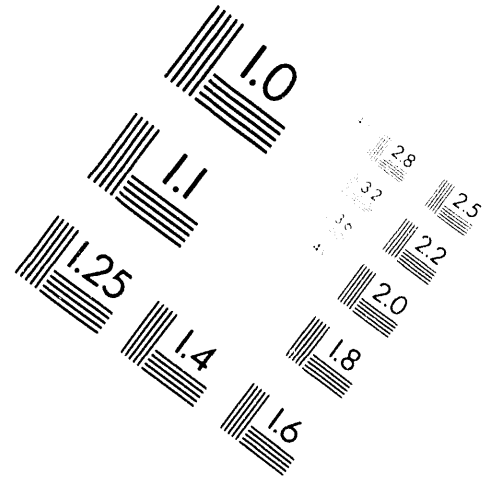
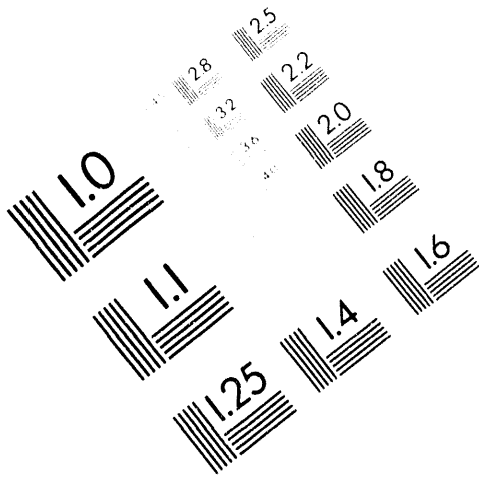




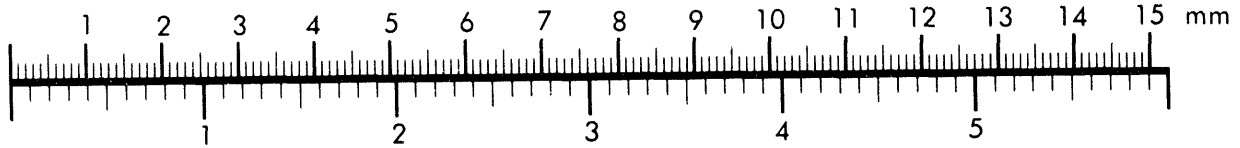
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Association for Information and Image Management

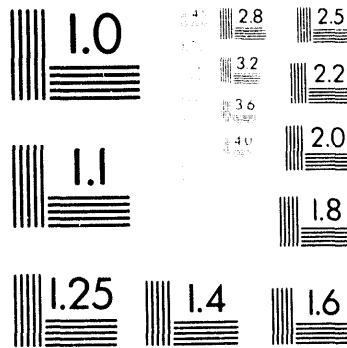
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Silver Spring, Maryland 20910
301 587 8202



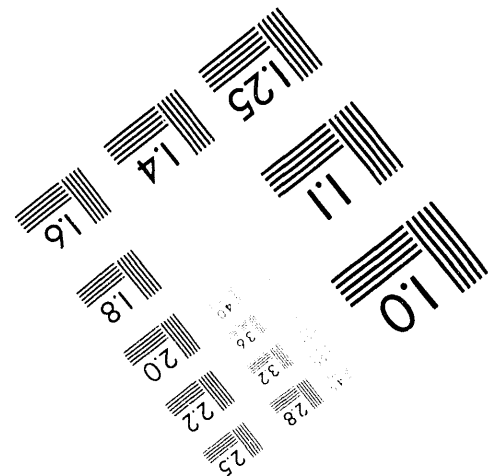
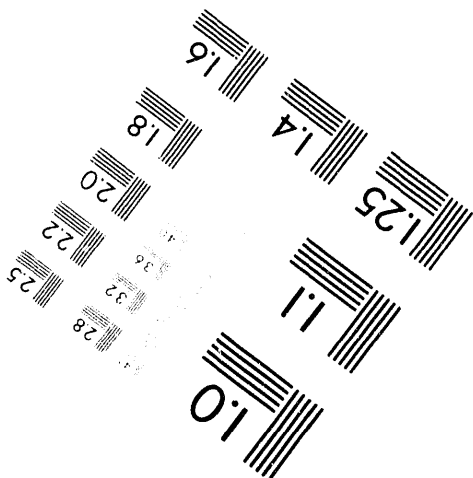
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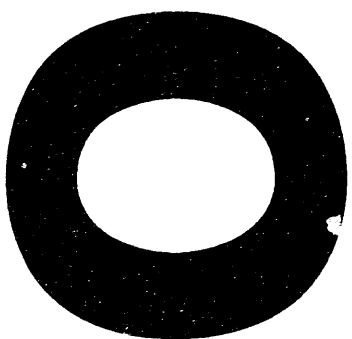


