


# ASH AT WORK

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## Davis Named To Third Term As NAA President



Photo: Courtesy Concrete Products  
President Davis (left) and Director Faber (right) Chart Future of NAA.

WASHINGTON, DC.—James E. Davis, Vice President-Operations for Allegheny Power Service Corporation, was elected to an unprecedented third term as president of the National Ash Association here on April 5.

An entire new supporting cast was chosen by the NAA directors to serve with President Davis during the organization's 10th year of operation.

These officers included Ronald E. Morrison, Ash Research, Sales, and Development Engineer, American Electric Power Service Corporation; A. R. Stefanski, Manager of Generation Improvement Projects, Niagara Mohawk Power Corporation; Paul G. Viall Jr., Executive Vice President, Penn-Virginia Materials Corporation as vice presidents; and Mrs. Connie Holmes, Director, Economics, Planning and Foreign Trade, National Coal Association as Assistant Secretary-Treasurer.

John H. Faber, who has headed the association since its formation in 1968, was continued in the post of Executive Vice President to direct the day-to-day operation of the NAA.

The make-up of the Executive Committee for 1978-79 will include Messrs. Davis, Morrison, Stefanski, Viall, Mrs. Holmes, A. R. Beavers of Houston Lighting & Power Company, Neil M. Bever of Ohio Edison Company, L. J. O'Callaghan of Potomac Electric Power Company, G. W. Bowdren of Public Service Electric & Gas Company, and J. N. Covey of Rochester Gas & Electric Corporation.

The NAA's annual meeting closed out an active career for former President D. E. Woolridge. He recently retired as vice president of Ohio Edison Company. Woolridge was replaced by Mr. Bever, Director of Production Fuel, as the utility's representative to the association.

(See DAVIS NAMED on Page 2)

## Topics Set In Ash Short Course

MORGANTOWN, WV.—A tentative mini-agenda has been set for the second Ash Short Course to be held at West Virginia University on August 13-16, according to Program Coordinator Roger K. Seals.

The program will specifically cover the use of power plant ash in structural fills and embankments with in-depth presentations on materials, analysis, design, construction, and environmental principles.

Dr. Seals noted the opening session will focus on fundamental relations, index properties, compaction, performance characteristics, and chemical/environmental concerns.

(See TOPICS on Page 4)

## Texas Ash Conference Set For Sept. 25-27

COLLEGE STATION, TX.—The Texas Transportation Institute will host a three-day Ash Management Conference here on the campus of Texas A & M University on September 25-27. Attendance will be limited to 150 persons.

Program Coordinator William Ledbetter said the workshop goals are to provide a forum to address current ash management issues and to explore new techniques and technologies.

Objectives of the six session conference will be to identify and describe the impact of present practices, incentives, and impediments relating to ash handling and utilization.

Ledbetter identified the session topics as (1) Overview of Ash Availability and Utilization, (2) Economics of Ash Utilization, (3) Ash in Portland Cement Products, (4) Ash in Structural Fills and Stabilized Soils, and (5) Ash Disposal - Problems and Solutions.

A final subject will be a luncheon presentation on "Fly Ash As A Hazardous Material," he added.

(See TEXAS on Page 4)

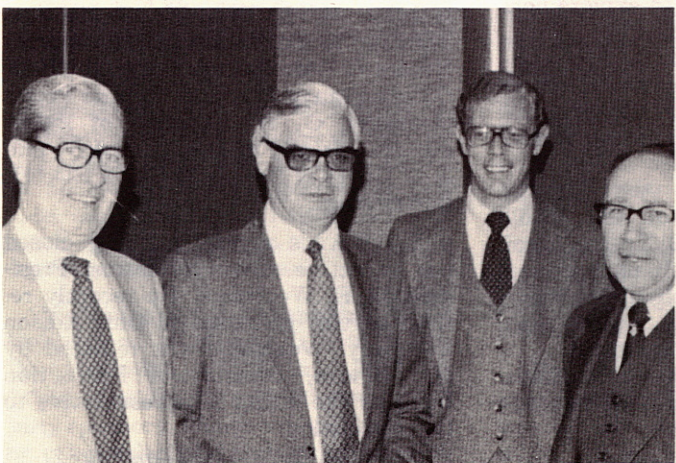
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## Davis Named. . .

