ACAA
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# Ash At Work

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## CCB Managers Program Draws Record Number of Participants to West Virginia

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Ash At Work is a Publication of the American Coal Ash Association
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The American Coal Ash Association and the National Research Center for Coal and Energy held the Coal Combustion Byproduct Managers Program, June 10-13, 1996 at the West Virginia University in Morgantown, West Virginia. The CCB Managers Program attracted a record number of participants. More than 100 individuals came from 28 states, Canada and Europe and represented all aspects of the CCB Industry. Forty-five participants were from coal-burning electric utilities, 30 from CCB marketing companies, with others from organizations including coal companies, state and federal government agencies, universities, allied trade associations and related industry groups.

More than twenty instructors from industry and academia presented instructional units on topics such as concrete mix proportioning and durability, codes and standards, engineering applications such as structural fill and flowable fill, agricultural and manufacturing applications of FGD materials, environmental issues, regulatory issues and numerous other topics.

Allan W. Babcock, Honorary Member of ACAA, John F. Faber, Former Executive Director of ACAA (1968-1980) and James Burnell, Allegheny Power were presented service awards for their efforts on behalf of ACAA in developing and sustaining the CCB Managers Program at West Virginia University. Mr. Babcock and Mr. Faber both addressed the program participants at the awards banquet on Wednesday evening. They gave insightful and inspiring speeches on the history of CCB use, the origin of ACAA and the future of the industry.

Each participant received a copy of the proceedings binder assembled for this program, including several very recent ACAA publications. Copies of these proceedings are available from ACAA at a cost of $295 for ACAA members, and $695 for non-members. Contact ACAA for more information.

### Denver Coal Club Meets in March

Tom Blackstock, ACAA's Director of Technical Services, attended the March 14 ,1996 meeting of the Denver Coal Club at the Denver Athletic Club. Tom was the luncheon speaker at the meeting, presenting information on ACAA, the many programs of the association and the CCB Production and Use Survey. The meeting was attended by about 30 people representing local electric utilities, coal companies, CCB marketers, environmental testing firms and consultants.

# Tyson's Corner

by: Sam Tyson
ACAA Executive Director

## Where do we go From Here?

ACAA's July 17, 1996 workshop on CCB management and use will feature presentations on several topics that will set the stage for discussions to answer the recurring question, "Where do we go from here?" We don't always say it just that way, but during July of each year ACAA's committee chairs, officers and members are busy discussing the best way to allocate limited resources to accomplish ACAA's mission--to advance the management and use of CCBs in ways that are technically sound, commercially competitive and environmentally safe. And as usual, ACAA can best respond to the needs of the "CCB industry" by hearing a large number of voices.

The workshop will begin with a presentation by Bill Weissman of Piper & Marbury, a law firm in Washington, DC. Bill serves as legal counsel to the Utility Solid Waste Activities Group (USWAG) and, along with Jim Roewer, USWAG Program Manager from the Edison Electric Institute, will give an overview of the regulatory history and status of CCBs, focusing primarily on the Resource Conservation & Recovery Act (RCRA). Several legislative and regulatory initiatives concerning CCBs have been undertaken in recent years by EEI and USWAG with support and cooperation from ACAA, and Bill will discuss some of the most likely avenues for progress in 1997. Bill gave a presentation and published a paper on this subject for registrants at ACAA's CCB managers program at West Virginia University during June 1996, and that paper will serve as the reference document for his workshop presentation.

Next, Tom Blackstock, ACAA's Director of Technical Services, will summarize information available from ACAA on the production and use of CCBs in the USA. A new report on this topic was published by ACAA in May 1996, and Tom will draw on this information for his presentation. Tom will provide both national and regional perspectives on CCB production and use, and he will provide some insight both into what is being done and what could be done to develop and expand CCB uses.

