIEW OF THE TRACTELL AUTOMATED RESEARCH CAPABILITY SYSTEM (ARCS)

OBJECTIVES OF ARCS DEVELOPMENT

The primary objectives for the ARCS development and implementation are:

- ° To directly assist HBCU/MIs in compiling and documenting their research capability to facilitate marketing to DoD in the R&D arena;
- ° To meet the needs of DoD to quickly and easily acquire research-related capabilities of HBCU/MIs at the space and time of need throughout its expansive procurement network, and
- ° To automate this process to relieve both HBCU/MIs and DoD of the costly and time-consuming manual process of capability information development and retrieval.

The ARCS software is being developed in modular form to fulfill the above objectives. Four variations of the same software module are being concurrently designed as follows:

HBCU/MI Specific Module: This module consists of the ARCS User software and the institution's specific data base. The HBCU/MI user will update the institution's data base and supply these updates to DoD-Central each six months. This is the primary module and all others described below are derivatives of this module.

DoD-Central Module: This module houses the DoD-Central *HBCU/MI Capability Data Base* for all HBCU/Ms and operates with the ARCS User Software. This module is intended as a deliverable to DoD.

DoD-User Module: This is a retrieval-only portion of the ARCS User software and the entire DoD-Central Capability Data Base for distribution to DoD users. Due primarily to expected size, this data base may be further delimited by each DoD user. Updates to this data base are to be made by complete swapouts.

TRACTELL-Central Module: This is an identical module to the DoD-Central, but housed at TRACTELL-Dayton for use as a testbed and backup. This module

will contain the maintenance, test and update functions for the user software. Software quality control and updates will be effected only through this module.

Although the ARCS test system includes all of these modules, each model is designed to operate as an independent user system; there are no interrelated software or data among these modules.

OPERATIONAL OVERVIEW OF ARCS DESIGN

The operational overview of the TRACTELL ARCS is presented in Figure 1. Simply stated, there are two interdependent users of this system: DoD personnel and HBCU/MI personnel. HBCU/MI personnel have dual roles in the preparation of the research capability data and the pass-through of these data to the DoD-HBCU/MI Central Data Base on a periodic basis. By design, the ARCS is intended to directly provide stand-alone benefits to each user-institution. Of prime significance, the institution's research capabilities can be automated for quick access in response to need from any source. The software and procedural mechanisms to perform these tasks are integral to the follow-on ARCS design.

In the DoD arena, the use of the DoD-HBCU/MI Central Data Base to match HBCU/MI capabilities to DoD's on-going research requirements is the prime issue. The mechanism to obtain this objective is inherent to the follow-on ARCS design and may exist in several options.

STATUS OF THE ARCS DESIGN

The application software module for the ARCS has been developed in a test form. This test module includes an *Integrated Institutional Data Profile* (IIDP) which is the layout or structure of the entire ARCS data base, the initial structures for each of the supporting bases, on-screen menus, data screens, reports screens and maintenance features. From this single structural baseline, each of the four ARCS modules will be designed.

To date, a sequence of programs for ARCS menus and screens for the HBCU/MI Specific Module has been developed and tested. The ARCS is completely menu-driven and each menu option may select another menu or a data screen designed for data input, modification or output. The ARCS uses pull-down menus for operations within selected screens which may be optionally selected through the keyboard or mouse or both. Each of the four independent ARCS modules operate in a similar fashion with identical menus but contain different options for the intended audience.

Figure 1
ARCS OPERATIONAL STRUCTURE

