Ash at Work

ACAA INTERNATIONAL

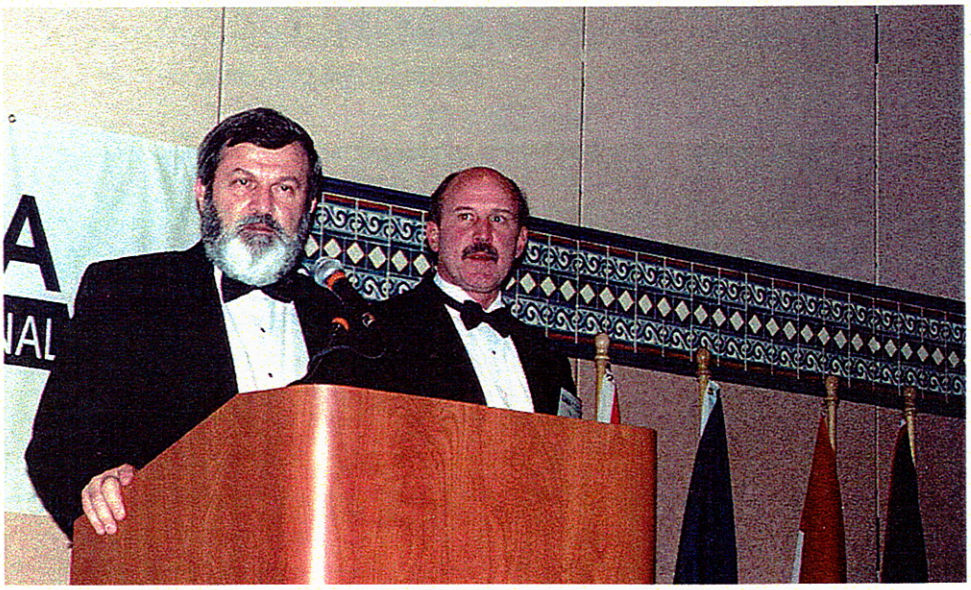
ACAA's 13th International Symposium a Success

The 13th International Symposium on Management and Use of Coal Combustion Products was held January 11-14, 1999 at Walt Disney's Coronado Springs Resort Hotel in Orlando, Florida. The 1999 symposium was well attended with the total number of registered participants reaching nearly 400.

International participation was outstanding, with 85 registrants from 22 countries other than the USA. Countries represented included Antigua, Australia, Belgium, Canada, Denmark, England, Finland, France, Germany, Guadeloupe, Guyana, India, Ireland, Israel, Japan, Netherlands, Republic of China, Russia, South Africa, South Korea, Switzerland, Turkey and USA.

A total of 91 technical papers were bound in three proceedings volumes, available for distribution to registrants on-site. ACAA is grateful to the Electric Power Research Institute (EPRI), particularly EPRI's Dean Golden, for the publication of these proceedings. Most of the papers were presented during the twenty sessions that were scheduled throughout the week. These sessions ran smoothly and efficiently, clearly due to advance preparation by speakers, as well as the volunteer efforts of session moderators. Other papers were presented in a poster session throughout the day on Wednesday. The symposium provided registrants with many outstanding opportunities for networking with "CCP industry" peers from around the world. In addition to the technical sessions, other programs helped to make this symposium a great success.

(Continued on page 5.)



ACAA's Executive Director, Sam Tyson (left) and ACAA Chairman Joel Pattishall of Pennsylvania Power & Light, at ACAA's 13th International Symposium awards banquet in Orlando, Florida.

April 1999

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Board Chairman Pattishall seeks input from members for Business Plan. Page 8

American Coal Ash Association - 2760 Eisenhower Avenue, Suite 304 Alexandria, Virginia USA 22314 - 4569
Phone: 703-317-2400 Fax: 703-317-2409 E-mail: ACAA-USA@msn.com Internet: http://www.ACAA-USA.org

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American Coal Ash Association
2760 Eisenhower Avenue, Suite 304
Alexandria, Virginia USA 22314-4569
Phone: 703-317-2400
Fax: 703-317-2409
Internet: http://ACAA-USA.org
E-mail: ACAA-USA@msn.com

ACAA Staff

Sam Tyson
Executive Director

Gregg Deinhart
Communications Coordinator

Earline Marshall
Executive Assistant

Barry Stewart
Director of Technical Services

Brian Backer
Technical Analyst

Gibson Smith
Financial Manager

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Tyson's Corner

Commentary by: Sam Tyson
ACAA Executive Director

Marketability of fly ash impacted by new NOx rule

EPA's new Ozone Transport Rule [F.R. 63, 57356, October 27, 1998] will require large reductions of nitrogen oxide (NOx) emissions. Unfortunately, EPA's new rule is silent both on the likely negative effects of NOx reduction strategies on coal fly ash quality characteristics as well as the resulting negative impacts that such quality changes would have on current long-established markets for coal fly ash in concrete and cementing applications.

To determine the impacts of this rule-making on CCP marketability, ACAA surveyed the coal-fired electric utility industry in November of 1998. The survey received responses from 355 coal-fired units located in 27 states. The survey revealed that at least 2.4 million tons, of the 9.4 million tons of fly ash currently used in cementitious applications, could be rendered un-usable for that market. An additional 1.8 million tons of fly ash used in non-cementitious applications may also be un-usable. At least $16 million in ash marketing revenues may be lost to the coal-fired utilities and an additional $27 million in resultant disposal costs could be incurred, according to survey results.

One of the questions asked in ACAA's survey concerned the type of NOx reduction measures that likely would be implemented. The percentages for each of several options are summarized as follows:

Low-NOx burners	33%
SCR	45%
SNCR	10%
Natural Gas Reburn	3%
Fuel Switching	5%
Other	4%

The ammonia-based measures, both SCR (selective catalytic reduction) and SNCR (selective non-catalytic reduction), are clearly expected to be implemented at a number of facilities for the reduction of NOx. Both SCR and SNCR are inefficient in their use of ammonia, and the ammonia that 'slips' through the system is likely to be a substantive concern with respect to the marketability of fly ash.

Consequently, ACAA has initiated a research project that will focus on the use of ammoniated fly ash in concrete and in flowable fill, and the development of provisions that could be recommended for incorporation into existing standards for these important uses of fly ash. A task force, as shown on page four, has been formed for this project and is open to the participation of any ACAA member.

States sue EPA over NOx SIP call

Several states have filed petitions asking that the U.S. Environmental Protection Agency's recent state implementation plan (SIP) call rule for nitrogen oxides (NOx) be overturned. The rule requires the District of Columbia and 22 states to revise their SIPs to force reduction of NOx, to reduce the formation of ozone in downwind states. Michigan, Virginia, West Virginia, Ohio, Indiana, Alabama, North Carolina, and South Carolina have filed petitions challenging the rule.

These states want EPA to consider alternative plans that would provide them with more flexibility to achieve NOx emission reductions. The U.S. Circuit Court of Appeals for the District of Columbia has consolidated all of the state suits into one case challenging the new rule. EPA's NOx SIP call rule would require an 85 percent reduction in NOx emissions from large electric generating units.

The alternative plan proposed by several states would be implemented as follows:

Phase I would entail a 55 percent NOx reduction by April 2002, increased to a 65 percent reduction by April 2004.

Phase II calls for meeting EPA's new national ambient air quality standard for ozone by 2009, a year earlier than required by the Clean Air Act.

The deadline for filing suit to challenge EPA's NOx SIP call rule was December 28, 1998. If the suits are unsuccessful, or if the court does not act on the petitions quickly enough, states will have to revise their SIPs and submit the revisions for EPA approval by the end of September 1999.

States that fail to submit approved SIP revisions face the imposition of a federal implementation plan under which EPA, not the state, would enforce virtually the same NOx emission reductions as specified in the NOx SIP call rule.

ACAA Task Force on ammoniated fly ash formed

Barry Stewart - ACAA (Chair)
Nick Diulius - Consol
Steve Gasiorowski - Separation Technologies, Inc. (STI)
Dean Golden - Electric Power Research Institute (EPRI)
Earl Good - Marsulex
Russell Hill - Boral Material Technologies
Howard Humphrey - American Electric Power (Retired)
Jimmy Knowles - Southeastern Fly Ash
Tex Leber - Nebraska Ash
Oscar Manz - ACAA Honorary Member
Phil Zacarias - Mineral Solutions

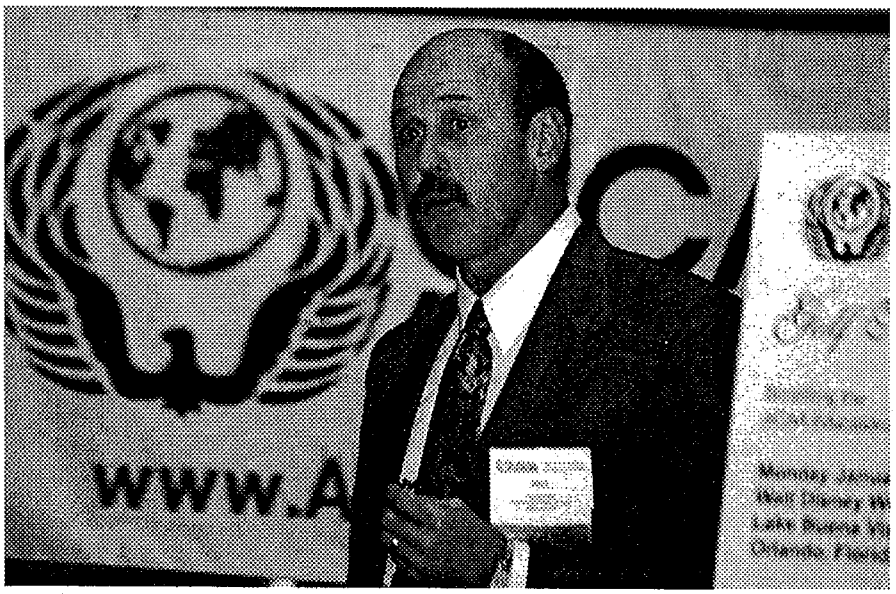
For more information about ACAA's 4th quarter 1998 survey of coal-burning electric utilities, ACAA members can request a copy of *Unintended Effects of EPA's Recent Ozone Transport Rule*, a recent paper by Barry R. Stewart, ACAA's Director of Technical Services. This also will be the topic of upcoming presentations by Stewart at conferences in Pittsburgh and Chicago. (See related articles about FETC on page 10 and the American Power Conference on page 24.)

1999 Symposium is a success

(Continued from page 1.)
The Second ACAA Educational Foundation Golf Tournament, held on Monday, January 11, 1999, attracted 48 players and five corporate sponsors who collectively generated over $12,000 for the Foundation's John H. Faber Scholarship Fund. Those sponsors included: **Gold Sponsors - ISG Resources, Inc.** , and **Mineral Solutions, Inc.**; and **Silver Sponsors - Boral Material Technologies, Combustion Products Management,** and **Pennsylvania Power and Light**.

Additionally, ACAA's spouse program was a major success. Some 40 registrants took part in a special "Behind the Scenes" tour of Walt Disney World. Spouses also participated in all of the social functions during the symposium including receptions on Monday and Thursday and an awards banquet on Thursday evening. The 1999 symposium also hosted an exhibit hall which was open continuously from Monday evening through Wednesday evening.

