

# *Grants Awarded Report*

**From: 6/1/08 to 6/30/08**

**Project Title:** Cumberland Plateau Consortium Teaching American History

**Activation Amount:** \$56,391.00

**Agency:** White County Board of Education via U. S. Dept. of Education

**Personnel:**

Co-PI - Michael Birdwell, History

PI - Jeffery Roberts, History

Support Personnel - Suellen Alfred, Curriculum and Instruction

**Abstract:**

The Cumberland Plateau Consortium (CPC) includes school districts in Anderson, Bledsoe, Campbell, Cumberland, Putnam, Fentress, Marion, Meigs, Morgan, Pickett, Rhea, Scott, Sequatchie, Van Buren and White counties, all of them rural districts with limited resources. The CPC Project Design has three main goals: (1) to increase teachers' knowledge of history content; (2) to increase teachers' use of primary materials, local history resources, and technology in history instruction; and (3) to increase students' understanding of and skill level in American history. The centerpiece of the Project Design is a series of eight, one-week summer institutes over a three-year period. Each institute will immerse teachers in the content and teaching of American history in correspondence with the historical eras outlined in the 2001 Tennessee state curriculum framework. Academic year activities include mini-institutes offered in the CPC region, and annual workshops on the National History Day competition.

# ***Grants Awarded Report***

**From: 6/1/08 to 6/30/08**

***Project Title:*** UT-CIS Contract for Employee Services 2007-08

***Activation Amount:*** \$30,000.00

***Agency:*** The University of Tennessee Center for Industrial Services

***Personnel:***

PI - Kenneth Currie, Manufacturing Center

***Abstract:***

Academic and professional employee and student services will be provided to support the business and industrial assistance program administered by the individual party's center for industrial services.

# *Grants Awarded Report*

**From:** 6/1/08 to 6/30/08

**Project Title:** Research Work Plan to Test Eight Biocides against Legionella pneumophila Sequestered with Food Vacuoles of Acanthamoeba polyphaga

**Activation Amount:** \$2,303.00

**Agency:** The Dow Chemical Company

**Personnel:**

PI - Sharon Berk, Water Center

**Abstract:**

During this project, we will test eight biocides against Legionella pneumophila sequestered within food vacuoles of Acanthamoeba polyphaga. We will determine biocide efficacy against the bacteria inside and outside the amoeba host. Legionella pneumophila strain AA100, a virulent strain that infects this amoeba species, will be tested in this project. Each biocide will be tested at two concentrations; each experiment will be set up in triplicate and repeated at least once on a separate day. Data will be analyzed statistically for significant differences in treatments.

# *Grants Awarded Report*

**From:** 6/1/08 to 6/30/08

**Project Title:** Monitoring the Plant Community at the Yuchi Waterfowl Project

**Activation Amount:** \$5,181.00

**Agency:** Tennessee Wildlife Resources Agency

**Personnel:**

Co-PI - Kenneth Morgan, Biology

PI - Thomas Roberts, Biology

**Abstract:**

The TWRA will construct an impoundment on a small, unnamed drainage adjacent to the Tennessee River in Rhea County, Tennessee. The purpose of this project is to provide flooded habitat that would benefit waterfowl during a period of the year that the Tennessee Valley Authority draws the lake level down to its winter pool elevation thereby eliminating flooding drainages such as occur at Yuchi.

# *Grants Awarded Report*

**From: 6/1/08 to 6/30/08**

**Project Title:** Local Planning Assistance Office-Geographic Information System Improvement Proposal

**Activation Amount:** \$74,626.00

**Agency:** Tennessee Department of Economic and Community Development

**Personnel:**

PI - Yvette Clark, Water Center

Support Personnel - Amy Knox, Water Center

**Abstract:**

The project will result in the development of a centralized spatial data management system, and through the use of ArcSDE and ArcIMS technologies, authorized users within the Local Planning Offices will be ensured open access to the data, thus, making it available to a wider range of users. The developed system will incorporate the appropriate hardware and software protocols to create a data-sharing, storage, and security system with redundant backup capabilities to maintain and protect valuable data for authorized users. Wireless communication solutions will be researched and evaluated for use by emergency communications personnel to establish communication and digital information access as an integral part of an emergency preparedness system. The project will also evaluate and create GIS applications for Business Development to enhance the state's existing and future GIS data, which are valuable resources used for information delivery to the Local Planning staff.

# *Grants Awarded Report*

**From:** 6/1/08 to 6/30/08

**Project Title:** Enhancement of the Agricultural Learning Facilities at Hyder-Burks Pavilion and Shipley Farm at TTU

**Activation Amount:** \$5,006.00

**Agency:** Tennessee Department of Agriculture

**Personnel:**

PI - Pat Bagley,

Support Personnel - James Ligon, Agriculture

Support Personnel - Rusty Chilcutt, Agriculture

Support Personnel - Wade Faw, Agriculture

**Abstract:**

TTU will complete one or more activities under the Tennessee Agricultural Growth Initiative. Activities must serve to address the goal of increasing farm income in Tennessee by encouraging the expansion, improvement, and diversification of agricultural groups and associations, agri-business operations, farms and university programs. These activities may include agricultural market promotion, education, identifying and utilizing new marketing opportunities, increasing sales of diversified agricultural products grown in Tennessee, installation of farm infrastructure, and purchase of speciality equipment.

