



ACAA

Ash At Work

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Life Cycle Assessment Seminar Sponsored by ACAA

December 1995

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ACAA and member Ontario Hydro recently sponsored an educational seminar on Life Cycle Assessment (LCA) Methods Applied to CCBs. The seminar was held at the offices of Ontario Hydro in Toronto, Ontario, Canada, December 18-19, 1995. The seminar was led by Remi Coulon, of Ecobalance, and Cho Nai Cheung, of Roy F. Weston. Both are internationally recognized experts on the use of LCA methods and the application of these methods to industrial processes and products.

The seminar, one of several ACAA educational activities, was attended by twenty-eight ACAA member representatives. The attendees were given a basic understanding of LCA methodology and some ways that the CCB industry could use LCA to demonstrate the environmentally preferable aspects of increased CCB use. Standards for the use of LCA methods are currently being developed in the International Standards Organization (ISO) and the American Society for Testing and Materials (ASTM). In ISO, the Environmental Management Standards include LCA, "green" labeling, audits, management systems, and performance evaluations. LCA is also of great interest among federal agencies, particularly the U.S.

Environmental Protection Agency (EPA). ACAA, along with a minimum of three member utilities, is undertaking a project to conduct an LCA project on the use of fly ash as a structural fill material. The study will inventory and compare fly ash for structural fills with typical competing soil fills. Additional information on the LCA seminar and the LCA project is available from ACAA.

Ash at Work

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Tyson's Corner

LIABILITY ISSUES WHITE PAPER

An ACAA task group is developing a white paper that will identify applicable law relevant for parties adhering to the technical guidance in appropriate standards for the "beneficial use" of CCBs in structural fill and in similar high-volume applications. It also will describe the legal benefits of adhering to such standards and recommendations on positions which courts, agencies, and private parties can take when evaluating legal claims relating to the use of CCBs. While this white paper is designed to be informative on legal issues that may arise in the context of evaluating the beneficial use of CCBs, it is not intended to render legal advice that can be applied to specific factual circumstances.

As mentioned in the article ASTM Standards For Use of CCBs on page 3, ACAA's white paper may have potential benefit for development as an ASTM document. Such a document would provide guidance for developing a supplemental part of a standard for the use of CCBs in structural fill or other "beneficial use" applications. The supplemental part could become a binding component of December 29, 1995a contract. The supplement would, because of its informative nature, facilitate the correct interpretation and application of current law as it applies to the use of CCBs.

Sam Tyson
Executive Director

JANUARY '96 ACAA WORKSHOP

ACAA's next CCB Management and Use Workshop will be held in Florida at the Sheraton West Palm Beach Hotel on January 18, 1996.

The workshop, **Marketing Coal Combustion Byproducts (CCBs) in an Increasingly Competitive Environment**, will feature twelve speakers who will address topics

including: CCB marketing and management strategies due to clean air act compliance; options available to avoid/minimize effects on fly ash quality; the role of alternative fuel sources; the status of DOE's voluntary accords under the climate challenge program; a twenty-five year perspective on CCB utilization; guidance for compliance with antitrust laws in association activities; setting goals for CCB management and use programs; R&D opportunities and challenges for CCB uses; opportunities and

challenges in other associations in a changing electric utility environment; added value for CCB management and use programs derived from ACAA membership; using ACAA's strategic plan to gain recognition and achieve a sustainable CCB management and use program; and ACAA's role in the development of full-consensus standards for the use of CCBs.

ASTM STANDARDS FOR USE OF CCBs SET IN OCTOBER

The American Society for Testing and Materials (ASTM) published the much awaited standard, ASTM PS 23-95, *Guide for Use of Coal Combustion Fly Ash in Structural Fills*, in October 1995. Reprinted copies of the standard have been obtained from ASTM and are available from ACAA.

Also during October, ACAA's Executive Director Sam Tyson and several ACAA members met in Amelia Island, FL with ASTM Subcommittee E50.03 on Pollution Prevention, Recycling and Reuse, to address the need for development of CCB use standards within ASTM. An action from the Amelia Island meeting was the appointment of Cal Militaru, from ACAA member American Electric Power Service Corporation, as co-chair (with Gary Brendel from ACAA member GAI Consultants) of the E50.03 coal ash task group to work on the structural fill document. One of the first activities needed concerning structural fill is to submit technical changes recommended for ASTM PS 23. Such recommendations should be developed as soon as possible in order to move expeditiously through the ASTM balloting process. The "provisional" status of the structural fill standard will require that it be

reapproved by ASTM after a two-year period instead of the five-year period required by ASTM for other (non-provisional) standards.

