To the Graduate Council:

I am submitting herewith a thesis written by ***Robert Samuel Seigler*** *entitled,* "***Development of a Minority Participation Model for Engineering and Construction Services in a Department of Energy-Oak Ridge Environment.***" *I have examined the final copy of this thesis for form and content and recommend that it be accepted in partial fulfillment of the requirements for the degree of Master of Science, with a major in Civil Engineering.*

James H. Deatherage

James H. Deatherage, Major Professor

We have read this thesis and recommend its acceptance.

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Associate Vice Chancellor and Dean of The Graduate School

DEVELOPMENT OF A MINORITY PARTICIPATION MODEL FOR ENGINEERING AND CONSTRUCTION SERVICES IN A DEPARTMENT OF ENERGY - OAK RIDGE ENVIRONMENT

A Thesis
Presented for the
Master of Science
Degree
The University of Tennessee, Knoxville

Robert Samuel Seigler
May 1994

DEDICATION

This thesis is dedicated all the members of the ***Seigler*** *family—especially to my loving and beautiful wife,* ***Althea Angela****, my adorable three-and-one-half year old daughter,* ***Stephanie Althea****, and our very special and precious three month old baby daughter,* ***Samantha Elizabeth****. Their unbelievable patience gave me the encouragement to finish the writing of this thesis. To my father,* ***Samuel Charles****, mother,* ***Dorothy Elizabeth****, and brothers,* ***Charles Frank****,* ***Neal Todd****, and* ***William Thomas****, thank you for your support.*

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The superb cooperation and motivation of my academic and thesis advisor, ***Dr. James H. Deatherage****, is immensely appreciated. Without it, this thesis could not have been completed.* ***Dr. Deatherage's*** *advice, as well as motivation, was very instrumental in the accomplishment of this project. To the other committee members,* ***Dr. Bruce A. Tschantz*** *and* ***Dr. Denise F. Jackson****, thank you so much for your time, patience, motivation, and encouragement.*

I especially wish to thank ***Sally Guthrie*** *with Martin Marietta Energy Systems (MMES) who meticulously proofread and edited, as well as made excellent review comments during the preparation of this thesis. To* ***Ann Lacava****, Thesis Consultant with The University of Tennessee, Knoxville thank you for being so patient. I would like to thank* ***Barbara Dawkins*** *with the DOE Oak Ridge Operations field office,* ***Michael Kirby*** *and other various colleagues within MMES, and* ***Janet Christopher*** *and others with MK-Ferguson of Oak Ridge Company. I would like to especially thank* ***Robert Bobic****, consultant with the Tennessee Department of Economic and Community Development, Office of Minority Business Enterprise (OMBE), for his exceptional patience, technical information and advice. A very special appreciation goes out to* ***Lawrence Rosenbaum****, comptroller and staff member,* ***Michael Hearne*** *of the U. S. Small Business Administration (SBA), Washington, D.C. who painstakingly provided me with volumes of SBA data. Thanks to the numerous people at NationsBank of Tennessee, Willis Corroon of Knoxville, and to the National Association of Minority Contractors. To all the minority construction subcontractors, general contractors, and minority A-E design firms who participated in this project, a very special thanks and a best of luck. I hope a copy of this thesis will help you to expand your businesses and give you the advantage you need to obtain contract work on the ORR.*

ABSTRACT

This thesis will analyze DOE's progress over the past decade (1983 through the present) in incorporating a greater minority participation for design and construction services on the federally owned and operated Oak Ridge reservation (ORR).

There are many federal agencies tasked with increasing minority participation in such fields as design and construction services, however, the two federal agencies most often thought of are the Small Business Administration (SBA) and the Minority Business Development Agency (MBDA). This thesis describes the author's in-depth research into solutions of how minority entrepreneurs might start up a successful A-E and/or construction firm in a tough, but very competitive, DOE Oak Ridge environment.

The problem that currently exists on the ORR is that of encouraging more minority participation in the skilled (construction) and professional (design) services fields. Two problems need increased attention before increased minority participation can occur on the ORR. The first problem is DOE-ORO's enormously bureaucratic contract and procurement rules. The second problem is that many, but not all, minority candidates are not as well trained as they should be to effectively compete on many of the design or construction projects on the ORR.

Research obtained for this thesis solicited the verbal views and opinions of many small and small disadvantaged business firms that currently perform work on the ORR, as well as those that perform work in the private sector. Officials from the SBA, the U. S. Department of Energy (DOE) Oak Ridge Operations (ORO), Martin Marietta Energy Systems, Inc. (MMES), MK-Ferguson of Oak Ridge Company (MK-F), and the Tennessee Department of Economic and Community Development (TDECD) Office of Minority Business Enterprise (OMBE) were also interviewed. Trips were made to the Washington, D.C. headquarters of the SBA and the U. S. Census Bureau headquarters to obtain additional data and information.

One obstacle that was discovered was that minorities lacked adequate access to surety bonding due in part to not being adequately trained to perform required tasks. In other words, being able to obtain surety bonding is a direct function of training, experience, and education. Another problem that was prevalent among those minority contractors interviewed was a lack of technical and business training. Finally, the most important problem was the current DOE-ORO contract procurement rules and

regulations. Some positive findings were that the total amount of money to be spent with minorities on construction projects has increased substantially over the past three years and that trend should continue. Minority construction contractors did $1 million worth of construction work in FY-1991 and by FY-1993 that figure had increased to over $7 million.

The bottom-line recommendation of this thesis is for DOE-ORO to require better training of minority candidates. This training should come in the form of more joint-ventures between prime and minority contractors, especially during the minority contractors five year 8(a) developmental stage. Finally, during the transitional stage of the program the same minority contractor should be well prepared to bid on DOE-ORO contracts without joint-ventures if he or she so chooses.

DISCLAIMER

This master's thesis was prepared by ***Robert Samuel Seigler*** *with data and information supplied by Martin Marietta Energy Systems, Inc. (MMES), MK-Ferguson of Oak Ridge Company (MK-F), the U. S. Department of Energy (DOE) and the U. S. Small Business Administration (SBA). Neither MMES, MK-F, DOE, SBA, nor any agency thereof, nor any of their employees, makes any warranty, express or implied, or assumes any legal liability or responsibility for the accuracy, completeness, or usefulness of any information, apparatus, product, or process disclosed, or represents that its use would not infringe privately owned rights. Reference herein to any specific commercial product, process, or service by trade name, trademark, manufacturer, or otherwise does not necessarily constitute or imply its endorsement, recommendation, or favoring by MMES, MK-F, DOE, SBA or any agency thereof. The views and opinions of the author expressed herein do not necessarily state or reflect those of MMES, MK-F, DOE, SBA or any agency thereof.*

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PREFACE

All through my years as an undergraduate student at Howard University, the thought of starting my own construction/demolition contracting business was a dream. I often thought it was my destiny. I have constantly thought of starting a construction/demolition contracting business to address the restoration of dilapidated inner-city housing. Renovating abandoned inner-city housing units would be a logical first start. After I had developed my skills in this market, the next move would be to graduate into public and private sector construction projects.

At Howard University all students, especially engineering students, were always taught that as Howard University graduates, we were obligated to make a positive impact on society and not to focus or dwell on society's negative problems. We were especially taught that individuality always makes a strong impact in bringing about social change. One such change would be the introduction of minorities in the construction and architectural-engineering (A-E) world. Engineering students were taught from day one that their job is to solve technical problems and that solving technical problems will inevitably have a positive effect on society as a whole. Solving technical problems also involves someone's bringing about fundamental change.

The purpose of this thesis is to establish a model for a minority candidate to participate in either A-E and/or construction services on the United States Department of Energy (DOE) Oak Ridge Reservation (ORR) and to help a new or existing minority candidate determine whether working out on the ORR is worth the aggravation. This thesis will analyze DOE's progress over the past decade (1983 through the present) in incorporating a greater minority participation for A-E and construction services in a DOE environment here on the ORR located in Oak Ridge, Tennessee.

The federally owned ORR is presently managed under a prime cost-plus-award-fee (CPAF) contract (DE-AC05-84OR21400) by Martin Marietta Energy Systems, Inc. for the DOE. The ORR encompasses the Y-12 Plant, the Oak Ridge National Laboratory, and the K-25 Site.

This thesis will also develop a model organization for those persons (especially minorities) contemplating entering the DOE Oak Ridge construction contracting and A-E design environment.

LIST OF ACRONYMS

A-E	*Architect-Engineer*
ABC	*Associated Builders and Contractors*
AFIT	*After Federal Income Tax*
AGC	*Associated General Contractors*
ASA	*American Subcontractors Association*
BCU	*Black Contractors United*
BFIT	*Before Federal Income Tax*
CBD	*Commerce Business Daily*
CETA	*Comprehensive Employment & Training Act*
CFR	*Code of Federal Regulations*
CM	*Construction Manager*
CEO	*Chief Executive Officer*
COE	*Corp of Engineers*
CPA	*Certified Public Accountant*
CPAF	*Cost-Plus-Award Fee*
CPFF	*Cost-Plus-Fixed Fee*
CS	*Contract Specialist*
D&D	*Decontamination & Decommissioning*
DOC	*U. S. Department of Commerce*
DOE	*U. S. Department of Energy*
DOL	*U. S. Department of Labor*
ER	*Environmental Restoration*
FM	*Facilities Manager*
FOB	*Federal Office Building*
FY	*Fiscal Year*
HAZWRAP	*Hazardous Waste Remedial Action Programs*
IBLC	*Insurance Board of Licensing Contractors*
IRS	*Internal Revenue Service*
MBDA	*Minority Business Development Agency*
MBE	*Minority Business Enterprise*
MEGA	*Minority Enterprise Growth Assistance*

MK-F	*MK-Ferguson of Oak Ridge Company*
MMES	*Martin Marietta Energy Systems, Inc.*
M&O	*Management & Operations*
NAMC	*National Association of Minority Contractors*
OMBE	*Office of Minority Business Enterprise*
OR	*Oak Ridge*
ORO	*Oak Ridge Operations*
ORR	*Oak Ridge Reservation*
PJ	*Project Engineer*
PM	*Project Manager*
RFCP	*Request For Cost Proposal*
SBA	*Small Business Administration*
SDB	*Small Disadvantaged Business*
SF	*Standard Form*
SIC	*Standard Industrial Classification*
SOW	*Statement of Work*
TDECD	*Tennessee Department of Economic and Community Development*
TDOC	*Tennessee Department of Commerce*
TERC	*Total Environmental Restoration Contract*
TN	*Tennessee*
TQM	*Total Quality Management*
US	*United States*
USC	*United States Code*
WBE	*Women Business Enterprise*
WM	*Waste Management*

CHAPTER 1

INTRODUCTION

The DOE Oak Ridge minority business enterprise (MBE) program presently in-place to address this concern is run with guidance and in close cooperation with the U. S. Small Business Administration (SBA) Nashville office. This thesis will attempt to identify both new and innovative ideas on how to increase minority participation in A-E design and construction services on the federally owned ORR, as well as to establish a model for those who wish to pursue new business ventures.

Martin Marietta Energy Systems Inc. (MMES), referred to as the Management & Operations (M&O) contractor or Facilities Manager (FM) is responsible to DOE for the operation of the three Oak Ridge facilities, as well as one gaseous diffusion plant in Paducah, Kentucky, and the other in Portsmouth, Ohio. MMES is also responsible to DOE-ORO for providing design services as well as assuring quality design services provided by others. Design services are provided by MMES and various other A-E's, including 8(a) A-E, that are each under prime contract fixed-price (Task Order) to the DOE-ORO. Regarding construction activities, MMES is responsible for project management, periodic forecast of construction work loads, and the performance of Title III activities. Title III services are the responsibility of MMES and other design organizations (A-E's that are under prime contract to the DOE-ORO) and provide a tool to measure as well as assure that construction is in accordance with the design requirements. Title III services include approval of vendor data, inspection and testing, *approval of technical baseline changes, documentation and drawing changes to assure construction as-built conditions, and final construction project acceptance recommendations to DOE-ORO.*

MK-F is under a separate prime CPFF contract to DOE-ORO to manage all construction activities on the federally owned ORR. MK-F, commonly referred to as the Construction Manager (CM), is responsible to DOE for providing construction management activities in accordance with DOE orders and requirements as well as FM standards. The CM is responsible for managing construction projects through services provided by construction subcontractors including 8(a) construction contractors and/or by directly hired permanent personnel (MK-F direct-hire). MK-F's responsibility also includes ensuring quality work is performed on time and within the governments authorized budget.

Hazel O'Leary, Secretary of Energy, has stated that under her administration, "DOE would be committed to expanding employment as well as contracting opportunities for members of socially and economically disadvantaged groups."[1] A greater and more enhanced minority participation in the A-E design and construction arena provides for a greater economic benefit to both the minority participants as well as the federal government. Both social and economic benefits are realized when a new minority business enterprise hires and trains a member of a minority group. According to Joseph Fuller, Jr. "there will never be true equal opportunity unless African-Americans produce as much as they consume. African-Americans are tremendous consumers, but there's a gap in terms of the goods and services we put back in. We make a lot of contributions *to American society in terms of arts, entertainment, and now politics, but the last piece of the puzzle is economic contributions."[2] In 1986, Joseph Fuller started Futron Corporation, in Bethesda, Maryland, a one-person consulting firm. In 1989, Futron received its SBA 8(a) certification as a minority-owned small business. Just like Fuller, I believe that minority-owned businesses are the missing link. America's vast cultural diversity is what makes it a global industrial leader. A new minority business enterprise engaged in providing either A-E design and/or construction services serves as a positive model for many minority youth who have no other role models to follow, other than the high profile television athletes. I was personally influenced at the age of sixteen by the owners of a African-American-owned construction company, Kingsley & Staley Construction Company, located near Philadelphia, Pennsylvania. The 35-year old co-owner was a degreed civil engineer and his father was a construction supervisor. The owner and his father impressed me so much that I decided to study civil engineering in college. No longer did I want to be a Philadelphia police officer (my first career choice). Once in college I was introduced to many professional African-American entrepreneurs engaged in providing both the federal government and the private sector with professional A-E design and consulting services. My professor of both Sanitary Engineering and Wastewater Treatment, Dr. Lilia Abron founded Peer Consultants, an environmental engineering firm, in 1978. Also my professor of both Engineering Geology and Soil Mechanics, Dr. Delon Hampton was the owner of Delon Hampton & Associates, a soil mechanics and foundation engineering company.*

While this thesis is not intended to either define or analyze the economics of minority community development, the reader is asked to consider the persistence of poverty among America's minority groups, the extremely high rates of unemployment even during prosperous times, and the vast amounts of taxpayer money that has been used to affect social and economic engineering over the past 40 years. Education, training, jobs, and income are the obvious needs of these communities.

The A-E design profession and skilled trades such as the construction field have the greatest potential for relieving social and economic conditions that presently exist in many minority communities. The main reason the construction trades have this great potential is because construction wages are the highest when compared to many service sector jobs that minorities typically gravitate towards. Skilled construction trades also have the greatest opportunity for providing the high skills most minorities do not acquire, for one reason or another, from the nation's public school systems.

The American workforce is changing. The U. S. Department of Labor (DOL) published in its Workforce 2000 report that the labor force will grow much slower through the year 2000. It also reported that the ethnic makeup of the American workforce will also drastically change. Caucasian males who have traditionally made up the American construction market in both engineering and the construction trades will be affected the most. DOL models predict that the number of Caucasian men will fall from approximately 47 percent of the construction labor market to less than 16 percent. Women, minorities and immigrants will have to make up the shortfall. One very alarming fact was that the DOL model also predicted that, "minorities who presently *make up only five percent of the construction market will only increase to a mere seven percent (only a 40 percent increase through the year 2000 or an average of approximately 7 percent over the next six years)."*[3]

Even though well intentioned, numerous federally funded work and manpower programs specifically set-up to address minority unemployment and minority training, do not work. The "Model Cities" program which occurred in the late 1960's through the mid 1970's and the Comprehensive Employment & Training Act (CETA) which occurred from the mid 1970's through the mid 1980's are two massive multi-year multi-billion dollar federal programs that come to mind. Both were established to address unemployment, however, they were also set-up to incorporate more minorities in the construction profession. The plan called for minorities to receive job training skills (such as carpentry, machining, electrical wiring, plumbing, brick-laying, dry-wall, masonry, etc) so that they could begin to enter the workforce. Federal funds were also available to address inner-city blight (or specifically to renovate abandoned housing units, apartment buildings and commercially abandoned properties). These under employed minority city dwellers were then suppose to work for construction companies that were supposed to be enticed by federal funds to work in these inner city neighborhoods. Neither program, Model Cities nor CETA, worked. Better, but less costly, solutions to assimilating more minorities into the A-E design and construction services arena should be pursued, because this I believe has a greater chance of achieving positive results (minority construction firms training inner city minority city dwellers) than typical federal programs. Solutions to social and economic problems, all of which would have a profound and *lasting affect on all of our lives, can only be found, I believe, with the help of academia, the private sector and local, state and federal governments working in close cooperation and partnership.*

OBJECTIVE

*While there are many agencies within the federal government that are tasked with increasing minority participation in the A-E design and construction services business as well as promoting minority business development, the two federal agencies most often thought of are the SBA and the Minority Business Development Agency (MBDA). The title of this thesis, "**Development of a Minority Participation Model for Engineering and Construction Services in a Department of Energy - Oak Ridge Environment**," describes the author's in-depth research into solutions of how minority entrepreneurs might start up a successful A-E design and/or construction firm in a tough, but very competitive, DOE Oak Ridge environment.*

DEFINITION OF TERMS

The term "small disadvantaged business (SDB)" is defined in MMES DOE prime contract No. DE-AC05-84OR21400 as a small business concern owned and controlled by socially and economically disadvantaged individuals. The SBA definition for a 8(a) business concern should not be confused with the SBA definition for a small disadvantaged business. An 8(a) business will always fall within a well defined minority group classification; however, a small disadvantaged business may not.

Small Business Act

In 1953 the SBA was created by congressional action through the Small Business Act, 15 United States Code (USC) 631 and the Small Business Investment Act (SBIA) of 1958, 15 USC 661. The Code of Federal Regulations (CFR) that establishes the charter for the SBA is Title 13 CFR, Part 101.

