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AMTEX Quarterly Report

The AMTEX Partnership™

A Role Model for U.S. Competitiveness

March 1994

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The AMTEX Partnership™

Quarterly Report

Issued by
The AMTEX Program Office

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AMTEX Laboratory Program Office

and

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AMTEX Industry Program Office

March 1994

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EXECUTIVE SUMMARY

Operations and Program Management

Operating Committee: The AMTEX Operating Committee met on March 17, 1994 at the Argonne National Laboratory and approved the general direction and scope of the Industry R&D Road Map. The Operating Committee directed the Program Office to proceed with full development of the Industry Road Map and the AMTEX Strategic Plan. The Cotton Biotechnology Project was presented and discussed. An approval decision was deferred until the project could be reviewed by the Industry Technical Advisory Committee.

Road Map and Strategic Planning: The Industry Technical Advisory Committee met in early January to initiate development of a long-term R&D Road Map for the integrated industry -- fibers through fabricated products and retail. The result was a strategy centered around five initiatives focused on fibers, textiles, apparel, cotton, and demand-activated manufacturing.

Project Initiation: All the CRADAs for the Demand Activated Manufacturing Project were completed, and all nine labs were funded and underway by the end of the quarter. The multi-year plans for the Computer Aided Fabric Evaluation (CAFE) and Textile Resource Conservation (TReC) project were completed and approved by DOE Headquarters. Several of the CRADAs were completed by the end of the quarter.

Projects

DAMA: The technical activities of DAMA began in full force this quarter. The full industry-lab team held two workshops to study & evaluate the needs and current practices of the industry were studied and evaluated. Members of the Enterprise Understanding and Simulation task group and the Decision Analysis Tools task group held additional workshops to begin developing the baseline data and technical understanding required for their work. All task areas were underway with initial activities. Finally, the Five-Year Plan was drafted and approved by the DAMA Steering Committee which completes the baseline planning for the project.

CAFE: The Glen Raven Company donated a state-of-the-art loom that was set up as a test bed at the Oak Ridge National Laboratory. The loom will be used to evaluate the various sensors, vision systems and algorithms that will be developed on the project. A knitting machine will be added to the test bed in the future. Near the end of the quarter, three of the five participating labs completed their CRADAs and received funding. The project will be fully underway next quarter.

TReC: The TReC Project managers have met a major milestone for this quarter by issuing the Project Plan, which signals the start of the research efforts. Participating laboratories have assembled their joint work statements and the first three CRADAs (ANL, INEL, & PNL) have been signed. National Laboratory and Industrial Research Partners have attended joint task team meetings and finalized research task details this quarter. The task team meetings were very productive as more than 130 industry participants and widespread lab participants met to collaborate; the tasks are progressing well as a result. The feedback from the textile industry has been very positive and they are enthusiastic about the research and the results to follow.

Financial Summary (DOE $)

($K)	Quarter Cost	Cost to Date	Authorized Funding	Total Budget	Authorized Balance	% Spent of Auth.
Program Office	402	846	1,945	1,945	1,099	43%
DAMA	2,116	2,442	7,974	10,370	5,532	31%
CAFE	13	13	2,300	3,700	2,367	1%
TReC	97	97	1,390	3,250	1,293	7%
EEF	0	0	0	400	0	0%
Cutting	0	0	0	1,000	0	0%
Sensors	0	0	0	500	0	0%
Cotton Biotechnology	0	0	0	1000	0	0%
FY93 TA Leaders	45	105	100	100	(5)	105%
FY93 TACT Operations	0	250	250	250	0	100%
Miscellaneous Support	0	150	150	150	0	100%
Project Expansion	0	0	0	1,935	0	0%
Total	$2,673	$3,903	$14,189	$24,600	$10,286	28%

OPERATIONS AND PROGRAM MANAGEMENT

Program Office Operations and Management (Industry and Laboratory)

Project Initiation

The program office focused on getting projects approved, funded and underway. The following progress was made:

- All the CRADAs for the Demand Activated Manufacturing Architecture (DAMA) project were completed and funding made available to the labs to start work. Funding to the DP labs was provided through the usual channels to each laboratory. The Lab Program Office transferred funding to the ER labs via Memorandum Purchase Orders (MPOs). The MPO process proved to be simple and expedient.

- The multi-year plans and statements of work for the Computer-Aided Fabric Evaluation (CAFE) and the Textile Resource Conservation (TReC) projects were completed and approved by the AMTEX Program Office and DOE Headquarters. By the end of the quarter, five CAFE CRADAs and three of nine TReC CRADAs were fully signed.

- The three projects under the Apparel Initiative (Rapid Cutting, Sensors for Agile Manufacturing of Apparel, and Electronic Embedded Fingerprints) progressed this quarter. The industry "Research Partners" for these projects met for a two-day workshop to review and refine the scope and objectives. This action opened the way for the lab and industry project teams to complete the final Project Plans and Statements of Work which were nearly complete by the end of the quarter.

Strategic Planning and Road Map Development

The Industry Technical Advisory Committee (ITAC) met in early January to initiate work of the Industry R&D Road Map for AMTEX. The Road Map articulates a strategy to make revolutionary advancements in competitiveness through technological developments in production capabilities and business interactions. Task industry teams were formed to develop a vision and scope for five initiatives in the Road Map.

A strategic planning working group met in March and developed a structure for an approach to the AMTEX Strategic Plan. The Strategic Plan integrates the Industry Road Map into an overall framework of goals, strategies, and resources that will be required to meet the technical objectives of the Road Map.

Media and Press Relations

Communications and Outreach

Numerous AMTEX presentations were made to industry trade and technical groups.

A press release on the DAMA project was issued and run in various trade magazines. The release highlighted the DAMA project initiative and Jim Lovejoy as the new industry project manager.

Operating Committee Activities and Actions for the Quarter

The AMTEX Operating Committee met on March 17 at Argonne National Laboratory. The committee decided to:

- Approve the general direction of the Industry R&D Road Map as presented at the meeting. The Road Map centers around five initiatives:

  Demand Activated Manufacturing Architecture
  Flexible Textile Production Processes
  Environmentally-Sustainable and Flexible Fiber Manufacturing
  Agile-Apparel Manufacturing
  Higher-Value Cotton through biotechnology

- Approve the deferral of the Cotton Biotechnology project until the scope of the project could be reviewed and approved by the Industry Technical Advisory Committee.

AMTEX technical project managers reviewed their progress and plans.

The next AMTEX Operating Committee meeting will be July 21, 1994 at Sandia National Laboratory in Albuquerque, New Mexico.

PROJECT ACCOMPLISHMENTS

DAMA Project

Project Managers: **Lee Cheatham, PNL / 509-375-2674**
Jim Lovejoy, [TC]^2 / 919-380-2184

Highlights

During the past quarter, DAMA activities began in full force. Each of the tasks and overall project planning are well underway. Highlights include "Spartanburg" and "Greensboro" weeks, two weeks of visits by the Laboratory DAMA team to about a dozen of the research partners in and around the Spartanburg-Greenville and Greensboro areas. The initial technical workshops for the Enterprise Understanding and Decision Support tasks have been held and the database technical agenda now is being developed. Finally, the project Five-Year Plan has been drafted and approved by the Steering Committee, completing the baseline planning for the project.