Kevin Mack, an attorney with American Electric Power Service Corporation in Columbus, OH, has served during the last year as chairman of an ACAA task force to develop a white paper for ACAA members on liability issues concerning the use of CCBs in structural fill applications. This paper has just recently been published and distributed to ACAA members, and Kevin will present a summary of the liability issues that affect a broad range of CCB topics. He also will address some specific topics that could effectively be addressed to bring about an improved legal climate for the use of CCBs. (see Tyson's Corner on page 3)

## Tyson's Corner

(continued from page 2.)

Diana Jagiella, an attorney with Howard and Howard, Peoria, IL will discuss the various state regulations governing the use of CCBs throughout the USA. Diana has recently completed a survey of state regulatory practices for ACAA, and a summary document on that work was published by ACAA in June 1996. There are very significant differences among the states concerning the regulation of CCBs. Many state regulations are silent on the use of CCBs, while others are very specific about the numerous applications of CCBs that are authorized. Diana will address both positive and negative aspects of CCB regulations as they occur in several states.

During the early afternoon of July 17, a panel comprising the workshop speakers will be assembled to discuss the ways in which ACAA and others can proceed during 1997 and beyond to develop specific programs and activities to have the greatest positive impact on CCB management and use. Join us in Annapolis and add your voice to this important discussion.

Note: Each of the three ACAA reports mentioned above are described in more detail elsewhere in this newsletter.

## Albuquerque Workshop Presents Speakers Addressing Innovations in Transportation

*Innovations in Transportation–Paving the Way with CCBs*, was the topic for ACAA's workshop on the management and use of CCBs, held Wednesday, April 17, 1996 in Albuquerque, New Mexico. More than 50 participants heard Tom Blackstock, ACAA's Director of Technical Services, begin the workshop with an overview of the new publication "Fly Ash Facts for Highway Engineers--Fly Ash Use In: Concrete, Base, Flowable Fill, Structural Fill, Grout and Paving." This document was published by the Federal Highway Administration (FHWA) through a cooperative arrangement with ACAA.

Other workshop speakers and their topics were: Gene Riggs, Monex Resources, on Specifying Fly Ash Concrete in Infrastructure Projects; Lester Litton, Earth Engineering Consultants, on Fly Ash Base Stabilization: Zero to Fifty in Five Short Years; John Huffman, Brown and Brown, on Fly Ash in Cold In-Place Recycling: Experience, Opportunities and Needs; Jack Zimmerman, Midwest Fly Ash and Materials, on Manufacture and Use of C-Stone (a fly ash-based aggregate); Dale Diulus, Phoenix Cement Company on Use of Fly ash in Whitetopping; Todd Olheiser, Western Mobile on Recycled Glass and Concrete in CLSM/Flowable Fill; and Dean Golden, EPRI, on New R&D Programs to Meet the Needs of the Construction Industry. Martin Barker, City of Albuquerque Public Works Department, gave a presentation on Controlling Alkali-Silica Reactivity with Pozzolans on Thursday, April 18, at a of the Western Region Ash Group meeting in conjunction with ACAA.

## Life Cycle Assessment Methodology Applied to CCBs

ACAA's Life Cycle Assessment (LCA)Task Force met at ACAA's offices in Alexandria, VA on Thursday, May 2, 1996, to discuss the LCA Project on Coal Combustion Byproducts (CCBs). The meeting was attended by Randy Born and Michael Schroeder, of Cinergy, John Flynn and Ali Kahn, of Ontario Hydro, Dan Klein, of 21st Strategies, Anne Landfield, Remi Coulon and Jacques Besnainou, of Ecobalance, and Sam Tyson and Tom Blackstock, of ACAA.

The task force defined system boundaries and functional units for the project, determined the relevant flows and their impacts, and discussed the data that would be required to complete the study. The task force also developed a schedule for the project with milestones and deliverables for the participants as well as all other ACAA members. A draft report will be available by the fourth quarter of 1996.

# Review of State Solid Waste Regulations Report

During 1996, ACAA updated its report, *State Solid Waste Regulations Governing The Use of Coal Combustion Byproducts (CCBs)*, a review of state solid waste laws, regulations, policies and agency guidance governing the use of CCBs, originally published in 1995. This report will be useful to ACAA members and others who are familiar with "beneficial use" regulations for CCBs in their particular state and will assist in the exchange of regulatory guidance to enhance the use of CCBs. This report is not intended to advise the reader regarding legal or regulatory requirements applicable to CCB use projects in any state and should not be relied upon for this purpose.