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BY APPLIED IMAGE, INC.





DOE/ER/75633--T1

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Rural Enterprises, Inc.
Progress Report
DOE No. DE-FG05-91-ER75633
for
Dec. '93, Jan/Feb. 1994

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In compliance with the agreement between
Rural Enterprises, Inc. and
Department of Energy
we herewith provide a quarterly report for the
reporting period of
Dec.'93, Jan/Feb. 1994

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Table of Contents

Industrial Incubator Program	4
Additional Incubator Activities	7
Marketing Activities	9
RTAT Activities	10
Financial Packaging	14

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DOE QUARTERLY PROGRESS REPORT

for
Dec. '93/Jan-Feb. 1994

Contract No. DE-FG05-91-ER75633

Rural Enterprises, Inc., (REI) and the Rural Technology Applications Team (RTAT) submit this quarterly report in support of the scopes of work for the Department of Energy Contract DE-FG05-91-ER75633. It covers significant activities occurring during December, 1993; January and February, 1994.

Through RTAT, Rural Enterprises, Inc., acts as a technology transfer agent between individuals, businesses and local governments with technical problems, and the sources of technology available to solve these problems. REI's professional technology transfer team regularly evaluates developments in technological innovations and data from many sources, seeking to match them with prospective users of that technology.

The Department of Energy's assistance is crucial in the creation of new and long-term private sector jobs in an area of economic depression and underemployment.

In the on-going effort to transfer technology and offer business assistance, the following is a report of projects underway during this reporting period.

Department of Energy
Contact No. DE-FG05-91-ER75633

Scopes of Work

1. Continue development of a system to access DOE technologies with potential application by small business.
2. Maintain close contacts with the laboratories identified as developing technologies most suitable for application by small businesses and industries, particularly in a rural setting through telecommunication and periodical visits.
3. Promote the DOE program on a regional basis. Use the resources of the Rural Technology Applications Team (RTAT) division of REI for outreach and for searches of the government and commercial databases.
4. Identify companies and individuals with potential for utilizing DOE technologies and develop working relations with them.
5. Identify technical problems of industry in the service area. Assist in locating and developing DOE technology to solve these problems and assist with development of Cooperative Research and Development Agreements or other appropriate arrangements.
6. Leverage and continue to network with other resource organizations (i.e.,) the Mid Continent Regional Technology Transfer Center (MCRTTC), the National Technology Transfer Center (NTTC) and, the Federal Laboratory Consortium (FLC) in efforts to support technology transfer.
7. Solicit new product and process ideas which may need additional technologies applied to them in order to bring them into the market place.
8. Work in the incubator area development program to grow new industries. Through the growth of these firms, energy-related technologies, as well as others, will be actively sought to bring about competitive spin-off industries to local communities.

9. Provide technical consultation to the financial services group.
10. Promote the Small Business Innovative Research program. Assist individuals and small businesses by conducting workshops and individual counseling.
11. Report on the progress of all tasks on a quarterly basis.

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INDUSTRIAL INCUBATOR PROGRAM

The Rural Enterprises Industrial Incubator program offers beginning business a stable foundation on which to build long-term profitable concerns. These incubator facilities consist of buildings for the specific purpose of starting a new manufacturing business and are designed to accommodate a variety of manufacturing firms. Incubators are located on the Kiamichi Area Vocational Technical School system (KAVTS) campuses in Durant, Atoka, Hugo, McAlester, Stigler, Poteau, Idabel, at the REI headquarters and one in Bennington, OK. These facilities range in size from 4,800 sq. ft. to 14,000 sq. ft. and have housed businesses such as machine shops, metal fabrication companies, electronic assembly and biomedical engineering firms.

