


# ASH AT WORK

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## 26 U.S. Delegates At Ash Confab In London

LONDON, England — Twenty-six representatives of the ash industry in the United States were among delegates from twenty-three countries attending the AshTech '84—Second International Conference on Ash Technology and Marketing held here on September 16-21.

The enrollees included NAA Chairman James P. Plumb and President Tobias Anthony, both of whom participated in the proceedings as session chairmen.

Other U.S. moderators included Gerry Gordon of Monier Resources, Ms. Penny Hansen of U.S. Environmental Protection Agency, and Carl Raba, Jr. of Raba-Kistner Consultants, Inc.

WASHINGTON — NAA President Tobias Anthony has presented a "white paper" to initiate a meeting of representatives from all of the European Continent countries in Orlando next March to develop an international policy that will ensure the utilization of coal by-products in a cost-effective and environmentally sound manner. (A resume of that report is found on Page 2 in the NAA Message Board.)

Fifteen of those in attendance presented technical papers at the conference on a variety of subjects ranging from topics on "Whatever Happened to Fly Ash Brick," "Fly Ash in Soil Stabilization," "Fly Ash Quality Control," to "Co-Utilization of Pulverized Coal Ash & Flue Gas Scrubber Sludge."

Ms. Hansen presented a paper entitled, "Coal Fired Utility Wastes," in which the EPA representative focused attention on the agency's evaluation of numerous studies on the effect of these large volume wastes on the environment.

Her summary made the following conclusions:

1. Although utility wastes typically contain metals of concern, these are not found in concentrations high enough to cause the wastes to fail EPA's test for metal's toxicity;

2. Utility waste disposal sites may con-

(See 26 [Page 3])

## Symposium Papers To Be Pre-Printed

WASHINGTON — Attendees at the Seventh International Ash Utilization Symposium/Exposition will be provided printed copies of the technical presentations upon registration at the event to be held in Orlando on March 4-7, 1985.

NAA President Tobias Anthony disclosed that this will mark the first time this has been attempted and is being made possible through the cooperative efforts of the Department of Energy and the Government Printing Office.

In the past only abstracts of the papers were available at registration and the proceedings were published at the conclusion of the symposium.

Anthony emphasized; it is imperative that the presentors submit their copy-ready material to Meeting Planning Associates in Palo Alto, CA by the December 1 deadline.

"The timing is so critical that papers that have not been received by December 1 simply will not be included in the printed document," he added.

The NAA official also released preliminary plans for spouse activities during the four-day symposium. The events include a cooking demonstration by the award-winning chef at the Sheraton Twin-Towers, a tour of the Kennedy Space Center, a behind-the-scenes visit to Sea World, a day at DisneyWorld and Epcot Center, and a visit to Tupperware's international headquarters and museum. (See enclosed brochure for further details.)

"Insights to Ash Sites" is the theme for the Symposium and eighty-five papers depicting the latest in ash technology have been accepted for presentation. In selection of subjects, special emphasis was given to case history ash application topics.

Registrations are now being received at the NAA offices in Washington. By signing up before January 14, enrollees will save \$50 in registration fees. Early bird cost has been set at \$340 while late registrants will be assessed \$390.

## 500,000 View NAA Ash Exhibit At Smithsonian

WASHINGTON — An estimated one-half million people viewed the exhibit of the National Ash Association during American Energy Awareness Week in mid-October here at the Smithsonian Air and Space Museum.

President Tobias Anthony noted the exhibit featured over-sized lighted color transparencies telling the story of coal ash production and utilization.

It was supplemented by a continuous running two-minute television report on Baltimore Gas & Electric's Brandon Woods Industrial Park being developed through a fly ash fill. The TV show was provided by Washington's MetroMedia station after it was aired on a regular news program earlier in the month.

NAA's exhibit, entitled "America's Undiscovered Resource," was one of twenty featured during the annual observance. Preparation of the exhibit was donated by BG&E.

A large copy panel in the center of the 10-foot wide structure summarized the coal ash story by saying:

- "700,000,000 tons of coal are burned every year by America's electric utility companies.

- 70,000,000 tons of COAL ASH are produced each year, adding to an existing inventory of 800,000,000 available tons of this important—and underutilized—national resource.

- COAL ASH is used in concrete, as a road base material, for land development, and in agriculture.

- Only stone, sand, and coal exceed the immediate availability of COAL ASH.

- And yet, current utilization of COAL (See Ash Exhibit, Page 3)

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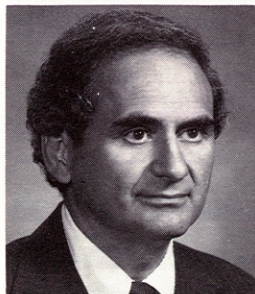


# ASH AT WORK

James P. Plumb, *Chairman of the Board*

Allan W. Babcock, *Editor*

Published quarterly by the National Ash Association, 1819 H Street, NW, Washington, DC 20006, for its members, their friends and supporters.