Also discussed at the Amelia Island meeting of ASTM was a "liability issues" white paper being developed by ACAA for its members [see related article]. It was agreed that ACAA's white paper may have potential benefits for development as an ASTM document, and that the task group will work towards the submittal of a relevant document for review by ASTM Subcommittee E50.03 at its next meeting scheduled for April 24-27, 1996, in Austin, TX. Such a document should be submitted prior to the scheduled E50.03 meeting in order to be included on the agenda.

Following the Amelia Island meeting, the ASTM coal ash task group subsequently met in Austin, TX, during December 11-12, 1995. The meeting was held for further discussion and development of revisions to the ASTM PS 23 structural fill document. The meeting, attended by ACAA's Executive Director Sam Tyson, and Director of Technical Services Tom Blackstock and several ACAA members, also served to chart a course for the E50.03 coal ash task group. Several potential standardization activities for CCB applications, proposed and prioritized by members of the task group, will be considered by Subcommittee

E50.03 at its April 24-27, 1996 meeting in Austin.

An ACAA task group will meet during January 1996 in West Palm Beach, FL, to recommend revisions to the ASTM PS 23 standard and to discuss ACAA's contribution to the development of other ASTM standards. While this will be an ACAA meeting, not an ASTM meeting, it will nevertheless be very appropriate to review ASTM matters at the task group level at that time. ACAA received an endorsement to do so during the ASTM E50.03 meeting in Amelia Island, FL during October 1995. A notification was sent by ACAA to ASTM committee officers and staff on November 17, 1995 indicating that ACAA will host such a task group meeting on January 18, 1996. ACAA's task group meeting will be open to all members of ACAA, ASTM and other interested individuals.

EDUCATIONAL FOUNDATION

At the October 1995 meeting of ACAA's Administrative Committee, a business plan, budget, bylaws and articles of incorporation for a proposed "American Coal Ash Association Educational Foundation" were reviewed. The focus of the foundation would be educational activities such as: the international symposium organized by ACAA every two years; a scholarship program; and an environmental awards program. The

foundation would have a board of directors and would meet as necessary to administer its programs. At ACAA's January 1996 meetings in West Palm Beach, FL, ACAA's Board of Directors will vote on funding for the proposed foundation. Should the Board support the foundation, it could begin immediately to work on its educational goals.

SLIDE SET AVAILABLE

An annotated 35mm slide set, *Coal Combustion Byproducts (CCBs) - Applications and Issues*, is available from ACAA. The set of slides, which can be adapted by users for 20- to 60-minute presentations, is divided into two groups. The first group of slides provides an overview of typical CCB applications such as cement and concrete, road base, and structural fills. The second group addresses regulatory and legislative issues affecting the CCB industry.

The slide set is available to ACAA members free of charge. The purchase price for the slide set to non-members is \$240 plus shipping charges. Contact ACAA's Communication Coordinator, Gregg Deinhart for more information.

FLOWABLE FILL VIDEO COMPLETED

A nine-minute promotional video, *Coal Fly Ash - The Key to Quality Flowable Fill*, was debuted at ACAA's Fall Quarterly Communications and Marketing Committee Meeting, October 17, 1995 in Pittsburgh, PA. The video was produced through the combined efforts of members over the past three years. ACAA members contributed both video footage and technical information to help make the video a success.

Many of the contributing members were mentioned at the Committee Meetings. Special thanks was given to Jim Burnell and his production department at Allegheny Power for their efforts. Scott Lippencott of Allegheny Power completed the editing process in October 1995.

Copies of the video were distributed to ACAA members in November 1995. Additional copies are available from ACAA. For more information about the video, please contact ACAA Communications Coordinator Gregg Deinhart.

PITTSBURGH QUARTERLY MEETINGS

ACAA hosted the Fall Quarterly Workshop and Committee Meetings October 16-18, 1995 at the Sheraton Station Square in Pittsburgh, PA. The workshop focused on the

"Commercialization of Autoclaved Cellular Concrete (ACC)" and featured speakers from the US and abroad. The workshop included a tour of the recently completed ACC demonstration house in Pittsburgh.

Meetings of the various standing committees including Communications & Marketing, Technical and Government Relations, were attended by ACAA members as well as guests. The meeting attendance included some forty individuals registered throughout the week.

Participation in ACAA's standing committee meetings is always rewarding both to ACAA and the participants as these committees provide a focus for the basic programs and activities within ACAA's annual business plan.