The Rural Enterprises Industrial Incubator program has been in existence since the early 1980s. In the last five years, the program has created approximately 111 jobs since inception with 95 currently retained. Oklahoma is ranked seventh in number of incubators with 19 facilities throughout the state. Rural Enterprises oversees nine of these facilities.

An incubator advisory committee is in place or in the development stages for each facility. These advisory committees were put in place to provide additional assistance and advice to the incubator tenants.

The following is a status report on REI's incubator facilities:

REI-Housed Incubator:

Crain Manufacturing located in this incubator in August, 1993. This is a fabrication and machine shop operation. REI staff assisted with financial statements for the business. Tenant has requested shear and ironworker through OCS equipment pool. Company is waiting on word on a major pump contract.

Durant Kiamichi Vo-Tech Skill Center Incubator No. 1:

Sattco Unlimited, Inc., is a vacuum form processing, fiberglass and resin transfer molding operation. The company's current product includes spa shells, truck bed liners and bath and shower combos. Currently the tenant is completing work on vacuum former.

Durant Kiamichi Vo-Tech Skill Center Incubator No. 2:

J & S Manufacturing, a machine shop operation producing machined components, located in this facility in May, 1992. Company purchased a surface grinder. Tenant is beginning to consider plans for spinout. Principals already have land secured.

Hugo Incubator:

Collins Tool and Machine started its operation in the incubator in February, 1993. This is a metal fabrication and machine shop. Tenant purchased two NC mills and has requested a wire EDM through REI's equipment pool. Company has also been approved for three employees through Veterans labor program which is similar to JTPA with program paying one-half of trainees' wages. Tenant is planning a new plant layout and has requested some remodeling in the facility.

McAlester Incubator:

Rockford Industries located in the incubator in June, 1991 and spinout into its own facility was completed January 31, 1994. A cabinet woodworking company has made application for the incubator.

Bennington Incubator Bay C

Sutherland Bros. Manufacturing located in this incubator in July, 1993 and produces plastic fishing boats. Currently the company is selling their product in local Wal-Mart stores and sporting goods stores. Tenant is completing final details on thermoformer and concentrating on enhancement to the two-person boat, the Hammerhead. Sutherland Bros. has requested a vertical mill, brake and shear through the REI equipment pool.

Bennington Incubator Bay A

Locating in the facility in December 1993, Wood N' Strings/Master Works is a manufacturer of hammer dulcimers, an ancient folk instrument, predecessor to the piano. The company is relocating its manufacturing operation to Bennington from Estes Park, Colorado. Wood N' Strings/Master Works Hammer Dulcimers and recordings are sold nationwide. Currently four persons are employed by this small business.

Stigler Incubator:

The primary line of Taloka woods, Inc., is headstart and elementary children's furniture. Other products include decorative oak shelves and clocks. The tenant is encouraged by new federal injection of money into the headstart program and working on a \$50,000 furniture project for Panama School System. An assembly line is being completed by the vo-tech students and other modifications to the facility are also being made. Taloka Woods has requested several pieces of equipment through REI's equipment pool.

Atoka Incubator:

This facility is currently available for a tenant.

ADDITIONAL INCUBATOR ACTIVITIES

NATIONAL BUSINESS INCUBATION ASSOCIATION (NBIA)

Rural Enterprises, Inc., is an active member of this association.

OKLAHOMA BUSINESS INCUBATOR ASSOCIATION (OBIA)

REI's Industrial Development Specialist, Diana Russell, has been elected vice president of OBIA and is actively involved. The Industrial Development/Incubator Division will also be producing a newsletter for the organization. Division designed a direct mail piece for OBIA for membership recruitment and also designed a direct mail piece to link OBIA members with possible source for NASA incubator tenant.