The remainder of this report details these and other activities currently underway.

Progress During the Quarter

Current Status

Task 1: Enterprise Understanding and Simulation

The first Task 1 workshop meeting was held February 23 and 24 at the Textile Apparel Technology Center in Cary, NC. Eighteen industry members and eight laboratory members participated.

- To introduce the concept of system dynamics, workshop attendees participated in the MIT Production-Distribution Game (The Beer Game).
- A "Straw Man" model for the industry was introduced and discussed.
- Three simulation products were presented to participants. PC based DEC Model, Macintosh-Based I Think and Extend.

Task 2: Information Infrastructure

During this quarter the Task 2 team has engaged in the following activities:

1. participating in the ongoing short-range and long-range DAMA planning activities including:

a. development of a preliminary demonstrations plan,
b. assessment of opportunities,
c. development and review of the DAMA strategic plan, and
d. development of the Task 2 1994 Plan.

2. educating ourselves on aspects of the integrated textile industry by attending the first Fiber/Textile/Apparel/Retail Workshop, at Quick Response 94---and by contacting industry directly to get connected to e-mail.

3. assisting Steering Committee Members to get connected to e-mail connectivity and registered with the DAMA-SC listserve.

4. assessing technology for improved project communications including ftp mailers, list servers, and document translators.

5. beginning the design of the AMTEX Collaborative Information System (ACIS), which will ultimately support diverse communication modes within the task.

6. starting to develop of a textile-oriented Internet navigator.

7. working to connect the Parsons School of Design Fashion Design Laboratory to the Internet.

8. opening a help desk to provide assistance to industry and laboratory partners with electronic mail and document transfer problems.

Task 3: Information Access Tools

During this quarter Task 3 has been preparing a roll-out plan to be presented to Industry on April 5, 1994.

Task 4: Decision Analysis Tools

Task 4 is progressing with its task plan. Meetings with industry and plant tours have been conducted and are being planned. The initial planning meeting was held in Dallas, Texas, on January 25-26, and was hosted by Haggar Apparel Company. The Task 4 program plan was approved and an Advisory Board was formed.

The first Vital Issue Panel (VIP) was held in Albuquerque, NM, February 1-2, 1 and was hosted by Sandia National Laboratories.

Task 5: Communications and Education

DAMA Communication and Education Task (C&E) has been focusing its efforts in three areas: articulating the vision of the DAMA Project, delivering information about the project and continuing strategic planning.

To articulate the vision, task leadership has actively participated in all strategic-planning activities and has worked for the most specific language to describe the current state of the vision. The vision has been developed by the entire DAMA Core Management Team in teamwork with the Industry Research Partners.

To deliver information, C&E has used news releases and concentrated on growing its media connections. C&E initiated a "Speakers Bureau" to

personalize deployment of information and feedback at the March Steering Committee Meeting. Each Research Partner committed to provide a speaker to present information to at least two groups during the next year. The Speakers Bureau should result in the delivery of at least 80 presentations. To support there efforts, C&E is currently producing DAMA General Presentation Packages.

Accomplishments this Quarter

Task 1 -- Enterprise Understanding and Simulation

The activities from the workshop resulted in the following:

- A framework for the modeling activities endorsed by industry attendees.
- A consensus that a detailed level of modeling is necessary for the first phase of this project.
- Two items of apparel selected for evaluating model framework: Men's slacks and Women's blouses.
- Participants tasked with the following activities to be accomplished for the second workshop: detail how the selected products touched their company, and to designate a specific individual within their company who will commit a large percentage of time to the modeling efforts.

Task 2 --Information Infrastructure

Task 3 -- Information Access Tools

Accomplishments this quarter are:

- Visited nine research partners and one University
- Conferred with DAMA Core Management Team
- Interviewed ten companies
- Prepared preliminary survey materials
- Initiated study of POS information back flow
- Initiated the Color Match (Textile, Video & Print) study
- Developed initial demonstration concepts
- Provided Strategic Plan and FY94 Plan input
- Established an FTP server and World Wide Web page
- Initiated an AMTEX/DAMA Security Policy

Task 4 -- Decision Analysis Tools

Accomplishments this quarter are:

- Draft report completed documenting the Vital Issue Panel (VIP) used to select the product line for the initial decision analysis tools
- Task 4 plan approved by Industry Partners
- Decision analysis tools survey developed and distributed (Tom Sample, Haggar Apparel Company)
- Industry co-chair selected (Nancy Ferreira, Target)
- Product-line selection completed
- Decision analysis tools survey developed and distributed

Task 5 -- Communications and Education

DAMA C&E task members completed the following items during this quarter:

- Completed Task Management Plan for DAMA Five-Year Plan.
- Developed a DAMA General Presentation in Viewgraph Format.
- Formed a team to produce DAMA General Presentation Packages to include:
  - . Color Viewgraphs for Use in the Presentation
  - . Speaking Points
  - . Presentation Reminders
  - . Feedback Guideline
- Delivered two news releases to approximately 70 outlets, with the efforts of Sharon Brown, PNL.
- Formed a Media and Special Events Team, chaired by Sharon Brown, to capture the creativity of those among the best in the industry to support outreach.

Project Milestones Met During the Quarter

- ♦ The first Task 1 technical workshop was held (Enterprise Understanding and Simulation).
- ♦ Task Plans were drafted and approved (all Tasks).
- ♦ Vision, Opportunities and Five-Year Plan were drafted and approved (Management).

Plans for Next Quarter

Activities During the Quarter

Task 1 -- Enterprise Understanding and Simulation

The next workshop will be April 6 at $[TC]^2$ to:

- Define the project teams for the market segment models based on the resources that each workshop participant can contribute.
- Prioritize the business objective areas for model development. Examples include: the development and introduction of new products, filling customer orders and completing sales, obtaining customer orders, identifying product offerings, and identifying end user requirements.
- Establish a project timetable given the available resources.
- Determine the role of future workshops.

Completing a detailed model for one of the market segments (Women's blouses or Men's slacks) will be the goal for the next quarter activities. Task 1 is highly dependent on industry participation in the modeling efforts. The pace of activity for achieving this goal is directly proportional to the resources that can be provided by industrial partners.

Task 2 -- Information Infrastructure

Next quarter, we will continue working on most of the above activities. The goal is to bring most or all of the laboratories and industrial partners "on-line" with the ability to exchange both e-mail and formatted documents and to have automated most of the services needed to support this connectivity. This will include assisting industrial partners in developing or strengthening their corporate electronic mail systems as requested. We will also work toward demonstrations as plans are finalized, including the tentatively planned demonstration of electronic procurement.

Task 3 -- Information Access Tools

Activities during the next quarter will be the roll-out of Task 3 to Industry, completion of the two surveys, and compilation of material for the first draft of the reports in the plan.