The 19 exhibitors were: ACAA, ADA Environmental Solutions, Badger State Equipment Company, Boral Material Technologies, Combustion Products Management, GAI Consultants, Intertec Publishing, ISG Resources, Marsulex Environmental Technologies, Mineral Resource Technologies, Penn Worldwide, Pittsburgh Mineral and Environmental Technology, Separation Technologies, Inc., Southeastern Fly Ash & Progress Materials, U.S. DOI - OSM (Office of Surface Mining), U.S. DOE - FETC (Federal Energy Technology Center), University of Kentucky - CAER (Center for Applied Energy Research), University of North Dakota - (Energy & Environmental Research Center - EERC), and the United States Postal Service. (For more stories on ACAA's Symposium, see pages 6, 31 and 32.)



ACAA Chairman Joel Pattishall welcomes attendees to ACAA's 13th International Symposium in Orlando, Florida.

Member News - American Electric Power (AEP)

Carl Togni, Manager of AEP's Geotechnical Engineering Section, is AEP's new representative on ACAA's Board of Directors following the retirement of Howard Humphrey in February 1999. AEP is an electric utility member of ACAA and operates coal-fired plants in seven states.

Humphrey was given an ACAA Recognition Award in January of 1999 for his work as Chairman of the 1999 Symposium Task Force. Humphrey had also been the chairman of ACAA's Communications & Marketing Committee, which will be chaired for the remainder of 1999 by Fred Gustin of Mineral Solutions.

Humphrey will remain active as a member of the Board of Directors of ACAA's Educational Foundation.

Worldwide Coal Ash Council (WWCAC) holds inaugural meeting in conjunction with ACAA Symposium

The leaders of international organizations concerned with the management and use of coal combustion products (CCPs) gathered for the initial meeting of the Worldwide Coal Ash Council (WWCAC) on Tuesday, January 12, 1999, 11:00 AM-12:00 Noon, in Orlando, Florida USA.

The following people attended the meeting:
Bill Aljoe (USA), Alain Bilodeau (Canada), Hans Cornelissen (Netherlands), Andy Cregan (Netherlands), Gregg Deinhart (USA), Stefan Dietz (Germany), Arthur Drakolopus (Australia), John Flynn (Canada), Ted Frady (USA), Dean Golden (USA), Gary Jablonski (USA), Richard Kruger (South Africa), Oscar Manz (USA), Frank McCarthy (Ireland), Nobuo Nagata (Japan), Andrew Oakley (Australia), Tetsou Owada (Japan), Joel Pattishall (USA), Debra Phlughoeft-Hassett (USA), Dan Ravina (Israel), Eric Soetens (Belgium), Helena Soimakallio (Finland), Barry Stewart (USA), Shin-Ichi Takahashi (Japan), Darrell Taulbee (USA), Hans Thamm (Germany), and Sam Tyson (USA). A letter request to join WWCAC has also been received from Selmo Chapira Kuperman (Brazil).

ACAA has recorded and posted the minutes from the inaugural meeting on the WWCAC web page <http://www.WWCAC.org> under the members only section. ACAA members can receive the password to this site through ACAA's members only section. The WWCAC members only section contains the Draft Charter of the WWCAC. This Charter would be agreed to between and among organizations electing to participate in the WWCAC.

The list of attendees and their Internet addresses, plus a questionnaire for WWCAC members, are also posted in the WWCAC members only section.

At the initial meeting of WWCAC, other international organizations were encouraged to convene subsequent meetings of WWCAC. The host for future WWCAC meetings would distribute an announcement for the meeting and distribute meeting minutes to participants and other interested parties.

ECOBA has scheduled the next WWCAC meeting in conjunction with the next ECOBA meeting in Aix-en-Provence, France in June 1999.

ACAA's Workshop & Committee Meetings to be held June 7-8, 1999

ACAA's June 1999 Workshop and Committee meetings will be held in Columbus, Ohio. The workshop and field tour will be on "Use of FGD Material for Livestock Feedlot and Storage Pads, and for Mined Land Reclamation."

For more information on the Livestock Pads, please turn to page 21 for an article and page 32 for a photograph.

The workshop and tour will be organized by the CCP Pilot Extension Program at The Ohio State University, in collaboration with Ohio Department of Natural Resources (Division of Mines & Reclamation).

The registration fees for the meeting and workshop are $30.00 for ACAA members and $75.00 for non-members. Registration information has been sent out, via mail, to all ACAA members. Hotel and other related meeting information is on page 7 and on ACAA's Internet web site: http://www.ACAA-USA.org.

Please be sure to make hotel reservations early. Space is limited.

University of New Hampshire Center to play key role in use of CCPs in highway construction

The RMRC (Recovered Material Resource Center) is a new national research center, within the Environmental Research Group at the University of New Hampshire. The center was created to promote the use of recycled materials in the highway environment and will focus particularly on the long term physical and environmental performance of recycled materials. RMRC has a unique role in the growing area of recycled materials use in highway construction and will serve as principle outreach and evaluator of information for the Federal Highway Administration (FHWA) as well as be the principle point of contact for information.

RMCA was established in September 1998, through authorization in the Transportation Equity Act for the 21st Century (TEA-21) and will work with the FHWA and the FHWA Pavement Management Coordination Group to provide a cohesive approach to the complex materials and environmental issues on the use of recycled materials. The Center is under the direction of Dr. Taylor Eighmy and the staff includes Dr. David Gress.

The Center has four basic missions: to test, evaluate and develop environmentally acceptable guidelines for increased use of recycled materials in transportation infrastructure construction and maintenance, make information available to State transportation departments, FHWA and the construction industry, encourage the increased use of recycled materials, and work cooperatively with Federal and State officials to reduce the institutional barriers that limit widespread use environmentally sound recycled materials . The Center has a special interest in the long-term physical and environmental consequences of recycled material use.

There are four on-going projects by the Consortium that address issues related to the use of these materials in the highway infrastructure and environment. The projects, funded by FHWA's Turner-Fairbank Highway Research Center have been under way since August 1997. FHWA and DOT staff are working closely in partnership with the consortium. The four on-going projects are: Residual Alkali Silicate Reactivity in Existing Portland Cement Concrete and Potential for Recycling or Repair; Development of Performance-Based Mix Design Procedures for Cold In-Place Recycling of Bituminous Pavements Based on Fundamental Properties; Development of A Consensus Framework for Waste Utilization Evaluation Procedures and Preparation of A Guidance Document and A Web Site Product for Decision Makers and; Development of A Predictive Approach for Long-term Environmental Performance of Waste Utilization in Pavements Using Accelerated Aging: Portland Cement Concrete Pavements Containing Coal Fly Ash.

ACAA Calendar

June 7-8, 1999
Workshop, Board & Committee Meetings
Hyatt Regency Hotel
at Convention Center
350 North High Street
Columbus, OH 43215
Reservations/Guest
Tel: 614-463-1234
Guest Fax: 614-280-3034
Room Rates:
Single - $US99.00
Double - $US109.00

October 4-6, 1999
Workshop, Board & Committee Meetings
Ambassador Hotel
535 Tchoupitoulas Street
New Orleans, LA 70130
Reservations: 1-888-527-5371
Guest Tel: 504-527-5271
Guest Fax: 504-527-5270
E-Mail: amb@neworleans.com
Internet: http://neworleans.com/ambassador
Room Rate: $US115.00

January 24-26, 2000
Annual and Board Meetings, Workshop & Committees
Shelter Pointe Hotel & Marina
1551 Shelter Drive
San Diego, CA 92106
Reservations: 800-566-2524
Guest Tel: 619-221-8000
Guest Fax: 619-221-5953
Room Rate: $US135.00

January 2001
Information about ACAA's 14th International Symposium will soon be available.

EPA/TRI guidance available on-line - http://www.epa.gov/opptintr/tri/99egf.pdf

The U.S. Environmental Protection Agency (EPA) has posted a guidance document on the Internet on their updated Toxic Release Inventory (TRI) reporting and the Emergency Planning and Community Right-to-Know Act (EPCRA).

On May 1, 1997, the U.S. EPA passed a final rule (62 FR 23834) adding several new industrial sectors to the list of facilities subject to reporting requirements. Reporting begins July 1, 1999. EPA's new guidance document supersedes its earlier document, Guidance for Electricity Generating Facilities, in October 1997. It is intended to assist facilities that combust coal for the purpose of generating electricity in reporting using Form R or Form A.

The main differences in the new document include the following: More detailed examples; Additional interpretive guidance prepared by EPA on various issues specific to electricity generating facilities; Industry process issues not discussed in the earlier document; and General format changes for program consistency. This document is designed to be a supplement to the TRI Forms and Instructions issued annually. It is organized to provide a step-by-step guide to compliance with EPCRA Section 313, starting with how to determine if a facility must report through completion of the Form R or Form A.

This document may be used as a reference but specific information available to facilities may be more appropriate for use in estimating releases and other waste management amounts. Under EPCRA, Section 313, facilities are instructed to use the best "readily available data", or when such data are not available, use "reasonable estimates," in fulfilling their reporting requirements.

ACAA Chairman Pattishall seeks input on Business Plan

ACAA's Chairman of the Board, Joel Pattishall, was instrumental in developing a facilitated session for members during ACAA's October 1998 Program Committee meeting in Atlanta, Georgia. The session was designed to obtain comments and suggestions that can be used to develop ACAA's business plan/operating budget for calendar-year 1999, and beyond. This interactive forum, with continuous input from members throughout the year, will provide guidance for the delivery of benefits that are best suited to the needs of ACAA members.

ACAA's regularly scheduled committee meetings will remain as the primary source of continuous input from members throughout the year. However, these meetings can be supplemented by occasional surveys of member needs and opinions; and, the summary of business plan needs statements can be updated annually by convening additional facilitated sessions at convenient times and locations, typically in conjunction with regularly scheduled committee meetings.

The current summary of business plan needs statements was reviewed at ACAA's annual meeting on January 15, 1999, and subsequently the summary was distributed to all ACAA members to be reviewed and prioritized. The results of this action will be presented to ACAA's governance committees for review and action. The topics fall under general headings as follows:

- Regulatory advisory/short communications that could be passed up the line within the electric utility or other member organizations
- Short promotional materials (Ash at Work Newsletter; and other pieces)
- Relevant workshops (ammoniated fly ash; TRI, etc.)
- Internet web site
- Dues review and membership focus
- Expansion of international information exchange
- Environmental leadership and challenges

Interagency cooperation will benefit CCPs

A memorandum of Understanding between the Department of Energy, and the Department of Interior has the potential to benefit the use of CCPs in several mining applications. CCPs have been used to improve many of the conditions mentioned later in this article. An example of this cooperation is the Second Interactive Forum on the Use of Coal Combustion Products in Mining Applications planned for March of 2000 at the USDOE FETC facility in Morgantown, West Virginia.

The U.S. Department of Energy and the U.S. Department of the Interior today agreed to pool their expertise in joint efforts to improve the environment around many of the Nation's current and past mining operations. Officials from the Energy Department's Federal Energy Technology Center (FETC) and the Interior Department's Office of Surface Mining (OSM) signed a Memorandum of Understanding that sets out a 5-year partnership focusing on mining and environmental issues.