Most states exempt CCBs from hazardous waste regulations and regulate these materials as solid, special or industrial wastes. The states that do not exempt CCBs from hazardous waste regulations require testing to determine hazardousness, and if shown to be non-hazardous, the CCBs are regulated as solid waste.

For consistency, this report utilizes the term CCBs. The term is intended to generically refer to fly ash, bottom ash, boiler slag, and FGD material. However, the reader should not assume that use of the term CCB infers that all types of CCBs are included within the scope of a particular state's regulations. The reader must recognize that each state has different approaches to classification of CCBs and that these respective classifications may limit or expand allowable uses of CCBs.

Most states currently do not have specific regulations addressing the use of CCBs and requests for CCB uses are handled on a case-by-case basis or under generic state recycling laws or regulations. Many states have adopted "generic" laws and regulations which authorize use and recycling of hazardous and/or solid wastes in certain applications. States without formal CCB use regulations or guidelines often encourage the use of coal fly ash use in cement and concrete applications and products.

Additionally, state highway departments are required by the Federal Highway Administration (FHWA) to have specifications conforming to federal procurement guidelines for cement and concrete containing coal fly ash for federally funded projects.

Some states have adopted laws and regulations or issued policies and/or guidance regarding CCB use. The CCB uses authorized within these states vary widely. Some states authorize liberal use of CCBs, while others authorize CCB use only in limited applications. In addition, the level of regulatory control and oversight varies significantly. CCB uses presenting the greatest concern to state regulators are those which involve land application such as the use of CCBs in agricultural applications, structural fills, mine applications and embankments. Some states, consider these applications to be waste disposal and not use or recycling.

In summary, laws, regulations, policies and/or guidance authorizing at least limited CCB use have been adopted in the following states: Alabama, Arkansas, California, Georgia, Illinois, Indiana, Iowa, Kentucky, Maryland, Massachusetts, Michigan, Nebraska, New Jersey, New Mexico, New York, North Carolina, North Dakota, Ohio, Oklahoma, Pennsylvania, South Carolina, Tennessee, Texas, Vermont, Virginia, West Virginia, and Wisconsin.

The document also contains a table that summarizes uses of CCBs that are "authorized" or "allowed" on a state-by-state basis.

# Expanded CCB Production & Use Survey Report Published

Annually, the production of CCBs in the USA is nearly 90 million tons [88.994 million short tons in 1994]. Assuming an average thirty-year life remaining for existing coal-fired power plants, the CCB industry in the USA clearly is an important producer of mineral resources, both for today and for the 21st century. ACAA conducts an annual survey concerning the production and use of CCBs to maintain and enlarge a unique database from which an annual report is issued. The participants in ACAA's survey are coal-burning electric utilities from throughout the USA. The CCBs included in ACAA's annual survey are: fly ash, bottom ash, boiler slag and FGD material.

The CCB applications currently included in ACAA's annual survey report include: cement and concrete products; flowable fill; structural fill; road base/subbase; mineral filler in asphalt; snow and ice control; blasting grit and roofing granules; grouting; coal mining applications; wallboard; waste solidification and stabilization; and miscellaneous/other uses.

There have been several changes in ACAA's survey throughout the years. ACAA was established in 1968, and initiated the collection of data for fly ash, bottom ash and boiler slag produced and used during that calendar-year. Data also was collected for the two preceding calendar-years, 1966 and 1967, however, no distinction between bottom ash and (wet bottom) boiler slag was made in data collected for those two years. Calendar-year 1987 was the first period for which ACAA collected data concerning the production and use of FGD material; and calendar-year 1992 was the first period for which ACAA collected data to distinguish between CCBs that are managed and used in a dry or moisture-conditioned form versus CCBs that are managed and used in a ponded form.