## NAA Message Board

Tobias Anthony  
*President*

I believe the timing is appropriate for the formulation of an international strategy designed to promote the utilization of power plant ash in an environmentally acceptable manner. The overall objective would be to establish a set of guidelines that would allow electric utility generators to chart a common approach to predictably move ash into applications which would be of value to society.

This goal needs to be addressed on an international stage because industrialized nations face a common set of problems. First, society is becoming increasingly hostile to industry conduct. Secondly, society seems to have lost faith in technological solutions to its problems. Scientific reasoning must now compete with metaphysical nostrums. Finally, serious political thought is being given to whether industrialization is best for future generations.

Although this set of problems may seem far afield of the relative mundane task of selling ash, there is an old adage in the United States which says, that to be a good salesman, "you gotta know the territory."

### The State of U.S. Political Affairs

In the post World War II period, there was a consensus that re-industrialization would be the only way to assure a widespread, high standard-of-living. And the key to modern, efficient industries would be inexpensive, electricity. Costs per kwh actually declined in the 1950's, as economies of scale were designed into huge power stations linked by a continental grid.

However, re-industrialization bred waste products unacceptable to society, first in part, and then on the whole. The original premise came into focus resulting in a gradual deterioration in the relationship between much of society and the captains of industry.

By 1980, the United States had become the first nation in history to pass comprehensive legislation intended to protect virtually every aspect of environmental quality. The total cost to the nation by 1981 was \$60 billion dollars. The industry price tag has been set at \$37.5 billion dollars. And yet, there is no end in sight. Thus, a utility's future ability to generate low cost power will be a political and not an engineering decision.

### The International Environmental Movement

The worldwide movement rises out of the despair many people fear for the future of the earth. The international movement is succeeding because proponents have convinced society, at least that segment between 20 and 35, that they will never fulfill their lives; and one way or another, their lives will end because of nuclear war or by some chemical disease.

The acid rain movement, international in nature, survives in spite of questionable and weak scientific evidence presented so far. It does so, not only because society distrusts industry, but because international activists are able to play fears in America against those in Canada, and against those in Europe. Scary, isn't it! Let us keep in mind as we proceed, how irrational chemical phobia can be.

### What About Ash Utilization?

So far, ash utilization has not been the focus of irrational policies and there are no Federal laws, yet, which constrain its use. But, it has the potential to be because:

- a. It is a mix of complex chemicals;
- b. It is disposed of in large quantities;
- c. When disposed, it has no value to society.

So, what we need is a rational, environmentally safe ash utilization program applicable to the United States, Canada, and Europe, and for that matter, around the globe.

## Coal Ash Remains 4th In Mineral Production

WASHINGTON — Power plant ash retained its position as the fourth most abundant mineral resource available in the United States, according to 1983 production figures prepared for the Minerals Yearbook by the U.S. Department of Interior.

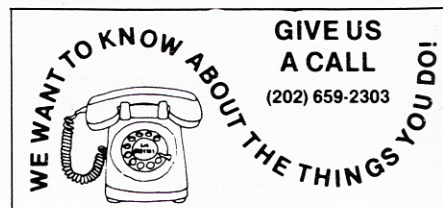
Coal, however, dropped out of the top position with stone climbing into first place with a total of 862.0 million tons. Department of Energy figures for coal (all types) listed the production at 782.9 million tons as compared to a total of 838.11 million in 1982. Sand and gravel remained in the third slot at 655.0 million tons.

Coal ash estimates, as developed by the National Ash Association, put the available material at 70.29 million tons marking the first time production exceeded the 70 million mark since 1979. However, during the same period overall ash utilization dipped to 12.81 million tons for a percent of 18.2 percent. Corresponding figures for 1982 were 13.55 million tons and a percentage of 20.7. Significant gains were registered in the use of fly ash in cement and concrete products reflecting the impact of Federal procurement guidelines in this area.

The figures kept the ash industry ahead of Portland cement whose production advanced to 67.2 million tons after dropping to a 10-year low of 61.1 million tons in 1982.

Other changes in the rankings saw iron ore jump from eighth to sixth position ahead of salt and phosphate rock. Despite a decline in the steel industry, iron ore production was set at 44.29 million tons representing a healthy increase over the record low of 1982 of only 35.35 million tons. Phosphate rock remained in seventh position at 42.6 million tons whereas salt production dropped to the eighth slot with only 34.7 million tons being mined.

Lime and gypsum rounded out the reported data at 14.9 and 12.9 million tons, respectively. Both, however, achieved slight increases.