The agreement is in line with the Administration's National Performance Review Initiative that encouraged such interagency cooperation as a means for delivering higher quality public services.FETC Director Rita Bajura and OSM Director Kathy Karpan signed the agreement at a ceremony February 10, 1999 at OSM headquarters in Washington, DC. One area of particular interest will be the cleanup and possible use of the vast amounts of waste coal in disposal ponds and refuse piles at mine sites and coal preparation plants. As much as 3 billion tons of fine coal particles - equivalent to 8 to 12 billion barrels of oil - have been discarded in about 6,000 waste piles and ponds throughout coal producing states. Another topic will be the avoidance of acid mine drainage and the cleanup of rivers affected by run off from mining operations closed before passage of the Surface Mining Act of 1977.

Other areas of future cooperation could include new approaches to diagnose and control mine fires, disposal of coal combustion byproducts, and preservation of the delicate hydrological balance in the soils and underlying rocks around coal and hard rock mines. Under the agreement, the agencies will share technical services, expertise, and information.

For example, FETC has developed technologies that separate, dewater, and reconstitute discarded coal fines and offers expertise in mine fire detection. The technical staff at FETC has developed techniques to treat acidic runoff from coal mines by applying lime-rich products from power plant environmental control units to neutralize acids. Similarly, OSM will apply its extensive repository of mine maps, its cadre of field surveyors, its technical expertise in hydrology, mine drainage, sealing and stabilization, and its experience in areas ranging from borehole cameras to global positioning systems. The agency also brings to the agreement significant background knowledge in soil science and vegetation, forestry, fish and wildlife biology, and erosion and sediment control.

Many of the projects associated with the partnership agreement will directly support FETC's regional development efforts through its Regional Environmental & Sustainable Energy Partnership (RESEP). RESEP is a "recipe" for stimulating energy and environmental growth in West Virginia, Pennsylvania, Maryland, and Ohio through partnerships between governments, commerce, industry and academia. Once the two federal agencies decide on a specific slate of projects, the work will be done primarily by FETC researchers from the Pittsburgh, PA, and Morgantown, WV, offices, and OSM's Green Tree, PA, office.

For more information, contact: Otis Mills, Federal Energy Technology Center, (412) 892-5890, Program Technical Contact: Arthur Baldwin, Federal Energy Technology Center, (412)892-6011.

ACAA and Great Lakes Governors sponsor transportation meeting

Transportation, Regulatory, and Market Development officials from the states of Illinois, Indiana, Michigan, Minnesota, New York, Ohio, Pennsylvania, and Wisconsin participated in The Great Lakes Executive Transportation Conference: Secondary Materials in Highway Construction, November 12-13, 1998 in Harrisburg, Pennsylvania. The innovative conference was designed to bring together officials from state departments of transportation and environmental protection along with market development specialists and representative from the coal ash, foundry sand and glass industries.

The objective of the meeting was to initiate an ongoing discussion to identify issues and concerns about using materials such and coal ash, foundry sand, and glass. The potential for a regional network of resources, technical specifications, regulations, and market development was also highlighted.

Many ACAA member companies were represented at the conference. Barry Stewart, ACAA director of Technical Services Chaired the session on coal ash, LaVerne Weber of Mineral Solutions spoke on Rapid Repair of Utility Cuts with Fly Ash Flowable Fill in Illinois, Gary Brendel of GAI Consultants presented Highway Embankment Expansion Using Bottom Ash in Indiana and Bill Gibson of Holnam spoke on Use of Fly Ash in Michigan Concrete Road Projects.

The meeting was sponsored by: the Conference of Great Lakes Governors, the U.S. Department of Transportation the Pennsylvania Department of Transportation, and The Pennsylvania Transportation Institute/Penn State University. Dr. Paul Tikalsky (Pennsylvania Transportation Institute), Ms. Naureen Rana (Council of Great Lakes Governors) and Ms. Elizabeth Olenbush (First Project) were instrumental in organizing this meeting. ACAA was a co-sponsor of the meeting and ACAA's Barry Stewart served on the organizing committee.

FETC sponsors spring conferences

For the past four years, the Federal Energy Technology Center has successfully sponsored conferences on Unburned Carbon on Utility Fly Ash and Selective Catalytic and Non-Catalytic Reduction for NOx control. Although these were separate conferences, their timing was linked because of the complementary nature of the subjects. This year, a third conference titled, Reburning for NOx Control, is being added. FETC will be hosting all three conferences at the Pittsburgh Green Tree Marriott.

Combustion modification technologies (e.g., low-NOx burners and overfire air) are widely used to achieve significant reductions in NOx emissions from coal-fired power plants. However, it is well known that combustion modification can lead to increased levels of unburned carbon in the by-product fly ash.

Also, combustion modification technologies have been developed to achieve significant reductions in NOx emissions from power plants. In addition to low-NOx burners and overfire air, reburning has become recognized as an effective combustion modification technology. Both gas and coal reburning have been demonstrated successfully; however, the conference is not limited to gas and coal as reburn fuels.

Additionally, combustion modification technologies can reduce NOx emission from power plants by as much as 60%. However, further reductions will be needed to meet more stringent emission limits now being proposed. To achieve these limits, post-combustion technologies such as Selective Catalytic Reduction (SCR) or Selective Non-Catalytic Reduction (SNCR) will be required. The conferences will be held in on the following dates:

May 18, 1999
Conference on Unburned Carbon on Utility Fly Ash

May 19, 1999
Conference on Reburning for NOx Control

May 20-21, 1999
Conference on Selective Catalytic and Non-Catalytic Reduction for NOx Control.

State and Regional News - Maryland

ACAA Opposes Legislation Proposed to Prohibit Use of Fly Ash as Structural Fill

Md. House Bill 648 entitled, "An act concerning: Environment - Coal Combustion Flyash", was introduced on Feb. 11, 1999, to prohibit the use of coal fly ash as structural fill. The proposed legislation targeted Baltimore Gas & Electric's Brandon Woods Office Park development site in which coal fly ash is used as structural fill. Initial development of the Brandon Woods site was begun by BG&E in the early to mid-1980's, and continues in 1999 with several million tons of fly ash having been placed at the site during that time.

Also during that time, the property surrounding BG&E's site has been developed for homes, schools and related facilities. A local group, the Coalition of Communities and Citizens Against Flyash (CCCAF), is responsible for Md. House Bill 648, and various provisions in it, most pointedly the provision stating that the Md. Department of the Environment "may not consider coal combustion fly ash to be, or approve it for use as, structural fill".

ACAA's Executive Director Sam Tyson attended a public hearing on March 16, 1999 in Annapolis where he presented information about the production and use of coal combustion products (CCPs), including coal fly ash used as structural fill, on behalf of ACAA, to the Md. House Environmental Matters Committee. The information from ACAA was submitted to the committee through verbal testimony by Tyson at the public hearing and in the form of selected published documents. (See page 12.)

Members of the Maryland House Environmental Matters Committee were particularly interested in the U.S. EPA's Environmental Fact Sheet which states that coal ash poses minimal risks to human health and the environment and that it is unnecessary to manage it as hazardous. This was contrary to testimony presented by the CCCAF's scientific witness.

The committee was also very interested in several other items submitted by ACAA including: Fly Ash Facts for Highway Engineers, EPA and ACAA Fact Sheets, ACAA Annual Survey Report, ACAA's recently published book, "Coal Ash - Innovative Applications of Coal Combustion Products (CCPs), "The Coal Ash Book" ; and the documentation of projects in Pennsylvania that have used fly ash as structural fill.

It subsequently was reported to Ash at Work that Maryland House Bill 648 was soundly defeated.

Fly Ash Facts

ACAA funds third printing of popular FHWA document

NRMCA Students Benefit

ACAA has just finished a third printing of the document, Fly Ash Facts for Highway Engineers (FHWA-SA-95-081, August 1995). Originally published by the Federal Highway Administration, a second printing of 10,000 copies was funded by ACAA. To date, some 16,000 copies of the full-color, 70-page document are in circulation.

Complimentary copies of Fly Ash Facts were provided to graduates of the National Ready Mixed Concrete Association's (NRMCA) Minnesota Regional Short Course on Concrete and Aggregates, held in February 1999. These students will help to continue the popularity of Fly Ash facts as they continue their professional development.

Copies are available for $5 to ACAA members and $10.00 for non-members. The price per carton of 150 copies is $550 for members ($3.66 per unit) and $1,100 for non-members ($7.33 per unit). For more information about Fly Ash Facts for Highway Engineers, contact ACAA staff.

State and Regional News - Indiana

ACAA testifies on proposed regulations

ACAA's Executive Director, Sam Tyson, testified at a public hearing on March 4, 1999 in Indianapolis, Indiana on behalf of the "CCP industry". The Indianapolis hearing, preceded by a similar hearing on February 23 in Jasper, was to gather comments on a coal combustion waste rule (Proposed Rule - LSA Document #98-133, Amendments to Title 310, Department of Natural Resources) concerning disposal of coal ash in conjunction with surface mining.

Several speakers, including ACAA members and others, addressed in detail the specific requirements of the proposed rule. Tyson testified to address the potential harm to coal combustion product (CCP) utilization that could result from misunderstandings created by overly stringent regulations for disposal.

In this context, Tyson presented comments and supporting documents as follows: ACAA's annual CCP Production and Use survey; FHWA's "Fly Ash Facts" publication; the annual Mineral Industry Surveys performed by the U.S. Geological Survey, including CCPs; The reduction of greenhouse gas (CO_2) achieved by using coal fly ash as a partial replacement for portland cement in concrete, as reported in the December 21, 1998 issue of Engineering News Record; and ACAA's recently published book "Coal Ash - Innovative Applications of CCPs".

Tyson concluded by reiterating the potential harm to utilization that could come from confusion created by overly stringent regulations for disposal.

State and Regional News - Maryland (References - Continued from page 11.)

The following materials were brought by ACAA Executive Director Sam Tyson to the recent hearing on Maryland House Bill 648 entitled "An act concerning: Environment - Coal Combustion Flyash." The bill, intended to prohibit the use of CCPs in structural fill, was defeated.

Membership Directory, American Coal Ash Association, 1999
Coal Combustion Products (CCPs) Production and Use, ACAA, 1997
Mineral Industry Surveys - Coal Combustion Products, 1997 Annual Review, U.S. Geological Survey, September 1998
Environmental Fact Sheet - Large-Volume Wastes from Coal-Fired Electric Utilities Exempt as Hazardous Waste, U.S. Environmental Protection Agency, EPA530-F-93-014, August 1993
Fly Ash Facts for Highway Engineers - Fly Ash Use in: Concrete, Base, Flowable Fill, Structural Fill, Grout and Paving, Federal Highway Administration, FHWA-SA-94-081, August 1995 (3rd printing, January 1999)
Standard Guide for Use of Coal Combustion By-Products in Structural Fills, American Society for Testing and Materials, ASTM E1861-97
Coal Fly Ash and Soil - An Environmental Perspective, ACAA Technical Brief, TB-21, September 1998
Montour SES Stabil-Fill Projects (14 fly ash structural fill projects in Pennsylvania), Pennsylvania Power & Light Company, 1996-1998
Database of State Regulations Affecting Disposal and Utilization of CCBs, U.S. Department of Energy, Federal Energy Technology Center, 1998;
State Solid Waste Regulations Governing the Use of Coal Combustion Products, ACAA, June 1996, (updated, May 1998)
Barriers to the Increased Utilization of Coal Combustion/Desulfurization Byproducts by Governmental and Commercial Sectors, U.S. Department of Energy, Morgantown Energy Technology Center, July 1994
13th International Symposium on Management and Use of Coal Combustion Products (CCPs), Proceedings Volumes 1-3, Prepared for ACAA by Electric Power Research Institute, EPRI TR-111829, January 1999
Coal Ash - Innovative Applications of Coal Combustion Products (CCPs), ACAA, 1998
"In Cement, Fly Ash Emerges as a Cure to Greenhouse Gases", Engineering News Record, December 21, 1998.

