Bold 3-year Program Is Unveiled

WASHINGTON—The National Ash Association has unveiled a bold new three-year program designed to increase active membership and focus public attention on the many constructive uses of all forms of power plant ash.

Executive Director John H. Faber identified the project as a Technical Awareness Program on Ash Utilization. He added the educational promotion is contingent upon a minimum investment of $650,000 in each of the next three years.

The financial support is based on the expansion of the trade association’s membership. Eighty percent of needed funds, $520,000 annually, must come from the electric utility industry, Faber asserted. The balance of the operating revenue is to come from ash marketing organizations and the coal industry.

The major thrust of the program is to create a favorable public opinion on the beneficial application of these versatile coal by-products and compliment other utility industry efforts to obtain a practical set of disposal guidelines under the Resource Conservation Recovery Act (RCRA) of 1976.

“If the U.S. Environmental Protection agency does not modify presently drafted regulations, power plant ash could be declared a ‘hazardous waste,’” Director Faber stated.

“Such a label would not only dramatically increase disposal costs for ash,” he added, “but would remove an economic and environmentally sound aggregate from continued use by the construction industry.” The untimely action would also erase substantial energy savings resulting from many applications.

NAA President Ronald E. Morrison indicated the increased ash disposal costs will have the effect of adding 31 to 62 cents per million BTU’s to utility fuel.

Ash Marketers To Support New NAA “Awareness Program”

CHICAGO—The ash marketing group within the National Ash Association has indicated a willingness to provide upwards of $90,000 or about 15 percent of the budget for the association’s new Technical Awareness Program.

Co-chairmen Craig J. Cain, Robert J. Morrison, and Paul G. Viall Jr., report this support will be forthcoming “with no strings attached” providing the balance of needed funding is obtained from utility memberships.

A progress report on the restructuring of the NAA and the new three-year program has been mailed to the nation’s 28 major ash sales outlets. Some marketing companies have opted for a $15,000 membership ceiling on a per ton formula based on annual pozzolan or ash sales.

Proportionate non-utility board representation is currently being explored by the NAA’s executive committee in recognition of the renewed financial support.

“We have a common need for a strong representative association,” Cain asserted, “and I think we can be excited about the new program.”

Sales agencies, representing many non-member ash producing utilities, have agreed to assist in enlisting their participation in the trade association.

A contact program is also being developed to recruit support from allied interests including ash equipment manufacturers, cement producers, and the coal industry.

Morrison To Direct Association in ’80

An experienced ash technologist, Ronald E. Morrison of American Electric Power Service Corporation, is the new president of the National Ash Association. He succeeds James E. Davis of Allegheny Power System who held the post for three terms.

Located in Charleston, WV as head of AEP’s Ash Utilization and Research Section, the new proxy has been active in the NAA since its inception in 1968. Morrison directs the ash management program for the utility’s 17 coal-fired plants in seven states.

Other veterans elected at the association’s annual membership meeting were J. B. Bullock of Baltimore Gas & Electric Co., A. R. Stefanski of Niagara Mohawk Power Corp., Paul G. Viall Jr. of Penn Virginia Materials Co., vice presidents; and Constance Holmes of National Coal Association as Asst. Secretary-Treasurer.

In addition to the above named officers, the members of the Executive Committee include Neil M. Bevere of Ohio Edison Co., G. W. Bowdren of Public Service Electric & Gas Co., James Covel of Rochester Gas & Electric Corp., and L. J. O’Callaghan of Potomac Electric Power Co.

See MORRISON, Page 2)
Bold 3-year Program Unveiled

(Continued from Page 1)

bills representing more than 1 billion dollars per year.

The Technical Awareness Program was initiated by the sending of a hard-hitting invitation to the chief executive officer of all non-member utilities across the country asking their participation and support.

Additionally, a three-man task force is rounding up new help from ash marketing associates with a goal of $90,000 annually. This effort is being spearheaded by Robert Morrison, president of Western Ash Company; Craig J. Cain, president of American Admixtures; and Paul G. Viall Jr., executive vice president of Penn Virginia Materials Corp.