CCB MANAGERS PROGRAM SLATED FOR JUNE, 1996

ACAA is sending out the first announcement for the 1996 Coal Combustion Byproduct (CCB) Managers Program. The continuing education program will be held June 10-13, at the National Research Center for Coal and Energy at West Virginia University, in Morgantown, West Virginia.

The program is designed for CCB managers, regulators, specifiers, designers and contractors who are interested in broadening their understanding of CCBs. The areas being covered in the four day program range from the marketing and business aspects of CCBs to various technical applications and properties of CCBs.

The event is co-sponsored by ACAA and the National Research Center for Coal and Energy and will be highlighted by a variety of guest speakers from industry, the academic community and consulting firms. The technical program is under the direct supervision of Sam Tyson, Executive Director and Tom Blackstock, Technical Director, both of ACAA.

Participants in the program may be eligible for Continuing Education Units from West Virginia University upon completion of the course. All

Continuing Education Units are issued directly through, and maintained solely by, West Virginia University.

In an attempt to keep classes to a manageable size, registrations will be accepted on a first come first served basis. For information about rates, housing and travel, please contact ACAA's Lisa Harrington, Manager of Finance and Administration.

ACAA ANNOUNCES CALL FOR PAPERS FOR 1997 SYMPOSIUM

Alexandria, Virginia - ACAA will host the 12th International Symposium on Management and Use of Coal Combustion Byproducts (CCBs), January 26-30, 1997, at the Buena Vista Palace in Orlando, Florida. The first announcement and call for papers has been issued and ACAA has received several inquiries and suggestions for paper topics to date.

"Innovation For a Sustainable Future" will be the theme of the 12th International Symposium and ACAA is projecting an increase in the number of exhibitors and attendees for the event. ACAA expects to have some 100 technical papers plus exhibitors and various other events and activities. Attendance at the symposium is expected to exceed 400 people from over 30 countries. For a copy of "Innovation for a Sustainable

Future" Announcement & Call for Papers, please contact ACAA's Communications Coordinator, Gregg Deinhart.

ACAA ATTENDS SUPERFUND CONFERENCE IN WASHINGTON, DC

ACAA participated in Superfund XVI, the largest national environmental exhibition and conference focusing on hazardous waste management issues and technologies.

The conference was held November 6-8, 1995, in Washington, DC. ACAA's Technical Director, Tom Blackstock, and Communications Coordinator, Gregg Deinhart represented ACAA members at one of the over 400 booths that exhibited. Superfund XVI attracted over 5,500 industry and public health professionals, and public and private environmental policy makers from around the world.

Superfund XVI highlighted the international importance of hazardous waste management plus important domestic issues involving government agencies including, US Environmental Protection Agency, Department of Energy and Department of Defense. To keep up with the growth that Superfund has experienced, the 1996 event will

be held at the Washington Convention Center. Superfund XVII will be held October 15-17, 1996, in Washington, DC.

ECOBA MEETING

ACAA's Chairman Andy Stewart and Executive Director Sam Tyson attended the fall meeting of the European Association for Use of the Byproducts of Coal-Fired Power Stations (ECOBA) during November 23-24, 1995 in Madrid, Spain. ACAA's relationship with ECOBA enhances the exchange of technical information on CCB use, brings papers and attendees to ACAA's international symposium and provides an opportunity for international membership recruitment.

The Madrid meeting was hosted by Unidad Electrica, S.A. (UNESA), the association of the Spanish Electricity supply industry. UNESA's membership is made up of fourteen electric utilities, eight of which produce CCBs from coal-fired power plants. UNESA utilities produced some 10 million tons of CCBs in 1994 from the combustion of approximately 40 million tons of coal.

The use of CCBs in Spain is based on available cement and concrete markets, similar in proportion to those markets in the USA. However, in Spain as much as 48 percent of CCBs are

used in structural fill and land reclamation projects, thereby making the overall utilization rate quite high at about 73 percent. The significant factor then in higher rates of use in Spain is not CCB quality but the acceptance of CCB use for high-volume applications in close proximity to the production plant. A detailed report on CCB production and use in Spain is available on request to ACAA members from ACAA.

ACAA ATTENDS KENTUCKY ASH UTILIZATION SYMPOSIUM

Recently, ACAA participated in the 1995 International Ash Utilization Symposium, October 23-25, 1995, sponsored by the Center for Applied Energy Research, University of Kentucky and the Journal FUEL. ACAA Executive Director, Sam Tyson, made a presentation at the Plenary Session, attended by some 300 people. Gregg Deinhart, ACAA Communications Coordinator, attended and manned the exhibit during the meeting, which was held at the Hyatt Regency in Lexington, KY. ACAA Director of Technical Services, Tom Blackstock, chaired a technical session on Concrete and Flowable Fill and presented a paper on "*CCBs and the Concrete Industry*".