Task 4 -- Decision Analysis Tools

The laboratory staff will focus on understanding the textile industry in the areas of decision support and specifically in forecasting and planning. Several plant visits will focus on understanding the operational perspectives of forecasting and planning within the textile industry. Milestones for next quarter include:

- Visits to Milliken, Spartan Mills, Target and other facilities for discussions in the area of forecasting and planning.
- Completion of decision analysis tools (forecasting) survey and preparation of a draft report of results.
- Selection of decision analysis tools opportunities.

Task 5 -- Communications and Education

Activities for the next quarter are to:

1. Continue development of the Media and Special Events Team with articulation of the "generation 1" core message, development of strategy, and execution of media deliverables.
2. Deploy the Speakers Bureau, including:
   . Delivery of the DAMA general presentation package
   . Assignment of speakers to venues
3. Design and produce a DAMA brochure.
4. Develop a DAMA General Presentation on a higher-action platform.
5. Initiate development, in teamwork with Task 1, of the learning infrastructure for the learning lab.
6. Initiate development of the front-end 'look' of learning labs.
7. Evaluate the quarterly report for "newsworthy" items, decide venues and execute appropriate release to the media.
8. Plan technical demonstration for the Fall, along with Tasks 2, 3, 4.
9. Plan learning lab "generation 1" deployment.

Project Milestones to be Met During the Next Quarter

- Draft of FY94 DAMA Plan
- Detailed Demonstration Plan

Calendar of DAMA Events

1994	Mar 28-Apr 1:	FTAR Workshop, Georgia Tech, Atlanta, GA (cancelled)
	Mar 29-31:	Task 4: Plant Tours -- Milliken & Co., Spartan Mills and Hoechst-Celanese Corp.
	Apr 6:	Task 1: Next Workshop at $[TC]^2$, Cary, NC
	Apr 7:	Task 3: Task meeting at Charlotte, NC
	Apr 12-13:	Task 4: Rank Opportunities, Alexander City, AL
	Apr 14-15:	Tasks 1 & 4: Consumer Behavior Model - Atlanta, GA
	May 11-13:	Strategic Planning Workshop, CMT, TBD
	May 17-18:	Task 3: Information Access Tools Forum, Atlanta, GA
	May 18-19:	Task 4: Rank Forecasting Tools, Idaho Falls, ID
	June 7-9:	Technology Area Forum, Georgia Tech, Atlanta, GA (tentative)
	June 15-16:	Task 4: Requirements Review, Greenville, SC
	June 21-22:	DAMA Steering Committee Meeting, Brookhaven National Laboratory, Upton, NY
	July 21:	AMTEX Operating Committee Meeting, TBD
	July 27:	Task 4: Final Requirements & Development Status, Raleigh, NC
	Aug 16:	Task 4: Preliminary Design Review, Raleigh, NC
	Sept 13-14:	DAMA Steering Committee Meeting, TBD
	Sept 26-30:	Bobbin Show
	Nov 10:	AMTEX Operating Committee Meeting, TBD
	Dec 6-7:	DAMA Steering Committee Meeting, TBD

CAFE Project

Project Managers: Glenn Allgood, ORNL / 615-574-5673
Marty Ellis, ITT / 803-595-0035

Highlights

The CAFE Laboratory working group continues finalizing their respective CRADAs. As of this reporting period, Oak Ridge National Laboratory, Sandia National Laboratory, and Argonne National Laboratory have completed their respective CRADAs with funding available for work. Lawrence Livermore National Laboratory and Lawrence Berkeley Laboratory continue efforts to finalize CRADAs.

Laboratory facilities were completed for the weaving machine donated to the CAFE Project by Glen Raven Mills. This facility, which is located at Oak Ridge's Y-12 Plant (Bldg. 9204), will be the Alpha Test for the On-Line Greige Inspection System.

Performance Related to Milestones

The Alpha Test Site for the CAFE On-Line Greige Inspection System was completed with the movement and placement of the donated weaving machine by Glen Raven.

Activities and Technical Accomplishments for the Quarter

None.

Issues, Major Problems, and Actions to Resolve Them

The major problem during reporting period was the completion of all necessary requirements for the laboratories' CRADAs. Emphasis is being put on accelerating CRADA signing at each of the laboratories that currently lack CAFE funding.

Explanation of Variances

N/A

Plans For Next Quarter

These efforts are composed of tasks that will be completed by both the Laboratory and Industry Task Teams.

- A preliminary analysis will be conducted at an Industry Partnership facility (Glen Raven Mills) to establish a base-line signature for developing On-Line Greige Inspection System. This

will be the first of three visits by the CAFE National Laboratory working Group for the specific purpose of data collection of loom operation in a manufacturing facility.

- Plans are being developed to place a knitting machine at the Oak Ridge Y-12 Plant. This machine has been donated by Fruit-Of-The-Loom to the CAFE Project.

- Plans are being made for the next CAFE Project Team meeting to be held at Fieldcrest-Cannon facilities in Kannapolis, NC. This meeting also will include two classes on defect detection (greige and printed color) presented and prepared by the Industry Partnership for the CAFE National Laboratory Working Group.

- Analysis will begin in the selection of the sensor suite that will define the On-Line Greige Inspection system. Initial efforts will be in defect detection and resolution of system requirements and defect class coverage.

- Analysis will begin in the Economic Model and development of the Functional Description and Requirements Document.

- Meetings will be held to resolve remaining issues related to implementing the CAFE Vendor's Consortium.

- A preliminary analysis will begin in defining defects and operational requirements for the Printing Color Subsystem.

- Completion of greige defect analysis breakout task to define the operational economic requirements for the Greige Inspection System.

- CAFE National Laboratory Working Group is identifying a date for a strategy and planning meeting to focus on requirements brought to the team by Industry Partners.

TReC Project

Highlights

The activities completed in this quarter have reached a milestone for the TReC Project. With the issuance of the Project Plan, the assembling by all participating laboratories of their Joint Work Statements and the signing of the first three CRADAs (Argonne National Laboratory, Idaho National Engineering Laboratory, and Pacific Northwest Laboratory) which therefore signals the start of the research efforts. The tasks are progressing well and the Laboratories are operating well with each other and with the textile industry participants. There is widespread involvement by the labs and industry and over 130 industry participants at the task team meetings. The feedback from the textile

industry has been very positive and they are enthusiastic about the research and the expected results to follow.

Performance Related to Milestones

No scheduled milestones have been reached, as task efforts at the three National Laboratories have only been in effect less than one month.

Activities and Technical Accomplishments for the Quarter

The Removal of Colorants task team met in late February at Cone Mills. The Industrial Research Partners and the National Laboratory investigators determined which dye classes were most applicable to the different recovery technologies and identified specific dyes to be included in the studies. A selection of these dyes will be sent to national laboratory researchers in early April. They also will receive "recipes" for the laboratories to use in simulating dye baths for their initial screening experiments.

During a meeting at Fieldcrest Cannon, the Alternative Cleaning Technologies task group reviewed the National laboratories project work in supercritical fluids, ultra and mega-sonics coupled with aqueous cleaners, and ozonated water. Glen Raven Mills distributed both small complex parts and fabric (clean and soiled) for testing of alternative cleaning methods, to principal investigators. Subsequently, Fieldcrest Cannon is sending rollers and endcaps to the Labs. PNL and ANL have been able to perform preliminary cleaning tests on small complex parts.