(Continued from Page 1)

Director Faber said two in-house committees will be active in the coming months to shape new policy recommendations to make the association more responsive to the needs of the industry.



### PAST PRESIDENTS

Since its inception in 1968, the NAA has had six presidents. They were:

1968-1969 - **John Tillinghast**,  
1969-1970 *American Electric Power*  
1970-1971 - **Charles Waugman**,  
*Tenn. Valley Authority*  
1971-1972 - **James N. Covey**,  
1972-1973 *Rochester Gas & Elec. Co.*  
1973-1974 - **D. E. Woolridge, Jr.**,  
1974-1975 *Ohio Edison Co.*  
1975-1976 - **Louis R. Tomey**,  
*Union Electric Co.*  
1976-1977  
1977-1978 - **James E. Davis**,  
1978-1979 *Allegheny Power System*

The first, headed by Vice President Stefanski, is looking at program, staff, and budgeting. Initial emphasis will focus on program evaluation.

Vice President Morrison's committee is studying membership and management liaison. Getting top utility executives more involved in NAA projects through improved communications is the major objective. Matters pertaining to the environment are to receive priority attention.

In other action non-voting memberships were accorded to Wescon Products Ltd. of New Westminster, B.C. and Engineers Testing Laboratories, Inc. of Phoenix, AZ.

### Personal Profile

#### Dr. E. J. Barenburg

Dr. E. J. Barenburg, professor of Civil Engineering at the University of Illinois, is the nation's foremost authority on lime-fly ash-aggregate materials.

One of his major research programs was the development of criteria and design procedures for pavements with a lime-fly ash-aggregate basemix. A published report on this work is one of the most requested items on the NAA list of available publications.

The 49-year-old engineer is presently supervisor of the University's Transportation Research Laboratory and Pavement Test Laboratory in addition to his teaching responsibilities on the Urbana campus.



Dr. Barenburg has authored more than 30 technical papers and reports in the area of paving materials and pavements and has served as a professional consultant to the ash industry as well as State and Federal agencies on pavement related problems. His latter work has involved airport construction as well as highway design.

He has worked as an engineer in the construction industry with actual field experience in road building. Dr. Barenburg received his B.S. degree from Kansas State University in 1953, an M.S. from the University of Kansas in 1958, and a Ph.D. from the University of Illinois in 1965. He actually joined the Illinois staff in 1960 as a Research Assistant in Civil Engineering.

The noted author and speaker has also served as principal investigator for many FAA, FHWA and Corps of Engineers' projects dealing with pavement evaluating, pavement analysis, and pavement materials for all types of pavement systems.

In 1973, he served as the NAA consultant on a lime-fly ash-soil aggregate mixture road project in Linn County, Iowa.

**NAA MEETING—**  
Shown in candid photos taken at the recent NAA annual meeting were: (1) J. B. Bullock (l) and VP Stefanski (r); (2) Director Faber; (3) Connie Holmes (l) and Neil Revere (r); (4) (left to right) Dick O'Heir, Tee Morgan, VP Viall, and Craig Cain.

# Arizona DOT Uses Ash In Soil Stabilization Test Project

DEWEY, AZ.—Fly ash has been applied on a 3,500 foot section of State Route 169 in a soil stabilization experiment by the Arizona Department of Transportation.

The test section was identified as a connecting highway linking the community with Interstate 17. Work on this phase of the project was completed last August and the road was opened to traffic in early November, 1977.

The road base was constructed on a previously prepared subgrade which was basically a silty-sand and gravel. The subgrade and the borrow, where required, was predominately decomposed granite.

Fly ash used on the project came from the Navajo Power Station at Page located in northern Arizona and was mixed with quicklime to stabilize the subgrade on the project.

Principal researchers were Gene Morris, head of DOT's Research Section, and Dr. John Rosner of Engineers Testing Laboratories, Inc. of Phoenix.

The actual application followed a two-year study of materials for possible roadbuilding applications—particularly in northern Arizona where aggregate is not plentiful.