CCB producers other than electric utilities currently are not included in ACAA's survey, however, data available from the U. S. Department of Energy, Energy Information Administration (DOE-EIA) shows that in 1994, electric power plants accounted for some eighty-eight (88) percent of domestic coal consumption. It follows that, even though ACAA's published survey reports do not address CCBs such as those from fluidized bed combustion and other combustion technologies that may be used by electric utilities as well as non-utilities, the four CCBs that are included in ACAA's survey currently account for almost 90 percent of CCBs produced and used in the USA.

Electric utilities in the USA are subject to mandatory annual filing of a report to the DOE-EIA on Form EIA-767, "Steam-Electric Plant Operation and Design Report," which collects information on CCBs that are used on-site and sold. ACAA's survey is unique, however, in that it collects detailed information on CCB market applications as well as CCB production and use. The annual publication and distribution of ACAA's survey results is one of the important services that ACAA provides to the entire CCB industry. ACAA's series of annual surveys and reports published by ACAA since the late 1960s have been used extensively by producers and marketers of CCBs, federal- and state-level government agencies, engineers and contractors, allied industry groups and others who have an interest in CCB management and use.

The most recent ACAA report, *CCB Production & Use: 1966 - 1994*, draws on the database of CCB production and use, collected by ACAA in surveys for calendar-years 1966 through 1994, and summarizes much of that information so that it may be reviewed in a single document without the need for independent analysis. For example, this report contains information in the form of charts and graphs which convey a useful understanding of the total quantities as well as the simple percentages of CCBs (fly ash, bottom ash, boiler slag and FGD material) that have been produced and used during the calendar-years, (see CCB Report, page 6)

# CCB Report

(continued from page 5)

1966 through 1994, covered by ACAA's annual surveys and reports. Also, the survey data for 1994 is summarized to show the leading applications for each CCB in terms of the quantities used. This report does not address the relative values of the leading markets for CCBs, nor does it address the value of "other" markets. Neither the data presented in this report nor the statements made concerning that data are intended to convey any information about the value of a particular market for CCBs.

This report presents other useful information, including: a summary of low- and high-calcium coal fly ash production and use in the USA; typical CCB production and use data from twelve (12) representative CCB producers in each of six (6) regions of the USA; and charts showing total CCB production and use by region.

Additionally, this report presents a comparison of calendar-year 1994 production and use data for CCBs which were managed and used as dry or moisture-conditioned materials versus CCBs which were managed and used as ponded materials.

Other information in this report that will assist the reader is an appendix which includes a glossary of technical terms related to ACAA's annual CCB survey and report.

# Liability Issues Have Large Effect on CCB Use

A recent paper prepared by ACAA, *Liability Issues White Paper: The Use of Coal Combustion Byproducts (CCBs) in Structural Fills*, was developed to identify key regulatory and legal issues relevant to beneficial use of CCBs. The White Paper is intended to be an overview to familiarize the membership with certain legal and regulatory trends and concepts which are relevant to CCB utilization in structural fills. It will be a useful educational tool for members and will aid them in making more informed marketing and utilization judgments and in undertaking informed discussions with legal counsel, customers and regulators. The White Paper is not intended to be an exhaustive treatise and does not attempt to cover all conceivable liability issues.

The White Paper should provide readers with a basis for optimism on managing liability, but it cannot provide guarantees. It must also be noted that while conformity with generally recognized engineering and regulatory standards can greatly limit liability, the existence of those standards can also create duties which, if not performed, can potentially increase liability. A sub-theme of the White Paper is that users and marketers of CCBs have a shared interest in seeing that CCB utilization is undertaken responsibly and in a manner consistent with the handling of a valuable engineering and construction material.

ACAA's White Paper on liability issues--while not intended to give legal advice--can serve as a starting point for discussions with prospective large-volume customers and CCB suppliers, who can then discuss specifics with their individual legal counsel.

