

PROJECT facts

U.S. DEPARTMENT OF ENERGY
OFFICE OF FOSSIL ENERGY
NATIONAL ENERGY TECHNOLOGY LABORATORY

Environmental & Water
Resources

07/2005



COAL ASH RESOURCES RESEARCH CONSORTIUM (CARRC®)

Project Description

CONTACTS

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PARTNER

**Energy & Environmental
Research Center**
Grand Forks, ND

Objective

The Coal Ash Resources Research Consortium (CARRC®) (pronounced “cars”) is an international consortium of industry and government representatives, scientists, and engineers working together toward a common goal; to advance coal ash utilization. Specifically, CARRC® works to solve coal combustion by-product (CCB) related problems, and promote the environmentally safe, technically sound, and economically viable utilization and disposal of these highly complex materials.

Background

Founded in 1985, CARRC® is housed at the University of North Dakota Energy & Environmental Research Center (EERC). Throughout the years, numerous advancements have been made in the area of coal utilization by-products (CUB) use, including the following:

- Generation of scientific and engineering information applicable to CUB regulations and specifications
- Development of improved CUB characterization methods
- Demonstration of new and improved CUB use applications
- Transfer of technical information and technology

Project Summary

CARRC® members and researchers continue to improve the technical and economic aspects of CCB management and advance the goal of the U.S. Department of Energy (DOE) and industries to increase CCB utilization to 50% of production by 2010. CARRC® researchers and members bring their experience to this challenge, and that experience is key to the success of CARRC® in the diverse CCB industry. It is CARRC® members’ input and dedication that direct CARRC® research, while Energy and Environmental Research Center (EERC) researchers capitalize on their own experiences to perform high-quality research that is of value to our members. The technical tasks summarized in annual report are examples of successful collaboration between CARRC® members and researchers that will facilitate improved CCB management.



COST

Total Project Value
\$1,658,436

DOE/Non-DOE Share
\$652,502 / \$1,005,934

PERIOD OF PERFORMANCE

1985 to 2007

ADDRESS

National Energy Technology Laboratory

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P.O. Box 10940
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CUSTOMER SERVICE

1-800-553-7681

WEBSITE

www.netl.doe.gov

Accomplishments

- Created American Society for Testing and Materials (ASTM) standards for coal ash utilization
- Compared available swell/expansion tests to develop an expansion test for CUBs
- Developed leaching protocols appropriate for CUBs in various management scenarios
- Formulated methods for real-time measurement of mercury release from CUBs
- Assessed the handling and use of flue gas desulfurization material
- Examined the use of CUBs in various products such as controlled low-strength material, rammed earth, and concrete
- Created electronic databases to improve technology transfer throughout the industry. The Coal Ash Properties Database houses sample information and laboratory results. The FIRST SEARCH database features over 700 ash-related documents. The *Buyer's Guide to Coal Ash Containing Products* lists commercially available ash-containing products
- Participated in various CUB technology transfer activities by presenting research at international symposia and attending CUB association meetings

Planned Activities

- Publish a CARRC® topical report on the characterization of ammoniated ash
- Present research results at the World of Coal Ash Conference
- Continue to evaluate the rerelease of mercury from CUBs
- Develop an energy-related workshop for science educators