Morris reported the economics did not justify the use of fly ash. "It was tried on a research basis in anticipation of fewer good aggregate sources in the future and the predicted vast abundance of fly ash," he added.

Ash from three other coal-fired generating power stations were also tested in the ETL lab including material from the Cholla Station in Joseph City, AZ, Mohave Station in Laughlin, NV, and Four Corners in Fruitland, N M.

The Navajo ash was sampled more extensively than the others before being selected for the test program. In 50 tests the ash exhibited an average specific gravity of 2.25, had a surface area of 7,500, had 25.3 percent retained on a 325 mesh screen, and a pozzolanic activity index of 87.2 cement & control and 714 lime psi.

Lab results for the lime-fly ash mixtures indicated optimum proportions of 3% quicklime and 10% fly ash; but the ratio introduced into the scarified subgrade on the Dewey project was 3% quicklime and 12½% fly ash.

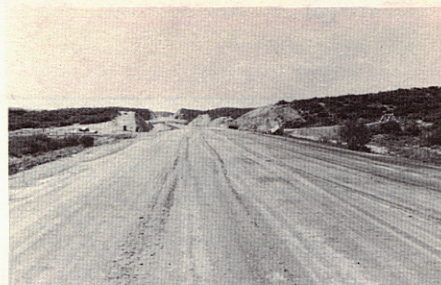
The lime was placed down first on the 40-foot wide road bed. A conventional rear-end spreader was utilized to lay the lime. The first blending was accomplished with a scarifier mounted behind a grader, this was followed with a two-



*Spreading Fly Ash*



*Discing Ash Into Subgrade*



*Finished Grade*

gang disc pulled by a dozer and then a watering truck to update the line.

Next, crews spread the fly ash on the subgrade. Two methods were employed. In one operation the ash was fed onto the surface from the dry bulk tanker through a bottom chute and was then spread by a grader. In the second, the ash was fed from a covered dump body through a jersey box and then disced into the subgrade. The latter procedure proved to be more satisfactory and was employed on the remainder of the project.

As one might expect both the lime and fly ash spreading operations did present some dust problems. And the "fluid nature" of the ash made the material difficult to handle.

A watering truck with a front-end spray bar followed the disc. Crews made several passes with the disc and followed that operation with a pulver-mixer.

"We were not too happy with the mixing operation," Morris stated, "next

time around we will recommend more than a single pass with the pulvermixer and set the machine to assure a deeper mix."

Compaction was achieved with a sheepsfoot roller and a rubber-tired pneumatic roller. An asphalt emulsion curing seal (SS-1H) was used to control premature drying of the subgrade. An MC-250 seal was specified but was not available at the time, and ADOT officials feel it would have been more effective and attained greater penetration into the soil-lime-fly ash mix.

The wearing coarse was added about a month later. An asphalt tack coat or membrane was put down first to control shrinkage cracking and shed water. An 1-inch ACFC hot-mix was placed down as the final driving surface.

Specimens from the Dewey cutoff had an average unconfined compressive strength of 219 psi at 28 days. Research data, however, indicates that a slow but significant rate of strength gain can be expected well beyond that period.

ADOT's Morris noted his agency has only begun to investigate the many various experimental features incorporated into the project and had drawn no final conclusions.