Socially Disadvantaged

The SBA defines control as being a minimum of 51 percent unconditionally owned by one or more socially and economically disadvantaged individuals and whose management and daily business operations are controlled by one or more of such individuals. "Socially and economically disadvantaged individuals come from the following ethnic groups: African American, Hispanic American, Native American, Asian-Pacific American, Asian-Indian American, Indian Tribes, and Native Hawaiian Organizations."[4]

Under section 8(a) of the Small Business Act, those individuals or group of individuals that are classified as both socially and economically disadvantaged and that also own, control and effectively manage at least 51 percent of the business are allowed to participate. The two most important criteria that must be met by a minority business are as follows: (1) they must sell goods and services that the federal government (or its contractors) purchases and (2) they must demonstrate the potential for successful business development.

The primary role of the SBA is to: (1) provide financial assistance; (2) disaster assistance; (3) investment; (4) surety bonds; (5) procurement assistance; (6) business initiatives, education, and training; and (7) minority small business development assistance. While the SBA's charter is many fold, this thesis will discuss the important role the SBA plays in providing small business support to minority business firms involved in A-E design services and construction contracting on the ORR.

Economically Disadvantaged

The SBA was chartered by Congress to provide such public services as direct loans to small businesses for the main purpose of financing plant construction projects, plant conversions, plant expansions, capital equipment purchases, plant facility purchases, office supplies, office materials, and working capital.

The SBA, in determining the extent of economic disadvantage of someone trying to gain access to the 8(a) program, considers such things as the financial condition of the business, the firm's access to private capital and credit, and the applicant's personal financial net worth. For example, if the applicant has a personal net worth exceeding $250,000 excluding ownership interest in the applicant's firm and equity in the applicant's home, this applicant will not be considered economically disadvantaged by the SBA.

If the applicant is economically disadvantaged, the SBA is authorized to make direct loans of up to a maximum $150,000 to eligible SBA certified 8(a) contractors. "The SBA is also authorized to guarantee a maximum secured loan from a private institution of up to $750,000 (including $150,000 for direct loans) for a certified small *business."[5] As of the writing of this thesis, the interest rates on SBA guaranteed loans are limited to 2 3/4 percentage points above the New York prime interest rate (as published in the Wall Street Journal). Interest rates on SBA direct 8(a) loans, which are adjusted quarterly, are one percentage point less than the SBA's regular direct loan rate (direct loan rate can be obtained from any SBA regional office).*

Figure 1 illustrates the input that the SBA has had over the past decade from fiscal year (FY)-1984 through 1993 for its direct loan program. In FY-1984, SBA's direct loans totalled $363 million. By FY-1993, SBA's direct loans were up a mere nine percent to $395 million, even though SBA's total budget rose 61 percent over that same period.

Direct loans may be used to finance commercial and residential rehabilitation and other construction projects in urban as well as rural areas or areas that are located in high unemployment/low income areas. SBA may authorize advanced payments on 8(a) contracts to finance extraordinary start-up costs of a small business, including one that provides architectural, engineering, and consulting types of services. Contracting firms that participate in the 8(a) program may be eligible to receive SBA surety bonding through the Surety Bond Guarantee Program. This is vital to performing on federal government contracts. Sometimes SBA may even ask for a bond waiver on certain federally funded projects for new 8(a) construction contractors so a new 8(a) contractor may consider this approach if he or she is unable to obtain private surety bonding. Figure 2 depicts the direction of SBA's surety bonding program. In FY-1984, $9 million

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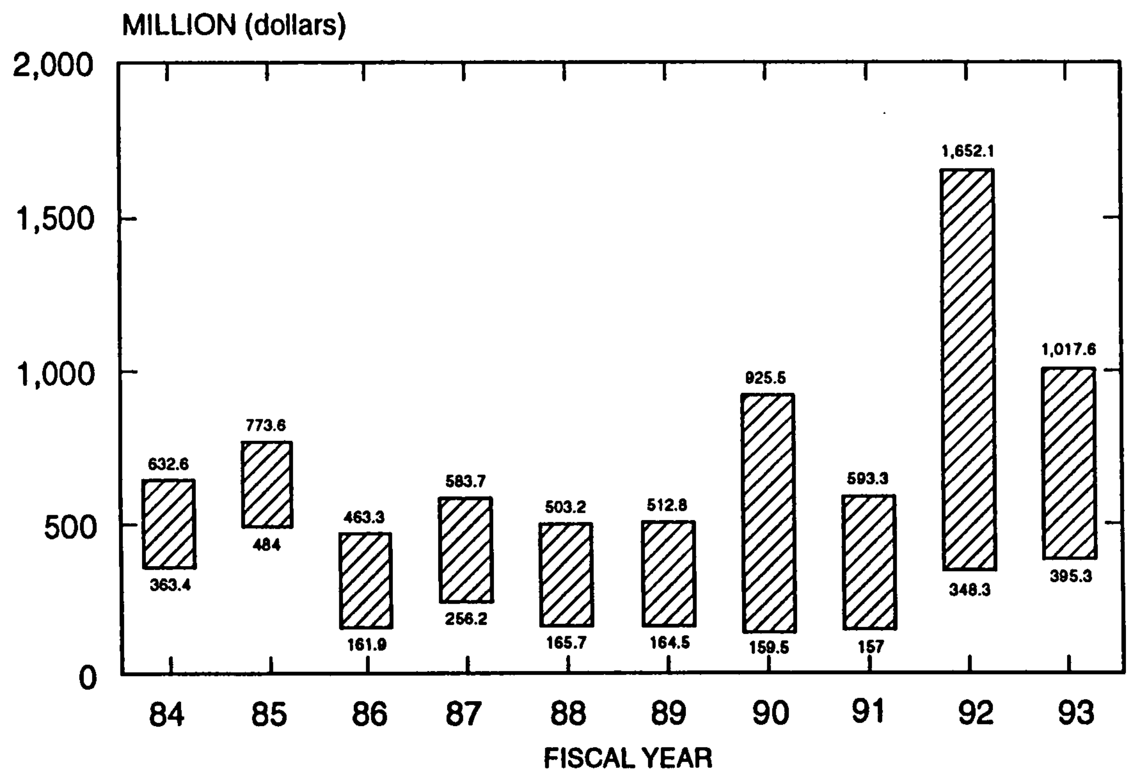

NOTE 1: Upper Values are SBA Total Congressional Appropriations
NOTE 2: Lower Values are SBA Direct Loan Authorizations

Figure 1 SBA Congressional Appropriations-Total Budget vs Direct Loans

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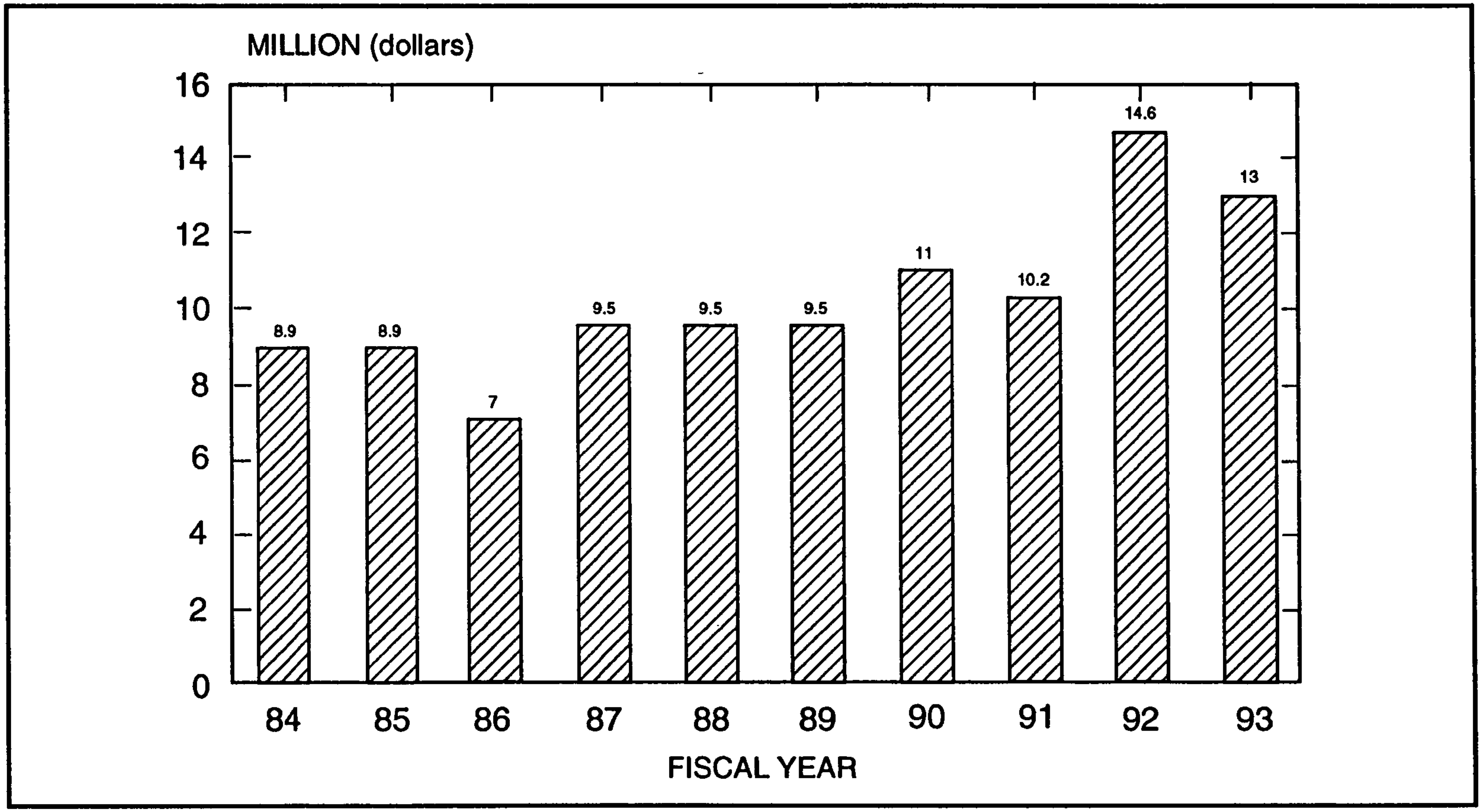


Figure 2 SBA Congressional Appropriations-Surety Bonds

was appropriated by Congress to be used by SBA for surety bonding. In FY-1993 that figure had increased to $13 million, an increase of 46 percent.

SBA 7(a) Program Services

The SBA General Business Loan Program, better known as the 7(a) program, is the most widely used loan program administered by the SBA. Existing or start-up businesses are eligible to participate. The 7(a) loans can be used to purchase land, construction equipment, machinery, inventory, and as working capital as long as it is used for verifiable business purposes. The SBA guarantees to participating SBA lenders a portion, usually not to exceed 90 percent, of a loan up to a maximum of $155,000. Over $155,000, the SBA is eligible to authorize 85 percent of 7(a) loans over $155,000. The SBA sets a ceiling rate on 7(a) loans, however. Interest rates are negotiated by the small business owner and the SBA participating lender. The SBA does not set a ceiling on how much an 7(a) participant can borrow, but it does limit its coverage to a maximum of $750,000.

SBA 8(a) Program Services

SBA Minority Small Business and Capital Ownership Development Program, better known as the 8(a) program, participants receive a wide variety of preferential services including, but not limited to, management, technical assistance, loans and federal contracts. Under the section 8(a) program, the SBA contracts with other federal agencies to provide goods and services and, in turn, subcontracts the performance of *these contracts to 8(a) program participants. The Division of Program Development is responsible for handling business development of participating 8(a) firms.*

SBA 7(j) Program Services

There is another section under the Small Business Act that is seldom talked about but in fact does exist, and that is section 7(j). Section 7(j) is the authority that provides for 8(a) participation. SBA enters into cooperative agreements and contracts with qualified organizations, individuals, businesses, state and local governments, educational institutions, and non-profit organizations to provide this assistance. At the local level, services such as accounting and bookkeeping, production, engineering, technical advice, feasibility studies, marketing analyses and advertising, legal services, and specialized management training are provided to 8(a) participants on a personal as needed basis. At the regional and national level, SBA directly finances innovative programs to provide for services in such areas as transition management for 8(a) firms, competitive marketing strategies, financing, comprehensive business plans, and financial management services. The SBA's Division of Management and Technical Assistance administers the 7(j) portion of the SBA program.

The SBA offers educational types of assistance to existing small businesses that need help in areas of business development. Two programs, which are very helpful and are worth pursuing, are the: (1) Small Business Development Center and (2) Small Business Institute Program. The latter program is initiated through local colleges and universities. This business help is available to ambitious entrepreneurs for a period of *up to four months. For more information on these programs, the reader can contact the local SBA office.*

SBA Maximum Program Eligibility

*All during the Ronald Reagan and George Bush administrations (from 1981 through 1992), numerous attempts were made to abolish the SBA. However, the Congress in 1991 over the objections of the Executive Branch (during the Bush administration) increased eligibility in the 8(a) program to nine years from five years. This nine-year period is measured from the date of approval for 8(a) program participation. The nine-year term is divided into a four year "**developmental stage**" and a five-year "**transitional stage.**" The SBA gives consideration to individuals who have either technical and/or management experience related to the commodity, merchandise or service (services such as A-E or construction) of the particular business according to Standard Industrial Classification (SIC) codes. The SBA does set a limit on how many firms with the same SIC code that can be eligible to enter the 8(a) program. For example, if an entrepreneur decided to start a concrete contracting business and was to approach the SBA Nashville, Tennessee, office for eligibility to enter the SBA 8(a)/DOE-ORO program, that new business would have to wait until one of the other participant(s) involved in the concrete business (with the same SIC code) graduated from the 8(a) program. This would suggest that a new entrepreneur wanting to enter the SBA 8(a)/DOE-ORO program would do better to start, for example, a concrete contracting business that had a very unique way of forming and/or placing concrete or maybe had* *a unique way of doing business that was different from the way his or her competitors did business.*

During the developmental stage of the SBA 8(a)/DOE-ORO program the minority contractor is supposed to receive increasingly complex job assignments. As more experience is gained, these assignments should also increase in dollar value as well. During the transitional stage, this same contractor should be mastering the most important skill of cost estimating, scheduling, business management, total quality management, advertising/marketing, engineering, bookkeeping and accounting. This should enable him or her to compete effectively against his or her peers for jobs once the nine-year term is completed (or following graduation from the program).

Minority Business Development Agency

The Minority Business Development Agency (MBDA), which prior to November 1979 was known as the Office of Minority Business Enterprise (OMBE), was charted by the Secretary of Commerce, U. S. Department of Commerce (DOC) in 1971. The MBDA obtains its authority under a October 1971 Presidential Executive Order 11625. The MBDA was created to assist minority businesses in achieving effective and equitable participation in the American free enterprise system and in overcoming social and economic disadvantages that had limited their participation in the past. The MBDA currently provides national policies and leadership in forming and strengthening a partnership of business, industry, and government with the nation's minority businesses. Management and technical assistance are provided to minority firms on request, primarily *through a network of minority business development centers funded by the Agency. Specialized business assistance is available to minority firms or potential entrepreneurs.*

The MBDA is tasked with promoting and coordinating the efforts of other federal agencies in assisting or providing market opportunities for minority business, primarily through its affiliate network of Minority Business Development Centers. It coordinates opportunities for minority firms in the private sector. "Through such public and private cooperative activities, the MBDA promotes the participation of federal, state, and local governments, and business and industry in directing resources for the development of strong minority businesses."[6] There currently are six regional MBDA offices (Atlanta, Georgia; Chicago, Illinois; Dallas, Texas; New York, New York; San Francisco, California; and Washington, D.C.) through which the Agency conducts its business.

Office of Minority Business Enterprise

The Tennessee Department of Economic and Community Development (TDECD), OMBE, is the agency that is responsible for promoting and developing minority businesses, as well as women-owned businesses for the state of Tennessee. For a minority candidate wanting to enter the business of providing A-E design and/or construction services, the Knoxville regional office can help with training and development. The mission of the state program is to better prepare minorities to compete in business. In keeping with this policy, the state of Tennessee conducts workshops on business marketing, construction estimating, construction accounting, blueprint reading, and business management. As an added service, the OMBE will also assist the new *minority entrepreneur in developing a comprehensive business plan. This comprehensive business plan is a description of your company and introduces all the participants who are in the company's decision making roles. It also introduces the new entrepreneur to the business world. It is the tool that allows banks, bonding companies, and insurance companies to better understand the needs of the new minority entrepreneur. Appendix A details an example of a comprehensive business plan that a small disadvantaged contractor would need to introduce his company to the business world.*

The OMBE along with the Tennessee Department of Commerce (TDOC), and the Insurance Board of Licensing Contractors (IBLC) offers potential contractors licensing workshops. These workshops are designed to help the would-be contractor pass the state of Tennessee licensing examination.

CHAPTER 2

BACKGROUND

The small disadvantaged business program that currently exists on the ORR is run with the assistance of the SBA. One of the goals of DOE is to involve more minority-owned firms in technical fields like A-E design and construction services. To reinforce this position, a small disadvantaged business conference sponsored by the Oak Ridge Chamber of Commerce and the East Tennessee Minority Professionals Association was recently held in Oak Ridge. In attendance was the Assistant Secretary of Energy for Human Resources and Administration, Archer Durham. This business conference dealt specifically with "government contracting opportunities in the East Tennessee region for minority owned firms."[7]

Minority preference programs that once aided small disadvantaged businesses are being drastically scaled back by various court decisions that are challenging state and local set-aside programs. One critical court challenge to a minority set-aside program was the 1989 U. S. Supreme Court case of the ***J. A. Croson Construction Company*** *vs* ***City of Richmond, Virginia.*** *In this case J. A. Croson Construction Company was the only company to bid on the construction of a new city-owned prison. The City of Richmond in its construction contract mandated a 30 percent minority subcontracting set-aside goal for the winning bidder. The J. A. Croson Construction Company had a tough time meeting this set-aside goal and asked the City of Richmond to exempt it from* *this mandate. When the city denied this request, J. A. Croson challenged the city's mandate in federal court.*

In this 1989 case the U. S. Supreme Court greatly modified the rules that cities and states must meet in order to impose race and sex-based contracting programs. This case has had a major impact on how cities and states must apply the formula for determining, if any, the amount of set-asides (women or minority). The Supreme Court ruled that cities and states must first prove discrimination against local firms before attempting race and gender-based solutions.