## OVEC Station Site Of New Reed Slag Plant

GALLIPOLIS, OH — A new plant to manufacture roofing granules and blasting grit from wet bottom boiler slag produced at the Kyger Creek Station of the Ohio Valley Electric Corporation is targeted to go on stream November 19.

President Jack Dietrich of the Reed Minerals Division of Harsco Corporation said the firm had been washing and screening the slag in preparation for the start-up date. The OVEC facility is one of fourteen Reed plants serving the electric utility industry.

The spokesman said one of the primary site location factors was the ability to obtain a favorable rail freight rate into southern and eastern market areas. President Dietrich credited Chessie System representatives in gaining a "southern destination rate so that for the first time we can be competitive with south-to-south shippers."

"We are sold out from start-up," Dietrich said, "and the future at OVEC looks good based on our experience thus far in the wet washing operations." The Reed Division annually processes about 1.8 million tons of boiler slag.

Formerly known as the H.B. Reed & Company, the company became an operating division of Harsco in January, 1984. Harsco is based in Camp Hill, PA and has a long association with the slag industry in the processing and marketing of blast furnace slag.

The marketing agreement at OVEC was negotiated by American Electric Power Service Corporation — one of thirteen utilities with an interest in the coal-burning generating station.

### ASH EXHIBIT

*(Continued from Page 1)*

ASH is less than 20%. Because not enough people know about it, or think about it. We wanted you to know."

Co-sponsoring the AEAW exhibit with the NAA was EEI's Utility Solid Waste Activities Group, with the support of BG&E, its Resource and Property Management subsidiary, and Channel 5 MetroMedia News, in Washington.

A reception attended by more than 300 Washington dignitaries and media representatives, co-sponsored by the Smithsonian Institution, National Ash Association, and Baltimore Gas & Electric Company launched American Energy Awareness Week this year.

NAA's exhibit is now crated and in storage, ready for shipment and display at other appropriate shows throughout the country. Contact Mr. Anthony for scheduling.

PITTSBURGH, PA — Consolidation Coal Co., through its research arm, Conoco Coal Research Division, announced they have successfully tested several limestone injection methods for reducing sulfur dioxide during coal combustion.

Researchers said a 50 percent reduction in SO<sub>2</sub> was achieved in the testing at a duPont plant in Martinsville, VA. High sulfur coal from Northern West Virginia was used in the demonstration.

NUCLA, CO — Colorado-Ute Electric Association's Nucla Station is being retrofitted with a new circulating fluidized bed combustion (CFBC) boiler that promises to reduce sulfur and nitrogen emissions and life extensions of older electric generating stations at modest costs.

Others participating in the \$86 million project Colorado-Ute are Peabody Coal Co., Electric Power Research Institute, and the National Rural Electric Cooperative Association.

WASHINGTON — EPA's Office of Water Program Operations has published final guidelines calling for the use of fly ash in the procurement of cement and concrete on Federally funded sewage treatment projects.

Director Henry L. Longest issued a memorandum to the ten regional Water Management Division Directors and designated State Water Pollution Control Agencies stating all construction specifications should allow for the use of fly ash concrete unless the use of ash can be determined inappropriate for technical reasons.

Section 11.1.22 of the EPA directive calls for compliance with the RCRA guidelines on 1985 construction grants.

CHARLESTON, WV — The Governor's Office of Economic and Community Development has issued a memorandum to all SCBG recipients appraising them of the new "Guidelines For Federal Procurement of Cement and Concrete Containing Fly Ash."

The directive states that the recipients must change construction, design, and material specifications which exclude or restrict concrete and cement that contains fly ash on purchases of \$10,000 or more.

The language further adds the grantees do not have to comply if the standards require performances that cannot be accomplished with fly ash concrete or cement or where its use is inappropriate for technical reasons.

Reference is made to the Federal

Register of January 28, 1983 (40 CFR 249) for clarification of the regulations.

RICHMOND, VA — The Virginia Electric & Power Co. is changing the name under which it does business with its customers in three states.

As of mid-January, the utility will use the names Virginia Power, North Carolina Power and West Virginia Power in dealing with customers.

MORGANTOWN, WV — West Virginia University has been selected as the site for a national University/Industry Fluidization and Fluid Particle Cooperative Research Center.

The National Science Foundation is providing an initial \$700,000 for the center. WVU is contributing \$150,000 annually for the first five years and seven industrial partners—Alcoa, duPont, ASIR, Arco Chemical Co., Sohio, Union Carbide and Monsanto—are to provide \$180,000 per year.

HERNDON, VA — The 65th Annual Convention of the National Concrete Masonry Convention will be held in conjunction with the 35th Concrete Industries Exposition at the Georgia World Congress Center in Atlanta, GA on February 3-6, 1985. Further details may be obtained by contacting the NCMA office at (703) 435-4900.