State and Regional News - Virginia

In recent months, fly ash has received a lot of news coverage and not all of it has been positive. Articles printed by Engineering News Record (ENR), The Richmond Times Dispatch and the Corridor Real Estate Journal all carried stories about construction failures in the Richmond, Virginia area. The articles alleged that problems causing building failures were directly related to the use of "fly ash". ACAA sent the following press release to members of the media.

Press Release From ACAA - March 9,1999 - FOR IMMEDIATE RELEASE

Recently, several news articles have reported an alleged relationship between the use of "fly ash" as structural fill and failures of building foundations in the Richmond, Virginia area. These news articles wrongly create the impression that the use of CCPs in structural fills is not a well established practice. On the contrary, CCP materials, especially fly ash and bottom ash, have a long and successful history of excellent performance in a variety of applications, including structural fills. ACAA publishes an annual report which summarizes the production and use of CCPs.[1] This report, assembled from an annual survey of the CCP industry, contains a line item that shows the tonnages of CCPs–fly ash, bottom ash, boiler slag and flue gas desulfurization material—used as structural fill. A similar report, using industry data gathered by ACAA, is published by the U.S. Geological Survey.[2]

ACAA takes no position with respect to the alleged facts concerning the Richmond area projects. However, we must strongly disagree with references to "fly ash" as having caused various construction problems on these projects. First, it is our understanding that the fill material delivered to the Richmond projects was not pure fly ash but was instead a blend of materials. Second, the record of success for CCPs as structural fill is both long and positive. More than 60 million tons of CCPs, mainly fly ash and bottom ash, have been used during the last 30 years in structural fill applications. To make a structural fill with fly ash, it is mixed with an optimum amount of water and compacted to a specified density in successive layers. Such fills support parking lots, buildings, and highway pavements and shoulders.

The Federal Highway Administration (FHWA) has developed guidance for the use of coal fly ash to construct embankments, a specific structural fill that supports roadways.[3] The FHWA also has documented the location, approximate size, and date of construction for a number of roadway projects utilizing CCPs for embankments in 14 states (AZ, DE, IL, MD, MA, MI, MN, MO, OH, OK, PA, VA, WV & WI).[4] Detailed evaluations of selected structural fill projects in which CCPs were used have been documented by the Electric Power Research Institute (EPRI).

The EPRI reports show the types of CCPs used as structural fill, the construction methods associated with their use, and the engineering and environmental performance of such projects. One of the largest and most thoroughly documented CCP structural fills is located in Pennsylvania.[5] The performance of such projects has been shown to be as good as or better than the performance of similar projects using ordinary soil as fill material. During calendar-year 1997, some 4.3 million tons of CCPs were used in structural fill applications in the USA. To better comprehend these immense quantities, the CCPs can be visualized as they would appear if stacked on a football field. Such a stack, with an average dry density of 75 pounds per cubic foot, would reach a height of more than 2,300 feet.

(See footnotes on page 14.)

State and Regional News - Delaware

FHWA Region 3 Roadway Management Conference Dover, Delaware

ACAA's Director of Technical Services, Barry Stewart addressed an audience of over 70 transportation officials as part of FHWA's Region 3 Roadway Management Conference held March 15 - 17 in Dover, Delaware.

The subject of Dr. Stewart's presentation was Flowable Fill. This topic meshed nicely with the following presentation on Safe Trenching by Dr. Larry Bankert of Pennsylvania State University. FHWA's Region 3 includes the state of Delaware, Maryland, New Jersey, Pennsylvania, Virginia, and West Virginia.

The conference was sponsored by the Technology Transfer (T2) centers in each of those states and by FHWA. The three-day conference was attended by about three hundred transportation officials from the Region 3 states.

State and Regional News - Virginia

During ACAA's January 15, 1999 committee meetings in Orlando, Florida, the Board of Directors instructed ACAA staff to keep members informed on news stories about numerous project failures allegedly related to "fly ash" in Richmond, Virginia. ACAA's related story is located on page 13. Following are the footnotes that accompanied the news release.

Footnotes:

1 Production and Use of Coal Combustion Products (CCPs), American Coal Ash Association, Annual Reports (1968 through 1997).

2 Mineral Industry Surveys, Coal Combustion Products — 1997 Annual Review, U.S. Department of the Interior, U.S. Geological Survey, September 1998, 12 pages.

3 Fly Ash Facts for Highway Engineers — Fly Ash Use in: Concrete, Base, Flowable Fill, Structural Fill, Grout, and Paving, U.S. Department of Transportation, Federal Highway Administration, FHWA-SA-94-081, Third Printing, January 1999.

4 User Guidelines for Waste and By-Product Materials in Pavement Construction, U.S. Dept. of Transportation, Federal Highway Administration, FHWA-RD-97-148, April 1998.

5 Ash Utilization in Highways: Pennsylvania Demonstration Project, Electric Power Research Institute, EPRI GS-6431, June 1989.

State and Regional News

If you have important CCP news in your region, send it to **Ash at Work** via E-mail at: ACAA-USA@msn.com

ACAA Member News - Boral Material Technologies

Two years ago, Boral Industries, Inc. announced the acquisition of Monex Resources, Inc. Monex and Boral's subsidiary, Western Ash, marketing members of ACAA, merged under the name of Boral Material Technologies, Inc.

The merger expanded the marketing territory of Boral Material Technologies Inc. to include the Northwest, Pacific, Rocky Mountain, Southwest, Southeastern and Mid-Atlantic United States. The new subsidiary provides admixtures, fly ash and fiber product lines to the concrete industry and a wide range of services.

Boral Material Technologies operates at more than 30 electric generating stations and markets more than three million tons of coal combustion products including fly ash, bottom ash, FGD gypsum and road base products.

Boral Material Technologies is based in San Antonio, Texas and has 380 employees. It has offices in: Phoenix, Arizona; Denver, Colorado; Ontario, California; Atlanta, Georgia; Auburndale, Florida and; Greensboro, North Carolina.

ACAA Member News - Mineral Solutions, Inc.

Three of North America's leading coal combustion products marketers-American Fly Ash Company, National Minerals Corporation, and Walter Handy Company- have merged as Mineral Solutions Inc., a wholly owned subsidiary of Lafarge Corporation, and a marketing member of ACAA.

Mineral Solutions currently has 150 employees, 67 operating sites, and sales in 30 states. It has over 175,000 tons of CCP storage, and has distribution assets that include 250 rail cars and 40 pneumatic truck trailers. Mineral Solutions' research and development, includes 24 CCP studies conducted during 1998 at Mineral Solutions and Lafarge laboratories in the U.S. and Canada.

Regional CCP organizations on-line

Visit the Internet web sites of regional CCP organizations to learn about their meetings and topics concerning the management and use of CCPs:

Texas Coal Ash Utilization Group
http://www.tcaug.org/

Western Region Ash Group
http://wrashg.org/

Attention ACAA Members

Send your member news to ACAA, via e-mail:
ACAA-USA@msn.com

ACAA Member News - Mineral Resource Technologies (MRT)

MRT, a marketing member of ACAA, is a full service ash and mineral by-product management and marketing organization headquartered in Atlanta. The company, which operates in 16 states, provides comprehensive management services for producers of coal combustion residues, mineral processing residues and for companies that use products recycled from combustion or mineral by-products. In addition to the products and services provided by MRT, the company operates a Technology Center in Atlanta which focuses on 1) product research and development, 2) concrete and technical services, and 3) quality assurance and quality control. MRT is a member of the Philipp Brothers Chemicals, Inc. family of companies. Philipp Brothers, headquartered in Fort Lee, New Jersey, is a manufacturer of specialty chemicals and a hydrometallurgical recycler.

ACAA Member News - ISG Resources, Inc.

JTM Industries, a marketing member of ACAA and twelve other organizations have combined to create ISG (Industrial Services Group) Resources.

The merger, finalized January 1, 1999 includes the following organizations:

FLO FIL Company
Fly Ash Products
JTM Industries
KBK Enterprises
Livestock Waste Management/N-VIRO
Midwest Fly Ash and Materials
Power Plant Aggregates of Iowa
Pozzolanic International
Pozzolanic Bulk Carriers
Pozzolanic Northwest
Pozzolanic Resources
U.S. Stabilization
U.S. Ash Company

As a result of the merger these companies no longer separately exist and now operate as a single entity. The headquarters of ISG Resources is in Salt Lake City, Utah. ISG will retain the office location and structure of what was JTM Industries in Kennesaw, Georgia.

ACAA Member News - Craig Cain

Craig J. Cain, an honorary member of ACAA, has received the Frank E. Richart Award for notable contributions in research and standardization concerned with concrete and concrete aggregates. The award, presented by ASTM (American Society of Testing and Materials), is given not more than once every three years. Cain was recognized for exceptional work towards the development of test methods and specifications for the use of coal ash in concrete for the construction industry, as a member or ASTM Committee C-9 on Concrete and Concrete Aggregates.

A resident of Hanover, New Hampshire, Cain is a retired engineer. His career focused on the design, manufacture and sale of concrete pipe as well as the development of markets for fly ash and related products from steam power plants for use in concrete.

He was a corporate president for 45 years: of American Fly Ash Co. from 1980-1991; of American Admixtures Corp. from 1965-1980; of Chicago Fly Ash Co. from 1950-1965; and Continental Concrete Pipe Corporation, Chicago, from 1946-1974 where he was also CEO and chairman of the board.

At present, he is an honorary member and fellow of ASTM. Other professional memberships include the American Society for Civil Engineers, and the American Concrete Institute. Cain was acting mayor of Evanston, Illinois. In 1971, and an alderman on the city council from 1964-1972. Committee C-9 is one of 130 ASTM technical standards-writing committees.

Organized in 1898, ASTM is one of the largest voluntary standards development systems in the world.

ACAA Member News - Combustion Products Management (CPM)

Combustion Products Management (CPM), a marketing member of ACAA, is a subsidiary of Wallace Industries of Ithaca, New York.

Along with the formation of the new corporation, CPM added personnel and new regional offices nationwide.

In addition to membership in ACAA, CPM participates in the American Ceramic Society, the American Concrete Institute, the Air and Waste Management Association, the American Society for Testing and Materials, the Brick Institute of America and the Institute of the Scrap and Recycling Industry.

Members of CPM serve on ASTM's D-18 Technical Committee on Soil and Rock, and American Society of Testing and Material's (ASTM) C-15 Technical Committee on Manufactured Masonry Units. CPM also works closely with several research institutions and Universities nationwide.

Pew Center on Global Climate Change (See related story on page 23.)

The Pew Center on Global Climate Change efforts focus on working with the private sector to "assess their opportunities for emission reductions, establish and meet their emission reduction objectives, and invest in new, more efficient products, practices and technologies."

The Center also works with Federal and state agencies as they develop climate change policies and programs that will impact on industry, labor, and consumers. The efforts of the Center are spearheaded by the its Business Environmental Leadership Council (BELC), consisting of 19 of the nation's largest corporations, including some members of ACAA.