Equipment Pool

The Industrial Development/Incubator Division conducted a direct mail to manufacturers in the state giving them the opportunity to contribute excess equipment to an equipment pool for new industry. This equipment pool has been further enhanced by the \$500,000 grant awarded to REI by the Office of Community Services (OCS) Discretionary Grants Program for equipment and services to small business and industry.

Gulfstream Aerospace, Oklahoma City, donated seven pieces of equipment and ZEBCO of Tulsa donated four pieces of equipment.

An equipment pool lease schedule has also been proposed and a consultant is being considered to research equipment needs, sources and obtaining bids. Such consultant is within the guidelines of the OCS award. An equipment utilization evaluation on equipment in the KAVTS facilities is also being conducted.

Another direct mail is being planned to state manufacturers for donations of equipment. As required by the OCS grant. REI attended a workshop in Washington, D. C. to meet with the program manager. Several contacts were made for follow-up and REI is considering submitting an OCS proposal again this year for an equipment pool that might broaden beyond incubator tenants.

MARKETING ACTIVITIES

The Industrial Development/Incubator Division continues to publish its Incubator Bulletin, a bi-monthly flyer listing incubator facilities available. The flyer is mailed to area banks, real estate agents, county extension agents, city managers, mayors, economic development entities and others.

The Division's marketing efforts include advertisements, direct mail, REI newsletter and a new publication, the OK CALLING CARD, a newsletter specifically for industrial prospects.

New marketing materials are being developed: a four-color magazine promoting the district, a new regional marketing book, a third district manufacturer's directory and new exhibit booth material.

REI continues to publish the REI Enterprise News on a bi-monthly basis.

Diana Russell is serving on Durant Certified Cities Steering Committee and serves on the planning committee of the Statewide Community Economic Development Conference to be held in June, 1994.

The division coordinates all press releases for REI.

RTAT ACTIVITIES

In late November, REI/RTAT promoted Ms. Judi Box to the position of Technical Assistant. Ms. Box conducts all database search activities and document retrieval services for RTAT. Prior to this appointment, Ms. Box had been providing document retrieval services through REI's Administrative Services Division. In early January, 1994, Ms. Box and RTAT Director Ken McLeod received eight hours of DIALOG and NASA/RECON search training at the NASA/MCRTTC offices in College Station, Texas. Additional training is planned for the second and third quarters of the year. REI/RTAT is now positioned to provide clients and other service providers with database search and document retrieval services upon request.

RTAT continues to receive a significant number of requests for assistance from individual inventors, a culmination of REI history and previous RTAT marketing efforts. We continue to provide service to these individuals while remaining focused on the primary objective of assisting rural businesses.

Database Searches and Document Retrieval:

Thirteen database searches were conducted during the reporting period. In addition, information was obtained for two clients through search methods other than computer database searching. Fourteen documents were retrieved for six clients during the period.

Clients were billed a total of \$145.51 for retrieval services during the reporting period.

General Technical Assistance:

One client received assistance with interpretation of an SBIR solicitation and with the proposed structure.

Two clients received preliminary technical assistance. Mr. Ken McLeod visited the Grandstand Co. facilities and discussed equipment layout, product design, considerations and business alternatives to capital investment. This client has developed a plan to meet their needs without additional capital investment and is planning to build sales in order to support future expansion.

Mr. McLeod discussed design considerations and possible materials of construction for a new product being developed by Oscar Systems. They will consider the options discussed and may request future assistance through database searches.

Seven independent inventors sought assistance through RTAT. Most inventions were at the conception stage of development. In most cases, a recommended course of action was provided that would protect their intellectual property and contacts to assist them in proceeding with their innovations. In one case a technical evaluation was conducted on a well developed invention which was reaching the prototype stage.

Referrals:

Ms. Dee Dorner, Philadelphia, PA. Ms. Dorner requested database search assistance specifically through NASA/RECON. Due to her geographic location, she was referred to Mr. Joe Gielas at Mid-Atlantic RTTC.

Mr. Mike Cavin, Graphic Design & Detail, Boulder, Co. Mr. Cavin requested assistance in composite technology. He was referred to Mr. Gary Sera at MCRTTC because of geographic location and specific requirements.