More than four years later, this U. S. Supreme Court decision still has a profound effect on minority business enterprises. For instance, "a U. S. District Court recently issued a temporary restraining order against San Diego's affirmative action programs, this after the San Diego chapter of the Associated General Contractors (AGC) filed suit to block a 20 percent minority-owned contractor and seven-percent women-owned business participation."[8]

According to Robert Bobic, a consultant with the state of Tennessee's OMBE in Knoxville, the state of Tennessee, after this 1989 U. S. Supreme Court decision, canceled its existing set-aside program and quickly adopted a competitive bid atmosphere for all minority and women-owned contractors. More training and educational programs were adopted as an alternative.

In interviews with many small minority contractors, what I often heard was that preference and set-asides programs were the answer to past racial discrimination. They also thought that these same minority preference and set-aside programs would give them *additional breathing room to finally get much needed on-the-job construction training. They tended to believed that set-asides would help their firms grow. They also believed that a strictly competitive environment (which was thought to be unfair due to racial discrimination) would keep their firms from ever getting construction contracts.*

Many opponents of preference and minority set-aside programs believe that the goals and set-asides are just as repulsive as the discrimination they are supposedly designed to remedy. Opponents of the set-aside programs believe that qualification by race and sex should be replaced by excellence, efficiency and price. However, according to James Harrell, president of Arrow Construction Company, Montgomery, Alabama, and past president of the National Association of Minority Contractors (NAMC), "during the years 1982 through 1987 construction work was booming and minority construction companies still had very low construction sales volume."[9]

CHAPTER 3

METHODOLOGY

The views and opinions of six small disadvantaged construction contracting companies were solicited. Because these firms wanted to stay anonymous, their views and opinions were not formally documented on a standard opinion questionnaire form. Each of the six minority contracting companies declined to have their company names quoted (but did agree to be referred to in this thesis as Participant A through F); however, none of them had a problem giving an oral interview either by phone or in person. Some of the reasons given for not wanting to participate were quite unusual, but not unheard-of. Each minority construction contractor was identified by letter, A through F. Participants A, D, and E had never done work on the ORR, but were very interested in doing future work on the ORR and did not want anything they said eventually coming back to haunt them. Participant C, who had previously done work on the ORR, was very interested in doing future work for DOE-ORO. He felt that previous work his firm had performed was not of high quality and was afraid that participating in a written study might jeopardize any future relationship with DOE-ORO. Finally, Participants B and F decided that because none of the other participants (A, C, D through E) names were being quoted, they also did not want their company names quoted either, for fear of future retribution. Both Participants B and F had previously performed work on the ORR under small volume (less than $25,000) subcontracts with already established OR prime contractors.

The most interesting detail discovered during this interviewing process was that each of the participants was reluctant to say something that might jeopardize their being able to be employed or receive construction contracts in Oak Ridge. However, the majority of the respondents felt that it was racial discrimination that keep them from getting a fair share of construction contracts in both Oak Ridge (DOE-ORO) and Knoxville, and not their lack of understanding the markets they were trying to serve.

The participants who had never performed work on the ORR as a contractor or subcontractor (Participant A, D, and E) had no idea what it took to be able to compete for larger type construction projects. These three participants performed small residential construction projects. However, only one participant (Participant D) was licensed by the State of Tennessee and performed construction work on larger residential and small and light industrial projects. Table 1 summarizes certain information from the six participants.

PARTICIPATING SUBJECTS

Research for this thesis solicited the verbal views (since none of them wanted to be on record) and opinions of many small disadvantaged business firms that currently perform work on the ORR, as well as those that perform work in the private sector (i.e., Tennessee Department of Transportation). Officials from the Nashville office of the SBA, U. S. DOE-ORO, MMES, Inc., MK-F, and the TDECD OMBE were also interviewed for the purpose of preparing this thesis. It was also necessary to visit and

Table 1 DOE-ORO Minority Participation

Participant	*Previous DOE Jobs*	*Desire Future DOE Jobs*	*Registered SBA 8(a)*	*SBA 8(a) Program Familiarity*	*Surety Bonding Capacity*
A	*No*	*Yes*	*No*	*No*	*No*
B	*Yes*	*Yes*	*No*	*No*	*No*
C	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*
D	*No*	*Yes*	*No*	*No*	*No*
E	*No*	*Yes*	*No*	*No*	*Yes*
F	*Yes*	*Yes*	*No*	*No*	*No*

obtain data from the SBA headquarters and from the U. S. Census Bureau headquarters, both located in Washington, D.C.

STATEMENT OF THE PROBLEM

The problem on the ORR is encouraging more minority participation in the skilled (construction) and professional (A-E design) services fields. Presently, two problems need increased attention before increased minority participation can occur on the ORR. The first problem is DOE-ORO's enormously bureaucratic contract and procurement rules.

The current administration has decided that it is time to revamp the federal government. On September 11, 1993, President Bill Clinton signed several Executive Orders to not only eliminate thousands of mid-level bureaucrats, but to also slash *unnecessary government regulations, and make "government treat taxpayers like cash-paying customers."*[10] *Only time will tell whether attempts by the executive branch will lessen the unnecessary bureaucratic regulations, however, one thing is for sure, outdated bureaucratic rules and regulations are believed to play a major role in obstructing a greater minority participation on the ORR. The DOE has already sought the views of interested individuals concerned with changing DOE's current contracting policies on the ORR. "The Secretary of Energy is currently examining recommendations submitted by the Contract Review Team for improving many of its current contracting procedures, policies and practices."*[11] *However, the one procedure that is critical for small disadvantaged businesses to effectively compete is reforming current DOE procurement rules.*

It is the authors belief that revamping the current federal contract and procurement regulations for small and small disadvantaged businesses will have a positive impact on small disadvantage business participation on the ORR. One such rule that should be lifted is the maximum contract value limitation of $1 million that an 8(a) or small business can do on the ORR in any one year. Another rule that should be revamped is the DOE/SBA procedure for obtaining the services of a 8(a) or small business A-E.

For example, the very first step in issuing an A-E contract (fixed-price task order) to a 8(a) or small business is that DOE-ORO must first request the permission of the SBA to negotiate a contract with a particular 8(a) or small business A-E contractor. The DOE-ORO offer letter that is sent to the Nashville office of the SBA details the *following information: (1) description of the work to be performed; (2) time frame for accomplishment of the work; (3) Standard Industrial Classification (SIC) code; (4) estimated contract cost with contingency; (5) special restrictions such as security requirements; (6) location of the work to be performed; (7) type of contract; (8) statement that requirements have not been previously advertised; (9) applicable bonding requirements; (10) identification of all 8(a)'s that have expressed an interest; (11) a request that the acquisition be competitive if the contract is valued over $3 million; (12) if an 8(a) has been selected non-competitively, then a formal request should be included in a letter to the SBA; and finally, (13) if the project involves construction, then a copy of the construction drawings, construction specification, and statement of work must be sent to SBA. The SBA is required to respond back to DOE-ORO's request in writing within 15 days of receipt of the offer.*

After requesting and receiving permission of the SBA to negotiate a contract with a particular 8(a) or small business, the next steps are as follows: (1) the MMES Project Engineer (PJ) issues a draft Request For Cost Proposal (RFCP) which includes a government cost estimate, statement of work (SOW), and preliminary drawings/sketches) to the MMES A-E Coordinator; (2) the MMES A-E Coordinator after resolving any omissions, errors, and conflicts issues the RFCP along with the selection of an 8(a) A-E or small business A-E to the DOE Contracting Officer Technical Representative (COTR); (3) the DOE COTR after assuring that everything is technically correct issues the RFCP to the DOE Contract Specialist (CS); (4) the DOE CS issues a partial RFCP (SOW and preliminary drawings/sketches) to the 8(a) or small business A-E who will *develop an independent A-E cost estimate to execute the MMES developed SOW; (5) the 8(a) or small business A-E issues the cost A-E cost estimate (cost proposal) to the DOE CS; (6) the DOE CS issues the 8(a) or small business A-E cost proposal to MMES A-E Coordinator, MMES PJ, and the DOE COTR for review and cost proposal reconciliation (the 8(a) or small business A-E cost estimate must match to within 10 percent of the governments estimate); (7) the MMES A-E Coordinator issues a technical evaluation package to the DOE CS; (8) the DOE CS issues the technical evaluation package to the SBA for review; (9) the SBA then notifies DOE-ORO that a contract can be executed with the chosen 8(a) or small business A-E; and (10) the DOE-ORO makes contract award to 8(a) or small business A-E firm. This procedure can takes as little as 2 months or as long as 5 months depending on whether there are any complications between these steps (1 through 10).*

The steps for selecting a potential 8(a) candidate for contract work is to cumbersome. A new entrepreneur, especially an 8(a) entrepreneur could be dissuaded from doing any work on the ORR because of this long very drawn-out process. Taking two to five months to issue a contract award to a new 8(a) or small business firm could be potentially devastating. There is absolutely no reason why it should take more than two weeks to issue a task order to a certified 8(a) or small business A-E. Any new entrepreneur deciding to do work on the DOE ORR has to decide whether the benefits outweigh the aggravation. I tend to believe that the rewards for a new entrepreneur outweigh the aggravation.

While many other non-competitive federal contracting and procurement regulations will not be detailed in this thesis, the reader (or potential entrepreneur) is encouraged to obtain and read a copy of the "Standard Procedure for Implementing Small Business/Small Disadvantaged Business Programs on the ORR."[12]

The second problem is that many, but not all, minority candidates are not as well trained as they should be to effectively compete on many of the A-E or construction projects on the ORR. Many minority candidates do not possess the basic technical or business management skills to effectively compete for design or construction work on the ORR. Therefore, the appropriate training to effectively compete for design and construction projects on the ORR is the key variable in this equation. Without adequate technical and business training, successful programs such as the SBA's 8(a) will not be able to graduate qualified minority business candidates to compete on the ORR, or for that matter compete in any other construction market.

The Secretary of Energy has the authority to order the DOE to make more A-E and construction contract awards to small disadvantaged firms, but that alone is not the answer if these same small disadvantaged firms don't have the training or skills to do the work. What I believe would work better is to contractually obligate all large non-minority A-E and construction firms doing business with DOE to train and educate by way of joint-ventures all small disadvantaged firms. Both should be required to meet certain performance goals. The small disadvantaged firm would not be allowed to move on to additional or larger task orders without demonstrating past competence. The reward to the larger firm would be a substantial increase (maybe from the present 8 percent to 15 *percent) in the amount of profit allowed on a contract by DOE. Everyone would benefit. The small disadvantaged firm would obtain the required business and technical skills, the DOE and SBA would benefit by having more firms graduate from the 8(a) program better able to compete with the private sector, and finally the better managed non-minority firms would be offering a real solution to the problem of increasing minority participation on the ORR.*

CHAPTER 4

FINDINGS

Access to adequate bonding is perhaps the number one obstacle to minority participation on the federally owned ORR, this according to numerous minority contractors currently doing business in Oak Ridge. Some minority contractors have found it virtually impossible to obtain enough surety bonding, especially those minority contractors that have not established a proven track record. The problem is that a small disadvantaged company cannot obtain a proven track record without first being able to obtain bonding, especially if the company is trying to obtain construction contracting work in Oak Ridge.

The total amount of construction dollars spent by the federal government on the ORR has increased substantially over the past three years (FY-1991 through FY-1993). Figure 3 illustrates that from FY-1991 through FY-1993 construction contract awards increased a total of 144 percent. Construction contracts were administered by MK-F in the following manner: (1) small business received $11 million in FY-1991, and by FY-1993 that figure had increased 214 percent to $36 million; (2) MK-F direct-hire forces (union crafts) in FY-1991 did $16 million worth of construction work, and by FY-1993 they were performing $24 million worth of construction work or a 46 percent increase; (3) 8(a) contractors in FY-1991 did $1 million worth of construction work on the ORR, but by FY-1993 that figure has increased a whopping 573 percent.

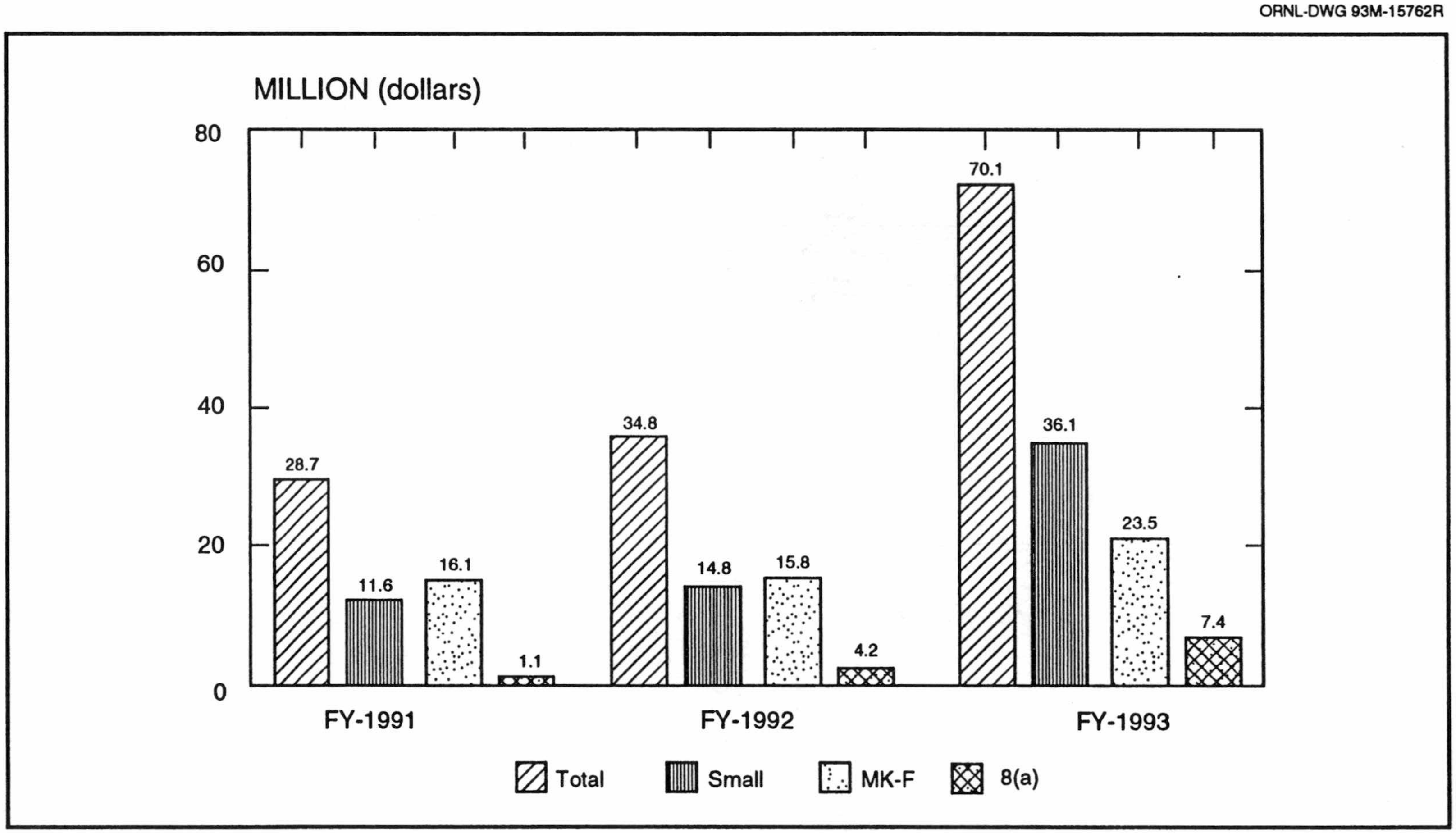
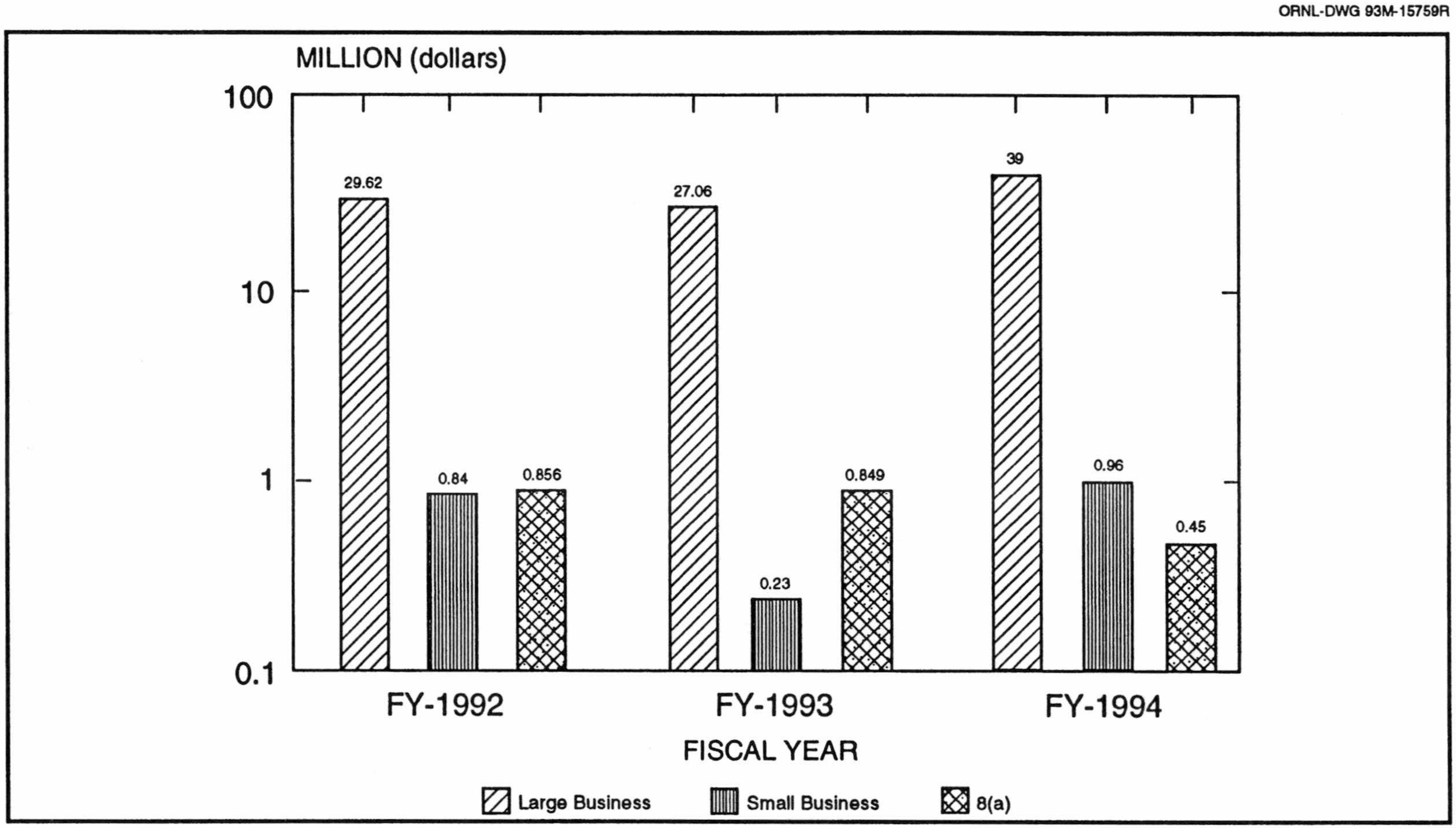


Figure 3 DOE-ORO Construction Contract Awards

For new 8(a) construction contractors trying to do business on the reservation, a 573 percent increase in 8(a) awards is very encouraging. As the DOE's mission changes from national defense and defense research to environmental restoration (ER), waste management (WM), and decontamination & decommissioning (D&D) activities, the financial opportunities for professionally managed minority A-E design and construction firms is enormous on the ORR.