The Recovery of Fibrous Solid Waste task group has met and divided their efforts into several sub-tasks: (a) fibrous solid waste inventory and material balance; (b) separation technologies for recovery and recycle of waste fiber, and; (c) identification of the mechanism for "Yellowing" and possible solutions. Each of the sub-tasks teams has assigned key individuals from both the Industrial Research Partners and the laboratories who will form the teams to tackle individual problems.

The Task group for Metal Speciation - Analytical Development due to its size had its task group meeting via a telephone conference and reviewed the task effort and the goals and aims for each of the National Laboratory efforts. Dye samples have been sent to the labs so that they may commence their research.

The Low-Waste Chemical Applications task group met has had a task group meeting at the Spartan Mills Corporate headquarters in Spartanburg, SC. Each of the principal investigators reported on the thrust of their research efforts. Subsequently, the combined industry and laboratory group agreed on the design criteria for the new high-efficiency finishing application system.

The Air Emissions and Monitoring task participants met at the Collins and Aikman headquarters in Charlotte, NC. Task participants included Industrial Research Partners and Paul Farber, a representative for the National Laboratories. Brief descriptions of the planned sensor-development research planned were given and emphasis was placed on reliable, quantitative, and economical sensor developed.

Initial efforts in the Energy Conservation Task team have focused on developing an updated and accurate picture of energy consumption patterns within the industry. All previous studies have stemmed from a common 15 year database. The Task's 31 Industrial Research Partners have been requested to provide energy consumption data to attempt a "quick and dirty" assessment of the current energy consumption patterns. Results from this assessment will enable a better determination of the need for a more in-depth energy survey of the industry.

A meeting of the Industrial Research partners and the Lab Task Team is planned for May 18, 1994. At that time, the energy data will be reviewed and the identification of Targets Of Opportunity will be initiated. Meanwhile, data collection will continue, and the types and extent of data analyses will be assessed and initiated.

The task team assigned to study Strategic Planning for Source Reduction is meeting on April 13 in Charlottesville, Virginia at the Institute of Textile Technology for their first planning meeting.

Issues, Major Problems, and Actions to Resolve Them

One problem this quarter has been the delay encountered by the individual Laboratories in processing their Joint Work Statements/ Statements of Work through their Technology Transfer Divisions and the DOE Area Offices. Processing times through the Technology Transfer Divisions have ranged from four weeks to 12 weeks, with the DOE Area Offices taking 2-4 weeks to review TReC documents. This problem has been magnified because each Laboratory Technology Transfer Office and every DOE Area Office has different procedures and criteria for processing and review.

Explanation of Variances

No variances have been encountered yet since task efforts at the three national laboratories have only been in effect for than one month.

Plans for Next Quarter

During the next quarter (April-June, 1994), the TReC project team plans to start their task efforts when CRADAs are signed. Samples of dyes, fabric, finishing agents, and parts needed by the principal investigators will be distributed by the industry participants next quarter. The distribution of these samples will allow Laboratory principal investigators to get a good start on the bench-scale research

tasks to develop needed processes and technologies. The Project Managers (Don Alexander of ITT and Paul Farber of Argonne National Laboratory) will finish plans for a joint Industry-Laboratory meeting in July to review first-quarter progress in the TReC project.

Electronic Embedded Fingerprints, Rapid Cutting, and Sensors For Agile Cutting and Sewing

These projects were not underway during this reporting period.

FINANCIAL SUMMARY (DOE funding)

The following pages contain program financial summary information.

PROGRAM SUMMARY REPORT

1. IDENTIFICATION (CONTRACT NO.)	2. TITLE	3. REPORTING PERIOD
21286	AMTEX PROGRAM	2ND QUARTER FY 1994

4a. PARTICIPANT NAME AND ADDRESS	4b. CLIENT NAME AND ADDRESS	5. START DATE
AMTEX LABORATORY PROGRAM OFFICE PACIFIC NORTHWEST LABORATORY RICHLAND, WASHINGTON 99352	U.S. DEPARTMENT OF ENERGY WASHINGTON, DC 20585	OCTOBER 1993 6. COMPLETION DATE SEPTEMBER 1994

7. PROJECT YEAR: FY 1994

8. COST STATUS

a. $ EXPRESSED IN THOUSANDS

b. BUDGET & REPORTING NO./SUB. ACCT NO.: KU-01-00-000 / GB-01-06-010

c. FIN. NO.

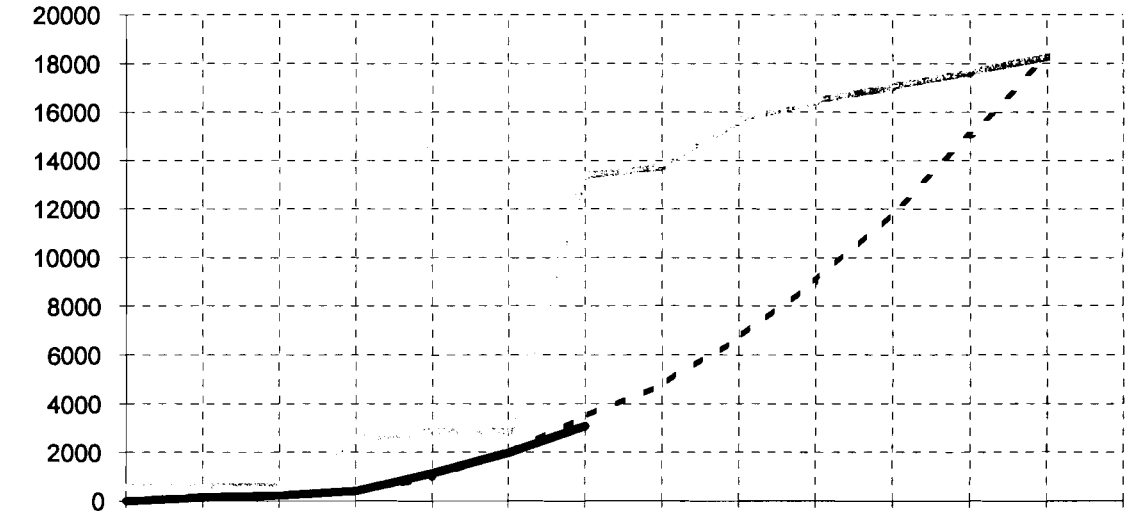
d. ACTUAL COSTS PRIOR YEARS: $818

e. ER BUDGET *: $13,792

f. DP BUDGET *: $10,000

g. ER FUNDS AUTH: $9,394

h. DP FUNDS AUTH: $3,978



LEGEND: PLANNED ▪ ▪ ACTUAL ——— PROJECTED - - - - - - - FUNDS AUTH 90% SPENT ▷

		Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
i. ER COSTS	PLANNED	146	97	137	400	600	900	900	1200	1600	2000	2400	2400
	ACTUAL	146	100	154	588	600	750						
	VARIANCE	0	-3	-17	-188	0	150						
	CUM PLANNED	146	243	380	780	1380	2280	3180	4380	5980	7980	10380	12780
	CUM ACTUAL	146	246	400	988	1588	2338						
	CUM VARIANCE	0	-3	-20	-208	-208	-58						
j. DP COSTS	PLANNED	0	0	12	200	400	600	400	700	750	800	800	838
	ACTUAL	0	0	12	153	229	353						
	VARIANCE	0	0	0	47	171	247						
	CUM PLANNED	0	0	12	212	612	1212	1612	2312	3062	3862	4662	5500
	CUM ACTUAL	0	0	12	165	394	747						
	CUM VARIANCE	0	0	0	47	218	465						
k. TOTAL COSTS	PLANNED	146	97	149	600	1000	1500	1300	1900	2350	2800	3200	3238
	ACTUAL	146	100	166	741	829	1103						
	VARIANCE	0	-3	-17	-141	171	397						
	CUM PLANNED	146	243	392	992	1992	3492	4792	6692	9042	11842	15042	18280
	CUM ACTUAL	146	246	412	1153	1982	3085						
	CUM VARIANCE	0	-3	-20	-161	10	407						

