Final Scientific/Technical Report
For
Award DE-FC07-00AL67053
(Also reported as DE-FG07-00AL67053)

Project Title

Creating an Educational Consortium to Support the Recruitment and Retention of Expertise for the Nuclear Weapons Complex

Recipient

University of Texas, Austin

Recipient Project Director

Cathy S. Dixon

Reporting Period

October 1, 2000 – December 31, 2004

Delivered:

February 21, 2005 to DOE via e-link
(a March 31, 2005 deliverable)

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Executive Summary

The project "Creating an Educational Consortium to Support the Recruitment and Retention of Expertise for the Nuclear Weapons Complex" was also known as the Advanced Fuel Cycle Initiative (AFCI) University Fellowship Program. Since its inception, the Advanced Fuel Cycle Initiative program and its predecessor, the Advanced Accelerator Applications (AAA) program, have engaged university researchers and students in the sciences necessary to answer technical questions related to reducing high-level waste volumes, optimizing the economics and performance of Yucca Mountain, reducing the technical need for a second repository, reducing the long-term inventories of plutonium in spent fuel, and enabling the proliferation-resistant recovery of the energy contained in spent fuel.

The Advanced Fuel Cycle University Fellowship Program is intended to support top students across the nation in a variety of disciplines that will be required to support transmutation research and technology development in the coming decades.

The Advanced Fuel Cycle Initiative University Fellowship Program

The goals, objectives, and deliverables related to the program "Creating an Educational Consortium to Support the Recruitment and Retention of Expertise for the Nuclear Weapons Complex," from October 1, 2000 through December 31, 2004 (Award Number DE-FC07-00AL67053) have been fulfilled. Cathy Dixon served as the Principal Investigator.

Toward that end, The University of Texas, Austin through the University Research Alliance, produced a program announcement announcing the Advanced Fuel Cycle Initiative University Fellowship Program, managed the solicitation for all new AFCI master's degree fellows, managed the evaluation of the fellowship applicants, managed the selection process, engaged the selected applicants, and established the procedures and the processes for managing the fellowships. Additionally, University Research Alliance managed communications for all AFCI university programs. Additionally, the University Research Alliance participated in weekly conference calls with DOE program management and monthly conference calls related to financial management of the program. University Research Alliance produced monthly technical reports and produced quarterly and semi-annual reports. The afore mentioned items summarize the project activities for the entire period of funding for the AFCI university program.

Comparison of actual accomplishments with the goals and tasks:

Goal	Accomplishment
Administrative support of the existing AFCI fellowships	Existing AFCI fellowships were fully administered.
Preparations for and administration of the award of new MS fellowships in FY2001 (10 fellows), FY2002 (10 fellows) and FY2004 (8 fellows)	The FY2001, FY2002 and FY2004 AFCI fellowship solicitations were prepared and published, the fellows were selected, and the fellowships were awarded as scheduled.
Maintenance and reporting of performance records for all AFCI university programs, including competitive and directed research	URA maintained records on AFCI university programs and prepared reports as scheduled.

This project did not have any products, journal publications, conference papers, or public releases of results. No software, databases, or inventions were developed. No patent applications were filed and no licensing agreements were established. No computer modeling was conducted.

However, it is noteworthy to reference the web site that was developed for announcing and promoting the fellowship program (http://www.studentpipeline.org) and the following theses by the AFCI Fellows:

- Separation of Fluoride Residue Arising from Fluoride Volatility Recovery of Uranium from Spent Nuclear Fuel by Jennifer Ladd-Lively, Chemical Engineering, University of Tennessee, Knoxville

- Assessment of Uranium-Free Nitride Fuels for Spent Fuel Transmutation in Fast Reactor Systems by Frank Szakaly, Nuclear Engineering, Texas A&M University

- Evaluation of the Mechanical Behavior of a Metal-Matrix Dispersion Fuel for Plutonium Burning by Lee Van Duyn, Nuclear Engineering, Georgia Institute of Technology.

In order to fulfill all contractual obligations of Award DE-FC07-00AL67053, University Research Alliance has provided this final report. All final deliverables for the Plant Expertise Program (PEP) portion of the contract were fulfilled and delivered, as directed by the U.S. Department of Energy/NNSA, NNSA Service Center, Albuquerque, New Mexico, prior to the final dues dates of December 30, 2003.

All accomplishments of the “Creating an Educational Consortium to Support the Recruitment and Retention of Expertise for the Nuclear Weapons Complex” program were supported by the U.S. Department of Energy under Award No. DE-FC07-00AL67053. Any opinions, findings, and conclusions or recommendations expressed in this material are those of the author(s) and do not necessarily reflect the views of the Department of Energy.