Minority contractors, A-E or construction, that specialize in not only construction of new specialized type facilities (i.e., radioactive waste storage, treatment, and disposal facilities), but dismantlement of existing contaminated facilities should fare well through the end of the decade.

For minorities entering the A-E design field, opportunities also exist. Figure 4, however, illustrates a drop in A-E design services performed by 8(a)'s, while for small and large A-E design firms there was a healthy increase. In FY-1992, large A-E (includes A-E performed by MMES) contract awards totalled $30 million. This figure increases 30 percent to a projected $39 million by FY-1994. Small business saw a drop of 73 percent in A-E contract awards from FY-1992 to FY-1993. However, FY-1993's figure of $230,000 is projected to increase 317 percent to $1 million by the end of FY-1994. At the same time, 8(a) A-E design contract awards were stable during FY-1992 and FY-1993 at $850,000. This is a drop of 60 percent from FY-1989's figure of $2 million. From FY-1984 to FY-1989 (see Figure 5) there was a steady increase of 177 percent (approximately 35 percent per fiscal year). Approximately four 8(a) A-E design firms per year have provided A-E services under prime contract to DOE-ORO.



Note 1: FY-1994 is projected A-E contract awards.

Figure 4 DOE-ORO Architect-Engineering Contract Awards

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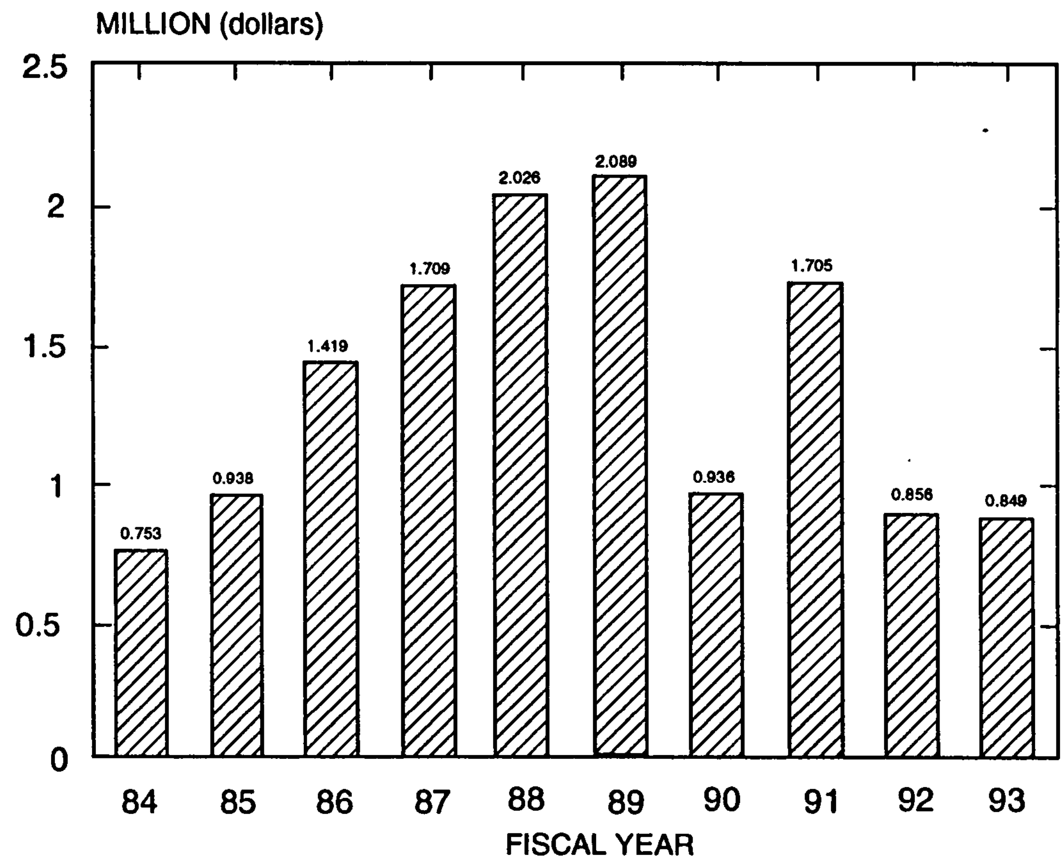

Figure 5 Total 8(a) Architect-Engineering Contract Awards

As 8(a) A-E design firms graduate from the program, others take their place. Opportunities exist for new A-E design firms doing specialized design work such as for environmental restoration/waste management (ER/WM) projects.

One very successful former 8(a) A-E design firm, Lee Wan & Associates, that graduated from the program has moved on to compete with other small business A-E design firms. Figure 6(a) shows how Lee Wan & Associates went from $380,000 in billings during FY-1984 to a peak of $1 million during FY-1987. Figure 6(a) also shows how other 8(a) A-E's fared from FY-1984 to FY-1987. Figure 6(b) details the amount billed by 8(a) A-E's from FY-1989 through FY-1993.

Another finding was that 8(a)'s that perform work or anticipate working on the ORR are not familiar with the way the SBA operates. Many thought that the SBA operated similar to a bank. Many of the participants who supplied information for this thesis were not aware that the SBA offered various types of training programs through colleges, universities, and state agencies. None of the participants was aware of the fact that in FY-1992 the SBA loan program guaranteed over $6.2 billion for small businesses (see Figure 7). Of that total, the largest share or approximately 82 percent ($5 billion) went to small businesses operated by Caucasians (non-minorities). The next largest portion of guaranteed loans or 9 percent ($534 million) was received by small businesses run by Asians. Groups that are classified as undetermined took in the third highest amount at $208 million or a little over 3 percent. The fourth largest share went to small businesses operated by Hispanics. Small businesses run by African-Americans received

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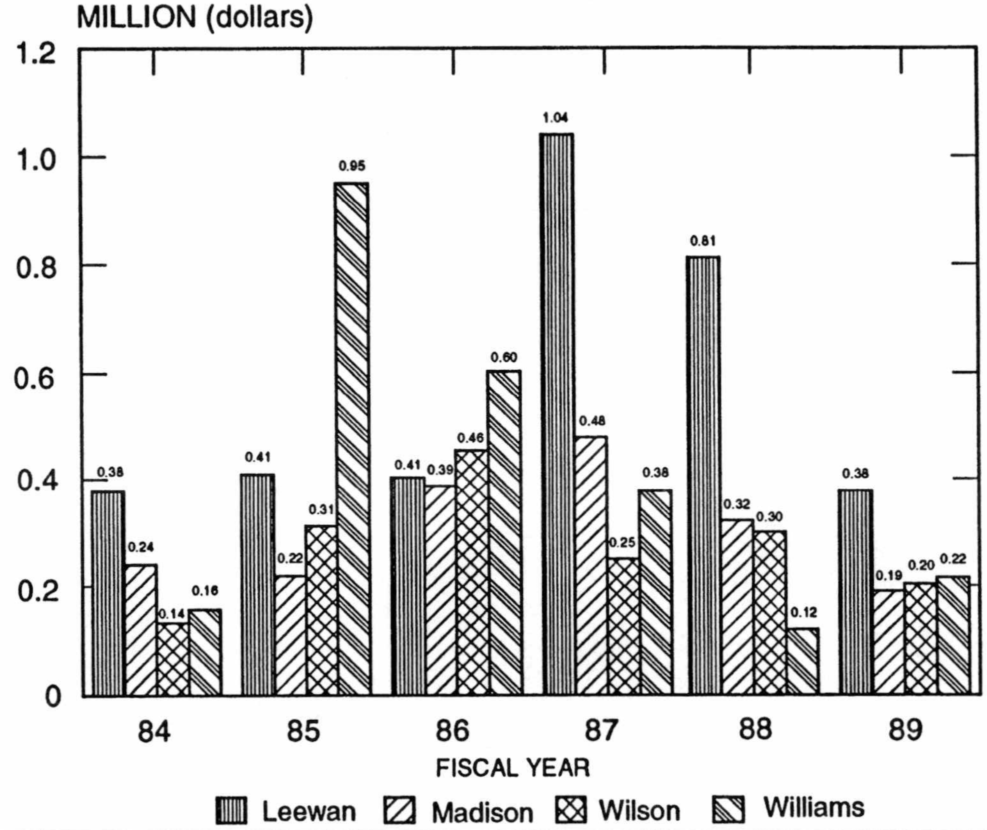

(a) Expired Contracts

Figure 6. 8(a) Architect-Engineer (a) Expired and (b) Current Contract Awards by Individual Firms.

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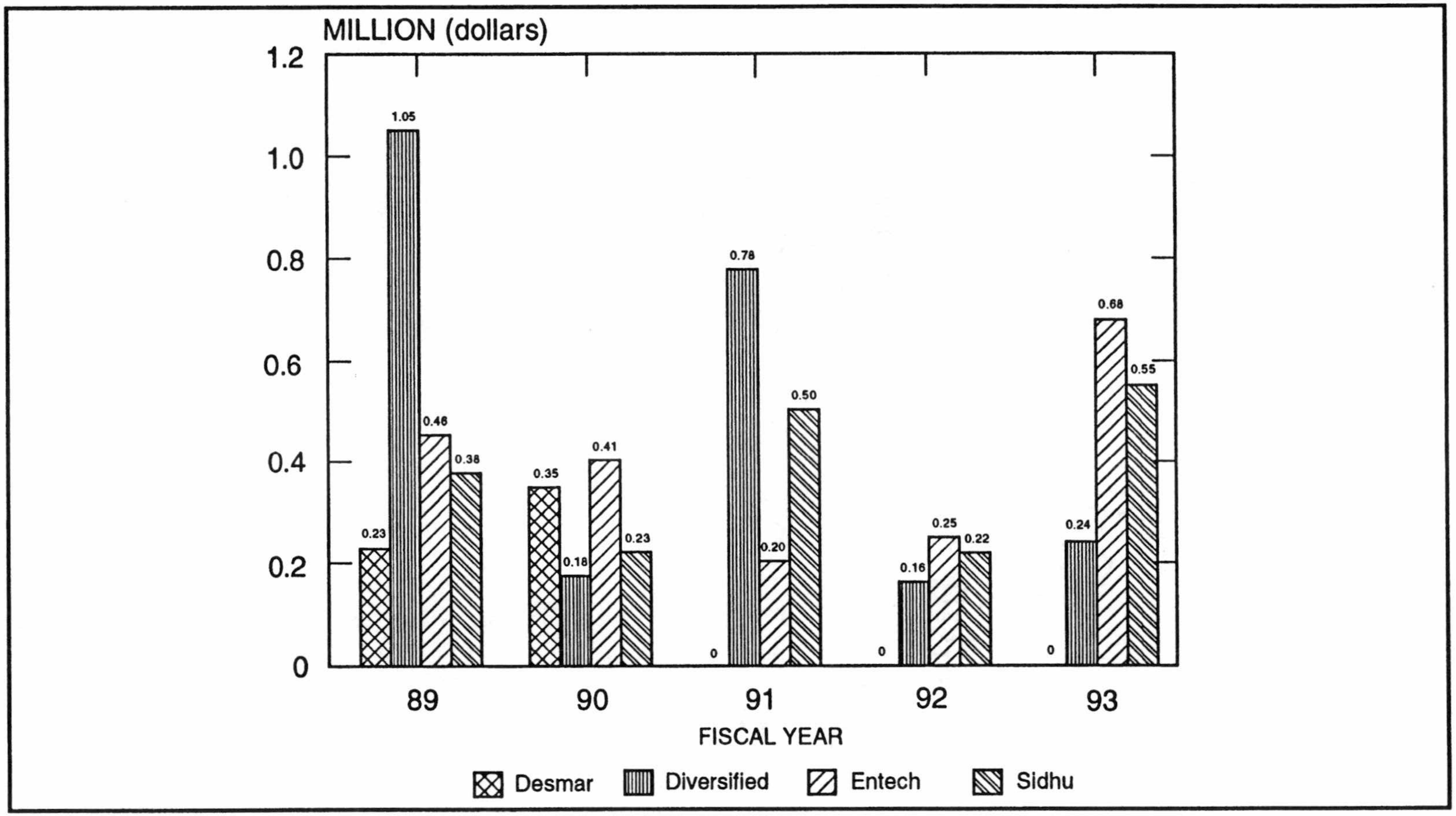

(b) Expired Contracts

Figure 6. (continued)

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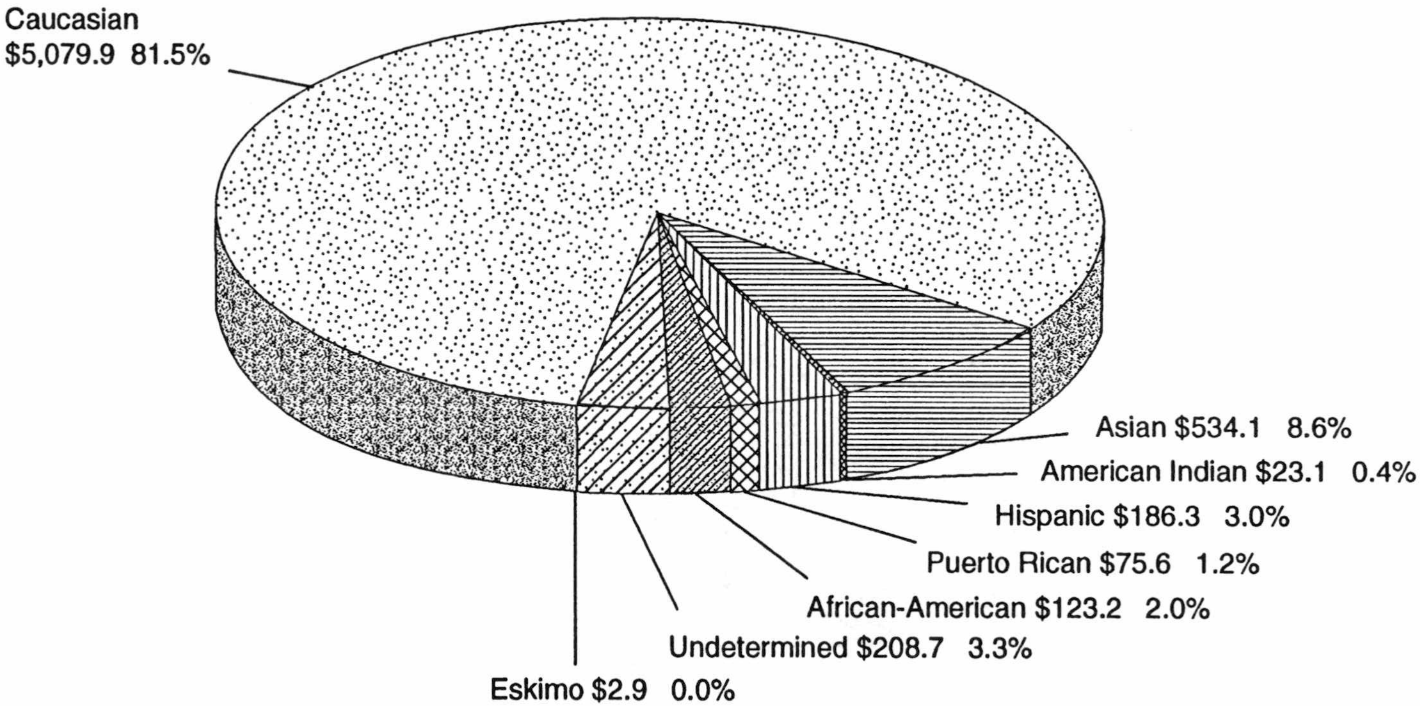

Note 1: Dollars are in Millions

Figure 7 SBA Loan Guarantees - Fiscal Year 1992

the fifth highest amount at $123 million in loan guarantees or 2 percent. The sixth highest amount of SBA loan guarantees, or over 1 percent, went to Puerto Ricans with approximately $76 million. The seventh largest portion of SBA guaranteed loans ($23 million) was received by small businesses run by American Indians. The least amount of SBA guaranteed small business loans was received by American Eskimos. The data suggest that there is not an equal distribution of SBA guaranteed loans.

CHAPTER 5

RECOMMENDATIONS AND CONCLUSIONS

What many minority contractors on the ORR seem to lack is training to effectively compete in the A-E design and construction contracting field. Project and principal engineers from MMES who tend to interface the most with minority firms give 8(a) A-E's only average passing grades. The 8(a) A-E design firms that have performed superbly have taken the time to learn what it takes to do business with DOE-ORO and MMES. Figure 5 illustrates the amount of 8(a) A-E awards that have been made since FY-1984. Since FY-1991 the trend for the amount of 8(a) A-E work is slightly up; however, this is mainly due to the amount of overall A-E design work on the reservation being performed by an ER/WM design contractor (Ebasco Environmental Services).