9. MILESTONES

(REFER TO INDIVIDUAL PROJECT REPORTS)

*BUDGETS INCLUDE FY94 FUNDING PLUS FY93 CARRYOVER.

Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep

10. NAME OF PARTICIPANT'S PROGRAM MANAGER

DOUGLAS K LEMON

PROJECT SUMMARY REPORT

1. IDENTIFICATION (CONTRACT NO.)	2. TITLE	3. REPORTING PERIOD
21286	AMTEX PROGRAM OFFICE	2ND QUARTER FY 1994

4a. PARTICIPANT NAME AND ADDRESS	4b. CLIENT NAME AND ADDRESS	5. START DATE
AMTEX PROGRAM OFFICE PACIFIC NORTHWEST LABORATORY RICHLAND, WASHINGTON 99352	U.S. DEPARTMENT OF ENERGY WASHINGTON, DC 20585	OCTOBER 1993
		6. COMPLETION DATE SEPTEMBER 1994

7. PROJECT YEAR: FY 1994

8. COST STATUS

a. $ EXPRESSED IN: THOUSANDS

b. BUDGET & REPORTING NO./SUB. ACCT NO.: KU-01-00-000

c. FIN. NO.:

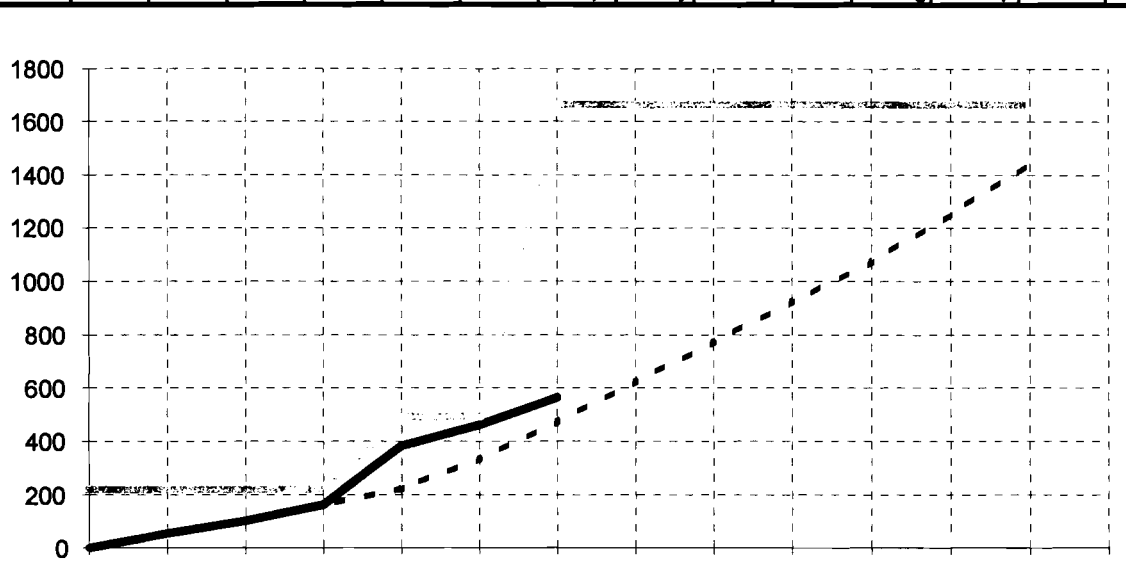
d. ACTUAL COSTS PRIOR YEARS: $281

e. ER BUDGET *: $1,664

f. DP BUDGET *: $0

g. ER FUNDS AUTH: $1,664

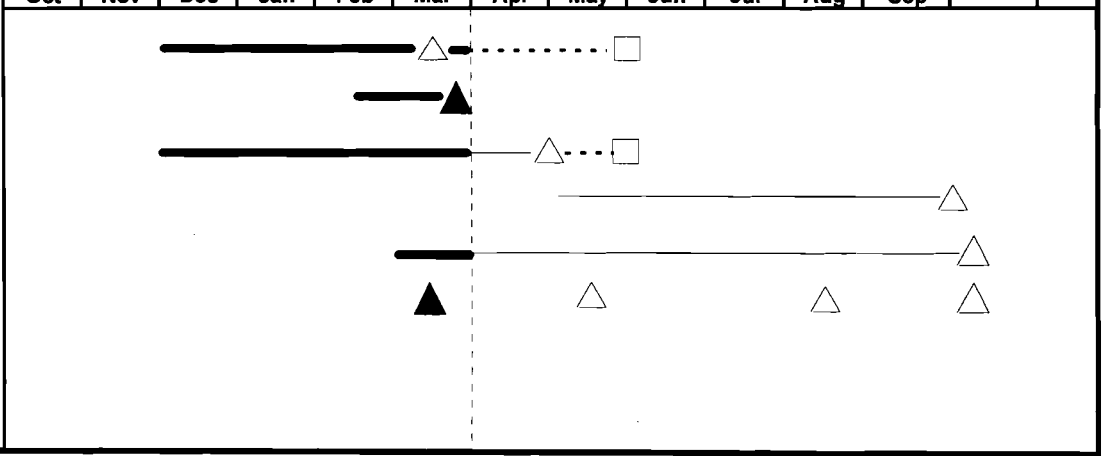
h. DP FUNDS AUTH: $0



LEGEND: PLANNED ACTUAL PROJECTED FUNDS AUTH 90% SPENT

		Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
i. ER COSTS	PLANNED	56	48	59	60	110	140	150	150	150	150	180	192
	ACTUAL	56	48	59	222	78	103						
	VARIANCE	0	0	0	-162	33	37						
	CUM PLANNED	56	104	163	223	333	473	623	773	923	1073	1253	1445
	CUM ACTUAL	56	104	163	385	462	565						
	CUM VARIANCE	0	0	0	-162	-129	-92						
j. DP COSTS	PLANNED	0	0	0	0	0	0	0	0	0	0	0	0
	ACTUAL	0	0	0	0	0	0						
	VARIANCE	0	0	0	0	0	0						
	CUM PLANNED	0	0	0	0	0	0	0	0	0	0	0	0
	CUM ACTUAL	0	0	0	0	0	0						
	CUM VARIANCE	0	0	0	0	0	0						
k. TOTAL COSTS	PLANNED	56	48	59	60	110	140	150	150	150	150	180	192
	ACTUAL	56	48	59	222	78	103						
	VARIANCE	0	0	0	-162	33	37						
	CUM PLANNED	56	104	163	223	333	473	623	773	923	1073	1253	1445
	CUM ACTUAL	56	104	163	385	462	565						
	CUM VARIANCE	0	0	0	-162	-129	-92						