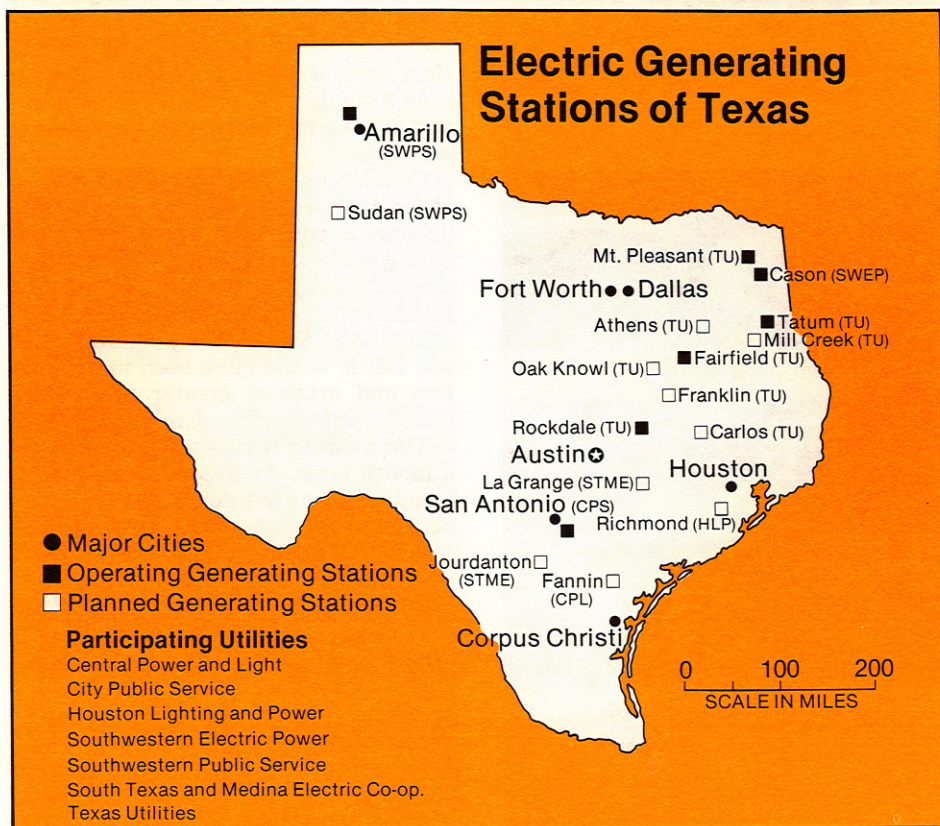
"We do feel, however, the lime-fly ash section is a very practical consideration," he added, "and we look forward to evaluating its performance."

A pioneer in highway research in the western United States, the ADOT has approved the use of fly ash as an alternative at several levels of road construction including portland cement concrete pavements and in road base experiments.

In an in-house memo, the ADOT noted the following points about fly ash concrete: (1) Since it replaces about 15 percent of the portland cement in regular concrete it prolongs the supply of a limited natural resource; (2) cost savings amount to around \$2 a cubic yard of concrete where 85 pounds of fly ash are used in place of 70 pounds of cement, less energy is required in the production process and 5 percent less water is needed for the new mix; (3) although it takes longer to reach full strength, fly ash concrete is stronger when cured.

ADOT also plans potential use of sulfuric acid waste derived from pollution controls at copper mining smelters. Preliminary evidence shows the addition of sulfates to a lime-fly ash road base will produce a higher strength soil stabilization system.

## Texas Conference. . . (Continued from Page 1)



The spokesman said registration had been set at \$100 which will include workshop proceedings, two meals, and a reception. Inquiries should be addressed to Milton Radke, director, Community Services, at the Institute.

To encourage participation of State, County, and municipal employees a scholarship program is being established for eligible applicants, Ledbetter explained. Details of this unique plan are being finalized by conference sponsors.

The workshop staff will consist of knowledgeable people representing the producer and the user drawn from the private, academic, and governmental sector.

Specific attention will be focused on the characterization and use of the sub-bituminous ashes now being produced by Southwest electric generating stations including the existing and projected stations shown on the above map depicting the State of Texas.

The National Ash Association, Texas Department of Highways and Public Transportation, and Federal Highway Administration were listed among the early sponsors. This group will be joined by other selected users and producers.

## Topics Set. . .

(Continued from Page 1)

On the second day enrollees will examine analysis and design criteria including site investigation, ash sampling and testing, slope and foundation stability, bearing capacity, settlement, and retaining structures.

The final class periods will be a review of construction and post construction techniques. Subjects here will include ash collection, hauling, and placement; compaction; quality control; and specifications on materials, equipment, and procedures.

"We are designing the course for persons with either a technical or non-technical background," Seals said. The scope and content will be significantly different from the previous course, he added.

The registration fee for the Short Course is \$150 which includes a reception, all lunches, awards banquet, and printed course notes.

The three-day event is being co-sponsored by the WVU College of Engineering and the National Ash Association.



**PLAN AHEAD!**  
**Fifth International Ash Utilization Symposium**  
 Atlanta Hilton - Atlanta, Georgia • February 25-27, 1979