Training is the formula for success for new minority entrepreneurs attempting to do business in A-E design and/or construction services on the ORR. Formal business training is very important to the many 8(a) construction companies because these companies do not have long histories. One important factor is that there is no historical basis from which the business can be learned. In contrast, many Caucasian-owned construction companies were started decades ago and are now being handed over to sons and daughters who had the advantage of learning the construction business first hand from family members. This experience and training is invaluable.

The total amount of construction dollars spent by DOE on the ORR has increased over the past three years and is projected to rise each year thereafter. If this *construction spending trend continues to rise (see Figure 3) the amount of construction contract awards for 8(a) businesses should also continue to rise. MK-F is under increasing pressure (award fee is based on a formula established in MK-F's contract to subcontract out the majority of DOE construction work) to contract out more and more construction contracts each year. This information should also be welcome news for 8(a) and small disadvantaged businesses who desire to do business on the ORR.*

However, without better training 8(a)'s will see the amount of dollars for small disadvantaged businesses involved in A-E design and construction services left on the table (or not spent).

To further emphasize the need for increased minority training in construction contracting, members of the NAMC met with members of the Associated Building Contractors (ABC) on October 27, 1993, at Clemson University (with cooperation from Clemson University's Construction Sciences and Management Department) to sign an agreement that allows minority contractors to tap the resources of the ABC. NAMC President, James Harrell believes that this new program will assist "non-minority firms to more easily do business with historically under-utilized businesses."[13] ABC President Joe Ivey believes that ABC members will benefit from this historical alliance due to its members being almost assured of a larger source of highly educated and trained crafts and contractors.

It is very critical that this arrangement work because in 1990 the AGC and NAMC also discussed a joint venture agreement; however, that agreement never produced anything concrete. The reason the dialogue between the NAMC and AGC *never produced positive results was due to the AGC's very vocal and visible campaign to oppose women and minority set-aside programs. Even though ABC shares the same views that AGC shares about women and minority set-aside programs, ABC never waged the numerous and expensive campaigns to defeat set-asides that the AGC waged.*

Under this network agreement, NAMC members will have immediate access to educational services produced by the ABC, such as training for safety directors and craft workers, training in technical subjects. At the same time, the ABC with help from the NAMC will conduct training for its members in cultural and ethnic diversity. This type of arrangement could possibly work on the ORR. For instance, presently a construction contractor doing work on federal projects (i.e., work on the DOE's ORR) does not need to be licensed by the state of Tennessee. The only requirement for a minority construction contractor is that they be certifiable under the SBA 8(a) program. Being a certified 8(a) does not mean or guarantee that a particular 8(a) is adequately trained to accomplish construction contracting tasks. Therefore, in order to increase the quantity of qualified minority contractors on the ORR, it would be better if they were certified under the 8(a) program by the SBA, licensed by the state of Tennessee in areas of expertise, and be a dues paying member of either the ABC, AGC or NAMC.

Training involves more than just classroom instruction. Training minority firms in the details and inner workings of construction contracting is, and should be, an on-the-job-training exercise. Minority contracting companies are by the most part undercapitalized, much smaller in size (manpower), and more importantly, inexperienced. To increase minority participation on the ORR, more on-the-job-training is needed from *larger prime contractors. On DOE sites, the main objective should be to include not only just minorities, but women, into the construction contracting mainstream.*

For instance, if a prime contractor bids on a DOE-ORO project and wins, this contractor should be required to submit as part of the winning bid, a minority business enterprise (MBE) goal. That numerical goal should be set by DOE-ORO and enforced by MK-F (construction) and MMES (design). The goal should be fair. While there is absolutely no correct way to determine numerical goals for MBE's, discussions with various large city and county officials around the country revealed that picking a percentage based on the areas minority and women population is a starting point. Using this rational for Anderson County for example, would mean that if Anderson County (location of the DOE-ORO) has a minority (African-American) population of 4 percent, then a 4 percent MBE subcontracting goal would seem fair. A number of the large city and county officials that were interviewed believed that this approach would be less likely to be challenged by non-minority construction contractors and A-E firms in the federal court system.

Therefore, if a prime contractor wins a construction contract valued at $1 million, a $40,000 portion to a minority subcontractor to either perform craft-related functions or construction/project management tasks would seem acceptable. Also, as an added note, any work that minority subcontractors execute for a prime contractor should be considered a part of training. That prime contractor should be allowed to use his or her knowledge, expertise, skills, and resources to give help to that minority subcontractor without fear of legal action by the Federal government.

Recent legal actions by the Federal Government against a well known prime contractor, Kiewit Construction Group undermine this type of on-the-job-training that benefits minority contractors. In the governments case against Kiewit, it claimed that Kiewit "used its subcontractors as fronts by doing too much for them in arranging for material procurement, referral of personnel and use of sub-subcontractors to do certain specialized work."[14] Help to minority contractors by better trained prime contractors should be similar to the student-instructor type relationship. This type of arrangement occurs all the time in the private sector. This type of arrangement, which is considered a joint-venture, is sorely needed on the ORR and is a legitimate way to increase the volume and quality of minority construction contracting participation.

To reinforce joint-venture type arrangements, the Corps of Engineers (COE) in awarding its Total Environmental Restoration Contracts (TERC's) to prime contractors has taken into consideration in evaluating all bids the total amount of small and small disadvantage business participation. According to Cary Jones, Chief of the COE's ER division, "the Corp is very interested in helping small and disadvantage businesses. Proposers or bidders should think about that and take that into consideration."[15] Many COE officials believe that prime contractors are in positions to adequately train small and disadvantage businesses in the hazardous waste field and by doing so creates a situation that allows that same small disadvantaged business to participate in future COE programs because of joint-venture training. Ebasco, the prevailing prime contractor for the COE's 4 year $150 million TERC-4 (includes ER activities in the state's of California, Nevada, New Mexico, and Arizona) indefinite delivery order contract, *submitted its winning bid with 10 subcontractors, of which seven were either small disadvantaged, or minority businesses.*

If this type of arrangement can work in the private sector and with the COE, it can certainly work in a DOE-ORO atmosphere. The commitment has to be agreed to by four participants, the DOE-ORO, MK-F, the prime contractor, and most importantly, the minority contractor. Contract language should clearly identify the duties and tasks of the minority contractor, as well as the type of assistance the minority contractor can expect to receive from the prime. However, government action against prime contractors claiming fraud and seeking damages in the millions of dollars puts pressure on prime-minority contractor joint-venture arrangements. Joint-venture arrangements on the ORR will not cost society any additional tax revenue. In fact, these type of joint-ventures, if all it does is to train a handful of typically under-utilized MBE's, have a positive impact on society.

Training by incorporating the joint-venture concept between prime and minority contractors is the key to increasing the quantity and quality of minority participation on the ORR.

The reason this program can work on the ORR is because a similar pilot program was initiated by the DOC's MBDA for minority contractors in the midwest and that program was a success. "Funded with a $1.8 million federal grant and $700,000 from private-sector partners, the new Minority Enterprise Growth Assistance (MEGA) Center offers small to mid-size MBE's top flight consulting services at a discount of up to 85 percent."[16] The Chicago MEGA Center comprises many consulting firms with *experience in capital development, marketing, construction bidding and construction surety bonding. MEGA Centers are task with helping minority contractors to perform on contracts and increase their competitiveness. Since January 1993 (through July 1993) when the pilot program started, Chicago MEGA Center had assisted 42 minority construction contractors on 60 separate contracts. Assistance was provided in quantity takeoffs and cost estimating and was mainly provided to glaziers, material suppliers, concrete firms, carpentry firms, electrical and mechanical contractors. There is a commitment by members of the Chicago MEGA Center to pass on experience and knowledge to minority contractors who often lack experience. Unlike many mentor-protege' type programs, where the minority contractor was typically used as a front, many minority contractors are pleased with the pilot program because of the sincere commitment by the Chicago MEGA Center. The Chicago MEGA Center has helped minority contractors win jobs at many of the major construction projects valued at over $1 billion in the Chicago area. For instance, one prime contractor, Walsh Construction Company, has enjoyed its relationship with the Chicago MEGA Center so much that it committed to a 50 percent MBE/WBE goal on the City of Chicago's $30 million emergency communication project.*

Another major plus of the MEGA Center is that it has helped minority contractors obtain bonding, some who had never been bonded before. The MEGA Center has also entered into a signed agreement with a surety company to provide up to $50 million in bonding for qualified minority contractors on other local projects.

Since the Chicago MEGA Center Project took a fair amount of time to set up, it is important to offer other alternatives. Another alternative would be to take advantage of the great technical and business development skills of the employees at MMES, MK-F, and Enserch. The alternative I am about to describe reminds me of a circumstance I was evolved in while employed by ITT Grinnell Corporation. In an effort to increase the number of minority subcontractors, ITT Grinnell loaned two employees, a mechanical design engineer and a marketing representative, for approximately five months to a newly created small minority specialty piping fabricator. Their main function was to assist, help develop and train this new minority business in developing a more superior product. I clearly remember, that approximately two years later we were purchasing all the prefabricated spool sections that this same minority subcontractor could supply. This minority subcontractor was producing a much more superior product than that of ITT Grinnell. This would not have occurred had it not been for the commitment by ITT Grinnell to develop a competitive minority vendor.

Something else that comes to mind is that better statistics need to be gathered by DOE-ORO and SBA on each individual 8(a) business (by ethnic group, such as African-American, Hispanic, Asian, American Indian, etc.) located within a predetermined vicinity of the ORR. By determining the number of potential 8(a) candidates that could be available for DOE work would allow for a more equitable distribution of DOE contract awards (wealth). The present system does not allow for tracking the real number of available 8(a) firms that are capable of performing A-E or construction services on the ORR. An example of distributing wealth would be that African-

Americans should have a 4 percent (using FY-1992 total A-E design and construction services figures) participation ($2.8 million for construction and a $1.6 million for A-E design) on the ORR. The 4 percent is an arbitrary figure, but it is based on African-Americans making up 4 percent of the population in Anderson County, Tennessee (see Figure 8). Table 2 shows the African-American population in the various State of Tennessee Regions, I through IV. Region I (which comprises 24 counties) has a total African-American population of approximately 2 percent.

Knox County is the largest county in Region I and has the largest African-American concentration at approximately 9 percent. Region II (which comprises 24 counties) has a total African-American population of approximately 2 1/2 percent. Hamilton County is the largest county and has a total African-American population of approximately 19 percent. Region III (which comprises 26 counties) has a total African-American population of approximately 7 percent. Davidson County is the largest county in Region III and also has the largest concentration of African-American at 23 percent. Finally, Region IV (which comprises 21 counties) has a total African-American population of approximately 19 percent. Haywood County is the largest county in Region III and has the largest concentration of African-American at 44 percent. The information contained in this table is intended to show that there is a logical method for determining how to allocate federal funds.

Table 3 shows the African-American population in the various counties surrounding Anderson County, the location of the ORR. Using the average African-American population in the counties surrounding Anderson, would be another way of

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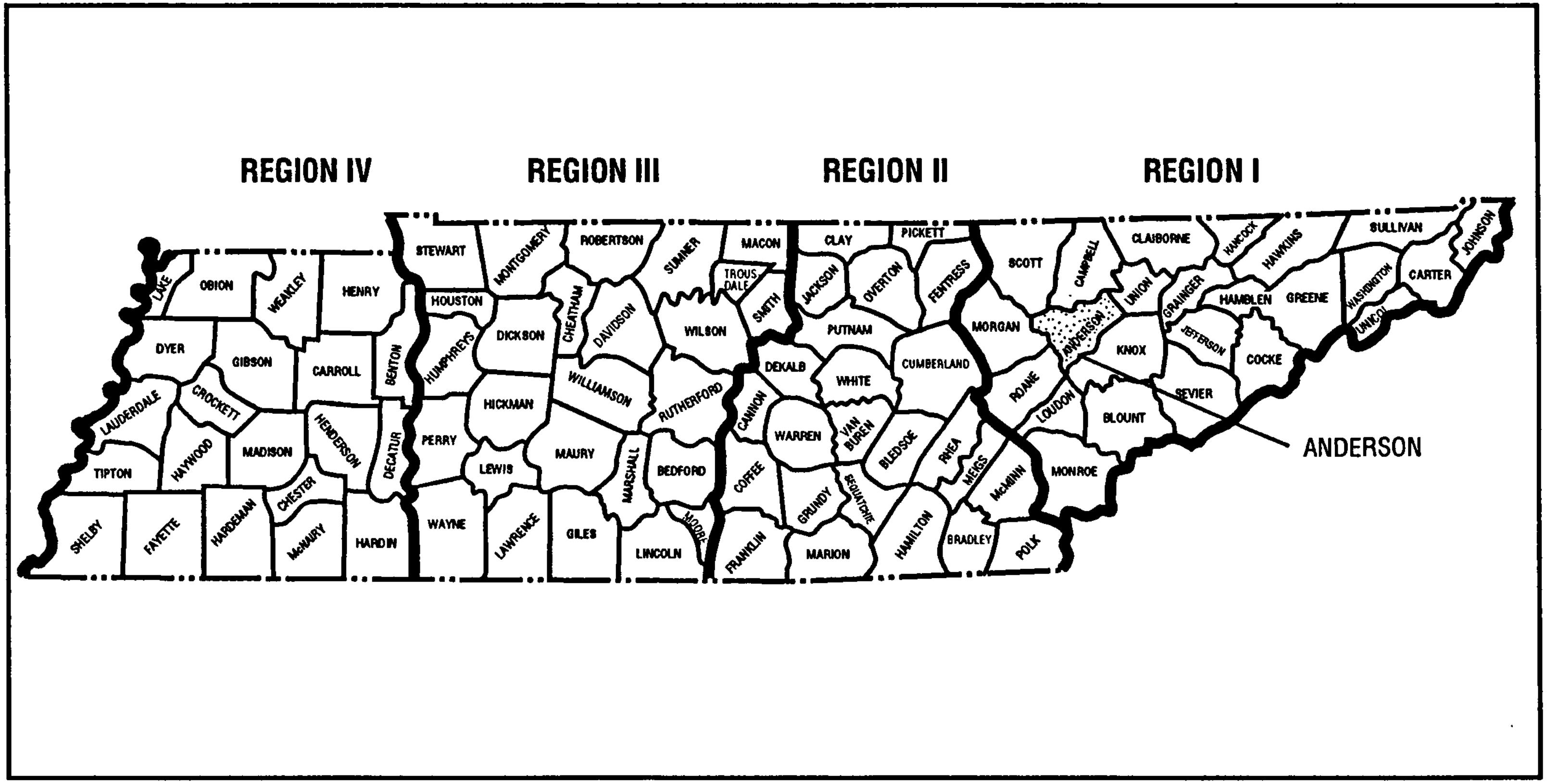

Note 1: African-American population in Anderson County, Tennessee was approximately 4% from data obtained from the Tennessee Department of Economic and Community Development, Office of Minority Business Enterprise.

Figure 8 African-American Population in Anderson County, Tennessee

Table 2 African-American Population by Tennessee Regions

Region I	*2.05*
Region II	*2.58*
Region III	*7.24*
Region IV	*19.41*

equitably determining the minimum proportion of DOE-ORO A-E design and construction funds for minorities. This idea in conjunction with reproportioning the amount of SBA direct loans and loan guarantees (increasing the amount of SBA loans to African-Americans from the present anemic level of 2 percent to something much higher) to qualified African-Americans and other disadvantaged groups to start-up new A-E design and construction contracting companies will have a positive impact on increasing minority participation on the ORR. To alleviate high unemployment among African-Americans, more minority entrepreneurs from the college ranks will need to be enticed to take the risk of starting businesses in construction contracting and A-E design. Risk taking by more potential minority entrepreneurs trained in engineering and construction at the college/university level and experienced in the real world would also positively affect minority participation on the ORR.

Figure 9 reveals that in FY-1992, African-Americans made up 12 percent of the U. S. population but received only about 2 percent of SBA loans, while Caucasians who made up 71 percent of the U. S. population received 82 percent of SBA loans. Asians

Table 3 African-American Population by Tennessee County

Anderson County	*4.05*
Knox County	*8.82*
Union County	*0.02*
Morgan County	*1.53*
Roane County	*3.08*
Loudon County	*1.28*
Blount County	*3.24*
Sevier County	*0.42*
Campbell County	*0.37*
Scott County	*0.03*

Note: African-American population figures for Table 2 and 3 were obtained from the Tennessee OMBE.

only made up 3 percent of the population but received 9 percent of SBA loans. Hispanics made up 9 percent of the population, but received only 4 percent of SBA loans.

SBA and DOE-ORO will have to expand opportunities for additional minority firms (the quantity of minority firms with similar SIC codes will need to be increased).