FHWA DOCUMENT IS ON THE PRESS

ACAA Communications Coordinator Gregg Deinhart met with FHWA graphic design sub-contractors in October to finalize the FHWA *Fly Ash Facts For Highway Engineers* document.

Currently, the document is at the Government Printing Office, located in Washington, DC. According to FHWA, the publication will be ready for distribution in mid January 1996.

ACAA REPRESENTED AT NEBRASKA CONFERENCE

L. E. (Tex) Leber, president of Nebraska Ash Company, represented ACAA at the Alternative Building Materials Use: A Technical Approach conference on November 15-16, 1995 at the Ramada Hotel Central in Omaha, NE. The conference was sponsored by a number of organizations including the Nebraska chapters of the American Institute of Architects and the American Public Works Association. The conference included presentations on construction applications of recycled materials. Leber's presentation "Case Study: Coal Ash in Concrete Mixtures" discussed the use of coal fly ash in

concrete.

ACAA ATTENDS NATIONAL RECYCLING COALITION CONFERENCE

ACAA represented members at the National Recycling Coalition's 14th Annual Congress and Exposition, September 11-13, 1995 in Kansas City, MO. Newly appointed Communications Coordinator Gregg Deinhart manned ACAA's booth and was joined by ACAA Executive Director, Sam Tyson. The theme of the convention, "Come Full Circle" attracted an estimated 2,000 attendees and is one of the largest events of its kind in North America. The three day event had 50 sessions on various recycling applications and included sessions on international recycling efforts. Many of the people who visited ACAA's booth expressed their concerns about the wide variance in state regulations governing the use of CCBs while others were learning about CCBs for the first time. Many visitors were impressed by the percentage of CCBs that were recycled. As recycling issues gain more momentum in the political arena and the public awareness, ACAA members will find the recycling aspect of CCBs to be a more significant marketing tool. The National Recycling Coalition will hold the

15th Annual Congress and Exposition, September 16-18, 1996 in Pittsburgh, PA.

FLOWABLE FILL DOWN TO EARTH

The August 1995 issue of Down to Earth, a monthly magazine, had a two-page article entitled *Flowable Backfill: Key to Good Performance*. The article outlined a step-by-step process for the placement of flowable fill, detailed a family of curves for mix designs using Class C fly ash and discussed the thermal conductivity properties of flowable fill. For more information about the article, contact the co-authors; Dr. Marvin Smith of Oklahoma State University (405-744-5711) and Dr. Chuck Raymund of South Dakota State University (605-542-5381). For more information on the use of fly ash in flowable fill, see the article in this newsletter on ACAA's recent 9-minute video, *Coal Fly Ash - The Key to Quality Flowable Fill*.

ACAA EXHIBITS AT POWER-GEN '95

ACAA's Communications Coordinator Gregg Deinhart, Director of Technical Services Tom Blackstock and Executive Director Sam Tyson represented ACAA at Power-Gen Americas '95, the 8th International Conference and Exhibition for the power generating industry. The conference and exhibition

were held December 5-7, 1995 in Anaheim, CA. Power-Gen is the world's largest and most comprehensive conference and exhibition for the electric power industry and is a showcase for virtually every supplier of equipment and services.

This meeting of Power-Gen attracted some 750 exhibitors along with more than 150 authors who presented papers in technical sessions. The estimated 11,000 attendees at this meeting made it a success; but, perhaps as a sign of the changing electric utility environment, that number was short of projected attendance figures and only 70% of record attendance levels achieved in the two preceding years.

ACAA's exhibit focused on ACAA's role as the only national organization dedicated to advancing the management and use of CCBs on behalf of the entire "CCB industry" in ways that are technically sound, commercially competitive and environmentally safe.

Due to the size and representative attendance, participation in the Power-Gen exhibition is an effective part of ACAA's communication and marketing program and a vital activity within its membership recruitment program. Also, as a service to ACAA members, the titles of published papers from the Power-Gen conference are available from ACAA for review on request.

ACAA MEETS WITH WESTERN REGION COAL ASH GROUP

ACAA members and staff met with the Western Region Coal Ash Group in Anaheim, CA on Friday morning, December 8, 1995. Formerly known as the Region 8 Coal Ash Group, the Western Region Coal Ash Group addresses the common interests of its members in CCB management and use. The 15-state region targeted by the group includes: AK, AZ, CA, CO, HI, ID, ND, NM, NV, MT, OR, SD, UT, WA and WY.

The western group currently has seventeen members and is incorporated in the state of Montana.