9. MILESTONES



* BUDGETS INCLUDE FY94 FUNDING PLUS FY93 CARRYOVER

LEGEND: SCHEDULED △ TIMELINE ——— PROPOSED DEVIATION - - - - - - - - - - -

COMPLETED ▲ DEVIATION □ PROGRESS ━━━ APPROVED DEVIATION — — — —

10. NAME OF PARTICIPANT'S PROJECT MANAGER

DOUGLAS K LEMON

PROJECT SUMMARY REPORT

1. IDENTIFICATION (CONTRACT NO.)	2. TITLE	3. REPORTING PERIOD
21286	DEMAND-ACTIVATED MANUFACTURING ARCHITECTURE (DAMA)	2ND QUARTER FY 1994

4a. PARTICIPANT NAME AND ADDRESS	4b. CLIENT NAME AND ADDRESS	5. START DATE
AMTEX LABORATORY PROGRAM OFFICE PACIFIC NORTHWEST LABORATORY RICHLAND, WASHINGTON 99352	U.S. DEPARTMENT OF ENERGY WASHINGTON, DC 20585	OCTOBER 1993 6. COMPLETION DATE SEPTEMBER 1994

7. PROJECT YEAR: FY 1994

8. COST STATUS

a. $ EXPRESSED IN THOUSANDS

b. BUDGET & REPORTING NO./SUB. ACCT NO.: KU-01-00-000, GB-01-06-010

c. FIN. NO.:

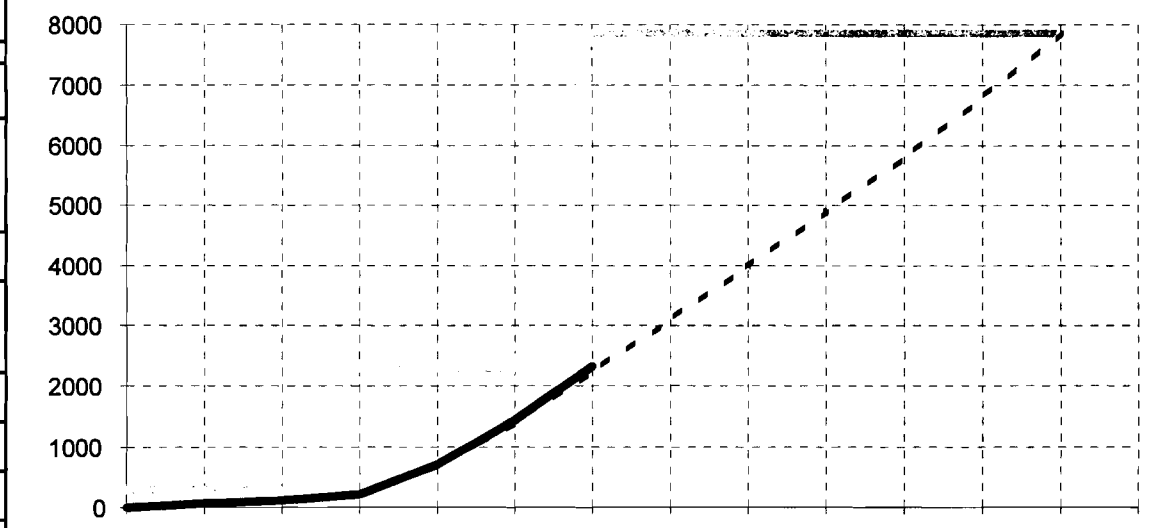
d. ACTUAL COSTS PRIOR YEARS: $111

e. ER BUDGET *: $5,929

f. DP BUDGET *: $4,330

g. ER FUNDS AUTH: $5,185

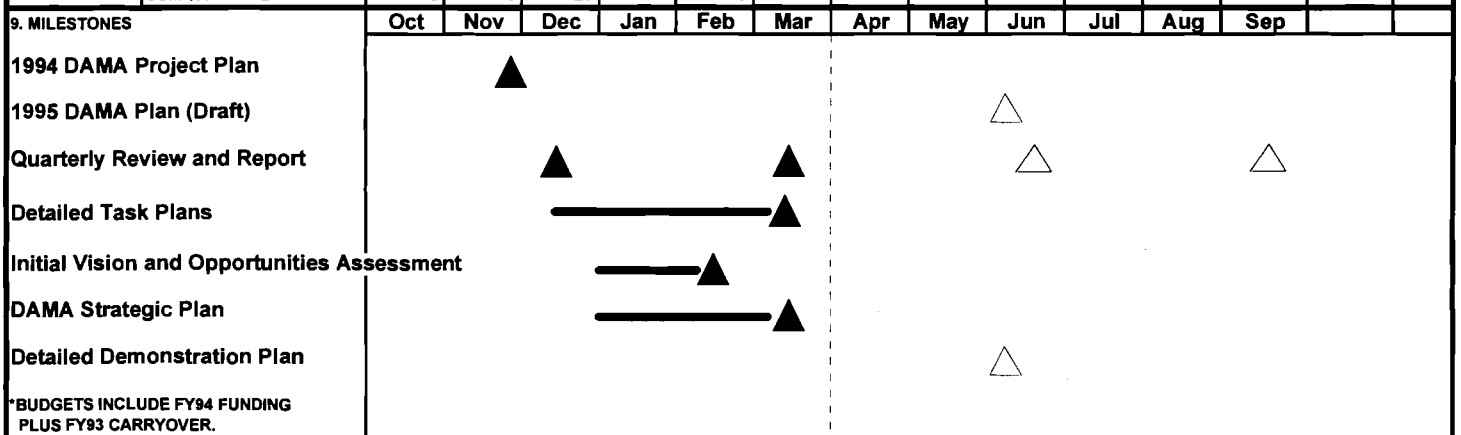
h. DP FUNDS AUTH: $2,678



LEGEND: PLANNED ACTUAL PROJECTED FUNDS AUTH 90% SPENT

		Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
i. ER COSTS	PLANNED	71	44	67	300	400	500	550	600	600	600	700	753
	ACTUAL	71	47	84	348	499	534						
	VARIANCE	0	-3	-17	-48	-99	-34						
	CUM PLANNED	71	115	182	482	882	1382	1932	2532	3132	3732	4432	5185
	CUM ACTUAL	71	118	202	550	1049	1583						
	CUM VARIANCE	0	-3	-20	-68	-167	-201						
j. DP COSTS	PLANNED	0	0	12	200	300	350	300	300	300	300	300	316
	ACTUAL	0	0	12	153	229	353						
	VARIANCE	0	0	0	47	71	-3						
	CUM PLANNED	0	0	12	212	512	862	1162	1462	1762	2062	2362	2678
	CUM ACTUAL	0	0	12	165	394	747						
	CUM VARIANCE	0	0	0	47	118	115						
k. TOTAL COSTS	PLANNED	71	44	79	500	700	850	850	900	900	900	1000	1069
	ACTUAL	71	47	96	501	728	887						
	VARIANCE	0	-3	-17	-1	-28	-37						
	CUM PLANNED	71	115	194	694	1394	2244	3094	3994	4894	5794	6794	7863
	CUM ACTUAL	71	118	214	715	1443	2330						
	CUM VARIANCE	0	-3	-20	-21	-49	-86						

9. MILESTONES



*BUDGETS INCLUDE FY94 FUNDING PLUS FY93 CARRYOVER.