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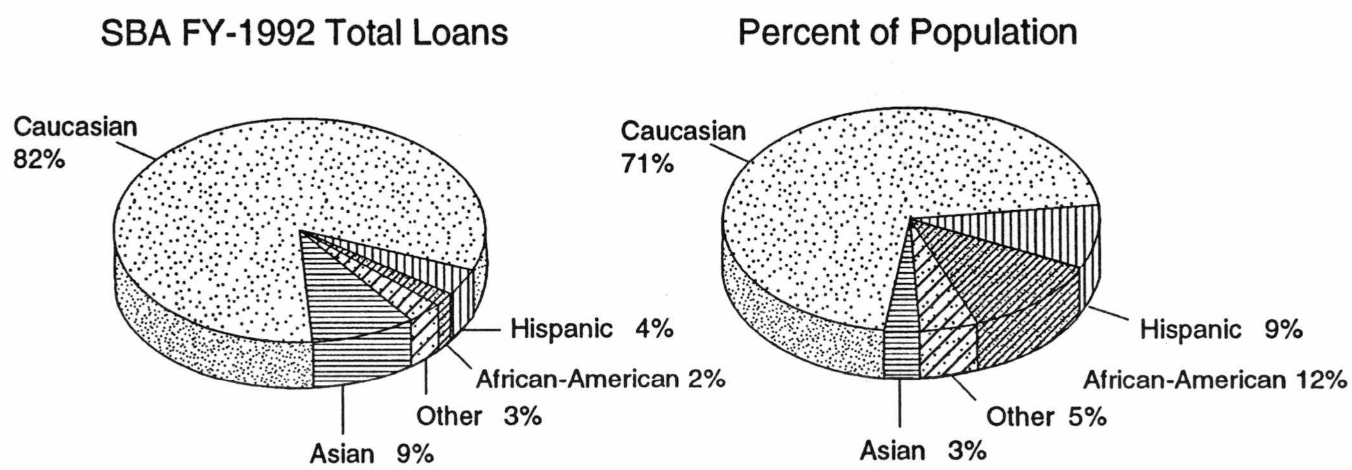


Note 1: Puerto Rican and Hispanic were combined into the "Hispanic" group
Note 2: Eskimo, American Indian, and Undetermine were combined into the "Other" group.
Note 3: SBA loans by racial and ethnic groups vs their percent of population

Figure 9 Who Gets SBA Loans

This thesis has introduced a DOE participation model for A-E design and construction services on the ORR. It has discussed DOE-ORO A-E design and construction services trends for past and present 8(a) participants. It has addressed various SBA programs that are currently available, such as the 7(a), 8(a), and 7(j) programs. It has detailed a realistic outline of a comprehensive business plan for a new start-up minority contractor to be utilized for self-marketing and financial obligation needs. It has researched SBA direct loan and loan guarantee programs; and finally, it has identified the type of training that minority entrepreneurs wishing to enter the A-E design and/or construction services market on the ORR need to have to effectively compete. It has also identified career opportunities for small businesses, especially for well trained 8(a)'s, in ER, WM, and D&D programs on the ORR through the end of the decade.

It is the hope of this author that minority participation in both A-E design and construction services will increase in the coming years on the ORR. It will take a lot more than the Secretary of Energy or an assistant simply saying that minority participation on DOE projects will increase without a clear plan to increase that participation.

The author has concluded after researching information for this thesis that minority entrepreneurs just starting a new business or expanding an existing A-E design or construction contracting business have a great opportunity for employment on the ORR, if the commitment to Total Quality Management (TQM), learning customer needs and requirements (DOE-ORO and its prime contractors, such as MMES and MK-F), *obtaining proper business skills, and learning all the appropriate technical skills are demonstrated. Chapter 6 contains those items deemed absolutely necessary for any small disadvantaged business attempting to do business on the ORR. Plenty of interesting as well as unique design and construction work is available, and the trend for A-E design and construction service contracts should continue to rise through the end of the decade.*

"The DOE ER/WM appropriations for FY-1994 includes $717 million for non-defense related activities and $5.4 billion for defense related programs. The FY- 1994 defense portion of DOE's ER/WM budget increased substantially over FY-1993's budget of $4.8 billion."[17]

Opportunities are being expanded on the ORR for the right type of minority firms. For example, the award of various environmental prime and subcontract work under DOE's hazardous waste remedial action program (HAZWRAP) to Peer Consultants, PC. Peer Consultants, PC was founded by Dr. Lilia A. Abron in 1978. In 1978, I was an undergraduate student taking a Sanitary Engineering design class that she taught. Her firm started with very few full-time employees and a few part-time undergraduate and graduate students. Fifteen years later her firm employs more than 150 people in offices in Washington, DC, Oak Ridge, TN and Atlanta, GA and has annual revenues greater than $12 million. Approximately 70 percent of Peer's business is from the federal government.

Peer Consultants, "Dr. Lilia Abron credits Joseph La Grone, operations manager at DOE's Oak Ridge facility, with helping her enter the booming nuclear waste cleanup *arena. She believes that had it not been for La Grone, small and minority firms would not have gotten into DOE. She credits him for encouraging 8(a) contracting."*[18]

*As stated earlier, the opportunities are abundant for the right types of firms. Whether that new or existing small business is minority or women-owned, the opportunities for well trained minority entrepreneurs does exist and will continue to exist in the near future. However, to expand A-E design and construction opportunities on the government-owned ORR will take a serious commitment of DOE Headquarters, DOE-ORO, MMES, MK-F, and others who have an important stake in solving this problem. The hope of increased minority participation on the ORR can become a reality. Though there is no short and quick answers to increasing minority participation on the ORR, this thesis has attempted to examine the problem and offer some solutions of increasing minority participation in both A-E design and construction services on the DOE owned ORR by introducing a model entitled, "**Development of a Minority Participation Model for Engineering and Construction Services in a Department of Energy - Oak Ridge Environment.**"*

While the purpose of this thesis is to create a useable developmental minority model, it can be utilized by anyone aspiring to do work as a small A-E design or construction services business on the ORR.

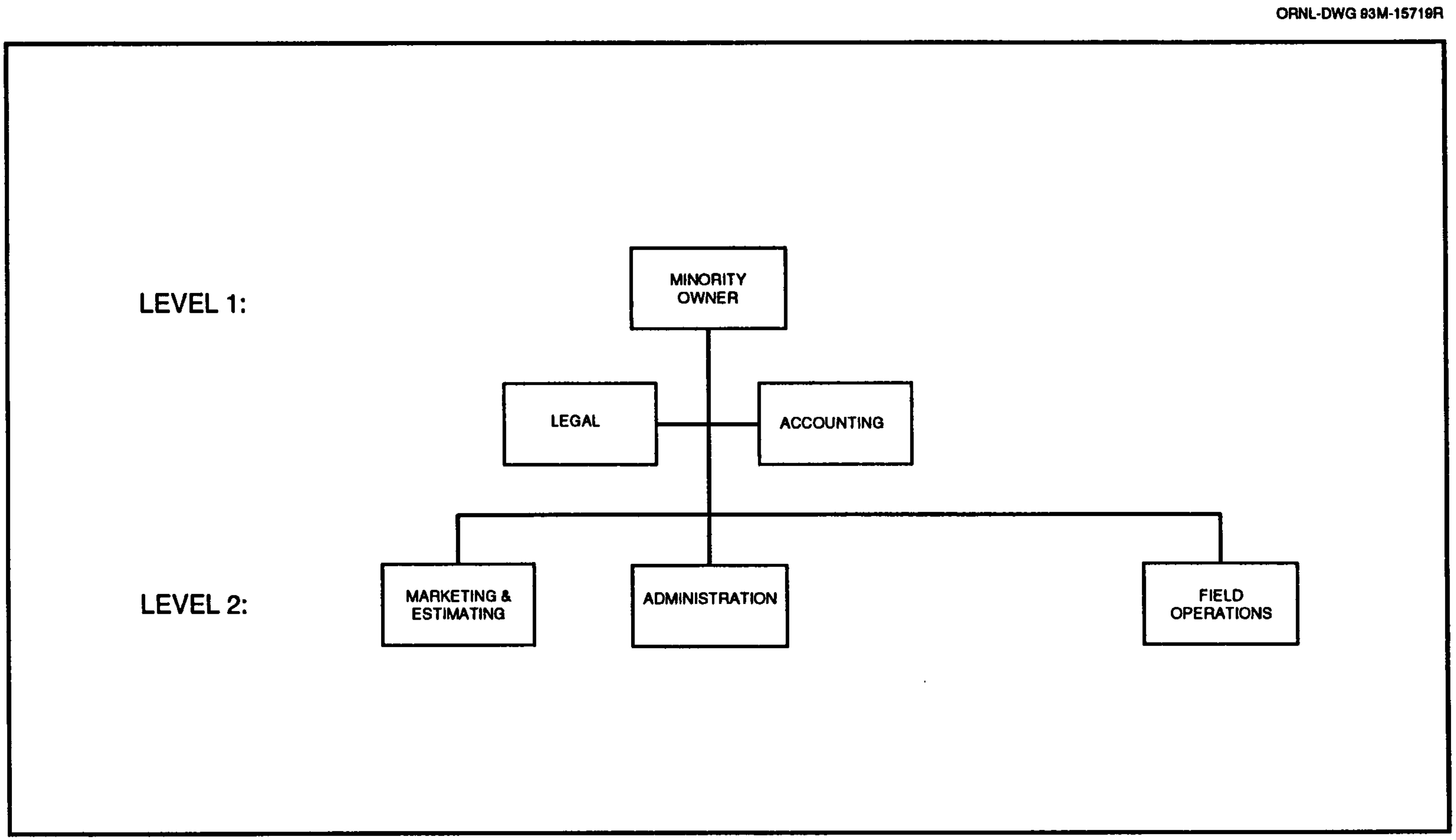
CHAPTER 6

PARTICIPATION MODEL

One of the first questions a minority entrepreneur must ask him or herself is why do I want to enter the construction or A-E design services world. To be an entrepreneur carries with it a great deal of personal responsibility and commitment. Fulfilling your dreams often means taking risks, financial risks. The formula for a successful minority venture in A-E design and construction services on the ORR includes just four basic, but very important criteria, and those are: (1) fair contract pricing; (2) on-time contract performance; (3) quality deliverable; and (4) good attitude.

ORGANIZATIONAL STRUCTURE

Establishing a company's organizational structure is very important. It is so important that all banks require a new start-up organization chart be included in a comprehensive business plan. Figure 10(a) illustrates an organizational structure that would be for a one to two person construction contracting company. The owner fills all the key roles in the company, such as office manager and the construction manager. Figure 10(b) illustrates a typical organizational structure that is representative of a growing, but small construction contracting company. The owner also fills the role of the office manager (business manager) or the construction manager. The problem that many minority construction company owners have is that they typically try to manage



(a) One Person Firm

Figure 10. Small Business Organizational Structure

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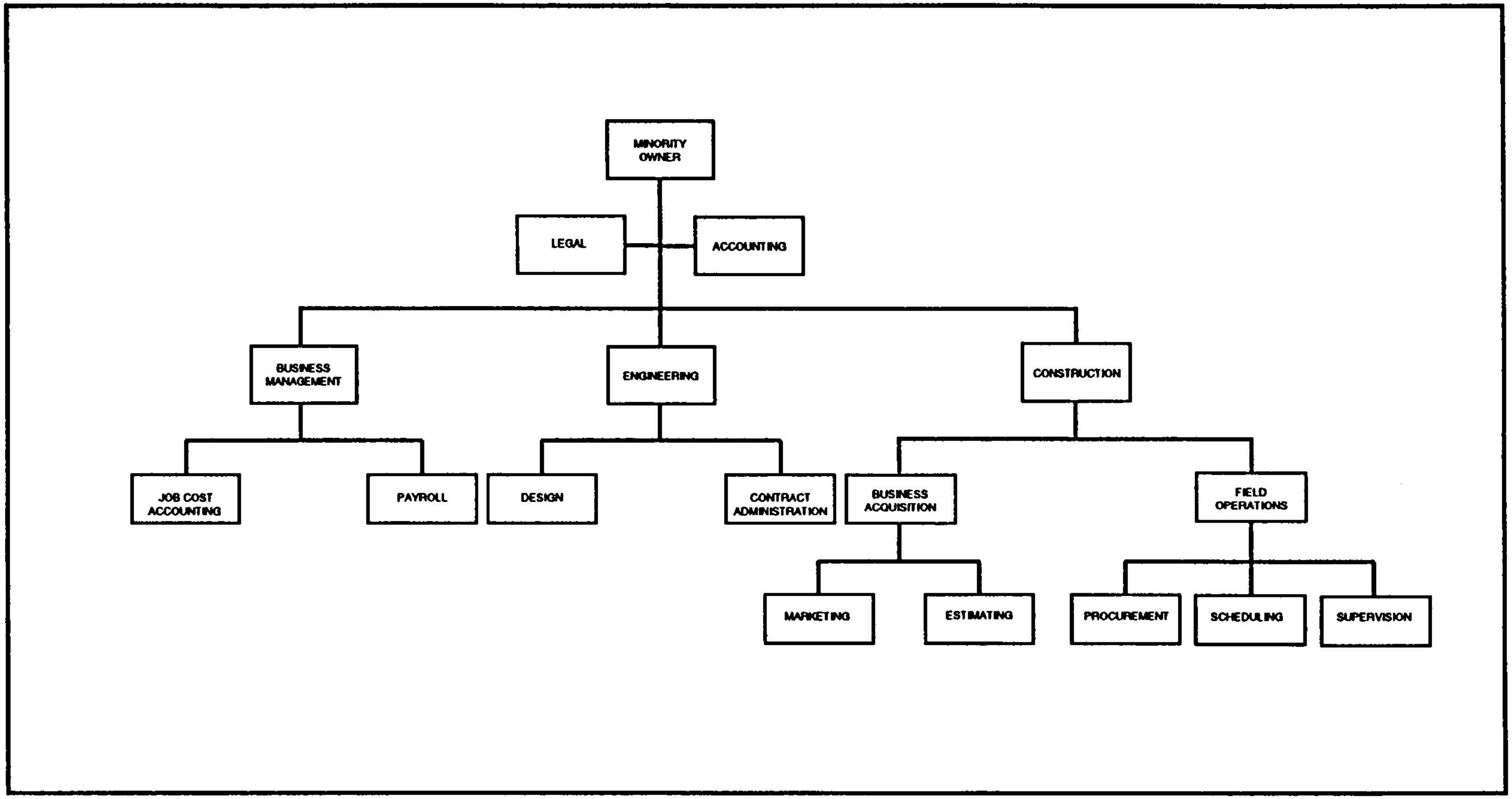

(b) Growing Firm

Figure 10. (Continued)

field (construction) and office operations. The owner of the company is typically best suited to market his or her new company to procurement and contract officials at DOE-ORO, MK-F, and MMES. Marketing a new small business, especially a minority A-E design or construction company, is a full time job. Many of the well operated and profitable small, minority-owned construction companies have three main principals. The organizational structure illustrated in Figure 10(a) and Figure 10(b) were chosen due to their simplicity. Figure 10(a) details a typical small one person (or two person) firm. The firms organizational structure is managed down to the second level (level 2). In contrast, as the firm grows in size (or grows in project volume) each of the firms departments is managed down at the third level (level 3). Each department; accounting, engineering, and construction are managed by a different department head (or two departments can be managed by one department head). In any event, this person (or persons) should be a full-time employee. This organizational structure allows the department head to actually perform these activities down at the fourth level (level 4), such as for example the Engineering Department head performing the quantity take-off duties, cost estimating, and scheduling duties. According to SBA officials, many of the minority-owned 8(a) construction companies that survived a minimum of five years typically had key people in the categories of business manager (someone who managed design take-offs, estimating, scheduling, bookkeeping, payroll, and procurement) and construction manager (someone who managed field construction activities with the help of construction superintendents for each construction project).

However, each new small business entrepreneur must analyze and carefully chose the organizational structure his company will model. In any event, the comprehensive business plan that is developed by the company owner and used as a self-marketing tool for the banks and insurance companies should clearly identify the firm's final organizational structure. As circumstances change, the organizational structure of the company should change. A firm's organizational structure should always be dynamic.

CAPITAL FORMATION STRUCTURE

To start a construction business one needs the correct amount of capital. "It is often said that the only difference between a successful venture and one that falters soon after starting is that the former had capital behind it."[19] To a new, start-up, minority construction firm, obtaining capital is easier said then done. According to a study conducted last fall by the Boston Federal Reserve Bank, "African-American and Hispanic mortgage applicants in the Boston area were 60 percent more likely to be turned down than Caucasians."[20] A Minority Business Enterprise (MBE) involved in construction may have to find other ways to obtain the capital it needs to start, expand, and stay in business.

Many minorities have a very hard time obtaining capital and the financing that is needed to succeed in business, especially the A-E design and construction business. In New York City, a new neighborhood minority credit union was the answer for one "woman seeking to complete financing for renovation of a small apartment building." The construction refinancing enabled the woman to finish construction, which in turn *provided housing units for nine people. After long discussions with six Knoxville-area construction subcontractors, what was eventually revealed was that past debt problems (i.e., defaulting on vendor-supplied material invoices, late loan payments, and lack of establishing a relationship with a commercial bank loan officer prior to trying to obtain bank financing) were the main causes that these firms were denied access to commercial financing.*

Most people have heard the statement, "you don't get something for nothing." However, in conversations with six Knoxville minority subcontractors (each requested that their names not be used), each stated that they thought the SBA had minority set-aside money to help them start their contracting business. Each of the six subcontractors was asked whether they were willing to risk the loss of their homes, furniture, and cars to start their contracting firms. Amazingly, all but one participant responded, "absolutely not!"

Five of the six subcontractors started their companies by obtaining an average $6,000 from various family members. The sixth subcontractor started his contracting business with an $18,000 insurance claim settlement.

None of the six had any luck obtaining capital from banks for working capital, payroll, or supplies. Interestingly enough, the real reason banks refused to loan start-up money was each of the subcontractors lack of preparing a comprehensive business plan. NationsBank of Tennessee requires that a comprehensive plan for a new business be prepared and submitted a minimum of six months prior to trying to obtain capital. NationsBank will help with the preparation of a business plan. A comprehensive business plan is a document that describes a particular new start-up company and the *principals who will operate it. A comprehensive business plan can be used as a marketing tool and a data and information source for the various professionals the company's owner will need to consult. A company's business plan should look professional to the people who are going to read it. It should be laser printed and bound. In any event, the business plan should be attractive to the readers. Prior to being issued to the intended readers, the business plan should be proof-read by the company's legal counsel and accountants to assure its maximum effectiveness. An outline of a comprehensive business plan is included in Appendix A. This comprehensive business plan has been altered to match a business plan submitted to a bank by a successful Philadelphia, Pennsylvania, minority contractor. The business plan submitted by this Philadelphia contractor totaled 244 pages of typed information contained in an impressive three-ring binder. It also included many color graphs of projected work, projected earnings, projected capital borrowing, projected profits, and the resumes of workers and consultants. Help for preparing your company's comprehensive business plan is available from various sources, such as, but not limited to, the OMBE, SBA, or the bank that your company will do business with.*

In an effort to increase small business participation on the ORR, the U. S. DOE Procurement and Contracts Division, General Acquisition Branch, announced in the May 20, 1991, **Commerce Business Daily** *(CBD) that any small business interested in providing Title I and II architectural and engineering design and Title III construction inspection services for multi-discipline design projects in Oak Ridge, Tennessee; Paducah, Kentucky; Portsmouth, Ohio; and Fernald, Ohio, submit Standard Form (SF) 254*

(Architect-Engineer and Related Services Questionnaire) and SF-255 (Architect-Engineer Related Services for Specific Project Questionnaire). Appendix B contains the front page of both a SF-254 and SF-255 form. Official copies of these two forms can be obtained from the DOE-ORO Federal Office Buildings located in Oak Ridge, Tennessee. In March 1993, DOE once again solicited bids from small and disadvantaged businesses on the largest contract ever set aside in Oak Ridge for small and disadvantaged businesses. This particular contract was valued between $30 and $50 million and was for support work as part of DOE's massive environmental clean-up. According to Steve Wyatt, a DOE spokesman, more than 500 requests for copies of the proposal requirements were received. Now it is safe to say that of these 500 requests, very few were received by small disadvantaged minority firms. The problem is that in order to get more minorities involved with A-E design and construction services in Oak Ridge, or for that matter anywhere, the quantity of eligible minorities has to be increased. The first step to increase minority participation in engineering, specifically, was taken by Secretary O'Leary and members of both industry and academia. A five-year $50 million war chest was established with DOE contributing $25 million and the U. S. Environmental Protection Agency (EPA) committing $15 million and the private sector contributing the remaining $10 million. "Half of the money will be spent by 17 U. S. historically African-American and minority colleges and universities to improve their environmental curricula, generate more internships, faculty exchanges and research opportunities. The five-year program identified four core areas to focus resources: (1) precollege education; (2)

undergraduate and post-secondary training; (3) graduate education and research; and (4) and industry-government-academia technology transfer."[21]

BUSINESS LEGAL STRUCTURE

The lack of venture capital will have a major impact on the type of legal structure a minority construction firm might take on. The second most important decision that a new minority business must make is to choose the correct legal structure that the business will operate under. The three legal structures that a business will operate under are the sole proprietorship, partnership, and corporation. Each has its own risks and rewards.