Due to the diverse nature of the group and its potential membership, another winter meeting of the Western Region Coal Ash Group will be held during the week of January 17-21, 1996 in Las Vegas, NV in conjunction with the World of Concrete '96 Seminars and Exposition.

ACAA PUBLISHES 1994 CCB PRODUCTION AND USE SURVEY

ACAA recently published the results of the 1994 CCB Production and Use Survey. ACAA surveys some 100 utilities throughout the US and gathers data on the production

of fly ash, bottom ash, boiler slag, and flue gas desulfurization material. The survey also includes a breakdown of the market uses of CCBs, including cement and concrete products, road base and subbase, structural fills, flowable fills and others. The use of CCBs, at twenty-four percent of production for 1994, increased slightly from the 1993 survey when use was reported at twenty-two percent. The complete survey, including a breakdown of ponded versus dry and moisture conditioned storage, is available from ACAA.

MEMBER NEWS

--ACAA member American Electric Power Service Corporation (AEPSC), in cooperation with the Ohio Department of Transportation, supplied fly ash for the I-70 and I-77 projects. Due to void mine subsidence, sections of the highway were collapsing. The I-70 and I-77 projects were completed with just under 80,000 tons of fly ash used collectively. The ash was reclaimed from ponds and after some initial difficulties, the fly ash proved to be effective.

AEPSC is also continuing work on the Rehoboth mine reclamation project using flue-gas desulfurization (FGD) material to help neutralize and reclaim land left barren by coal

NEW ACAA PUBLICATIONS

ACAA has recently added the following publications:

- *Coal Combustion Byproduct (CCB) Production & Use: 1966 - 1993 -- Report for Coal-Burning Electric Utilities in the United States*, ACAA, March 1995.
- *Sulfate Resistance of Fly Ash Concrete: An Overview of Selected Publications*, ACAA, March 1995.
- *Solidification and Stabilization of Wastes Using Coal Fly Ash: Current Status and Direction*, ACAA, April 1995.
- *State Solid Waste Regulations Governing the Use of Coal Combustion Byproducts (CCBs)*, ACAA, April 1995.
- *Use of Fly Ash to Improve Concrete Durability by Reducing Permeability*, ACAA, May 1995.
- *1994 Coal Combustion Byproduct (CCB) Production & Use*, ACAA, December 1995.

mining. The initial testing site, a one-acre section of the 200-acre site, has proven to be quite successful. An AEPSC source said of the test plot, "You have a very unattractive 200-acre site with one green acre growing right in the middle of it." The project is being undertaken by AEPSC in conjunction with several Ohio state agencies and universities and may soon progress to a five-acre pilot stage to test rainwater runoff and neutralization. If that proves successful, the entire area would be targeted for a 10-year program that would utilize as much as two million tons of FGD material. Both projects have received positive press to date.

--An article entitled *Cenospheres Seen to be Durable, Available & Recyclable* appeared in the November 1995 issue of Functional Filler News. Tracy Wandell, president of Sphere Services, a member of ACAA, was quoted throughout the article that explained the origin and basic uses of cenospheres and outlined the potential future for the product. According to the article, cenospheres are currently being used as fillers for a wide range of products, including anti-radar detection coatings and bowling balls. Following the interview for the article, Wandell presented his paper, *What in the World is a Cenosphere?*, at the 1995 fall meeting of the American Ceramic Society - Southwest

Section in Arlington, Texas.

If you have a news article to submit to Ash at Work, send it to us at:

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ACAA Meeting Calendar January - February 1996

Jan 7
Conference on Waste and
Recycled Materials in
Transportation Infrastructure
Sheraton Washington Hotel
Washington, DC

Jan 7-11
75th Annual Transportation
Research Board

Meeting
Sheraton Washington Hotel
Washington, DC

January 15-17
ACAA Annual Meeting,
Board of Directors Meeting,
Standing Committee Meetings
and Workshop
Sheraton West Palm Beach
Hotel
West Palm Beach, FL

Feb 4-5
National Association of County
Engineers
Westin Hotel
Seattle, WA

Feb 4-8
Construction and Engineering
for Sustainable
Development in the 21st
Century
Civil Engineering Research
Foundation
Sheraton Washington Hotel
Washington, DC

Feb 22
Concrete Workshop
University of Wisconsin at
Milwaukee
Green Bay, WI

Feb 27-28
International Clean Coal
Technology Symposium
Center for Coal Utilization,
Japan (CCUJ); and
New Energy and Industrial
Technology Development
Organization (NEDO)
Keidanren Kaikan
Tokyo, Japan