



# Newsletter

Published Quarterly by the Association of Environmental Engineering Professors.

VOL. 9 NO. 3

JULY 1974

## FROM THE PRESIDENT'S DESK

AEEP's Training Support Committee has been very active. Howard Williford, Mississippi State University, testified before the subcommittee of Agriculture-Environment and Consumer Protection of the Committee on Appropriation of the House of Representatives on April 25, 1974. He was accompanied by Wes Pipes, Northwestern University and your president, E. J. Middlebrooks, Utah State University. He did an excellent job of presenting our case. Previously, Representative Whitten and the Committee has been enthusiastic supporters of training grants. It appears to me, they now are becoming more concerned about effecting economies than insuring that qualified manpower be available to combat pollution. Therefore, it is time for all members to join with our Training Support Committee in soliciting local, state, and federal support in an attempt to reverse the trend away from training support.

The next meeting of the Board of Directors will be held in Denver, Colorado, on October 6, 1974, at the Water Pollution Control Federation Annual Meeting. Items for the agenda should be sent to E. J. Middlebrooks, Utah State University.

AEEP is sponsoring a session at the ASCE, EED Specialty Conference, July 9-11, 1974, at Pennsylvania State University. The theme for the Session is "National Policy Issues - Water Pollution Control", Four papers will be presented and are as follows:

Water Quality Goals and Objectives - John T. O'Connor  
Water Pollution Research - Richard I. Dick and Tom M. Keinath

Manpower Needs and Training - Wesley O. Pipes and E. Joe Middlebrooks

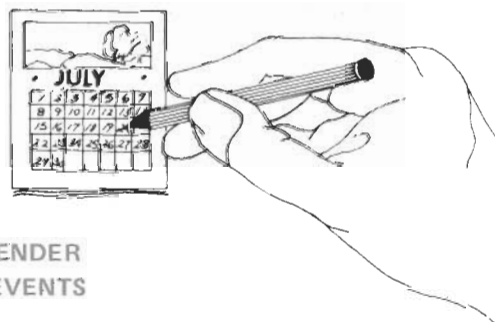
Administration and Implementation of Pollution Control Policy - Vinton W. Bacon

All of these papers will be pre-printed and distributed to the membership.

The 1974 AEEP Workshop will be held on December 19

and 20, 1974, in Charleston, South Carolina. "Environmental Impact and Linkages" will be the theme. If you would like to submit a paper, contact J. E. Quon, Department of Civil Engineering, Northwestern University, Evanston, Illinois 60201.

E. Joe Middlebrooks



## MARK YOUR CALENDER AEEP UPCOMING EVENTS

### AEEP Session at the ASCE Specialty Conference

The AEEP Session on "National Policy Issues—Water Pollution Control" to be conducted at the ASCE Specialty Conference on "Environmental Engineering Research, Development and Design", July 8-11, 1974, at Pennsylvania State University has been scheduled for Thursday, July 11, 1974. The final program of the session is shown below:

#### Session V

National Policy Issues — Water Pollution Control

Thursday, July 11, 8:30 a.m. - 12:00 p.m.

Sponsored by Association of  
Environmental Engineering Professors

Moderator: Martin Wanielista, Environmental Systems Engineering Institute, Florida Technological University, Representing Association of Environmental Engineering Professors

8:30 - Water Quality Goals and Objectives  
John T. O'Connor, University of Illinois at Urbana

9:15 - Water Pollution Research  
Richard I. Dick, University of Delaware  
Tom M. Keinath, Clemson University

10:00 - Coffee Break

10:30 - Manpower Needs and Training  
E. Joe Middlebrooks, Utah State University  
Wesley O. Pipes, Northwestern University.

11:15 - Administration and Implementation of Pollution Control Policy  
Vinton W. Bacon, University of Wisconsin

Preprints of all papers to be presented at the session will be available to all those attending.