The balance, representing $40,000, will be sought from the coal industry and allied interests. No specific details of this contact program are available.

The project will augment the NAA’s continuing emphasis on ash utilization. This will be done largely by the establishment of a full-time Editorial Office with the responsibility for collecting, cataloguing, and disseminating data on all forms of coal ash and their technical application. This will also include SO₂ sludges.

A new support service for members will include in-house training programs on ash management and expanded advertising insertions in trade publications.

Already acknowledged for their expertise in the field of ash utilization, the NAA will direct a major investigation to scientifically rebuke the EPA’s contention that ash should be labeled a “hazardous waste.”

This phase of the program will be closely coordinated with the staff of Edison Electric Institute, the industry’s ad-hoc USWAG Committee, and various study groups within the American Society For Testing Materials (ASTM).

Also, the NAA will monitor the research programs of The Electric Power Research Institute to minimize further duplication in ash research. A closer liaison with EPRI will be solicited in these areas, President Morrison noted.

A budgetary breakdown of the proposed Technical Awareness Program is as follows:

### Technical Awareness Program

#### Budgetary Breakdown:

A. - Continue ongoing Washington-based association to address daily program needs, maintain liaison with allied industries, monitor regulatory agencies, and participate in development of technical specifications. Office staffing includes Executive Director, Technical Advisor to membership, and secretarial assistants. (See Attachment #2)

$200,000

B. - Three-year promotional program directed to ash producers, marketing outlets, engineers, consultants, consumers, legislators, and general public through news media and trade journals. (See Attachment #3)

- Advertising - Technical and institutional 100,000
- Data Development and technical presentations 15,000
- Newsletter - Monthly distribution. Circulation: 10,000 15,000
- Technical Bulletins - Case Histories on tested applications 10,000
- Printing - Position papers, brochures, technical literature, film clips, etc. 30,000
- Trade shows, seminars, short courses 20,000
- Postage 35,000
- Performance tests, product development, research contracts 60,000
- Rent and utilities 25,000
- Salaries and benefits - Technical Editor/Librarian, Technical Writer, office and clerical staff 100,000
- Travel - In-house liaison, promotion 25,000
- Contingency 15,000

$450,000

TOTAL ESTIMATED BUDGET $650,000

C. - Resource Areas

1. Electric Utility Industry - Ash Producers (80 percent of required budget) $520,000
2. Marketing and Allied Industry 90,000
3. Coal Industry 40,000

TOTAL REVENUE $650,000

Morrison To Direct

(Continued from Page 1)

John H. Faber, the association’s only executive director, was asked to continue in that post again under the new administration.

In accepting the role as president, Morrison issued a challenge to the ash producers and industry marketing agencies to re-affirm their support of the NAA and take an active role in expanding the membership base.

He also called for a restructuring of the trade association’s program to combat the possible negative impact of proposed Environmental Protection Agency guidelines covering solid waste disposal under the Resource Conservation Recovery Act (RCRA) of 1976. Power plant ash has been temporarily placed in a “special category” under a hazardous waste label.

The directors have also agreed to place the association on a calendar year basis for fiscal operations and raised the membership dues for Class “P” utilities to 2.25 mills per million tons of coal burned with a minimum fee of $2,500 and a maximum of $30,000 annually.

Morrison also reported steps are being taken to establish a closer liaison with the Edison Electric Institute, Electric Power Research Institute, and the utility industry’s ad-hoc USWAG on all matters related to ash utilization and research.
Houston Lighting & Power Says Ash Management Program Made Firm Commitment to Ash Management

By Al Babcock
Ash Consultant

THOMPSON, TX. — The early line was to the effect that the disposal of quick-set sub-bituminous ashes in an environmentally sound manner would be a costly and unproductive venture.

However, Houston Lighting & Power Company — one of the country’s newest exponents of coal-fired generation — firmly believed the best way to control their coal ash was as a liquid effluent.