### 26 DELEGATES

*(Continued from Page 1)*

tribute to occasional exceedances of the Primary Drinking Water Standards and frequent exceedances of the Secondary Drinking Water Standards. Exceedances are low, generally one to ten times the standard.

3. At the six EPA study sites, no apparent correlation was found between observed groundwater impact and either the EPA test results or the management practices observed. Site specific factors such as soil chemistry and porosity, the presence or absence of geologic fractures, depth to and quality of groundwater, etc. appear to be the most decisive factors.

4. No generally used mitigative measures are so protective as to eliminate the need for groundwater monitoring to determine what is happening at any given site.

The EPA official also reported the feedback from the implementation of procurement guidelines for fly ash concrete "by the American cement and concrete industry that wished to market fly ash cement products has been most encouraging."

# HERE & THERE

# IOWA COAL LAND BEING RECLAIMED WITH CLASS C ASH

KIRKVILLE, Iowa — Class C Fly Ash is being successfully used to reclaim former strip-mined coal lands near here employing techniques and equipment not normally associated with such programs.

Lon Zimmerman of Midwest Fly Ash and Materials, Inc. also reports the site is the only locale in the state of Iowa that has been permitted exclusively for the disposal of fly ash and not situated on utility-owned property.

"During the four years of operation, the project has proceeded smoothly without complaint from local citizens or the regulatory governmental agencies," Zimmerman stated.

Midwest has total responsibility for the fly ash program under a permit issued by the Iowa Department of Environmental Quality in compliance with water, air and waste management guidelines. The firm is working for Iowa Southern Utilities Co. based in Centerville.

Close monitoring of ground water and fly ash quality are required under the permit. Four wells have been drilled at the site for ground water testing.

The project has two major objectives. First, it provides a depository for fly ash from the Ottumva Generating Station (OGS) near Chillicothe. And, secondly, it is rebuilding a portion of the 14,000 acres of unproductive land that was mined during the 1940's.

One of the keys to the success of the project has been the development of a bottom dump trailer to transport and spread the fly ash. The unique unit, designed by Midwest for the job, has enabled the firm to transport the ash to the job site in a dry state.

On land reclamation projects in the Eastern United States where bituminous fly ash has been used the material is delivered to the site in a conditioned state—meaning water has been added to the ash before leaving the generating station. The sub-bituminous coal burned at the OGS station, on the other hand, produces an ash that exhibits self-hardening characteristics when mixed with water. The bottom dump trailer, which allows the ash to flow directly onto the ground from the belly of the tanker, solved that problem.

Additionally, the tanker unloads by gravity feed rather than pneumatically as is the case with most dry bulk transports which minimizes the dust problem normally associated with such unloading procedures. (Photo No. 3)

Because of the nature of the ash, the reclamation procedures also vary from the norm. Zimmerman describes the process as follows:

- The deep crevices where the coal was removed (Photo No. 1) are filled to reduce

the gradation of the slopes, thus minimizing run-off and erosion potential.

- The run-off water from the mine site is captured in retention ponds, preventing the acid water (average pH 4) from getting into local streams. This improves the quality of the surface water immediately downstream of the site.

- The fly ash from the power station is unloaded on the haul road adjacent to the pond. An endloader pushes the ash into the pond (Photo No. 2) where it mixes or hydrates in the water and disperses to form a layer. Under water this layer begins to harden.

- The above process continues until a fly ash mantle is formed that is similar in make-up to the slate mantle that was broken up in order to mine the coal and resulted in the formation of the acid spoilbanks. When the mantle reaches proper thickness, the pond trench is extended and a new haul road prepared, and the process is repeated again and again.

- The hydrated ash deposit is then covered with two feet of soil from the strip-mined "gob" piles. This further reduces the gradation of the slopes and returns the land profile to near normal composure.

- Additional fly ash is then added to the surface of the reclaimed area and incorporated with the spoil (top 8 inches) to act as a liming agent. The fly ash has a calcium carbonate equivalent to about 50 percent that of agricultural lime available in the area. Fertilizer is then applied and a vegetative cover established to prevent erosion. Beginning this fall, part of the fertilizer requirement is being met by applying sewage sludge from the city of Ottumva at the rate two dry tons per acre.

"This will alleviate a waste disposal problem for Ottumva as well," Zimmerman added, "while improving the productivity of the decimated land."



**Land Profile Before Treatment** (Midwest Photo)



**Retention Holding Pond** (Midwest Photo)



**Pushing Ash into Pond** (Midwest Photo)

A portion of the acreage has been reclaimed by the Soil Conservation Service under its Rural Abandoned Mine Program (RAMP) and it is hoped the SCS will adopt the Midwest program as a model to complete the restoration of the remaining 3,500 acres of stripped land.



**Innovative Bottom Dump Tanker**

(Midwest Photo)