The members of the BELC believe that ""businesses can and should take concrete steps now in the U.S. and abroad to assess their opportunities for emissions reductions."" The corporate members of the BELC serve in an advisory role, offering input on the activities of the Center, and do not financially contribute to the Center. BELC members do directly participate in activities of the Center, such as the European conferences on free market mechanisms held in October 1998.

A spokesperson for the Pew Center has stated that its members expect the US to ratify some form of binding commitment to reduce emissions of greenhouse gases, and while those members already are taking voluntary actions to reduce emissions, they clearly want to receive credit for such actions. (See related article below on Climate Change.)

To obtain more information about the Center, its members and goals, visit its Internet web site at http://www.pewclimate.org/home.html.

Emissions - Credit Legislation & Climate Change (See related story on page 23.)

A bill in the U.S. Senate would give companies a credit for voluntary "early-action" efforts to reduce emissions of carbon dioxide (CO_2) and other greenhouse gases that are suspected of causing global warming. Industry participants could buy and sell credits for certain emissions cuts, according to Senator, John Chaffee (R-R.I.), chairman of the Environment and Public Works Committee, sponsor of S. 547, a proposed program intended to help industry should the controversial Kyoto Protocol agreement be ratified.

"The credit for early action bill is the best approach until we know more about the exact causes of global warming and how greenhouse gas emissions will be regulated", said Sen. Connie Mack R-Fla.), one of eleven cosponsors of S.547, and a strong opponent of the international Kyoto Protocol. Coalitions opposing S.547 fear it would actually lead to more support for both a cap on greenhouse gas emissions and the Kyoto Protocol. The White House supports credit for early action, but it has not endorsed S.547, nor has it offered a plan. (See CO_2 story on page 19.)

ACAA Member News - PEPCO

Potomac Electric Power Company (Pepco), an electric utility member of ACAA has signed a letter of intent to build a coal fly ash benefication facility utilizing a patented fly ash benefication process developed by Mineral Resource Technologies (MRT) also an ACAA member (See page 16.)

MRT will construct and operate the new facility, which will be built at Pepco's Morgantown, Maryland plant. The project will create "more than 10 jobs," according to the Charles County Maryland Economic Development Commission. The plant will process 200,000 tons of coal fly ash per year.

This benefication facility will employ called froth flotation. This process, an industry standard for mineral and ore benefication. One ton of fly ash for every 100 tons processed will be left for storage. This technology will significantly reduce the level of unrefined fly ash as well as process a portion of Pepco's stored fly ash. The Morgantown facility will produce two products: fly ash and carbon.

The fly ash will initially be marketed to local concrete manufacturer as a partial replacement for portland cement. Pepco will initially use the carbon as fuel; however, plans are in the works to sell the carbon into other markets.

ACAA Member News - Separation Technologies, Inc. (STI)

Separation Technologies, Inc. (STI), a organizational member of ACAA, has formed an exclusive partnership with Master Builders, Inc. to produce, market, and sell high quality fly ash products throughout the United States and Canada to the ready mixed concrete industry.

STI is a full-service provider of ash management services to utilities operating coal powered generating plants. The company's commercialized technology produces fly ash with a loss-on-ignition(LOI) carbon content of 2.0%+/-0.5%.

ACAA Honors Pennsylvania EPA Secretary

ACAA's Chairman Joel Pattishall (left) of Pennsylvania Power and Light (PP&L), presents an ACAA Recognition Award to James Seif, Secretary of the Pennsylvania Department of Environmental Protection (center). They are joined by Lynn Ratzel, Manager of PP&L's Environmental Department. Mr. Seif received the award at his office in Harrisburg, Pennsylvania.

Member News - Pennsylvania Power & Light (PP&L)

In an innovative project that would provide a beneficial use for the fly ash that results from burning coal to generate electricity, Pennsylvania Power and Light (PP&L), an electric utility member of ACAA, intends to sell land at its Brunner Island plant for development of a golf course.

The course would be built about a mile from the plant in an area that serves as a buffer zone between the plant and the local community. PP&L plans to sell the land to Combustion Products Management, which would design, construct and operate the golf course.

Stabil-Fill ™ is produced by mixing hydrated lime with fly ash from the plant. The resulting material develops higher strength than soil-based fill and has been used as a fill material in construction by the Pennsylvania state Department of Environmental Protection. This material would be used construct the golf course base.

Building a golf courses is an innovative use of fly ash that would benefit the community by providing a new recreational facility, creating jobs and generating tax revenues.

Nearly two million tons of fly ash would be used in the project. Development of the course will take place in stages, over the next nine years.

Fly ash is a cure to limit greenhouse gases Engineering News Record (ENR) Reports

An article about fly ash limiting greenhouse gases appeared in the December 21, 1998 issue of Engineering News Record. A number of concrete industry experts were quoted who spoke clearly in favor of the use of coal fly ash as a part of the solution to the troubling issue of greenhouse gas emissions and global warming.

The manufacture of each ton of portland cement contributes about one ton of CO_2 emissions to the atmosphere. This CO_2 results from the calcination of limestone, a raw material for cement manufacture, and from the burning of fossil fuels for cement clinker production. By the same token, for each ton of portland cement that is replaced by fly ash for the manufacture of concrete, a ton of CO_2 emissions is avoided. ACAA has obtained reprints of the one-page ENR article and is distributing them to ACAA members. For additional copies, contact ACAA or ENR.

A technical report on the subject of greenhouse gas avoidance, through the routine use of coal fly ash as a partial replacement for portland cement in concrete, is available from ACAA as follows:*Increased Fly Ash Use Under the Climate Challenge Program: A Summary of Participation Accords Between the Electric Utilities and the U.S. Department of Energy,* Prepared for ACAA by Daniel E. Klein, Twenty-First Strategies, LLC, March 1996. (Six pages plus Appendices: Appendix A: *Commitments Made by the Electric Utilities in Their Participation Accords*, 17 pages; Appendix B: *Climate Change and New Opportunities for Coal Combustion Products*, Daniel E. Klein and Samuel S. Tyson (ACAA), presented at the 11th International Symposium on Management and Use of Coal Combustion Products, Orlando, Florida, January 15-19, 1995, 14 pages and; Appendix C: *Further Opportunities for Coal Combustion Byproducts to Reduce Greenhouse Gas Emissions*, Daniel E. Klein, Steve Winkelman, and Samuel S. Tyson (ACAA), presented at the CCB Management and Use Workshop, Memphis, Tennessee, April 17-19, 1995, 15 pages.

EPRI Report - ASC materials

Coal Combustion Products (CCPs) from advanced SO_2 control (ASC) systems

From time to time, ACAA staff receives inquiries and questions about the coal combustion products (CCPs) that are produced by advanced SO_2 control (ASC) systems.

The Electric Power Research Institute (EPRI) has published a report, Guidelines for the Beneficial Use of Advanced SO_2 Control By-Products [Report No. TR-108403, August 1997], in which information is presented regarding the production of such CCPs. The report focuses on the physical and chemical characteristics of ASC materials, a list of potential applications for such materials, and some cautions regarding their use.

The EPRI report addresses the potential use of CCPs produced from ASC processes as construction materials in high-volume engineering applications such as road base stabilization, structural fills, manufactured aggregates, soil amendments, and concrete applications.

The engineering data, major design parameters, standard specifications and construction procedures described in the report should be helpful to power plant managers who wish to incorporate these applications into their CCP management plans.
The report addresses ASC materials from five technologies: 1) fluidized bed combustion 2) furnace sorbent injection 3) spray dryers 4) sodium sorbent injection 5) calcium sorbent injection

As shown in the EPRI report, the CCPs from these ASC technologies are significantly different from conventional CCPs.

Because most of these ASC processes reduce SO_2 by use of sorbents, the resulting volume of CCPs is typically increased. More importantly, the physical and chemical characteristics of these ASC materials are significantly different from those of conventional CCPs.

Some important characteristics of ASC materials covered in the EPRI report include their: potential for both cementitious and pozzolanic activity; fine grain-size distribution (similar to conventional coal fly ash); non-hazardous waste classification (using U.S. EPA criteria); high pH; and high levels of calcium and sulfur. Clearly, an understanding of these characteristics and related engineering properties is necessary for sound engineering decisions about the use of ASC materials.

The EPRI report provides guidance for laboratory test protocols, design methods, construction practices, and special considerations and limitations for each of the high-volume engineering applications of ASC materials.

The report cautions that long-term expansion data have been obtained from only a few demonstrations and that such tests should be conducted on candidate materials to confirm dimensional stability, especially for road base applications.

Requests for this report should be directed to the EPRI Distribution Center, 207 Coggins Drive, P.O. Box 23205, Pleasant Hill, CA 94523 [Phone: 510-934-4212]. The preceding summary of this report was authorized by EPRI for publication by ACAA. For related information on ASC materials please contact ACAA's Director of Technical Services, Barry Stewart.

Members Only Section can be reached on ACAA's home page

Contact ACAA to get your password for ACAA's "Members Only" which can be reached from ACAA's Home Page. This section will have information such as ACAA's Membership Directory, meeting minutes and newsletter articles, not available on-line to non-members. Members are also encouraged to send E-mail addresses to ACAA. Send your E-mail address to: ACAA-Deinhart@msn.com

Livestock pads made from CCPs

"More than 45,000 tons of lime-enriched Flue Gas Desulfurization (FGD) material, was used in the construction of livestock pads in the summer of 1998 using material, according to Tarunjit Butalia, coordinator of The Ohio State University's Coal Combustion Product (CCP) Pilot Extension Program. The pads range in size from 350 square feet to 40,000 square feet.

"Coal-burning power plants in Ohio annually produce 4 to 6 million tons of FGD that must be stored or disposed in landfills. By developing ways to recycle the byproduct, we help the environment, the utilities who use coal, and consumers like farmers."

One of the pads was built for a rhinoceros at the *Wilds*, a wildlife safari park near Cambridge, Butalia said. Livestock farmers build hard, impermeable feeding pads to avoid muddy conditions. Animals use more energy moving around in mud, resulting in higher feed costs and reduced weight gain. Hay storage pads are built to keep hay bales off wet ground that can cause early deterioration of the hay and as much as 50% hay spoilage.

The first experimental FGD cattle feedlot was built in 1992 at Ohio State University's Eastern Ohio Resource Development Center near Belle Valley. Additional FGD feedlot and hay bale storage pads were constructed at EORDC in 1993.

The success of these demonstration projects led to statewide approval by the Ohio Environmental Protection Agency of pads built with FGD material in June 1997, Butalia said. A permit-to-install was issued by OEPA to American Electric Power to provide FGD material from its Conesville power plant in Coshocton County and its Gavin plant in Gallia County. In the summer of 1997, 24 FGD pads were constructed in Ohio.

Farmers install the FGD pads themselves, or get a contractor to do it, Butalia said. Natural Resources Conservation Service, Soil and Water Conservation District, and AEP personnel help farmers with planning and construction of the pads.

"These material do not require special handling at the site, and as long as the conditions outlined in OEPA's permit-to-install are followed, landowners and livestock farmers don't have to obtain any additional authorization to install the pads," he said.

The cost to install FGD pads varies with the size of the pad. FGD material for constructing pads generally is available for free to interested farmers at the source plants. Farmers have to pay to haul the material and for site work and material placement. In some cases, the source plant also with transport the material free of cost to the site if it is nearby, Butalia said.