And, now after almost a year’s experience, they are finding their ash management program is compatible with the environment. Additionally, the conditioned ash appears to have good market potential in the Houston area.

The Texas utility put their theory to practice at the W. A. Parish Station complex near here on the shores of Smithers Lake — a 2,500-acre reservoir supply cooling water to the huge facility.

... made firm commitment to ash management ...

The station has four gas-fired units and will have four fossil fuel units (2-660 MW and 2-600 MW). The first coal unit was placed in service in August of 1978, the second came on stream last December, the third is now under construction, and the fourth is in the final engineering stage prior to the start of construction. The first two units are designed to burn either coal or natural gas.

In planning the fuel transition, HL&P’s top executives made a firm commitment to adopt an ash management program and opted to contract out the responsibility for handling, disposal, and marketing of the coal by-products.

Fly Ash Tanker

Parish Ash Processing Plant

The reason? “Our people felt we had a good handle on the business of generating and distributing electricity, and would leave ash marketing and disposal to established experts in that field,” according to Purchasing Manager James P. Plumb.

Coal at Parish Station is currently being supplied by Kerr-McGee from the Jacob’s Ranch Mine in Wyoming. By 1981, the utility expects to be burning coal from Northern Montana due to a higher BTU content and a lower ash yield.

The station will have an ultimate production capability of about 350,000 tons of ash annually with an 80/20 split between fly ash and bottom ash. The station’s fly ash and storage facilities were designed by Allen-Sherman-Hoff, the bottom ash collecting system by United Conveyor Corporation, and the processing plant by Kern Engineering Company.

The marketing responsibility of the ash is being handled by Ash Management Systems, Inc. (AMS) of Atlanta, GA. Executive Vice President Lou Marcus is in charge of the firm’s Texas operation.

Plumb explains the utility is operating a mini-beneficiation program in the collection of fly ash. Actually, the fly ash is removed from the flue gases at different stages in the combustion process and each is transported by separate conveying systems to outside storage silos. The economizer or coarser ash is put in one storage unit while the finer particles from the electrostatic precipitators are placed into the other two silos. This is done to enhance marketing opportunities.

The ownership and responsibility for the ash passes to AMS at the ash silos or dewatering bins.

All the fly ash is removed in pneumatic tankers. The bottom ash is transported in open-bed dump trucks. Material not delivered to area customers is hauled some 2 1/2 miles to a disposal or stockpile area on station property.

While controls are much in evidence at the silo areas to minimize ash spills and dusting, the disposal and processing area was proudly characterized by Director Plumb as “HL&P’s answer to full compliance with all present environmental regulations.”

The fly ash is termed as being highly reactive due to the presence of 25-30 percent calcium reported as Calcium Oxide (CaO). The bottom ash has a sand-like appearance and a specific gravity of about 2.4.

Kern’s disposal technique calls for the pumping of the fly ash as a liquid effluent into a designated 80-acre pond separated by a 10-foot high dike from Smithers Lake.

The concept was not accidently conceived. The Chicago engineering firm and HL&P engineers eliminated dry disposal of the powdery particulate as being environmentally unacceptable.

Bottom Ash Silo
because of the uncontrolled dust that would be emitted by spreading or blowing off the ash from the tanker. Likewise, it is virtually impossible to move the flour-like ash in an open truck while in a dry state.

The highly reactive nature of the sub-bituminous ash precluded the movement of the ash as practiced by Eastern utilities with bituminous or anthracite ashes.

The firm’s recommendation is, in essence, a rather simple and yet an effective process. The ash is blown into a storage silo in a dry state, moved by a screw feeder into a slurry mixing chamber, and is then pumped into a holding pond. The result: a pollution free method of disposal.

![AMS Test Lab](image)

As back-up system, the discharge line to the pond has a Y-connection whereby the ash can be pumped directly into the gravity fed stream of water from the unit’s 20,000 gallon water storage tank using the truck’s power system. This makes the set-up almost fool-proof should an accident cut off electric service to the facility.