There have been a number of favorable changes to the regulatory uncertainty, overly broad judicial interpretations of CERCLA liability, and governmental emphasis on controlling byproduct disposal--rather than encouraging beneficial uses--which have inhibited certain large volume CCB applications, including structural fill applications of CCBs.

In the non-governmental field there have been favorable developments, most notably within the American Society for Testing Materials (ASTM). Efforts are under way to make ASTM's PS 23, a provisional standard on the use of fly ash in structural fills, a full consensus standard and to develop a technical standard on the use of CCBs in waste solidification and stabilization. This White Paper focuses primarily on how conformance with recognized engineering standards and practices can be an essential aspect of controlling liability exposure for use of CCBs in structural fills.

To ACAA members, useable coal ash is a marketable product and not a waste. This White Paper shows how governmental policies and decisions increasingly reflect that viewpoint. Beneficial CCB use is consistent with EPA's policy on Pollution Prevention because it prevents waste by using an industrial byproduct, results in cost-effective raw materials substitution, and reduces use of energy and other resources that would be needed to obtain the construction materials for which CCBs are substituted.

## Earth Day 1996, ACAA Sponsors Exhibit

The 1996 celebration of "Earth Day" in Alexandria, VA was held on Saturday, May 18, 1996. Earth Day, first celebrated in April 1970, has become synonymous with environmental growth and change. Like previous Earth Day celebrations, the 26th anniversary was well attended by the public, local government officials, and environmental groups. The day included speeches by local political figures and members of the news media and was attended by over 2000 people.

An exhibit sponsored by ACAA was displayed and was attended by ACAA's Tom Blackstock, Director of Technical Services. Samples of coal fly ash in plexiglass cubes were displayed at ACAA's exhibit. Other printed items distributed by ACAA at the Earth Day celebration included brochures and brief articles explaining the energy-related benefits CCB applications.

Earth Day attendees were given a clear message through ACAA's exhibit that electric utilities, marketers, researchers and others, in supporting the development various CCB products and applications, are fulfilling a commitment to environmental leadership and recycling.

## ASTM Activity Advances from Albuquerque and Austin to Annapolis

ACAA's Executive Director Sam Tyson and Director of Technical Services Tom Blackstock, along with many ACAA members, attended the April 25-27, 1996, meeting of the American Society for Testing and Materials (ASTM) Subcommittee E50.03 on Pollution Prevention, Recycling and Reuse. The meeting was held to discuss revisions to the proposed standard guide for the use of coal combustion byproducts in structural fills. The proposed standard guide has recently undergone balloting by the full ASTM E50 committee. The subcommittee will hold a meeting to resolve any negative votes on July 18-19, 1996, in Annapolis, MD, in conjunction with ACAA's July meeting.

The standard was originally designated ASTM PS 23-95, meaning that it was a provisional standard. The "provisional" status of the structural fill standard requires that it be reconsidered by the ASTM committee after a two-year period instead of the five-year period required by ASTM for all other (non-provisional) standards. The two-year period ends in October, 1997.

Work on the revised document has moved ahead in a timely manner with oversight by ACAA's Technical Committee. During ACAA's April 1996 meetings in Albuquerque, NM the committee laid out a plan to advance standards through the ASTM process in alternative committees, depending not only on the specific CCB use, but also on the apparent workload and performance of various ASTM committees. The subsequent ASTM E50.03 meeting in Austin proved to be very effective in preparing the revised ASTM PS 23 for balloting. The Technical Committee will continue to monitor and evaluate the effectiveness of the ASTM process during the July 1996 meetings in Annapolis.

The ASTM E50.03 task group on structural fill is chaired by Gary Brendel, GAI Consultants. Additional standards are being proposed by the subcommittee and will be available for general review as soon as they can be distributed following normal ASTM policies and procedures. ACAA continues to work with its members and others to develop standards that promote the increased use of CCBs in construction and manufacturing applications.