"Building feedlot and hay storage pads with FGD can be 25 to 65 percent cheaper that if stone aggregate or concrete is used to construct them," he said. "If the plants ship FGD to the site free of charge, savings jump up to 60 to 85 percent."

Pad construction activities are carried out in Ohio under the supervision of the CCP Pilot Extension Program in the Department of Civil and Environment Engineering and Geodetic Science at Ohio State. The CCP Pilot Extension Program is an effort to move CCP use from the research and development phases to the marketplace in ways that are technically sound, environmentally safe and commercially competitive.

The program is primarily sponsored by the Ohio Department of Development's Coal Development Office, along with ACAA and several of its members. For more information about the agricultural uses of FGD or other uses of CCPs, contact Dr. Butalia at: (614) 688-3408, E-mail: butalia.1@osu.edu Internet:http://ccpohio.eng.ohio-state.edu (For more on the livestock pads, see the photo on page 32.)

International News - ECOBA

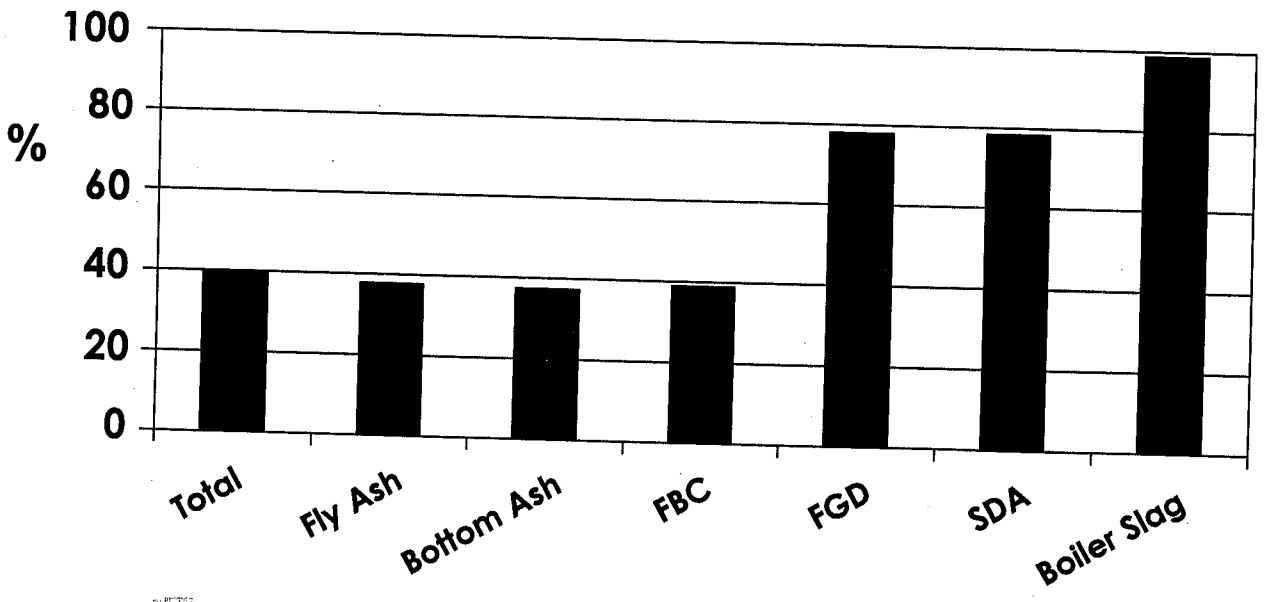
ECOBA (The European Association for Use of the By-Products of Coal Fired Power Stations e.V.) published their latest Newsletter in February of 1999.

The newsletter contains several articles of interest to ACAA members, including a chart on the 1997 utilization rates of selected CCPs in the European Union. The chart, reproduced below, highlights uses of fly ash, bottom ash, FBC (fluidized bed combustion) ash, FGD (flue gas desulfurization) material, SDA (spray dryer absorption) material and boiler slag. The "total" use indicated in the chart below is 40%, which is the weighted average of the six types of CCPs listed.

ECOBA's newsletter reports that their Communication and Marketing Committee is preparing a new Technical Bulletin "Environmental Aspects of CCP Applications" and are developing an Internet homepage. The Standards Committee continues to work on the draft of the fly ash in concrete standard EN 450; and the first meeting of the Environmental committee took place late in March.

ECOBA included information about ACAA's 13th International Symposium on Management and Use of Coal Combustion Products, held in Orlando Florida in January of 1999. The article also mentioned the cooperation of ECOBA and ACAA in taking a leadership role to develop the charter for the WWCAC (Worldwide Coal Ash Council). For more information on the WWCAC, see page 6.

The next ECOBA meeting is June 10-11, 1999 in Aix-en-Provence, France. The meeting will be attended by ACAA's Chairman, Joel Pattishall and ACAA's Executive Director, Sam Tyson. Pattishall and Tyson will also represent ACAA's interests the WWCAC.



ecoba

Utilization rates of selected CCPs in the European Union in 1997. Source ECOBA.

Construction Equipment Guide sites ACAA data

Data provided by ACAA's Communication Coordinator Gregg Deinhart was used in an article for the October 28 issue of *Construction Equipment Guide*. The article, entitled Coal Fly Ash: *The 'Hot' Ingredient - American Coal Ash Association Reports Use on Rise*, praised the many uses of coal ash using ACAA survey data and other information provided by ACAA.

The article mentioned ACAA's mission statement with a brief history of the organization and extracted data from ACAA publications. Drawing on information from the ACAA/NRC/Buy Recycled Business Alliance flyer "Buy Recycled Coal Ash", *Construction Equipment Guide* made the connection between the use of volcanic soils "as (a) logical ingredient in the concretes of the Romans and Greeks and the use of fly ash in concrete today.

The article went on to explain how "the stunning attributes of coal fly ash construction products" are used in the industry, siting historical data and key project information provided by ACAA.

Impacts of the Kyoto Protocol on U.S. energy markets and economic activity
October 1998 Energy Information Administration (SR/OIAF/98-03)

The analysis in this report was undertaken at the request of the Committee on Science of the U.S. House of Representatives. In its request, the Committee asked the Energy Information Administration (EIA) to analyze the Kyoto Protocol, "focusing on U.S. energy use and prices and the economy in the 2008-2012 time frame." The committee specified that EIA consider several cases for energy-related carbon reductions in its analysis, with sensitivities evaluating some key uncertainties: U.S. economic growth, the cost and performance of energy-using technologies, and the possible construction of new nuclear power plants. (See related stories on page 17.)

Reports are available from:

Superintendent of Documents
U.S. Government Printing Office
P.O. Box 371954
Pittsburgh, PA 15250-7954
(202) 512-1800; (202) 512-2250(fax)
GPO Stock No.: 061-003-01045-8

Ohio DOT Manual is now available

Copies of the Ohio Department of Transportation's (ODOT) Manual for Abandoned Underground Mine Inventory and Risk Assessment are now available. The document is an all new technical manual that outlines procedures for the management of conditions related to abandoned underground mines beneath or nearby the state's roadways.

Copies of the (ODOT) Manual for Abandoned Underground Mine Inventory and Risk Assessment may be obtained from the Office of Contracts, 1980 West Broad Street, 1st Floor, Columbus, Ohio 43223, 800/459-3778 or 614/466-3778. They are $10.00 per copy.

ACAA helps organize a session at Pittsburgh Coal Conference

The University of Pittsburgh, along with the Conference Advisory Board and Participating Organization, announced that the Sixteenth Annual International Pittsburgh Coal Conference will be held at the Pittsburgh Green Tree Marriott from October 11-15, 1999.

ACAA's Executive Director Sam Tyson is a member of the Conference Advisory Board and ACAA has been a frequent contributor to this meeting. A session at the 1998 conference was organized and co-chaired by Mr. Tyson and Barry Stewart, ACAA's Director of Technical Services. ACAA will again organize a session for the 1999 conference. Anyone wishing to submit an abstract on CCP Management and Use for the 1999 conference should contact Dr. Stewart. Abstracts for the conference need to be submitted by April 8, 1999. The Conference, focusing on "Coal-Energy and the Environment", focus on emerging technologies as well as an examination of the recent environmental issues and their effect on coal utilization from global perspective.

Program topics include:Coal Geology and Characterization, Coal Mining and Preparation, Low Rank Coal Utilization/Upgrading, SO_2/NOx Control Technologies, Dry Scrubbing Sorbent Utilization, Air Toxics, Advanced Environmental Control Systems, Handling/Utilization of Solid By-Products and Direct/Indirect Coal Conversions.

For more information about the Sixteenth Annual International Pittsburgh Coal Conference, visit the web page: http://www.engrng.pitt.edu/~pccwww/index.html

ACAA to make presentation at 61st American Power Conference

April 6-8, 1999 - Chicago Marriott Downtown

About 2000 attendees representing over 250 power plants and their vendors will attend the 1999 American Power Conference. Executives, managers, and engineers from across the US and throughout the world will gather for this long-standing forum. ACAA's Barry Stewart will give a presentation in Thursday's Environmental Protection Ash Management & Utilization Session, Sponsored by APC Mechanical Division. The session is chaired by Jacob Gonzales, Supervisor, Availability Services, TU Electric Co. and Dale Hauke, Business Development Manager, Mineral Resources Technologies, LLC, Atlanta, GA. Topics for the session include: Fly Ash as Replacement for Cement in Extruded Fiber-Reinforced Cement Composites
Alva Peled, NSF Science and Technology Center for Advanced Cement Based Materials, Northwestern University, Evanston, IL

Age Hardening of Aluminum Alloy- Fly Ash Composites
P.K. Rohatgi and R.Q. Guo, Department of Materials, University of Wisconsin-Milwaukee, Milwaukee, WI

Application of Chemical Methods to Assess the Mechanism of Alkali Activation in Low Calcium Fly Ash - Della M. Roy, Professor Emerita, P. Arjunan, and M.R. Silsbee, Materials Research Laboratory, The Pennsylvania State University, University Park, PA

Worldwide High-Volume Coal Ash Utilization
Oscar E. Manz, Professor Emeritus, University of North Dakota, Alvarado, MN

An Alternative Circulating Fluid Bed Bottom Ash Removal System - Joseph A Barsin, President & CEO, Magaldi Corp., Charlotte, NC: Alberto Carrea, Technical Director, Magaldi ReB, S.r.l, Salerno, Italy

Unintended Effects of EPA's Recent Ozone Transport Rule
Barry R. Stewart, Director, Technical Services, ACAA.

EPA's MSW CERCLA Policy May Signal Progress on Liability Issues

ACAA has long supported legislative efforts to amend the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) to clarify that CCPs are not within the definition of "hazardous substances" and to limit liability for recycling transactions involving CCPs.

Such amendments would effectively resolve key CERCLA, or Superfund, liability concerns for generators and marketers of CCPs by removing substantial liability barriers to the use of CCPs from the power generation sector for the stabilization of wastes from other industry sectors. Additionally, they would ensure that EPA's CERCLA resources could be more appropriately directed towards genuine environmental problems.

EPA's municipal solid waste (MSW) CERCLA Settlement Policy, signed in 1998, may signal some progress towards regulatory, if not legislative, relief from Superfund liability for CCP producers and marketers wishing to supply stabilization materials, such as coal fly ash, to remediation contractors.