And more noteworthy, in an unscheduled test run for this writer only a slight trace of unslurred dust was noticeable at the end of the discharge pipe.

The holding pond has its own closed system in which all discharge water is reused. Fresh water is added, if needed due to evaporation, via a pumping system from Smithers Lake.

Has the ash contaminated the water? Well, the birds and animals living in the area don’t think so. The resident deer herd has been observed almost daily quenching their thirst in the marshy inlets at the outer edge of the pond.

The AMS processing facilities at the disposal area include a 160-ton storage silo which can accommodate two bulk tankers simultaneously, a baghouse to collect dust emissions during filling and draw down operations, a 12-inch screw feeder to move the ash from the silo into the mixing chamber, a mixer which utilizes the water injection turbulence to form a soupy slurry, a water storage tank, and a 75 hp pump to move the material through a four-inch discharge line to the holding pond at the rate of 70 to 90 tons per hour. The plastic discharge line is about 1,400 feet in length so its location can be rotated.

The bottom ash is being stockpiled nearby in a prepared area that was stabilized with Parish fly ash providing an all-weather surface.

"Before we stabilized the base we were pulling our tankers in and out of the processing area with a 977 Traxcavator," Marcuz related. This program has attracted the interest of the Texas Department of Highways and Public Transportation for use in highway applications, he related.

The method employed by AMS to treat the combination stockpile-parking area was to scarify the soil to a depth of 5-6 inches with the 977 bucket, inject the fly ash by a hose line from a bulk tanker, add moisture by means of a watering truck, and back-blading the area to achieve compaction. The resultant chemical reaction then achieved a final set to provide a hard impervious work surface.

The same procedure was followed in stabilizing the parking area surrounding the AMS office just opposite the fly ash silos at the station.

During our visit to the station it was noted that one of the on-site contractors had utilized the technique to stabilize its lay down and work area while another firm’s crews were still wallowing around in mud and ooze resulting from heavy spring rains.

Plumb related fly ash and water mixes have achieved 28-day strengths of about 1,000 psi. "This makes us very optimistic about the marketing potential for our ash," he added.

As a part of its ash management program, AMS samples each load of ash leaving the station.

"We have been in the ash marketing business long enough to know there is no substitute for quality control and quality assurance," Marcuz asserted.

The LOI on the Parish ash is averaging less than one percent (1%) and 75-85 percent passing the 325 mesh screen.

The handling facilities include 120,000 pound scales which are long enough to accommodate large tankers, and a siding is in place for loading rail cars. AMS is exploring the possibility of installing separate scales under each silo hopper to expedite truck loading.

At present AMS is marketing ash to local ready-mix dealers and soon hopes to finalize an agreement with an area cement producer to manufacture Type 1-P cement utilizing a 15-25 percent cement replacement formula.

...in harmony with nature...

The shopping list of potential applications in the Houston Area includes concrete pipe, panels, and other cement-based products; fixation of SO2 scrubber sludge and petro-chemical wastes, a quick-drying agent on construction sites, grout mixes, and in highway construction.

The fact that environmental concerns are paramount with all levels of management at HL&P is reflected in the modern and efficient ash systems that have been installed at Parish Station. Profitability for man, in harmony with nature, is evidenced on the shores of Smithers Lake.
Higher Type Use Of Ash Is Noted

Ash utilization figures for 1978 reflected a higher type use of fly ash with continuing advances in the pozzolan market, according to NAA Director John H. Faber.

Applications in this category zoomed to 2.1 million tons representing an increase of 26 percent over 1977. In fact, the use of ash for the partial replacement of cement in concrete and concrete products has more than doubled in the last two years.

The pozzolan totals in 1977 were reported as 1.375 million tons and 912,000 tons in 1976—the first time these estimates were calculated.

The ash industry spokesman attributed the increase to three major factors: (1) energy savings, (2) advances in cement and ash technology, and (3) cement shortages, particularly in the Southwest and Far West.

