TECHNICAL PROGRESS REPORT

Quarterly

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Technical Quarterly Progress Report
Advanced Gas Turbine Systems Research
Cooperative Agreement DE-FC21-MC29061

April 1, 2000 to June 30, 2000

ABSTRACT

The quarterly activities of the Advanced Gas Turbine Systems Research (AGTSR) program are described in this quarterly report. As this program administers research, we have included all program activity herein within the past quarter as dated. More specific research progress reports are provided weekly at the request of the AGTSR COR and are being sent to NETL. As for the administration of this program, items worthy of note are presented in extended bullet format following the appropriate heading.

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EXECUTIVE SUMMARY:

MEMBERSHIP

- Arkansas Tech University applied for and received approval as a Performing Member institution. Professor Tarun Goswami is the contact at the University. EPRI was granted AGTSR Associate Member status; however, EPRI questioned the decision, as they desired full membership privileges. An explanation and copy of the AGTSR By-Laws has been provided to EPRI. AGTSR is now waiting on an EPRI decision.
- All companies seating on the AGTSR Industrial Review Board have been billed for their 2000 membership fee. As of June 30, 2000, the following companies have submitted payment.

Full Member
Solar
Siemens-Westinghouse

Associate Member
Southern Company Services
Parker Hannifin
Woodward FST

- The outstanding payments are GE, UT-PW, Rolls Royce Allison, and EPRI.
- New AGTSR By-Laws were approved by the IRB voting members. Clarification and editorial changes are the only changes in this 3rd edition.

ADMINISTRATION

- Dr. Richard A. Wenglarz assumed the position of AGTSR Program Manager on April 11, 2000.
- On February 28, 2000, SCIES issued a revised budget request to NETL for the AGTSR program. The revision increased AGTSR funding for CY2000 by \$600K, bringing the total requested dollars to \$3.6M. The budget revision was approved by NETL during this reporting period.
- AGTSR provided NETL with revisions to the AGTSR fact sheet. The “fact” sheet is presently being updated by NETL.
- AGTSR continued to update the literature list provided to Parsons (as requested by DOE) to maintain it as a living document.
- All 7 research contracts approved for funding under RFP 1999 have been negotiated and are in place.
- All other administrative functions proceeded with no observed difficulties.

TECHNOLOGY TRANSFER (Workshops and Education)

- As previously reported, workshop sites, dates and topics for CY2000 have been selected as follows:
 - + Combustion VII—September 6, 7, 8, 2000, at the Radisson Berkeley Marina, hosted by University of California, Professor Bob Dibble
 - + Aero-Heat Transfer IV—October 11, 12, 13, 2000, at the University of Minnesota Gateway facility, hosted by Professors Richard Goldstein and Terry Simon
- The CY2000 AGTSR Industrial Internship students were positioned as shown in Attachment 1.
- As approved in the October 1999 IRB meeting, Virginia Tech, under the direction of Professors Thole and Vandsburger, is preparing an AGTSR proposal for establishing a “new” Ph.D. program. The program would be geared for the individuals preparing for a career in industry and involve multiple universities in the education process. A proposal for a trial program is expected in August 2000. (see Attachment 5 for Program Overview slides)

EXPERIMENTAL

No experimental data to include from the administration of this program. At the request of the AGTSR COR, weekly research progress reports are being sent to NETL

RESULTS AND DISCUSSION: RESEARCH

- At the request of the AGTSR COR, weekly research progress reports are being sent to NETL.
- Verbal debriefings of the AGTSR research proposals not selected for funding under RFP 1999 continued. The debriefings are held at the request of the proposal’s PI.
- An “add-on-request” was received from Professor Katherine Faber of Northwestern University. Professor Faber’s request was approved by the IRB. The one-year \$50K extension permits Professor Faber to continue her AGTSR research on advanced thermal barrier coatings.
- Professor Ting Wang, University of New Orleans, submitted a request for support of his project on mist cooling with cost sharing between DOE and an IRB member firm. This project represents an AGTSR success story that needs continued support to bring it to the demonstration phase. The IRB is presently reviewing this project as a generic case for adding a cost shared activity to the AGTSR. Comments from the IRB are expected in July 2000.

- In response for the RFP 2000, AGTSR received the Intent to Propose list shown as Attachment 6. A total of 41 Intent to Propose notifications were received. The distribution per research discipline is 11 materials, 8 combustion, and 22 aero-heat transfer. This distribution is highly skewed toward the aero-heat transfer discipline and represents a departure from past years where nearly uniform submissions were anticipated.
- All other research activities proceeded with no observed difficulties.

CONCLUSION

- This quarter ended with continued success in the administration of the Advanced Gas Turbine Systems Research Program. At the request of the AGTSR COR, weekly research progress reports are being sent to NETL. Individual conclusions on those projects are included at that time.

REFERENCES

- All references to specific projects are included at the end of each projects specific progress report. At the request of the AGTSR COR, weekly research progress reports are being sent to NETL. Individual reference listings on those projects are included at that time.

Attachment 1

AGTSR INTERN ASSIGNMENTS

<u>Intern</u>	<u>Company Assignment</u>	<u>Mentor/Contact</u>	<u>Technical Area</u>
Allan Torsney U. of Central Florida	Siemens-Westinghouse	Mr. Hon Gjun Li (407)281-2395	Aero Code Development
David Bryant Virginia Tech	Pratt & Whitney	Mr. Robert Moore 203-234-4390	Turbine Airfoil Durability
Michael Simonich U. of Texas	Woodward FST	Mr. Geoffrey Myers 864-627-7171	Fuel Nozzle Design and Development
Nathan Bolander U. of Wyoming	Rolls-Royce Allison	Dr. Robert Delaney 317-230-4624	Aero Optimization
Justin Meyer Stevens Institute	General Electric-AE	Dr. Ram Darolia 513-243-4509	High Temperature Coatings
Richard Langdon U. of South Carolina	Woodward FST	Mr. Geoffrey Myers 864-627-7171	Fuel Nozzle Design and Development
NOTE:			
Michael Rockwell U. of Cal., San Diego	Woodward FST (DECLINED AWARD)	Mr. Geoffrey Myers 864-627-7171	Fuel Nozzle Design and Development
Daniel Atkins U. of Dayton	Rolls-Royce Allison (DECLINED AWARD FOR FAMILY REASONS, TOO FAR TO COMMUTE. FIRST LISTED CHOICE WAS RRA)	Dr. Robert Delaney 317-230-4624	Aero Optimization
Hooman Rezaei Michigan State U.	NOT PLACED-Not selected by companies that he would accept. Took summer position at MSU.		