While EPA's MSW Policy addresses disposal issues, and is strictly unrelated to the use of CCPs, it nevertheless may be instructive to note that EPA intends the MSW policy to provide a fair, consistent, and efficient settlement methodology for resolving the liability of parties, especially municipalities, at co-disposal sites on the National Priorities List (NPL). The policy also reaffirms EPA's practice under CERCLA of not seeking cleanup costs from generators and transporters of MSW at NPL sites.

EPA's MSW CERCLA Policy recognizes the strong public interest in reducing the burden of contribution litigation by offering settlements to MSW generators and transporters wishing to resolve their potential Superfund liability. Additionally, the policy sets a presumptive settlement range for municipal owners and operators of co-disposal sites on the NPL who desire to settle their liability.

Should EPA do any less to encourage the marketing and use of CCPs for the stabilization of wastes from other industries?

The MSW policy is available on-line at: http://www.epa.gov/oeca/osre.html. Printed copies can be ordered from the National Technical Information Service (NTIS), U.S. Department of Commerce, 5285 Port Royal Road, Springfield VA 22161, reference # PB98-118003, tel: 703-487-4650 or 800-553-NTIS. Send E-mail orders to orders@ntis.fedworld.gov.

For additional information on liability issues for the use of CCPs, and proposed CERCLA amendments, please contact ACAA's Director of Technical Services, Barry Stewart

CCPs in the News

"Coal Ash Book" Featured in Concrete Products

The February 1999 Issue of **Concrete Products** contained a review of ACAA's publication Coal Ash - Innovative Applications of Coal Combustion Products. The article mentioned each of the sections of the book and included quotes from ACAA's Chairman, Joel Pattishall about ACAA's position as a world leader in the CCP industry. The article also included a photograph of the cover of the book and full contact information for ordering the book. Since the publication made it into circulation in February, book sales have steadily increased.

Other news notes

The **Wall Street Journal** sang the praises of Coal Combustion Products (CCPs) in their October 5, 1998 article entitled *Once a Pollutant, "Scrubber Sludge" Finds a Market.* The article details how "electric utilities are spinning gold" out of scrubber sludge.

The January 28, 1999 issue of the **Cincinnati Enquirer** reported that ACAA member Lafarge Gypsum is building a $90 million drywall plant capable of making 900 million square feet of drywall a year in Kentucky. Material for the plant will be provided by ACAA members American Electric Power and Cinergy.

Canadian Embassy assembles directory for environmental industry

The Canadian Embassy has expressed its appreciation to ACAA for assistance in providing information contained in the second edition of "Environmental Trade and Related Associations in the United States, 1998."

The Directory contains information on 126 associations, including ACAA, in the USA that are of interest to the Canadian environmental industry. Where they exist, the Canadian affiliate or counterpart of that organization is identified.

Also included is a list of web sites of key Canadian environmental organizations which may be useful to ACAA members. The Business Development Section of the Embassy assists Canadian firms that are interested in developing business partnerships in the USA, particularly within the Mid-Atlantic States region.

To obtain a Directory, or to find more information, contact:

Kathryn Aleong, First Secretary
(Commercial) Business
Development Section
Canadian Embassy
501 Pennsylvania Avenue, N.W.
Washington, DC 20001
Tel: 202-682-7745;
Fax: 202-682--7619
E-mail: kathryn.aleong@
wshdoc01.x400.gc.ca

Developments in test methods for alkali-silica reaction

A symposium was sponsored by ASTM Committee C-1 on Cement and C-9 on Concrete and Concrete Aggregates. The symposium was held on December 8-9, 1998, at the Opryland Hotel in Nashville, Tennessee. The following material has been extracted from ASTM literature concerning the symposium.

Alkali-silica reaction (ASR) is a significant cause of premature deterioration concrete structures and pavements. During the last decade, as problems with older existing test methods have been recognized, new test methods and criteria have been developed and standardized for use in evaluating aggregates and measures for preventing ASR.

Experience with two ASTM standard test methods in particular has raised issues regarding their application and the appropriateness of their evaluation criteria, and these issues have implications for specifications that rely on their results. The methods under discussion are methods C 1260 for Potential Alkali Reactivity of Aggregates (Mortar-Bar Method) and C 1293 for Concrete Aggregates by Determination of Length Change of Concrete Due to Alkali-Silica Reaction.

Another topic in this symposium was the criteria for evaluating the results of ASTM Method C 441 for Effectiveness of Mineral Admixtures or Ground Blast-Furnace Slag in Preventing Excessive Expansion of Concrete Due to the Alkali-Silica Reaction. Additional topics include a new test for evaluating cementitious materials, techniques for assessing ASR-related damage in concrete, field surveys and their implications for specifications and a test for the investigations of distress mechanisms.

Copies of the 18 abstracts for technical presentations made at this ASTM symposium are available from ACAA. Also available from ACAA are copies of the publication; Guide to Alkali-Aggregate Reactivity, developed by the Mid-Atlantic Regional Technical Committee in June, 1993.

Other informative publications developed jointly by PCA, ACPA, NAA and NRMCA include:

Diagnosis and Control of Alkali-Aggregate Reactions in Concrete (PCA, IS413, 1997, 24pp.); and, Guide Specification for Concrete Subject to Alkali-Silica Reactions (PCA, IS415, Nov. 1995, 8pp.). Both can be ordered from PCA at: 5420 Old Orchard Road, Skokie, Illinois 60077-1083; Tel: 847-966-6200; Fax: 847-966-9781.

Federal Energy Technology Center (FETC) program provides research support for CCPs - ACAA's Stewart chairs Steering Committee

A new program sponsored by the U.S. Department of Energy (USDOE) Federal Energy Technology Center (FETC) will provide more then $400,000 in funding to researchers working on CCPs. The source of this funding will be the ECBC (Emission Control Byproduct Consortium) which is managed by the National Mine Land Reclamation Center (NMLRC) at West Virginia University.

The ECBC issued its first RFP (Request of Proposals) March 22, 1999 for the July 1999 to June 2001 funding cycle. For more information on submitting a proposal visit the ECBC website http:// ecbc.nrcce.wvu.edu or the FETC website http://www.fetc.doe.gov/products/power/enviro/ccb/ecb.html.

The objective of the ECB Consortium is to develop and demonstrate technologies for solving problems related to the utilization of by-products from coal combustion processes. It is hoped that these technologies, by the year 2005, will lead to a doubling of the current rate of FGD by-product use, a 10% increase in the overall national rate of byproduct use, and a 25% increase in the number of uses considered "allowable" under state regulations.

No byproduct utilization technology will be adopted by industry unless it is more cost-effective than land-filling; therefore, it is extremely important that the utility industry provide guidance to the R&D program. Government agencies and private sector organizations that may be able to utilize these materials in the conduct of their missions should also provide input. The ECB Consortium will serve as an effective vehicle for acquiring and maintaining guidance from these diverse organizations so that the proper balance in the R&D program is achieved. There are three major elements of the ECB Consortium: The Steering Committee, the three Regional Advisory Committees, and the Program Managers (Secretariat).

National Steering Committee is the key element of the Consortium; all decisions on how the Consortium "does business" will be made by consensus of the Steering Committee. Critical roles and responsibilities of the Steering Committee include, approval of overall consortium structure and timetables, selection of Regional Advisory Committee Chairpersons, authorization of RFP's and final decisions on projects to be funded and assignment of funding levels to each project. At the Consortium's first National Steering Committee meeting ACAA's Director of Technical Services, Barry Stewart was chosen as Chairman.

The types of coals burned by electric utilities and the technologies employed for emission control greatly effect the characteristics of the byproducts that are produced. It was recognized by the National Steering Committee that these characteristics often vary from region to region.

Regional prioritization of research needs is also dictated by the cost of transportation and the state-to-state differences in regulations governing byproduct disposal and utilization. For this reason, technical advisory committees will be created for the Eastern, Midwestern and Western regions of the U. S.

The regional Chairpersons are, for the Eastern Region Jackie Bird, Director of the Ohio Coal Development Office, for the Midwestern Region, Wayne Bahr, Illinois Department of Commerce and Community Affairs, and David Goss, Public Service Company of Colorado.

The regional offices for the ECB Consortium are: Eastern Region - NMLRC West Virginia University, Midwestern Region – Southern Illinois University, and Western Region University of North Dakota, EERC. The National Mine Land Reclamation Center (NMLRC) at West Virginia University will serve as the Consortium Secretariat, with oversight from DOE-FETC.

ACAA Job Forum

ACAA has confidential information from three individuals who have have contacted ACAA for assistance in moving from one area of CCP management and use to another. If your company is seeking an employee with experience in CCP management and use, send a confidential inquiry in writing to ACAA specifying your requirements. We will offer your information to the individuals who appear to meet your needs and ask them to respond at their discretion. If you would like to submit a resume to ACAA Job Forum, please contact ACAA.

Candidate Number 1 - MS Civil Engineering with 15 Years Experience
Geotechnical and environmental engineering
Registered PE in three states
Consultant for major clients including electric utilities with a focus on CCP project development, engineering, economic development. Works with EPA and other regulatory agencies.

Candidate Number 2 - BS in Civil Engineering with 12 years experience
Structural Design and materials handling
Registered PE in two states
Ash Management team with large utility focusing on new product development. Laboratory and field activities. State and Federal agency contacts and participation in consensus standards.

Candidate Number 3 - MS in Environmental Science with 25 years experience
Water and wastewater treatment
Business development and Coal Ash management
Created business to manufacture products made from CCPs. Developed and managed an aggressive utility CCP Business unit. Created computer models for coal ash management. Candidate is willing to relocate.

ALL INFORMATION SUBMITTED TO ACAA IS CONFIDENTIAL

ACAA's Executive Director Sam Tyson addresses North Carolina Coal Institute (NCCI)

On Thursday, March 25, 1999, ACAA's Executive Director Sam Tyson addressed registrants at the spring meeting of the North Carolina Coal Institute (NCCI) in Greenville, South Carolina.

During this two-day event, NCCI members also heard from other speakers including Mr. G. T. (Tom) Helms, Leader of the Ozone Policies and Strategies Group from the U.S. Environmental Protection Agency (EPA), Office of Air Quality Planning and Standards; and Mr. Douglas D. Rhoades, Sr. Project Manager, Clean Air Engineering.

The NCCI was organized by coal companies in 1946 and current membership also includes related service companies, manufacturers of coal-burning and handling equipment, electric utilities and other users of coal. NCCI members are concentrated in the southeastern USA, but total membership is from more than 34 states and Canada. NCCI meets three times each year. More than 100 NCCI members participated in the March meeting in Greenville.

Tyson distributed selected publications to NCCI members (similar to those listed on page 12). He also presented a complimentary copies of ACAA's Coal Ash Book to NCCI's president and vice president/program chairman.

What's on the web? - "Aerated Flyash Concrete Association" home page

"The Aerated Flyash Concrete Association" (AFCA) http://www.comax.com/afca

The ACFA, a nonprofit industry group devoted to the success of the Autoclaved Aerated Concrete (AAC) industry with a focus on fly ash as a raw material. The ACFA mission is to nurture and champion the autoclaved aerated concrete (AAC) industry, with a focus on fly ash as a raw material, by creating and maintaining a dynamic network bringing together resources, knowledge, and innovation.

ACFA activities include the development and monitoring of industry standards, management of third—party inspection, direction and sponsorship of research and design, education on all levels, and the pursuit of market acceptance with a focus on the benefits of fly ash inclusion.

Also, AFCA provides a network and information source via the Internet, sponsors technical meetings, and publishes AAC information in a variety of formats. The main areas of focus are technical, educational, and promotional.