# *Grants Awarded Report*

**From:** 6/1/08 to 6/30/08

**Project Title:** Optimization of High Voltage Lines - Phase II

**Activation Amount:** \$415,000.00

**Agency:** Oak Ridge National Laboratory

**Personnel:**

Co-PI - Ghadir Radman, Electrical and Computer Engineering

Co-PI - Sastry Munukutla, Energy Center

Co-PI - Wenzhong Gao, Energy Center

PI - Satish Mahajan, Electrical and Computer Engineering

Senior Personnel - Jie Cui, Mechanical Engineering

Senior Personnel - John Peddieson, Mechanical Engineering

Senior Personnel - Robert Craven, Energy Center

**Abstract:**

In this phase, research will be performed on two areas: Current transformer and FNET. Laboratory facilities developed during Phase I will be used to experiment with several 69 kV current transformers to estimate the loss of life (LOL) under normal and overload conditions. Heating effects due to non-sinusoidal and harmonic currents will be included in the model. Analytical and numerical models involving CFD will also be developed to understand thermal behavior of a current transformer. Research on FNET will include an intelligent load shedding (ILS) scheme, a novel power system stabilizer using wide area frequency information, and modeling of electromechanical waves via electrostatic and magneto-static approaches. Several new FDR units will be deployed within the TVA domain. A new data exchange protocol and frequency measurement algorithm will be developed.

# *Grants Awarded Report*

**From: 6/1/08 to 6/30/08**

**Project Title:** Application of CADDIS to an Impaired Mixed Urban/Rural Watershed - Phase 2

**Activation Amount:** \$25,000.00

**Agency:** Tennessee Department of Environment and Conservation

**Personnel:**

PI - John Harwood, Chemistry

**Abstract:**

This project extends and completes our initial study of the usefulness of the EPA CADDIS process (Causal Analysis/Diagnosis Decision Information System) in identifying stressors causing impairment of waters of Tennessee. To the test case of the initial study, impairment of the lower Failing Water River and associated tributaries, are added two additional test cases. These cases together represent a range of technical challenges in stressor identification in Tennessee. The project objectives are to reveal advantages and difficulties in applying the CADDIS process, and to identify the sources of impairment of water quality in the waters studied. Additionally, an objective of this project is to evaluate the utility of full involvement of stakeholders in identifying stressors, and involvement of stakeholders primarily as sources of information in stressor identification. In addition to the experience gained by the research team, this evaluation will be based on comments and suggestions solicited from the stakeholders concerning implementation of CADDIS, and on comments and suggestions of TDEC staff assisting with the project. Deliverables of the project will include 1) CADDIS stressor identification of the sources of impairments for the test cases, 2) an evaluation of the stakeholder role in applying the CADDIS procedure, 3) a summary of information needed to apply the CADDIS procedure, and 4) guidelines as to what impairment scenarios might be successfully approached with the CADDIS process, and what scenarios might be better approached using alternative means of stressor identification.

# *Grants Awarded Report*

**From:** 6/1/08 to 6/30/08

**Project Title:** Water Center Analytical and Computer Services

**Activation Amount:** \$71,341.00

**Agency:** various

**Personnel:**

PI - Dennis George, Water Center

**Abstract:**

Water Center testing account

# *Grants Awarded Report*

**From:** 6/1/08 to 6/30/08

**Project Title:** Power-Test-Service Account

**Activation Amount:** \$14,090.00

**Agency:** various

**Personnel:**

Co-PI - Benjamin Mohr, Civil and Environmental Engineering

Co-PI - James Beard, Energy Center

Co-PI - L. K. Crouch, Civil and Environmental Engineering

PI - Sastry Munukutla, Energy Center

**Abstract:**

Power-test-service account

# *Grants Awarded Report*

**From:** 6/1/08 to 6/30/08

**Project Title:** Testing and Design 2007-08

**Activation Amount:** \$39,524.00

**Agency:** various

**Personnel:**

PI - Kenneth Currie, Manufacturing Center

**Abstract:**

Testing and design account

# *Grants Awarded Report*

**From:** 6/1/08 to 6/30/08

**Project Title:** General Work Study 2007-08

**Activation Amount:** \$128,601.00

**Agency:** various

**Personnel:**

PI - Kenneth Currie, Manufacturing Center

**Abstract:**

General Work Study account 2007-08

# *Grants Awarded Report*

**From: 6/1/08 to 6/30/08**

**Project Title:** Tennessee 3-Star Industrial Assessment Center

**Activation Amount:** \$77,054.00

**Agency:** U. S. Department of Energy

**Personnel:**

Co-PI - Kenneth Currie, Manufacturing Center

PI - Glenn Cunningham, Mechanical Engineering

**Abstract:**

The proposed Industrial Assessment Center (IAC) represents a unified and collaborative approach to industrial assessments that will not only span the entire state of Tennessee but also cover some of the more IAC underrepresented areas of Kentucky, Virginia, West Virginia, North Carolina, South Carolina, Georgia, Alabama, Mississippi, Arkansas, and Missouri—all within a 150-mile radius! By utilizing the strong institutional bond between three of the six four-year universities under the authority of the Tennessee Board of Regents, the Tennessee 3-Star IAC will draw upon the engineering and technology resources of Tennessee Technological University (lead), the University of Memphis (satellite), and East Tennessee State University (satellite). The proposed IAC is referred to as the Tennessee 3-Star IAC to signify the historical geographic/economic/political divisions within the state: West Tennessee (Memphis), Middle Tennessee (Cookeville), and East Tennessee (Johnson City). By encompassing lead/satellite centers within each division, the Tennessee 3-Star IAC will reach an estimated population base of approximately 10 million and a manufacturing employee base of 1.0 million—once again within a 150-mile radius. Within the state of Tennessee, there are approximately 750 manufacturing concerns with less than 500 but more than 100 employees, and the Tennessee Valley region has been virtually untouched by previous IAC assignments (within the last 10 years) due to excessive geographic distance.