LEGEND: SCHEDULED △ COMPLETED ▲ DEVIATION □ TIMELINE PROGRESS PROPOSED DEVIATION APPROVED DEVIATION

10. NAME OF PARTICIPANT'S PROJECT MANAGER
R LEE CHEATHAM

PROJECT SUMMARY REPORT

1. IDENTIFICATION (CONTRACT NO.)	2. TITLE	3. REPORTING PERIOD
21286	COMPUTER-AIDED FABRIC EVALUATION (CAFE)	2ND QUARTER FY 1994

4a. PARTICIPANT NAME AND ADDRESS	4b. CLIENT NAME AND ADDRESS	5. START DATE / 6. COMPLETION DATE
AMTEX LABORATORY PROGRAM OFFICE PACIFIC NORTHWEST LABORATORY RICHLAND, WASHINGTON 99352	U.S. DEPARTMENT OF ENERGY WASHINGTON, DC 20585	5. START DATE: OCTOBER 1993 6. COMPLETION DATE: SEPTEMBER 1994

7. PROJECT YEAR: FY 1994

8. COST STATUS

a. $ EXPRESSED IN: THOUSANDS

b. BUDGET & REPORTING NO./SUB. ACCT NO.: KU-01-00-000; GB-01-06-010

c. FIN. NO.:

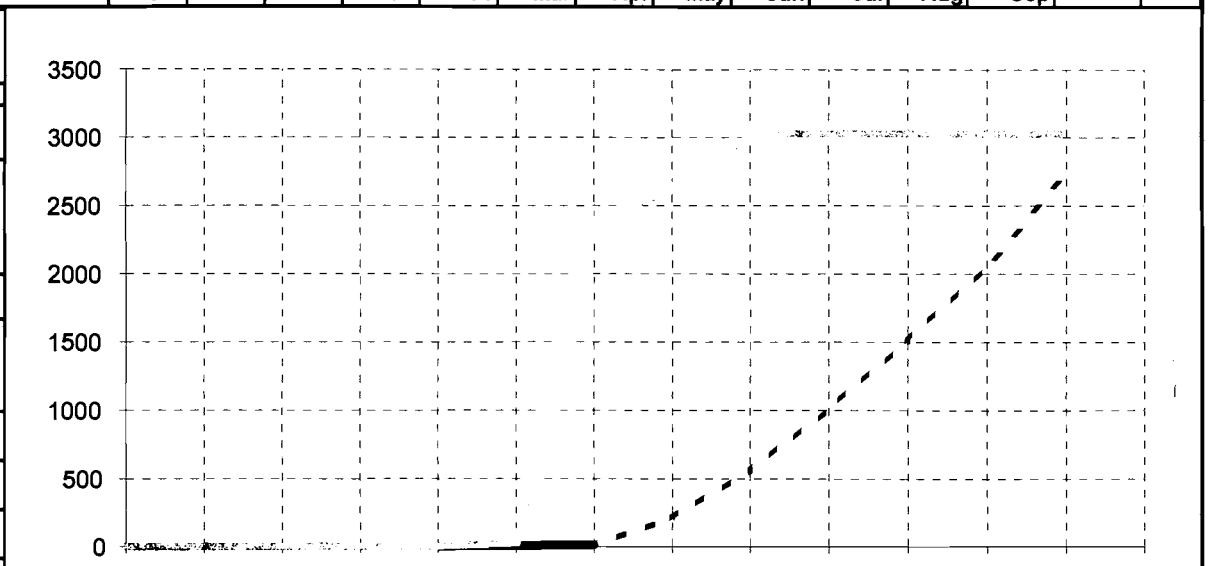
d. ACTUAL COSTS PRIOR YEARS: $0

e. ER BUDGET *: $1,325

f. DP BUDGET *: $1,700

g. ER FUNDS AUTH: $1,080

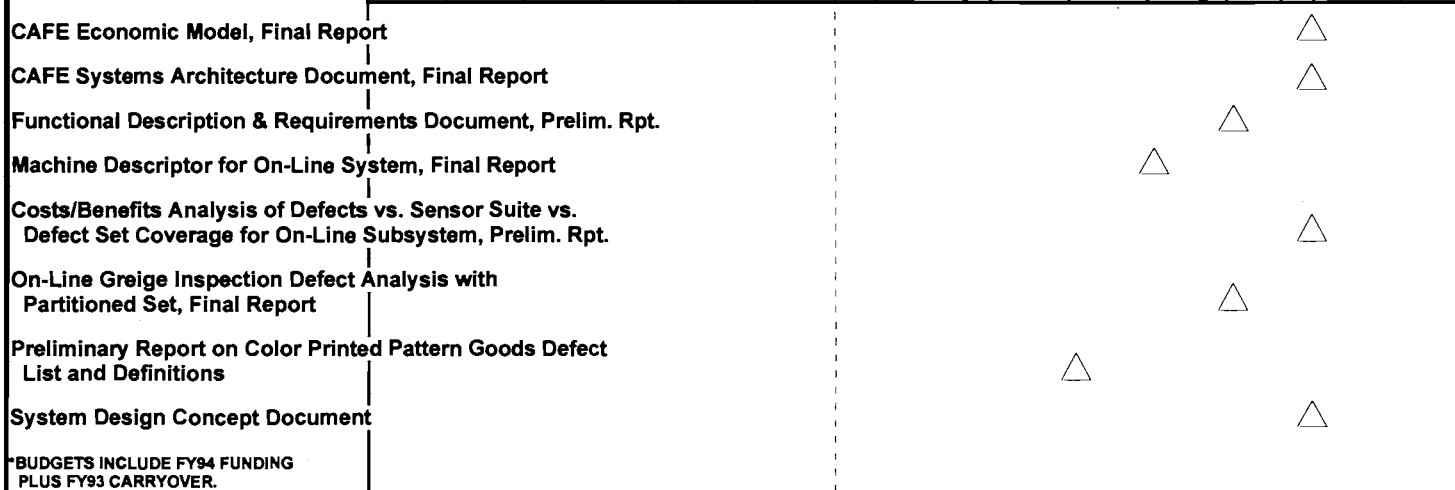
h. DP FUNDS AUTH: $1,300



LEGEND: PLANNED ACTUAL PROJECTED FUNDS AUTH 90% SPENT

		Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
i. ER COSTS	PLANNED	0	0	0	0	7	6	100	150	200	250	300	312
	ACTUAL	0	0	0	0	7	6						
	VARIANCE	0	0	0	0	0	0						
	CUM PLANNED	0	0	0	0	7	13	113	263	463	713	1013	1325
	CUM ACTUAL	0	0	0	0	7	13						
	CUM VARIANCE	0	0	0	0	0	0						
j. DP COSTS	PLANNED	0	0	0	0	0	0	100	200	250	250	250	350
	ACTUAL	0	0	0	0	0	0						
	VARIANCE	0	0	0	0	0	0						
	CUM PLANNED	0	0	0	0	0	0	100	300	550	800	1050	1400
	CUM ACTUAL	0	0	0	0	0	0						
	CUM VARIANCE	0	0	0	0	0	0						
k. TOTAL COSTS	PLANNED	0	0	0	0	7	6	200	350	450	500	550	662
	ACTUAL	0	0	0	0	7	6						
	VARIANCE	0	0	0	0	0	0						
	CUM PLANNED	0	0	0	0	7	13	213	563	1013	1513	2063	2725
	CUM ACTUAL	0	0	0	0	7	13						
	CUM VARIANCE	0	0	0	0	0	0						