ACFA goal is to encourage and facilitate the sharing of technical information among members believing that each member's expertise is valuable to the development of the AAC industry. Members represent all areas of the industry, including members of the electric power industry and construction industry, raw materials suppliers, manufacturers, engineers, equipment suppliers, environmental groups, architects, developers, students, educators, government agencies, building material distributors and other interested parties. ACFA is committed to the development of standardized, high quality AAC products that provide the highest level of satisfaction to our customers, and bring the greatest financial reward to its members.

AFCA promotes the use of an optimum quantity of fly ash input to the AAC industry in order to maximize and promote the energy efficiency, ecological sustainability, safety, affordability, durability, and versatility of fly ash based AAC products, manufacturing processes, and applications.

For more information, contact:
AFCA
7638 Nashville Street
Ringgold, GA 30736
Phone: 706-965-4587
Fax: 706-965-4597
http://www.comax.com/afca
E-mail: jillanna@babb.com

FHWA reorganizes regional offices

FHWA Administrator, Kenneth R. Wykle, announced that the agency made pivotal changes to its organization by restructuring its headquarters, establishing new resource centers in Atlanta, Baltimore, Chicago and San Francisco, and eliminating nine regional offices. He noted that the Federal Highway Administration (FHWA) has been serving the needs of the American public for 105 years. The new structure will include five core business areas: infrastructure (includes their Bridge Division); planning and environment; operations; motor carrier and highway safety; and federal lands highways.

The FHWA headquarters will be supported by eight cross-cutting units: policy; administration; research, development, and technology; chief counsel; civil rights; public affairs; professional development; and corporate management. Responsibilities for State projects and programs now reside entirely with the federal-aid and motor carrier division offices located in each State. The four FHWA Resource Center locations and team directors are:

Atlanta - Eugene W. Cleckley
Baltimore - Dale E. Wilken
Chicago - A. George Ostensen
San Francisco - Leon J. Witman

Fly Ash In Concrete - A Growth Market

Portland Cement Association's (PCA) five-year outlook calls for annual gains through 2003, which would mean 10 consecutive years of record-high cement consumption according to PCA's Executive Report No. 266. The report was released on February 15, 1999.

PCA's chief economist sets 2001 as the year cement will break the one hundred million mark, with portland cement consumption reaching 101.9 million tons. PCA points to strong construction markets, increased federal funding for highways, and increased promotion efforts by the industry as the three major factors leading to favorable conditions for cement.

In 2000 and 2001, portland cement is forecast to log gains of 2.9% and 3.4% as new federal dollars hit highway projects. Growth slows to 2.5% and 1.3% in 2002 and 2003. If cement consumption is a valid indicator of fly ash use through 2003, then the CCP industry can look for similar increases of up to one million tons.

ACAA Visited by Australia's "Cooperative Research Centre for Black Coal Utilisation"

In February 1999, ACAA was visited by Kerry Innes from the "Cooperative Research Centre for Black Coal Utilisation" in Australia.

The mission of the research center is to use the resources of participating organizations cooperatively and synergistically for quality research on thermal coal utilisation that adds value to Australian black coal resources in overseas and domestic markets and to transfer research results effectively to the coal, power and metallurgical industries.

Cooperation and collaboration within Centers and with other institutions are major objectives of the CRC Program.

Internal cooperation brings together resources, skills and expertise from participating organizations in ways that enable research to be done that would not otherwise be done , or be done as well.

The strategic purpose of external collaboration is to establish links with users of Australian coal, with developers of coal utilisation technology, and with research organizations and individuals. International collaboration is especially important for a Centre concerned with a globally-traded commodity- coal- and technology mainly developed overseas, in the USA, Japan and Europe.

Projects with developers of coal technology are in progress with Japan, Korea, Sweden, Canada, Germany, Holland, UK, and the USA. The Black Coal CRC led formation of an Australian Clean Coal Centre Consortium to maintain Australia's membership of IEA Coal Research- the London-based Clean Coal Centre- from April, when Australian Government funding ceased.

Professor Terry Wall, of the Cooperative research Centre for Black Coal utilisation, chaired the biennial Engineering Foundation, USA-conference on control of mineral matter in combustion arranged by the Engineering Foundation in Kona, Hawaii in November 1997. Some 80 papers were presented with a theme of expanded fuel use in Pacific-Rim countries. The next conference will be held in the US in February 2000 and will be co-chaired by Professor Wall and Murray Abbott from Consol in Pittsburgh.

Supplemental symposium papers available from ACAA

Seven of the papers that were presented at ACAA's 13th Symposium last January were not published in the proceedings. The papers were handed out by the authors at their presentations. Copies of these papers are now available through ACAA. Please send requests for these papers to Barry Stewart at ACAA or via e-mail: coalash@erols.com The papers available are:

Use of Material Safety Data Sheets (MSDS)as a Promoter for CCP Utilization
T.C. Schmaltz, R. T. Hemmings, and R. Y. Minkara. ISG Resources.

A New Technique of Simultaneously Generating Thermal Power and Producing Cement Clinker in Coal-fired Furnaces of Power Plants.
Global New Energy Inc.

Dissolution and Leaching of Trace Elements from Coal Combustion Products-Laboratory and Lysimeter Experiments.
I. Ravina. Technion-Israel Institute of Technology.

Implications of Utility Environmental Air Regulations for Future CCP Production and Quality.
P. Wright. Resource Data International

Using Geographical Information System (GIS) As a Recycling Market Development Tool.
E. H. Olenbush and J. F. Katers. Wisconsin Recycling Market Development Board.

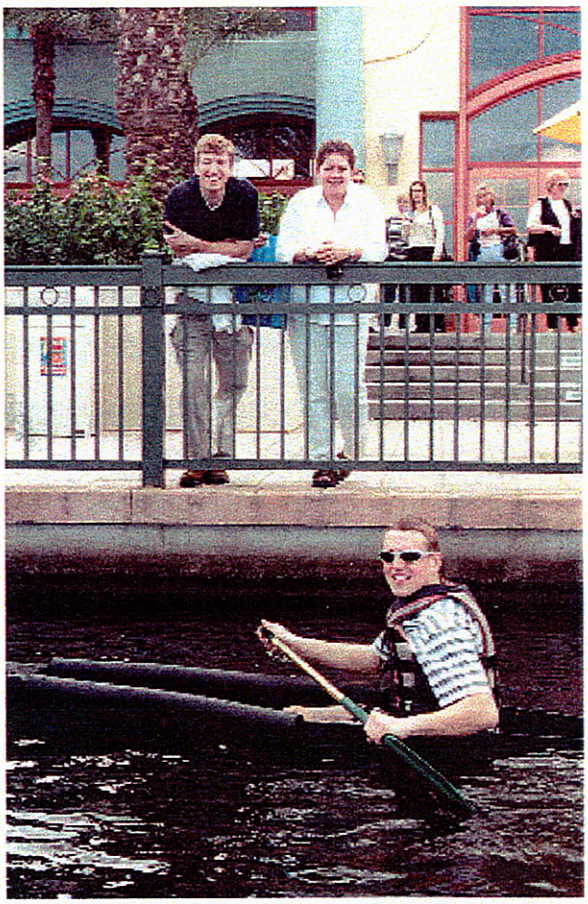
Unlocking the Value of Coal Fly Ash with Multi-Sectional Column Flotational Technology. W. C. Trench, A. Ganopolsky, and J. Rubinstein. LightHouse Funding and Fractal Technologies LLC.

Successfully Marketing Scrubber Gypsum - A Utility Perspective.
E. C. Miller. Tennessee Valley Authority.

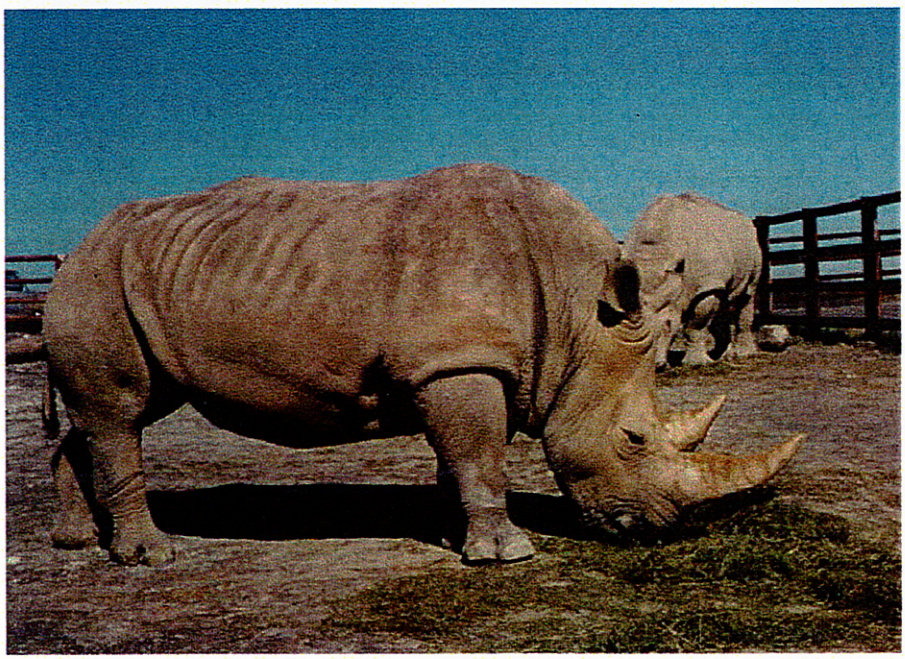
Scholarship winners make a big splash at Symposium

One of the scholarship award recipients from the ACAA Educational Foundation's John H. Faber Memorial Scholarship Program hoped to make a big splash by presenting his paper in one the sessions at the ACAA's 13th International Symposium, another recipient hoped he did not make a big splash as he paddled his concrete canoe around the lake outside the Coronado Springs Resort Hotel.

Howard Hess, now a Ph. D. candidate at Penn State University presented his paper "Electron Beam Use for the Manufacture of Fertilizer from Coal Combustion Flue Gases: Literature Review and Experimental Plan in the Agricultural Applications 2 session. Steve Thomas and Kevin Wolf of Wayne State University worked as a team on a semester scholarship project "CCP's for a Sustainable Future: Uses of Type F Fly Ash in Mortars". One the studies included in this project was the construction of a concrete canoe that was entered in the concrete canoe race sponsored by the American Society for Civil Engineering. Their advisor was Dr. Mumtaz Usmen, Professor of Civil Engineering, Wayne State University. In addition to Steve Thomas and Dr. Usmen, the group from Wayne State University also included Joe Wolf and Claire Bourseleth. All of the Wayne State students helped in making sure that the sessions ran smoothly by serving as audio/visual room monitors. Their help at the symposium was greatly appreciated by the session chairs and ACAA staff.



Steve Thomas glides by fellow Wayne State students Joe Wolf and Claire Bourseleth in his concrete canoe which contains both fly ash and cenospheres.



Livestock pads made from CCPs save money, landfill space

Livestock pads for several rhinoceros feedlots were constructed at the *Wilds*, a wildlife safari park near Cambridge, Ohio. The pad was constructed in June 1998 using lime-enriched FGD materials. The program is under the direction of Tarunjit Butalia, coordinator of Ohio State University's Coal Combustion Product (CCP) Pilot Extension Program. For more on this story, see page 21.