

*Issued July 24, 1997*

## DOE Selects Historically Black, Hispanic Universities To Receive Funding for Fossil Energy Research Projects

As part of its efforts to encourage more participation by minority college students and teachers in its national energy program, the Department of Energy (DOE) has selected four coal and petroleum research projects to be carried out by student-teacher teams at historically black and minority universities in Virginia, Georgia, Maryland and New Mexico.

### **The 1997 winning schools are:**

Hampton University, Hampton, VA, for research into chemical compounds that can clean sulfur pollutants from hot coal gases;

Clark Atlanta University, Atlanta, GA, for a project to study novel chemicals that can aid in oil production;

University of Maryland Eastern Shore, Princess Anne, MD, for studies of the spontaneous combustion of certain types of coals;

New Mexico Highlands University, Las Vegas, NM, for the development of an optical method to measure steam injected into oil fields to boost production.

Each school will receive a Federal research grant of about \$200,000 for use over the next three years in carrying out the research projects. They were selected from 34 proposals submitted to the Energy Department's Office of Fossil Energy as part of its Historically Black Colleges and Universities and Other Minority Institutions research program.

In announcing the winning projects, Secretary of Energy Federico Peña said that the Office of Fossil Energy program is a key part of the Department's efforts to make full use of the Nation's academic talents in its energy programs.

"This program reaches out to young people and helps ensure that we bring the full spectrum of our best minds and freshest ideas into our energy program. These grants benefit the educational progress of minority students while, at the same time, supporting solid research that can contribute to a cleaner, more secure energy future," Peña said.

Now in its sixth year, the Department's Fossil Energy Historically Black Colleges and Universities Research Program teams faculty and students to conduct the research, some in conjunction with private-sector companies. "Such an arrangement benefits the country by

ensuring that the United States has a future supply of scientists who have benefitted from real life' research experience. In turn, historically black and minority institutions are able to maintain and upgrade their education, training, and research capabilities," said Patricia Fry Godley, DOE's Assistant Secretary for Fossil Energy.

This year DOE's Office of Fossil Energy expanded the program to include other minority institutions.

More details on the winning projects follow:

Hampton University, Hampton, Virginia, will receive a \$199,972 grant for a 3-year project that will assist the Energy Department in developing the Integrated Gasification Combined Cycle-Hot Gas Desulfurization technology, an advanced method for generating electricity cleanly from coal. The project will develop low-cost sorbents that resist breakage and particle degradation -- known as attrition resistance -- and can be reused to produce marketable sulfur directly with minimal use of coal gas. The university will team with Research Triangle Institute, located in Research Triangle Park, NC, in carrying out the project. Dr. K. Jothimurugesan will be the lead researcher.

Clark Atlanta University, Atlanta, Georgia, will receive a \$200,000 grant for a 3-year project to study novel, hybrid, alcohol ethoxycarboxylate (AEC) surfactants for enhanced oil recovery. Surfactant flooding is a technique to recover oil remaining in a reservoir after conventional production processes are no longer effective. The detergent-like surfactant is injected into the well to mix with the remaining oil to form a more easily extractable emulsion. Tests will be performed with a crude oil, refined hydrocarbon and varying concentrations of brine and surfactant to determine the optimal salinity and temperature in which all three phases exist. Following these experiments, laboratory-scale core flooding will be conducted with chemical solutions to correlate surfactant adsorption and oil recovery efficiency with the phase behavior data. This knowledge is essential for progress in effective surfactant flooding for commercially viable enhanced oil recovery. The university will collaborate with the SURTEK company of Golden, CO, in carrying out the research project. Dr. Lebone Moeti will lead the research team.

University of Maryland Eastern Shore, Princess Anne, Maryland, will receive a \$199,949 grant for a 3-year project to study the spontaneous combustion of low-rank coals and lignites. Spontaneous combustion has been a problem in the storage and transportation of these types of coal. The culprit is usually coal's tendency to reabsorb moisture which leads to spontaneous combustion. Information on moisture absorption will be of great benefit to the future use of low-rank coals. The university will collaborate with the Institute of Environmental Science, Austin, TX, in the research project. Dr. Joseph M. Okoh and Dr. Joseph N.D. Doodoo will lead the research team.

New Mexico Highlands University, Las Vegas, New Mexico, will receive a \$199,945 grant for a 3-year project to develop an optical method to measure the quality and total energy of a high

pressure flow of steam in an oil recovery operation. Steam is generated and injected through tubing inside the oil well casing to thin heavy oil that otherwise would not flow to production wells. However, since the depth of the well can be great, there are heat losses from the tubing. These heat losses have only been estimated based on computer models. The proposed research method will measure the quality and total energy in the steam when it reaches the underground well formation. The method will be demonstrated under three successively more challenging applications and ultimately in an oil field situation. These adaption efforts will be made in cooperation with end users of the technology, including the University heating plant system and an oil company currently utilizing thermal enhanced oil recovery. Dr. A.B. Donaldson will be the lead researcher.