AEEP Workshop on Environmental Impact and Linkages  
December 19-20, 1974  
Charleston, SC

The technical sessions for the AEEP Workshop on "Environmental Impact and Linkages" are as follows:

Introductory Remarks

Technical Session I – Current and Emerging Problems in Air Pollution

Technical Session II – Linkages Between Air and Water Pollution Control

Technical Session III – Linkages Between Ultimate Waste Disposal and Water Quality

Panel Discussion on Teaching of Environmental Impact and Linkages

Technical Session IV – Land Use Planning and Environmental Quality Linkages

We are particularly interested in individuals who can serve as panel members for the discussion on Teaching of Environmental Impact and Linkages. Anyone interested in serving on the panel should contact:

J. E. Quon  
Department of Civil Engineering  
Northwestern University  
Evanston, IL 60201

Anyone interested in presenting papers for the above Workshop should send title and a 200 to 500 word abstract of proposed paper to the attention of J. E. Quon

Dr. H. S. Smith died on September 17, 1973 at the University Hospital, Minneapolis. At the time of his death, Dr. Smith was Professor of Civil Engineering and Dean, College of Engineering, University of Idaho.

Sid received his Bachelor's and Master's degrees in Civil Engineering from University of Iowa and his Doctoral degree in Sanitary Engineering from Iowa State University. He was active in numerous professional organizations. His accomplishments and contributions to Engineering Education in general and Environmental Engineering in particular are well known to the academic media. Those who knew Sid remember him for his diligence and dedication to his profession, his sincere interest in engineering, and his respect for the ideas and wishes of others.

### TRAINING GRANT CONTINUATION SUPPORT

No doubt all of our membership is aware that some time ago an internal decision was made by administrative officials within EPA to phase out all support of graduate training grants by mid 1976. It appears that decision has not been altered although the consensus of many individuals, outside and inside of EPA, is that the proposed phase-out would not be in the national interest. Wherever and whenever possible, various individuals have presented persuasive arguments in favor of training grant continuation. We regret that we cannot at this time offer any real assurances that our efforts have met with success. We do sense that EPA may be taking another appraising look at the question and could be moving toward the decision to reimplement the program of training grant support. Should EPA make the desired decision the matter of adequate funding is a question the Congress must decide.

Howard K. Williford, Chairman of the Training Grant Support Committee of AEEP, testified in support of training grant continuation before the Subcommittee on Agriculture-Environmental and Consumer Protection of the Committee on Appropriations of the House of Representatives on April 25, 1974. In addition to a five minute oration, a written statement with several attachments was filed with the subcommittee.

It was pointed out there is an estimated need for 5000 new men annually who are trained at the professional level in water pollution control. Current production of manpower is approximately 1000 per year. Should the proposed phase-out of the training grant support be accomplished, the general consensus foresees a further manpower reduction.

The membership is urged to continue efforts in support of training grant continuation by contacting Senators from your state, Congressmen from your district and Subcommittee members of the Agriculture-Environmental and Consumer Protection of the Committee on Appropriations of the House of Representatives. Following is a roster of Subcommittee membership for this purpose. Make contact with these legislators without delay. Ask that they lend their

support in securing the necessary appropriations of funds from Congress and that they use their influence with EPA to see that the funds are used in the manpower training effort. AEEP members working together can make a vital contribution to the resolution of a problem which faces all of us.

H. K. Williford

### SUBCOMMITTEE

#### Agricultural-Environmental & Consumer Protection

##### Democrats

Jamie L. Whitten (Miss.)  
George E. Shipley (Ill.)  
Frank E. Evans (Colo.)  
Bill D. Burlison (Miso.)  
William H. Natcher (Ky.)  
Neal Smith (Iowa)  
Bob Casey (Tex.)

##### Republicans

Mark Andrews (N. Dakota)  
Robert H. Mitchell (Ill.)  
William J. Scherle (Iowa)  
J. Kenneth Robinson (Va)

### GRADUATE ENROLLMENTS DOWN

The AEEP survey of graduate enrollments was completed in May. The results as shown in the Table below show that the number of new graduate students entering water pollution control engineering programs in fall, 1973 was down 8% from 1972 and those entering other environmental engineering programs was down 33% from 1972.

GRADUATE STUDENTS IN  
WATER POLLUTION CONTROL ENGINEERING  
(108 Programs at 105 Schools)

Academic Year	Total Students	New M.S. Students in Fall	Number (Percent) of Students in Programs of Indicated Size Range				
			1-10 Students	11-20 Students	21-30 Students	31-40 Students	>40 Students
1971-72	2406	1271	213(8.9)	401(16.7)	511(21.2)	282(11.7)	999(41.5)
1972-73	2424	1203	224(9.4)	468(19.3)	500(20.7)	244(10.2)	988(40.4)
1973-74	2211	1108	219(9.9)	469(21.2)	416(18.8)	345(15.6)	762(34.5)