Mr. Bill Meuser, THORE Inc., Springdale, AR. Mr. Meuser has developed an organic reactor for converting matter to energy which he claims to have piloted with Lawrence Livermore and Sandia. He is currently looking for assistance to construct and operate a continuous process prototype to obtain full scale design data. His geographic location and specific requirements made it feasible to refer Mr. Meuser to Mr. Gary Sera at MCRTTC.

Two clients were referred to other Oklahoma service providers that offered specific expertise not available within REI.

RTAT provided follow-up service to MCRTTC for an Oklahoma client that had obtained a database search directly from MCRTTC.

Technical Projects:

Company: Energy Management Co.

Contact: James R. Faulk

Mr. James Faulk and Mr. Lawrence Zuckerman have developed an electrical load monitoring and control system. The system is designed to reduce peak and total electrical loads by cycling loads such as heating or cooling equipment. The client proposes the

system will be an advantage to manufacturing companies that have such electrical loads in their processes. We offered to put them in contact with another NASA affiliate geographically closer to them. However, they declined and requested us to provide the assistance. They were looking for electric rates and tariffs for the continental U. S. Through research we identified a source for this information through the Edison Electric Institute. While providing Mr. Faulk with this information, we offered to assist the company with setting up a manufacturing firm to produce their product in Oklahoma, when they are ready.

Company: Submersible Pumps, Inc.

Contact: Sam Eddy

Referred to us by Sandy Conner of The Alliance, Mr. Eddy builds down-hole pumps that must have a long life (3 years). The shaft bearing Mr. Eddy has been using is very expensive, available from a single outside source and fails completely without warning. We suggested several solutions to the problem:

- 1) Use a standard ceramic bearing available through Seville suppliers; and/or
- 2) Use a ceramic coating applied to the shaft sleeve and machine a conventional SS bearing.

We provided Mr. Eddy with the names of several sources of bearings and coatings. We also offered to have Texas A & M look at the problem, but he declined. Currently the client has a modified bearing that incorporates some of our suggestions and it is being tested for life expectancy.

Company: The Moss Group

Contact: Basil Moss

Mr. Moss is a business developer from Pecan Gap, TX who visited with us to learn more about REI. During the visit he mentioned that he knows an individual who owns and operates a machine shop and has invented and built a flexible motor for angle and horizontal drilling. The client wants to return to Oklahoma and begin manufacturing the drilling equipment. We will stay in contact with Mr. Moss and see if his client can use our services.

REI/RTAT conducted an evaluation of the rural business base of Southeastern Oklahoma. It became evident that food processing and metal fabrication (in the broadest sense) are the two major manufacturing industry sectors present in this area. We then began identifying potential incubator clients and have begun searching for appropriate licensable NASA technology. RTAT has identified two good candidates for NASA incubation and MCRTTC has introduced us to a third potential incubator client.

Company: Collins Tool and Machine

Contact: Lloyd Collins

Mr. Collins has expressed an interest in acquiring NASA technology that fits with his current business interests. We are currently searching for appropriate technology for commercialization.

Company: Zone Athletic

Contact: Clay Clark

Mr. Clay Clark and Mr. Dick Hanson have developed and patented a hydroponics system for golf course greens. They visited our office to discuss their invention and how they might proceed with it. We outlined the possible advantages of acquiring NASA technology and they immediately began to pursue this option. We gave them information on Department of Agriculture developed and commercially available gels which may be applicable to their system. We then conducted a database search and followed up with a discussion with Gary Sera at MCRTTC. We have identified sources of hydroponics systems information within NASA labs and have also identified a possible contact for joint venture activity. The client has obtained marketing rights to the gel technology and will be using this product to generate cash flow to support the continued development of their hydroponics system.

Company: Phoenix Process, Inc.

Contact: Aneta Newton

We participated in a joint meeting with Phoenix Processes, and Allied Signal (KCP) to review Ms. Newton's business interests. She is interested in acquiring Department of Interior and NASA technologies for waste reduction. This meeting ended with MCRTTC doing some work to determine the current status of NASA's patent application on the desired technology and Phoenix Processes completing application for an SBA microloan. There may be an opportunity to move this client into a NASA incubator.

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