9. MILESTONES



*BUDGETS INCLUDE FY94 FUNDING PLUS FY93 CARRYOVER.

LEGEND: SCHEDULED △ COMPLETED ▲ DEVIATION □ TIMELINE ——— PROGRESS ——— PROPOSED DEVIATION - - - - - - APPROVED DEVIATION — — —

10. NAME OF PARTICIPANT'S PROJECT MANAGER

GLENN ALLGOOD (ORNL)

PROJECT SUMMARY REPORT

1. IDENTIFICATION (CONTRACT NO.)	2. TITLE	3. REPORTING PERIOD
21286	TEXTILE RESOURCE CONSERVATION (TReC)	2ND QUARTER FY 1994

4a. PARTICIPANT NAME AND ADDRESS	4b. CLIENT NAME AND ADDRESS	5. START DATE / 6. COMPLETION DATE
AMTEX LABORATORY PROGRAM OFFICE PACIFIC NORTHWEST LABORATORY RICHLAND, WASHINGTON 99352	U.S. DEPARTMENT OF ENERGY WASHINGTON, DC 20585	5. START DATE: OCTOBER 1993 6. COMPLETION DATE: SEPTEMBER 1994

7. PROJECT YEAR
FY 1994

8. COST STATUS

a. $ EXPRESSED IN
THOUSANDS

b. BUDGET & REPORTING NO./SUB. ACCT NO.
KU-01-00-000
GB-01-06-010

c. FIN. NO.

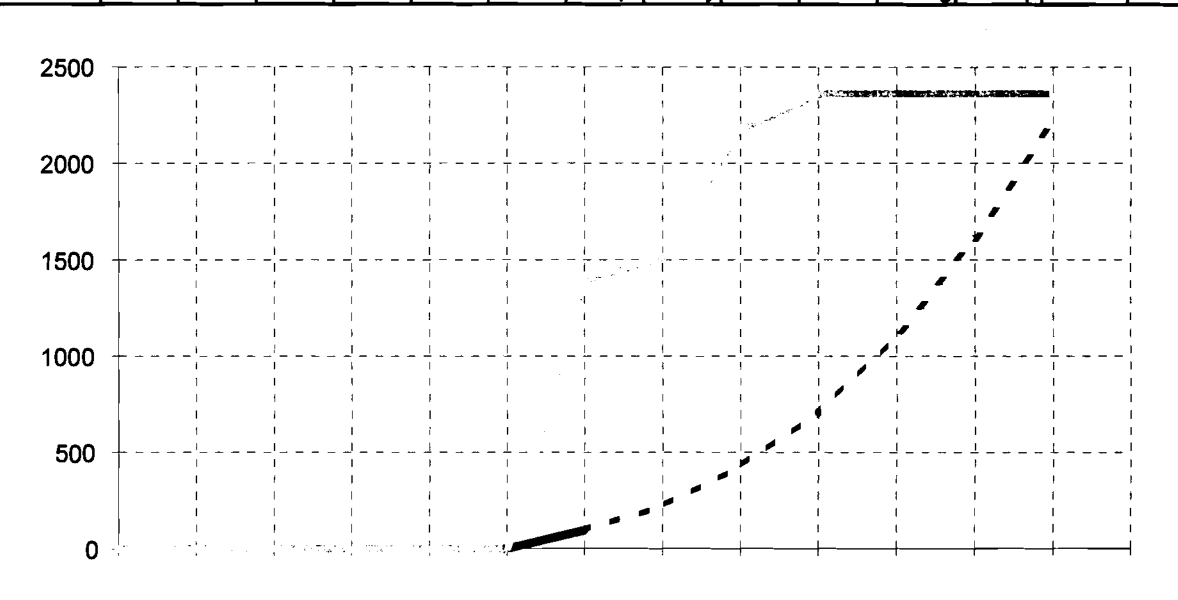
d. ACTUAL COSTS PRIOR YEARS
$0

e. ER BUDGET *
$1,640

f. DP BUDGET *
$725

g. ER FUNDS AUTH
$1,390

h. DP FUNDS AUTH
$0



LEGEND: PLANNED — ACTUAL — PROJECTED — FUNDS AUTH — 90% SPENT

		Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep		
i. ER COSTS	PLANNED	0	0	0	0	0	100	120	170	200	300	350	400		
	ACTUAL	0	0	0	0	0	97								
	VARIANCE	0	0	0	0	0	3								
	CUM PLANNED	0	0	0	0	0	100	220	390	590	890	1240	1640		
	CUM ACTUAL	0	0	0	0	0	97								
	CUM VARIANCE	0	0	0	0	0	3								
j. DP COSTS	PLANNED	0	0	0	0	0	0	0	40	80	100	150	205		
	ACTUAL	0	0	0	0	0	0								
	VARIANCE	0	0	0	0	0	0								
	CUM PLANNED	0	0	0	0	0	0	0	40	120	220	370	575		
	CUM ACTUAL	0	0	0	0	0	0								
	CUM VARIANCE	0	0	0	0	0	0								
k. TOTAL COSTS	PLANNED	0	0	0	0	0	100	120	210	280	400	500	605		
	ACTUAL	0	0	0	0	0	97								
	VARIANCE	0	0	0	0	0	3								
	CUM PLANNED	0	0	0	0	0	100	220	430	710	1110	1610	2215		
	CUM ACTUAL	0	0	0	0	0	97								
	CUM VARIANCE	0	0	0	0	0	3								

9. MILESTONES (Oct Nov Dec Jan Feb Mar Apr May Jun Jul Aug Sep)

Present Technology Evaluated △

Waste Samples Obtained △

Sample Analysis & Pretreatment Reports △

Experimental Plans Finalized △

Screening Experiments Completed △

Preliminary Technical & Economic Analysis △

*BUDGETS INCLUDE FY94 FUNDING PLUS FY93 CARRYOVER.

LEGEND: SCHEDULED △ COMPLETED ▲ DEVIATION TIMELINE PROGRESS PROPOSED DEVIATION APPROVED DEVIATION

10. NAME OF PARTICIPANT'S PROJECT MANAGER
PAUL S FARBER (ANL)

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