A sole proprietorship is owned and operated by one individual. This individual is responsible for all the affairs of the firm. All assets and liabilities are held by the sole proprietor. Therefore, income in the form of cash to the firm is considered personal cash to the sole proprietor and taxed accordingly. Expenses and losses to the firm are considered personal expenses to the sole proprietor. The benefit of this type of legal structure is that there is no separate taxation of the firm. The liability of this type of legal structure is that the present and future personal assets (those assets that have nothing to do with the business entity) of the sole proprietor are subject to legal action in the event of a lawsuit. A-E design firms usually take on the form of sole proprietorships. "Since the owner's capital and that of the firm are one and the same, the credit that the firm can obtain and its ability to generate new capital are limited by *the personal assets of the sole proprietor. Also when the sole proprietor dies, the partnership is typically dissolved."*[22]

A partnership is similar in structure to a sole proprietorship except that the partnership spreads the risk. A partnership allows the principals of the partnership to combine limited financial and management resources. A partnership will prepare an initial charter that will define the amount of ownership among the partners. One benefit of a partnership is that the personal assets of each of the partners helps to increase the capital base of the partnership, thus helping to increase the partnership's line of potential credit. There are two types of partnerships, general and limited.

The general partners in a partnership share all profits and losses depending on their amount of ownership. This will be spelled out in the initial charter of the partnership. However, because the liability of each of the partners is unlimited, one partner in the case of a major loss may be required to carry the majority of the liability of the other partner. In a limited partnership, certain partners have limited liability. The limited partners are limited to the amount of their initial investment; therefore, a limited partner can not have his or her personal assets beyond that which is initially invested attached in the event of a major loss. Limited partnerships are difficult to form and are regulated more rigorously by the state because they usually enjoy some of the same benefits that a corporation receives. The assets of limited partners must be tangible such as cash, stock, and/or equipment. "Limited partners have no say in the management and operations of the partnership. In a partnership the action of one general partner is binding on all the other general partners. A partnership is a marriage, and any partner *must be able to live with any commitment made on behalf of the partnership by another partner."*[23] *One of the apparent liabilities that exists with this type of legal structure is that there is double taxation, both on the salary of the general partners and on the partnership's earnings. Also when a general partner dies, the partnership is typically dissolved.*

A corporation is a separate legal entity and is created as such under the law of the state in which it is chartered. A corporation is the most complicated form of ownership to establish. "A lawyer has to be retained to prepare the proper documents. Stock certificates must be printed, and formal meetings by the principals are legally required."[24] *The greatest benefit of establishing a corporation is its limit of liability. Only the assets of the corporation are subject to legal action in the event of a major liability. Therefore, the shareholders' stock value is at risk. Assets that are owned outside the corporation can not be attached through legal action to settle the debt incurred by the corporation. Construction companies usually take on the form of a corporation or a subchapter C corporation. One liability associated with a corporation is that it is subjected to double taxation. Corporate profits are taxed as are the dividends distributed to the stockholders. Unlike the proprietorship or partnership, the corporation survives even with the death of the corporation's principal owners. Only the stockholders can dissolve the corporation.*

A new start-up minority construction company should take advantage of a certain special corporate structure known as a "subchapter S corporation." Subchapter S corporations are taxed under subchapter S of the Internal Revenue Service (IRS) code.

According to Monica Langley, an attorney with the Knoxville firm of Long, Ragsdale and Waters, P.C., "a subchapter S corporation combines the most desirable elements of the general business corporation with many of the beneficial tax features of a partnership."[25] For a new minority construction company, the good news is that in the state of Tennessee, the subchapter S corporation is considered a corporate entity. Creating a subchapter S corporation avoids double taxation, but retains the benefit of limited liability. Subchapter S corporate income is taxed as personal income. Losses by the corporation are reflected in the loss of a shareholders stock value. Some of the other benefits of a subchapter S corporation according to Monica Langley are: (1) only reserved for small business, where a small business corporation is defined as a domestic corporation that is not an ineligible corporation (including banks and insurance companies); (2) the free transferability of ownership subject only to federal and state securities law; (3) centralization of management in a limited number of persons; (4) the corporation's perpetual existence if one of the owners or chief executives dies; (5) tax deductible losses, three years forward or backwards, can be passed off to shareholders; and (6) any interest expense incurred to purchase the stock is fully deductible as a business expense. The most important benefit comes if the owner decides to sell his or her subchapter S corporation. The tax benefit to the owner is enormous. Table 4 provides an example of why the minority contractor would want to establish his or her business as a subchapter S corporation.

A subchapter S corporation is not allowed to have (1) more than 35 shareholders, (2) shareholders other than individual estates or certain trusts, (3) any shareholder who

Table 4 Comparison of Regular vs Subchapter S Corporation

Comparison	*Regular*	*Subchapter S*
Owners net worth after asset sale	*+ $1,000,000.*	*+ $1,000,000*
1993 corporate tax rate @ 34.0%	*- $ 340,000.*	*- 0*[1]
Stockholders cash distribution BFIT	*= $ 660,000.*	*= $1,000,000*
Maximum income tax rate @ 39.6%	*- $ 261,360.*	*- $ 396,000.*
Stockholders cash distribution AFIT	*+ $ 398,640.*	*+ $ 604,000.*

[1]No corporate tax

is a nonresident alien, and (4) more than one class of stock. Subchapter S corporations can only be dissolved under the following conditions: (1) voluntary revocation; (2) the newly created small minority construction business no longer qualifies as a small business; or (3) the newly created small minority construction business has excess investment income for three consecutive years. A newly created small minority construction business that qualifies as a small business corporation can elect to be treated as an subchapter S corporation if all the corporation's stockholders concur with the election. The small minority construction business filing under subchapter S of the IRS code can be initiated any time in the year prior to the year in which the election is *to be effective or within the first two and a half months of the year in which it is to be effective. Filing IRS form 2553 executes the election.*

A newly created small minority construction business should thoroughly study the advantages and disadvantages of each of the legal structures I have discussed above (sole proprietorship, partnership, and corporation). Prior to initiating any paperwork, the principals in the business should consult competent legal counsel.

ACCOUNTING SYSTEM

A start-up small disadvantaged minority engineering or construction company has to establish the type of accounting system that will be used. The principal of the firm must be thoroughly schooled in all aspects of financial management and cost accounting. Doing business without a basic knowledge of accounting invites disaster. All companies, whether small disadvantaged or large multinational, operate to make a fair profit (or fair return-on-investment). Understanding basic accounting principles helps to achieve this fundamental goal.

The two most significant financial accounting documents to an engineering or construction firm are the statement of financial position, commonly referred to as the balance sheet, and the profit and loss earnings statement, commonly referred to as the income statement.

A balance sheet reflects the actual financial position of a company at a given time. The equation that is the basis of financial cost accounting is ***Assets = liabilities***

*+ **net worth**. There are generally three types of assets: (1) current assets (referred to as liquid assets); (2) fixed assets; and (3) miscellaneous assets.*

Examples of current assets are: (1) cash on hand; (2) cash in bank accounts; (3) account receivable; (4) accounts receivable on completed contracts; (5) accounts receivable on uncompleted contracts; (6) accounts receivable on uncompleted contracts through contract retention; (7) recallable loans; (8) stocks, bonds, money market funds, and mutual funds.

Examples of fixed assets are: (1) property; (2) office equipment; (3) other equipment such as company construction vehicles, automobiles, and trucks; and (4) non-recallable long-term notes.

Examples of miscellaneous assets are: (1) marketable securities; (2) non-marketable securities; (3) real estate investments; (4) joint ventures; (5) investments in subsidiary companies; and (6) cash surrender value in a life insurance policy.

There are two types of liabilities: (1) short-term (sometimes referred to as current) liabilities and (2) long-term liabilities. Examples of short-term liabilities are: (1) accounts payable; (2) subcontracts payable; (3) payroll payable; (4) taxes payable; (5) insurance payable; (6) credit-line used to make payroll; and (7) billings in excess of cost.

Some examples of long-term liabilities are: (1) bank notes used to purchase equipment and (2) bank notes used to provide working capital. Liabilities are obligations that must be met either in the near term or the long term. Net worth is the value of the company (or after all the liabilities are paid, the remaining worth of the company).

The company's income statement is a subset of the balance sheet. An income statement measures a company's cash flow over a specified period of time (or difference between a company's revenue and expenses). ***Revenue - expenses = income before taxes. Income before taxes - taxes = income after taxes (retained earnings).*** *"An income statement reflects the company's retained earnings (revenue -expenses) for a period of time."*[26] *An income statement helps the principal owners determine whether they are operating efficiently in producing a satisfactory income on their capital investment. It actually summarizes the inflow and outflow of capital resulting in either a profit or loss for the firm. A modified version of the accounting formula that forms the basis of financial cost accounting is* ***Assets = liabilities + net worth + (revenue - expenses).***

There are five principle categories that a small disadvantaged construction contractor's income statement should follow: (1) income from contracts; (2) direct construction cost; (3) general and administrative expenses; (4) non-operating income; and (5) other expenses.

Income from contracts should relate solely to gross revenue from construction projects, except when the completed contracted basis of accounting is utilized, which defers income until the end of the job.

Direct construction costs relate to direct project or job cost, such as the cost of materials, subcontractors, labor, payroll taxes, insurance, welfare, equipment costs (rented or purchased), bond premiums, superintendent, timekeeper, and utilities (power, water, sanitary, communications).

General and administrative expenses are indirect or overhead expenses that are based solely on the general conduct and administration of the entire business. The small disadvantaged contractor will have main office expenses, such as for office rental lease, main office utility cost (telephone, electricity, gas, and water) and main office salaries (for the firm's president and chief executive officer, chief operating officer, secretary, and bookkeeper).

Non-operating income comes from sources other than construction contracts, such as from the sale of property and real estate, equipment rented to others, and cash discounts for prompt payment of bills.

Other expenses relate to expenditures that may be considered as a deduction to nonoperating income, such as interest paid to banks or losses from the sale of assets.

Another important factor that a small disadvantaged contractor should consider when starting a construction company is how to obtain the needed working capital. As mentioned earlier in this thesis, the SBA can provide a small disadvantaged business, among other things, working capital. ***Working capital = current assets - current liabilities.*** *The principal of a small disadvantaged contracting company normally needs to contribute tangible assets such as cash and equipment. Fixed assets should always be displayed as the difference between purchase price minus the depreciation of the fixed assets (also referred to as book value). Fixed assets can help the small disadvantaged contracting company borrow additional funds from a bank. Appendix C details an example of a typical balance sheet and income statement that a small disadvantaged* *contractor might have after his or her first year of operations, assuming he or she started operations on January 1.*

Because construction accounting is so specialized, it is not only advisable, but critical, that the new minority construction contractor prequalify an accounting firm that specializes in construction accounting. An excellent source for recommending a competent construction accountant is your bonding company. According to Willis Corroon of Knoxville, some of the ways to gauge a good Certified Public Accountant (CPA) is to ask to see samples of the CPA's work for other small contracting companies, such as general and administrative expense schedules, completed contract schedules, and year-end statements. Willis Corroon of Knoxville also suggests that new minority construction contractors network with other contractors in the area and get references from these firms. Willis Corroon of Knoxville believes that the cost of a good CPA thoroughly schooled in construction practices, especially for small contractors, is the best investment a new minority contractor can make for his or her firm's future.

SURETY BOND PROGRAM

The problem most minority contractors encounter when trying to obtain bonding for construction projects is first acquiring the necessary working capital. To reinforce this point, "in a 1991 ***Engineering News Record*** *article on subcontractors and surety bond growth, the American Subcontractors Association (ASA) reported that the surety industry had tightened up on underwriting requirements, such as contractors' net worth and working capital."*[27] *Many minority contractors, according to this same article, claim that* *they have been hurt by the government's decision to tighten up on the use of individual sureties on federally funded projects. For private sector construction projects, contractors are also increasingly required to be bonded. "In July 1988, the ASA sent out 500 questionnaires to its member firms of which 135 (27 percent) responded. More than 55 percent of the respondents stated that their largest bond was obtained for a private firm."[28] Glenn Harston, a African-American general contractor based out of Chicago and president of the Black Contractors United (BCU), believes that there is no increase in the ability of minority contractors to gain access to surety bonds. One program that has the potential for easing the surety problem for small disadvantaged contractors is the SBA's "Plan B." Plan B allows a bonding company to write bonds so that the risk is shared with the SBA.*

John Wilson, a Washington, D.C., city councilman, told members of the NAMC during their 1992 annual convention in Washington that even though minorities were gaining in their ability to access bonding, "that minority-owned firms needed to band together and form larger companies to be competitive. His thoughts were that only by merging and forming larger companies would minority contractors be able to effectively compete against the larger, more established contracting firms."[29]

The new start-up small disadvantaged minority contracting firm that is trying to gain access to the DOE system through the SBA 8(a) needs to try to gain access to the bonding market to effectively compete once his or her nine-year period is completed. Contacting the NAMC for information on how to obtain the necessary bonding is a good first start.

However, before a minority contractor can obtain a surety bond, that contractor should know certain information about bonding and surety companies. This will help him or her to effectively compete in the Oak Ridge environment.

The first corporate surety bonding company, Fidelity Insurance Company, was founded in 1865. A surety is a written agreement between two parties; however, three parties are involved in a surety bond: the principal, the obligee, and the surety. The principal (defined as the contractor) is primarily responsible for the fulfillment of the obligation set forth in the bond. The obligee (defined as the owner) is the beneficiary under the terms of the bond. The obligee is always protected because either the obligation of the principal is fulfilled or the bond is executed. The surety (defined as the third party) combines with the principal for the sole purpose of guaranteeing to the obligee the fulfillment of the principal's obligation.

The minority contractor should know that a surety is not insurance. A surety provides for a loss-avoidance mechanism that is designed to prequalify individual contractors based on their credit strength. The economic risk of contract defaults still remains with the contractor. The contractor must sign an indemnity agreement holding the surety harmless from any economic loss. Insurance is a loss-funding mechanism that is designed to compensate the insured against adverse events such as fire, accidents, theft, hurricanes, etc. Insurance premiums are paid by individuals and placed into a pool to pay for individual losses incurred.

Surety underwriters will look for three things when considering bonding an individual contractor. The three things are capital, capacity, and character. The amount *of capital determines whether the financial condition of the principal justifies the financial risk. Capacity defines whether the principal has the necessary skills or abilities to perform the contract obligations. Character defines how the company is run and the values that it stands for.*

There are several types of contract surety bonds that a minority contractor may be required to obtain to perform construction work on the ORR. They are a bid, performance, labor and material payment, and supply bond.

A bid bond, if the contractor's proposal is accepted by the owner, prequalifies the bidder. If the contractor fails to enter into a contract with the owner after his or her proposal is accepted or provide a sufficient bond for performance of the terms and conditions of the contract, the contractor forfeits his bid bond. Bid bonds are executed in a fixed or percentage amount for a minimum 5 percent or 20 percent of the contract bid price.

A performance bond is issued after the proposal has been accepted. A performance bond guarantees that the work will be completed in accordance with the plans and specifications and at the contracted price. Performance bonds are executed for either 50 percent or 100 percent of the contract price. Construction work performed on the ORR now requires a 100 percent performance bond. The cost of the performance bond is based on the contract price.

A labor and material payment bond is issued with the performance bond. It guarantees that the contractor will pay all accounts originating from the project. This *affords the owner a lien-free project. Labor and material bonds are executed also for either 50 percent or 100 percent of the contract price.*

A supply bond is like a performance bond; however, a supply bond is issued for contracts to supply materials and machinery at a specified time and place.

TOTAL QUALITY MANAGEMENT PROGRAM

Total Quality Management (TQM) should not simply be the buzz words for the 1990's for a new minority contractor. In the 1980's, Quality Assurance (QA) was the buzz word, and not very many people or firms actually grasped the philosophy or meaning of QA. Many firms set up QA departments with the QA manager reporting directly to the firms president or chief executive officer (CEO). The problem was that no one knew the true meaning of QA and what is was to accomplish. In contrast, "TQM is a business strategy and philosophy that involves everyone, it emphasizes continuous improvement and total customer satisfaction with all products and services. TQM consists of four elements; (1) worker empowerment; (2) goal-setting; (3) quantification, measurement, and feedback; and (4) teamwork."[30]

Worker empowerment involves true decision-making made farther down in the organization, eventually decreasing unnecessary levels of management. Worker empowerment involves allowing everyone in the organization to actively participate in making decisions. Goal-setting involves listening to customers and setting goals to improve products and services. The quality of a product or service is not a process that can be taken lightly. Quality should be designed into a product or service beforehand.