Data compiled by the NAA and Edison Electric Institute for the 12-month period also indicated new collection and utilization peaks were reached. Production was pegged at 68.1 million tons while overall usage totaled 18.4 million tons representing 24.1 percent of the available materials. Collections included 48.3 million in fly ash, 14.7 million in bottom ash, and 5.1 million in boiler slag.

The fuel type production of ash is shown in the following comparisons:

<table>
<thead>
<tr>
<th>Collection Utilization Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bituminous 56.0M 13.7M 25%</td>
</tr>
<tr>
<td>Sub-bituminous 8.5M 2.1M 25%</td>
</tr>
<tr>
<td>Lignite 3.6M 0.6M 17%</td>
</tr>
</tbody>
</table>

The use of fly ash jumped 1.9 million tons last year to 8.4 million and bottom ash was up about 400,000 tons to 5 million tons. The figures on boiler slag remained almost constant at 3 million tons.

Percentage-wise the utilization of these coal by-products inched toward the 25 percent mark with the actual total being set at 24.1 percent. The fly ash figure climbed 4.5 percent to an all-time high of 17.5 percent while the bottom ash and boiler slag totals remained about the same at 34.0% and 58.8%, respectively.

Only slight increases are expected by years end, but if the Congress implements an energy program geared to the greater use of coal the totals could make significant gains in the next decade.

ASH COLLECTION & UTILIZATION 1978

<table>
<thead>
<tr>
<th></th>
<th>Fly Ash</th>
<th>Bottom Ash</th>
<th>Boiler Slag</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Million Tons)</td>
<td>Tons x 10^6</td>
<td>Tons x 10^6</td>
<td>Tons x 10^6</td>
</tr>
<tr>
<td>1. TOTAL ASH COLLECTED</td>
<td>48.3</td>
<td>14.7</td>
<td>5.1</td>
</tr>
<tr>
<td>2. ASH UTILIZED</td>
<td>8.4</td>
<td>5.0</td>
<td>3.0</td>
</tr>
<tr>
<td>3. UTILIZATION PERCENTAGE</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. COMMERCIAL UTILIZATION</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>a. Mixed with raw cement clinker</td>
<td>4</td>
<td>—</td>
<td>3</td>
</tr>
<tr>
<td>b. Mixed with cement clinker or mixed with cement (Type 1-P cement)</td>
<td>4</td>
<td>3</td>
<td>—</td>
</tr>
<tr>
<td>c. Partial replacement of cement in concrete and blocks</td>
<td>24</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>d. Lightweight aggregate</td>
<td>3</td>
<td>3</td>
<td>—</td>
</tr>
<tr>
<td>e. Fill material for roads, construction sites, land reclamation, ecology dikes, etc.</td>
<td>11</td>
<td>21</td>
<td>—</td>
</tr>
<tr>
<td>f. Stabilizer for road bases, parking areas, etc.</td>
<td>3</td>
<td>5</td>
<td>2</td>
</tr>
<tr>
<td>g. Filler in asphalt mix</td>
<td>—</td>
<td>22</td>
<td>15</td>
</tr>
<tr>
<td>h. Ice control</td>
<td>—</td>
<td>—</td>
<td>45</td>
</tr>
<tr>
<td>i. Blast grit and roofing granules</td>
<td>4</td>
<td>10</td>
<td>19</td>
</tr>
<tr>
<td>j. Miscellaneous</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>B. ASH REMOVED FROM PLANT SITES AT NO COST TO UTILITY</td>
<td>8</td>
<td>17</td>
<td>4</td>
</tr>
<tr>
<td>C. ASH UTILIZED FROM DISPOSAL SITES AFTER DISPOSAL COSTS</td>
<td>29</td>
<td>19</td>
<td>—</td>
</tr>
<tr>
<td>100</td>
<td>100</td>
<td>100</td>
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COMPARATIVE RESULTS