## ACAA Releases Partial Price List

| | ACAA Members | Non-members |
|---|---|---|
| **Expanded Survey** | nc | $195.00 |
| **State Regulations** | nc | $195.00 |
| **Membership Directory** | nc | $25.00 |
| **Publications List** | nc | $25.00 |
| **Videos** | nc | $35.00 |
| **Slide Sets** | nc | $240.00 |
| **Liability Issues White Paper** | nc | NA |
| **Fly Ash Cubes** | nc | $10.00 |
| **Fly Ash Facts for Highway Engineers** | | |

Cartons (135 per carton) - Members - $492.00; Non-members - $965.00
Individual Copies - Members - $5 per copy; Non-members - $9.50 per copy

## Fly Ash Facts for Highway Engineers

The second printing of the Federal document, *Fly Ash Facts for Highway Engineers (FHWA-SA-95-081, August 1995)* is now available from ACAA. The full color, 70-page document is organized into six sections that address the use of fly ash in concrete, base stabilization, flowable fill, structural fill, grout and paving. It supersedes the 1986 publication which had a similar title, but which dealt only with concrete and base applications of fly ash.

The current document was completed through cooperation between FHWA and ACAA. The purpose of this document is to provide technical information about engineering applications of fly ash to potential users. It is supportive of ACAA's mission to advance the use of coal combustion byproducts (CCBs) in ways that are technically sound, commercially competitive and environmentally safe.

Due to the incredible demand for the initial printing by the Government Printing Office (GPO), ACAA distributed the first printing of 4000 copies in a matter of a few weeks. FHWA gave ACAA unlimited permission to reprint the document at our expense. ACAA has printed10,000 additional copies. Individual and multiple copies of the document are available directly from ACAA. Individual copies are $5.00 for members and $9.50 for non-members; cartons of 135 copies may be purchased for $492.00 for members and $965.00 for non-members.

## American Chemical Society Holds Meeting

The American Chemical Society held its 211th National Meeting and Exposition in New Orleans, LA, on March 24-28, 1996. The meeting was attended by nearly 10,000 registrants in almost 600 sessions with over 5,700 papers. Environmental health and safety was one of four themes at the meeting. Two sessions, with 16 papers, dealt with the conversion of FGD residues and utility fly ash into marketable products. ACAA's Tom Blackstock, Director of Technical Services, presented a paper on the production and use of CCBs in the U.S.

The American Chemical Society was founded in 1876 and is a nonprofit organization. It is the world's largest scientific society and has a membership of 150,000 chemists and chemical engineers. The Society is recognized as a world leader in fostering scientific education and research, and promoting public understanding of science. This provided ACAA with an excellent opportunity to reach a new audience that is very interested in the use of recovered materials in many applications.

## American Concrete Institute Holds Meeting in Denver, Colorado

ACAA's Director of Technical Services, Tom Blackstock, attended the Spring Convention and Committee Meetings of the American Concrete Institute in Denver, CO, March 14-18, 1996. Several sessions at the convention focused on the use of fly ash in concrete and related applications. ACAA was represented at committee meetings on Controlled Low Strength Material, Soil Cement, Cellular Concrete, and Fly Ash and Natural Pozzolans.

Guidance documents produced by ACI committees have a great deal of influence in the construction industry and must be continually reviewed and updated to assure that properties and applications of CCBs are appropriately represented. ACAA's involvement is crucial to the success of the standards development process. Reports of current committee activities are available from ACAA.

## ACAA Attends American Power Conference Meeting

The 58th Annual American Power Conference (APC) was held in Chicago, IL during April 9-11, 1996. The APC is "an annual national forum for the discussion of the broad, overall aspects of generation, transmission, distribution and utilization of power." The conference was attended by executives, managers and engineers from across the U.S. and around the world representing over 250 power plants. Some 400 presentations were given on over 80 sessions. The conference is sponsored by Illinois Institute of Technology, in cooperation with 27 additional universities and 6 professional societies. ACAA's Tom Blackstock, Director of Technical Services, presented a paper in a session on high-volume CCB utilization, which was attended by several ACAA members and others. The three-volume set of conference proceedings is in the ACAA library. A copy of the table of contents is available to any ACAA member wishing to obtain one or more papers.