Quantification, measurement, and feedback involves tracking performance trends. It also involves satisfying customers and continually improving products and services to that customer. Quantitatively measuring quality allows for a reduction in variations. Finally, teamwork is the simplest to understand, it means establishing ties with other workers and customers to understand their needs. These four TQM elements; worker empowerment; goal-setting; quantification, measurement, and feedback; and teamwork are the basis for TQM.

For 8(a) firms to effectively compete on the ORR requires that quality products be delivered on time and on budget. The job performance of 8(a) participants is graded by the people they are performing services for, typically the MMES project team. The project engineer with assistance from the principal engineer fills out a performance evaluation form, which ranks the minority firm in various categories that cover such things as quality of deliverable, on-time performance, cost objectives, attitude, as well as difficulty of assignment. Scoring is graded from excellent to poor. The majority of 8(a) firms are graded in the average category. If a poor score is given, then an explanation to the DOE is required. The consensus is that no one will give an 8(a) firm a poor grade, even when deserved. In essence, "no one wants to rock the boat."

Because performance scores are not typically published and the DOE does not send a report card out after the project is completed, the 8(a) firm must inquire about its project performance. Oddly enough, the majority of 8(a) firms never make an attempt to inquire about their performance or their score.

A TQM program should be adopted by 8(a) firms wanting to effectively compete on the ORR. TQM programs are not easy to adopt. According to Dr. W. Edward Deming (the grandfather of a philosophy called total quality management), most companies are set up to fail because employees and management work at cross-purposes, or in other words, as workers work harder, management problems multiply.

Delivering a quality product, whether that be a design package by an 8(a) architect-engineer or a construction project by an 8(a) construction contractor, should be the most important management principle a new or existing 8(a) firm should adopt, especially if that 8(a) wants to do business in Oak Ridge. An 8(a) firm must dramatize its commitment to total quality.

A design or construction project should be completed properly the first time, thus eliminating the obvious pressure of spending additional time and money fixing problems. An 8(a) firm should constantly measure and baseline mistakes. This will aid in eliminating recurring problems, thereby reducing cost and contributing to a quality deliverable. The question that must be constantly asked is, "how can I improve my product or service if I don't know how well I am performing now?" An 8(a) firm should always accept criticism as constructive and should constantly ask the customer for ways to improve the overall product. A report card should be kept on every project and at regular intervals. When you are just starting out in Oak Ridge, biweekly feedback would not be uncommon. Taking the extra step is paramount to doing business in Oak Ridge and proves a real commitment to wanting to deliver a quality deliverable.

As a final note, Dr. Deming, as part of his 14 principles of TQM, stated that a company and its workers should always measure performance by how well the customer's needs and expectations are fulfilled, as opposed to how much paper they push, how many nails they hammer, or how many contracts are signed. This is the first step in preparing a TQM program. TQM principles are, in fact, principles of constant and continuous improvements. Constant and continuous improvements constitute a process that should be adopted in an 8(a)'s mission statement.

KNOWING THE CUSTOMER

If a minority contractor decides to do business with a federal government agency like the DOE-ORO, extreme patience is required. There are vast differences between the way the private sector (corporate clients) conducts business as opposed to the way the federal government conducts business. For instance, a minority contractor must be ready to spend months trying to have a contract executed in the DOE system as opposed to just weeks in the private sector. That same minority contractor must realize that the low bidder almost always is awarded the contract. The minority contractor should never bid on work he or she does not know very well. Another important factor is that marketing is very important in the DOE system. Staying in constant contact with the design and contract procurement community is important, actually this is the best way to obtain information about the project. Also before bidding on a DOE-ORO project a site visit is essential.

The most important aspect that anyone including a minority contractor must focus on is proposal writing. Written proposals are very important in the DOE world. Written proposals are the minority contractors chance to market his or her firms skills. A written proposal should meticulously answer each and every question that is asked by the DOE. The written proposal should be clearly written to reflect the criteria that the DOE has established for the particular project being evaluated. The minority contractor should provide in the written proposal to DOE-ORO exactly what is being requested. Written proposals should always be clear and precise.

These are the most important items one needs to know before deciding to bid on DOE-ORO projects.

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BIBLIOGRAPHY

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APPENDICES

APPENDIX A

SAMPLE

COMPREHENSIVE BUSINESS PLAN OUTLINE

SAMPLE COMPREHENSIVE BUSINESS PLAN OUTLINE

I. SUMMARY

A. *Owners Name, Company Name, Address, and Phone Number*

This should be on the cover page and at the top of the summary page.

B. *Business Description*

Describe what business you are in, its development stage (whether it is in its infancy or prime). This is where your company's strengths and weaknesses should be described.

C. *Management Description*

Describe the principals (company management team) and there experiences in the business they are attempting to enter.

D. *Product or Service Description*

Describe the product or service your company is offering and how it is unique. Describe why your product or service will succeed where other company's have failed. Emphasize how your company's product or service fits into a new or mature industry.

E. *Funding Description*

Describe how you plan on financing your new company. If you are looking for financing, state the amount and type (i.e., debt or equity) and how you plan to use it. Describe the type of collateral to secure any loans.

F. *Financial Information*

Summarize your company's past financial history (a new company will not have a past financial history to describe). Include a one table summary of projected financial statements.

II. COMPANY HISTORY/FUTURE

A. *Owners Name, Company Name, Address, and Phone Number*

List the Standard Industrial Classification (SIC) for your company. This can be obtained from the SBA or your local library.

B. *Company Business*

Describe what the company does (such as manufacturing, designing, construction, sells, and or consults). Clearly state the purpose of why your company is in business.

C. ***Company History***

Tell when the company was founded, when it introduced its first product or service, and any other significant events.

D. ***Company Plans***

Chronologically list what your company will do to succeed. Clearly state the time frame for accomplishment.

E. ***Company Business Position***

Describe what makes your business different than other business in the same field. Clearly explain whether the product, production, sales approach or some other aspect of the firm is unique to the competition.

F. ***Product or Service***

Describe in great detail the product or service your company is offering and how it is unique.

III. COMPANY PRINCIPAL PERSONNEL

A. ***Company Directors and Company Officers***

List names and positions of all directors, officers, and key employees in the company.

B. ***Company Directors and Company Officers Personal Information***

Enclose a personal resume and personal financial statement for each of the principals.

C. ***Statement of Integrity***

This section should state that all company principals and employees are not criminals, are honest law abiding citizens, and have excellent financial credit histories.

D. ***Labor Costs***

This section should detail the wages, salaries, fringe benefits, fees, commissions, and bonuses each company principal and company employee (including consultants). Show each principal and employee's positions with the company.

E. ***Owner/Investors***

Describe how your company was financed. List the name, the amount of investment, and percent ownership of each investor. If your company has sold share for cash, indicate the amount of shares each investor possess.

F. ***Contracts***

This section describes any legal employment agreement with any person. A copy of the agreement should be included with the business plan.

G. ***Professional Consultants***

List the names of all professional consultants that your company plans to use and the fees your company plans to pay them for their services.

IV. COMPANY FINANCING

A. ***Financing Requirements***

Give a detailed description of what you are seeking from your banker. Is your company looking for a credit line to make payroll or a loan to purchase equipment. Your banker needs to know the loan amount, length of loan, and type of loan (i.e., fixed rate, variable rate, escalating rate, etc.)

B. ***Existing Capital Formation***

If your company has an existing loan this should be detailed in this section. Also detail your companies principal(s) financial commitment.

C. ***Collateral***

If your company is requiring a bank loan to finance debt, this section should describe any collateral involved. If your company already has an outstanding loan with this same collateral obligated, clearly state this.

D. ***Loan Guarantees***

If your company has obtained a personal or corporate loan guarantee please state this and attach the guarantors personal or corporate financial statement.

E. ***Financial Objectives***

This is perhaps the most important section to a bank you are attempting to do business with. State your companies most credible financial goals. Be specific about specific financial goals with a timetable for accomplishment.

F. ***Financial Statements***

Start-Up Statements

1. *Start-up costs (estimated)*

   List all start-up expenses incurred in preparation for opening your new business, such as business cards, signs, logo design, office furniture, stationary cost, etc.

2. *Owner's living expenses (estimated)*

   List all the owners living expenses such as mortgage, utility, food, taxes, clothing, auto and repair, insurance payments, etc.

3. *Operating costs (projected)*

   List a projection of the capital your new business will need to remain viable. These projections should be for a minimum of 36 months/maximum 60 months in the future.

4. *Balance sheet (projected)*

   (See Appendix A, Page 1 of 4 through Page 3 of 4)

5. *Income statement*

   (See Appendix A, Page 4 of 4)

6. *Monthly cash flow statement (projected)*

   List cash flow projections such as cash-on-hand, cash receipts, total cash available, cash paid out, total cash paid out, cash position.

7. *Breakeven analysis*

   List a projected timetable for your company breaking even.[1]

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[1] Portions of this form are from, "Planning Manual for a New Small Business," by G. Bruce Hartman and S. Thomas Holbrook, January 1982.

APPENDIX B

SAMPLE

STANDARD FORM 254 AND STANDARD FORM 255

STANDARD FORM (SF) 254

Architect-Engineer and Related Services Questionnaire

1. Firm Name/Business Address:		**2. Year Present Firm Established:**	**3. Date Prepared:**
1a. Submittal is for ☐ Parent Company ☐ Branch or Subsidiary Office		**4. Specify type of ownership and check below, if applicable:**	
		Corporation	
		☐ A. Small Business	
		☐ B. Small Disadvantaged Business	
		☐ C. Woman-owned Business	

5. Name of Partent Company, if any:	**5a. Former Parent Company Name(s), if any, and Year(s) Established:**

6. Name of not more than Two Principals to Contact: Title/Telephone

1)
2)

7. Present Officers: City / State / Telephone / No. Personnel Each Office — **7a. Total Personnel**

8. Personnel by Discipline: (List each person only once, by primary function.)

___ Administrative	___ Electrical Engineers	___ Oceanographers	___ ________
___ Architects	___ Estimators	___ Planners: Urban/Regional	___ ________
___ Chemical Engineers	___ Geologists	___ Sanitary Engineers	___ ________
___ Civil Engineers	___ Hydrologists	___ Soils Engineers	___ ________
___ Construction Inspectors	___ Interior Designers	___ Specification Writers	___ ________
___ Draftsmen	___ Landscape Architects	___ Structural Engineers	___ ________
___ Ecologists	___ Mechanical Engineers	___ Surveyors	___ ________
___ Economists	___ Mining Engineers	___ Transportation Engineers	___ ________

9. Summary of Professional Services Fees Received: (Insert index number)

	Last 5 Years (most recent first)				
	19 ___	19 ___	19 ___	19 ___	19 ___
Direct Federal contract work, including overseas	___	___	___	___	___
All other domestic work	___	___	___	___	___
All other foreign work*	___	___	___	___	___

*Firms interested in foreign work, but without such experience, check here: ☐

Ranges of Professional Services Fees
INDEX
1. Less than $100,000
2. $100,000 to $250,000
3. $250,000 to $500,000
4. $500,000 to $1 million
5. $1 million to $2 million
6. $2 million to $5 million
7. $5 million to $10 million
8. $10 million or greater

STANDARD FORM (SF) 255
Architect-Engineer and Related Services Questionnaire for Specific Project

1. Project Name/Location for which firm is Filing:

2a. Commerce Business Daily Announcement Datem if any:

2b. Agency Identification Number, if any:

3. Firm (or Joint Venture) Name and Address

3a. Name, Title & Telephone Number of Principal to Contact

3b. Address of Office to perform work, if different from Item 3

4. Personl by Discipline: (List each person only one, by primary function.) Enter proposed consultant personnel <u>to be utilized</u> on this project on line (A) and In-house personnel on line (B).

(A)__	(B)__	Administrative	(A)__	(B)__	Electrical Engineers	(A)__	(B)__	Oceanographers	(A)__	(B)__	______
(A)__	(B)__	Architects	(A)__	(B)__	Estimators	(A)__	(B)__	Planners: Urban/Regional	(A)__	(B)__	______
(A)__	(B)__	Chemical Engineers	(A)__	(B)__	Geologists	(A)__	(B)__	Sanitary Engineers	(A)__	(B)__	______
(A)__	(B)__	Civil Engineers	(A)__	(B)__	Hydrologists	(A)__	(B)__	Soils Engineers	(A)__	(B)__	______
(A)__	(B)__	Construction Inspectors	(A)__	(B)__	Interior Designers	(A)__	(B)__	Specification Writers	(A)__	(B)__	______
(A)__	(B)__	Draftsmen	(A)__	(B)__	Landscape Architects	(A)__	(B)__	Structural Engineers	(A)__	(B)__	______
(A)__	(B)__	Ecologists	(A)__	(B)__	Mechanical Engineers	(A)__	(B)__	Surveyors	(A)__	(B)__	______
(A)__	(B)__	Economists	(A)__	(B)__	Mining Engineers	(A)__	(B)__	Transportation Engineers	(A)__	(B)__	Total Personnel

5. If submittal is by JOINT-VENTURE list participating firms and outline specific areas of responsibility (including administrative, tehcnical and financial) for each firm: (Attach SF 254 for each if not on file with Procuring Office.)

5a. Has this Joint-Venture previously worked together? ☐ Yes ☐ No

APPENDIX C

SAMPLE

BALANCE SHEET AND INCOME STATEMENT

SAMPLE BALANCE SHEET

BALANCE SHEET **12-31-93**

ASSETS

CURRENT ASSETS

CASH:	
Cash on hand	$030,000
Cash in bank #1	$021,000
Cash in bank #2	$009,000
ACCOUNTS RECEIVABLE:	
Accounts receivable	$016,500
Accounts receivable - completed contracts	$035,000
Accounts receivable - uncompleted contracts	$055,000
Accounts receivable - uncompleted contracts (retainage)	$010,000
OTHERS:	
Recallable loan #1	$000,000
Stocks, bonds, money market funds, and mutual fund values	$035,000
Office Supplies	$002,500
TOTAL CURRENT ASSETS:	**$214,000**

FIXED ASSETS

	Assets	Depreciation	Net Value
Office building @ cost ($60,000)[1]	$120,000	$012,000	$118,000
Equipment @ cost	$025,000	$002,500	$022,500
Automobile @ cost	$015,000	$001,500	$013,500
Trucks @ cost	$018,000	$001,800	$016,200
Office furniture @ cost	$020,000	$002,000	$018,000
Total fixed assets	$198,000	$019,800	$188,200
TOTAL FIXED ASSETS:			**$188,200**

TOTAL ASSETS	**$402,200**

[1] **1983 market value**

SAMPLE BALANCE SHEET

BALANCE SHEET **12-31-93**

LIABILITIES

CURRENT LIABILITIES

ACCOUNTS PAYABLE:	
Accounts payable	$075,000
Bank note payable	$025,000
Welfare funds payable	$030,200
Withholding taxes payable	$012,500
Insurance payable	$005,900
Stock dividends payable	$005,000
Federal income tax payable	$004,300
Bank Line-of-Credit payable	$018,100
Equipment note payable	$008,800
Building note payable	$005,600
Billings in excess of cost (on uncompleted contracts)	$001,000
TOTAL CURRENT LIABILITIES:	**$191,400**

LONG-TERM LIABILITIES

ACCOUNTS PAYABLE:	
Real estate debt for one year	$030,000
Working capital bank note payable	$030,000
TOTAL LONG-TERM LIABILITIES:	**$060,000**

TOTAL LIABILITIES	**$251,400**

SAMPLE BALANCE SHEET

BALANCE SHEET ***12-31-93***

OWNERS NET WORTH

NET WORTH

COMPANY STOCK:		
Owner	*$051,000*	
Others	*$049,000*	
TOTAL COMPANY STOCK:		***$100,000***
RETAINED EARNINGS:		
Balance on JANUARY 1, 1993	*$000,000*	
Add:		
Net Income, year ended December 31, 1993	*$093,800*	
Unrealized increase from reassessment of building	*$060,000*	
Balance on DECEMBER 31, 1993	*$153,800*	
Subtract:		
Cost of stock	*$003,000*	
Balance on DECEMBER 31, 1993	*$150,800*	
TOTAL NET WORTH:		***$150,800***

TOTAL LIABILITIES & NET WORTH ***$402,200***

SAMPLE INCOME STATEMENT

INCOME STATEMENT			**12-31-93**
GROSS PROFIT ON PROJECTS COMPLETED by December 31, 1993:			**$168,500**
OPERATING EXPENSES:			
Salaries		$050,000	
Bonuses		$000,000	
Electricity		$003,600	
Water & Sewer		$000,500	
Telephone, Cellular Phone & Fax Machine		$004,800	
Gasoline		$002,000	
Lease		$012,000	
Automobile Loan		$003,000	
Truck Loans		$007,200	
Travel & Entertainment		$010,000	
Dues & Journal Subscriptions		$000,500	
Insurance		$003,000	
Legal		$002,500	
Accounting		$001,500	
Advertising		$005,000	
Sale taxes		$009,000	
Miscellaneous and other		$006,100	
TOTAL OPERATING EXPENSES		**$120,700**	
NET OPERATING INCOME			**$047,800**
OTHER OPERATING INCOME:			
Equipment rented to others		$036,000	
Building rented to others		$015,000	
Discounts earned for paying bills on time		$010,000	
NET OTHER OPERATING INCOME		**$061,000**	
NET INCOME BEFORE FEDERAL INCOME TAXES		$108,800	
FEDERAL INCOME TAX	$015,000		
NET INCOME AFTER INCOME TAXES			**$093,800**

VITA

Robert Samuel Seigler *was born in Philadelphia, Pennsylvania on November 26, 1958 to Dorothy Elizabeth and Samuel Charles Seigler. He is the second oldest of four sons, Charles Frank (the oldest), Neal Todd, and William Thomas (the youngest). He attended elementary schools in the Philadelphia Public School System and graduated from Simon Gratz High School in June of the bicentennial year, 1976. Promptly after graduation, he entered Howard University and in December, 1981 received the Bachelor of Science in Civil Engineering. In January, 1990 he entered the graduate school at the University of Tennessee, Knoxville and in May, 1994 received a Master of Science in Engineering. He is currently employed by Martin Marietta Energy Systems, Inc. as an Engineer in Central Engineering Services at the DOE owned K-25 Site located in Oak Ridge, Tennessee.*