<table>
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<tr>
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<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td>Fly Ash</td>
<td>17.1</td>
<td>42.3</td>
<td>42.8</td>
<td>48.5</td>
<td>48.3</td>
</tr>
<tr>
<td>Bottom Ash</td>
<td>8.1</td>
<td>13.1</td>
<td>14.3</td>
<td>14.1</td>
<td>14.7</td>
</tr>
<tr>
<td>Boiler Slag</td>
<td>4.6</td>
<td>4.8</td>
<td>5.2</td>
<td>5.1</td>
<td>5.1</td>
</tr>
<tr>
<td>TOTAL ASH COLLECTED—TONS x 10^6</td>
<td>25.2</td>
<td>60.0</td>
<td>61.9</td>
<td>67.8</td>
<td>68.1</td>
</tr>
</tbody>
</table>

Ash Utilized

<table>
<thead>
<tr>
<th></th>
<th>Tons x 10^6</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fly Ash</td>
<td>1.4</td>
</tr>
<tr>
<td>Bottom Ash</td>
<td>1.7</td>
</tr>
<tr>
<td>Boiler Slag</td>
<td>1.8</td>
</tr>
<tr>
<td>TOTAL ASH UTILIZED—TONS x 10^6</td>
<td>3.1</td>
</tr>
<tr>
<td>9.8 12.4 14.0 16.4</td>
<td>8.4 5.0 3.0</td>
</tr>
</tbody>
</table>

Percent of Ash Utilized

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>% Fly Ash</td>
<td>7.9</td>
</tr>
<tr>
<td>% Bottom Ash</td>
<td>21.0</td>
</tr>
<tr>
<td>% Boiler Slag</td>
<td>40.0</td>
</tr>
<tr>
<td>PERCENT OF TOTAL ASH UTILIZED</td>
<td>12.1</td>
</tr>
<tr>
<td>16.4 20.0 20.7 24.1</td>
<td>17.4 34.0</td>
</tr>
</tbody>
</table>

*First year that data was taken
**1967-1974 data omitted from tabulation because of space limitation.

ASH DISPOSAL DATA

1. 49% of the ash is trucked to the disposal area and 51% is sluiced.
2. 40% of the fly ash and bottom ash is separated before disposal and 60% is disposed of together.
3. 65% of the power plants have dry collecting and loading facilities for fly ash.

Compiled by the National Ash Association and Edison Electric Institute.
Findley Asks For Study On “Degree of Hazard”

WASHINGTON (June 28, 1979)—“If fly ash and slag are classified as hazardous wastes it will discourage or eliminate their reuse,” Congressman Paul Findley (R-III.) remarked in introducing legislation to promote the recycling of such combustion by-products generated from the burning of coal and other fossil fuels.

Findley’s action was necessary because of regulations proposed by the U.S. Environmental Protection Agency which will discourage the reuse of these by-products even though a flourishing industry now exists reclaiming these materials.

“My bill calls for suspension of additional regulations pending a detailed study by EPA of the degree of hazard—if any—posed by these materials, the adequacy of present disposal methods, and current and potential reuse,” Findley said. “Upon completion of the study, the Administrator would conduct hearings to determine whether any regulations are necessary.

“EPA is misguided in trying to regulate these by-products in the same manner as those wastes that undeniably pose an immediate and substantial danger to the health and safety of people and the environment. In the public interest it should abandon its plan,” he concluded.

The Illinois Republican, who represents some of the largest coal mines in the country, noted that “EPA’s decision to consider these relatively harmless by-products as a special hazardous waste subject to stringent regulation will only hasten the complete decline of the coal mining industry in the United States. Nationwide, 13,000 coal miners have already been laid off in an industry which the President has called upon to double its annual output by 1985. These EPA regulations could very well lead to the layoff of thousands more.

“EPA admits it lacks information on the degree of hazard, if any, posed by these wastes, and acknowledges that any potential hazards are relatively low. Yet EPA’s regulations proposed for these fossil fuel by-products would add $1 billion over a three year period to the cost of producing electricity, costs which will be passed along to consumers.

BIG JOHN SAYS:

The answer to the sound environmental management of all coal by-products is not in the courts but in the enactment of practical, realistic, and attainable guidelines.

Get The Facts . . . Join the N.A.A.!