GRADUATE STUDENTS IN  
OTHER ENVIRONMENTAL ENGINEERING PROGRAMS  
(43 Programs)

Academic Year	Total Students	New M.S. Students in Fall	Number (Percent) of Students in Programs of Indicated Size Range				
			1-10 Students	11-20 Students	21-30 Students	31-40 Students	>40 Students
1971-72	763	331	92(12.1)	138(18.1)	107(14)	35(4.6)	391(51.2)
1972-73	769	373	122(15.9)	143(18.6)	65(8.4)	32(4.2)	407(52.9)
1973-74	668	248	128(19.2)	90(13.5)	46(6.9)	33(4.9)	371(55.5)

The survey of graduate programs in water pollution control engineering covered 108 programs at 105 schools (3 schools had 2 programs). Fourteen of the reports were only partial reports (9 of these 14 received were over the telephone) but 94 out of 108 isn't bad. The initial mailing of the questionnaire went to the 78 programs on the AEEP register list and 100% return of these questionnaires was obtained. Return of 100% of the questionnaires on a mail survey is practically unheard of and indicates a great deal of concern about the future of graduate education and commitment to working to improve it.

The losses in graduate students in water pollution control engineering were suffered by the very large programs. The smaller programs held their own in graduate student recruitment in 1973. Thus, all graduate programs in water pollution control engineering appear to be able to maintain themselves and, from the number of faculty positions advertised this spring, it appears that there will be even more programs in the future. The implication of the long term trend is more programs but each with fewer students and probably fewer faculty.

The other environmental engineering programs included air pollution control, solid waste management, environmental control, environmental health engineering, radiological protection, and industrial hygiene. The information was obtained from 43 schools. However, it is clear that it is not complete. These programs are scattered through many departments and, in some cases, different schools in a university. Also, many engineers who have not assumed the title of environmental engineers are teaching these programs. Despite the lack of completeness of the information the survey is a good sampling and the percentage decrease in enrollments should be indicative of the actual trend.

Wesley Pipes

Northwestern University

### TRAINING SUPPORT

The results of the survey of graduate student enrollments were sent to each member of the Committee on Appropriations of the House of Representatives and some Members of Congress have already replied that they will support a higher level of funding for graduate student support in environmental engineering than the EPA has requested. For Fiscal Year 1974 Congress insisted that EPA spend \$1.2 million more on training grants and fellowships than they originally planned and EPA eventually complied. However, for FY 1975 EPA's Request is only \$4.47 million for training grants and fellowships, down \$3.51 million from the planned expenditure of \$7.98 million for FY 1974. This occurs during a year when EPA eagerly went to Congress to ask for \$191 million for environmentally related energy research and the Civil Service Commission has had to upgrade salary offers to environmental engineers because they are not able to meet their manpower needs.

The need for expanding instead of declining graduate education in environmental engineering is clear and Con-

gress is willing to provide support if the evidence is brought to their attention. If there isn't a higher appropriation for FY 1975 than for FY 1974 it will be our own fault. The AEEP Training Support Committee has done everything it can think of to bring this matter to the attention of Congress. It is now up to each AEEP member to make sure that his Congressmen and Senators are aware of this need and are ready to support the program.

Wesley Pipes  
Northwestern University

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### LEGISLATIVE ANALYSIS

"And I'm sick and tired of the idea that Washington knows best, that somehow the Federal Government can be trusted, that nobody was doing anything about water pollution before EPA was born and discovered the problem. All we've done so far is to develop the world's finest system for recycling grant applications."

— quotation from statement by Rep. James C. Cleveland of New Hampshire, April 4, 1974, before the Subcommittee on Investigations and Review, Committee on Public Works.

Rep. Cleveland has introduced H.R. 13910 which would amend section 203 of the Federal Water Pollution Control Act (31 U.S.C. 1283) which would establish a State Certification Program so that the various States could have more responsibility and authority to get the construction of needed municipal wastewater treatment facilities moving. Most AEEP members are aware of the horrendous tie-up in processing applications for federal construction grants and how this has prevented the construction of badly needed water pollution control facilities in the last two years. Although this bill is not directly related to education, we should have some interest in legislation which would provide an opportunity for our students to do more of the things we taught them how to do rather than just shuffle papers and argue with EPA. This proposed legislation would be a good topic for discussion with local and state officials.

Wesley Pipes  
Northwestern University

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### EPA REGION IV EVALUATES EFFECTS OF PHASE OUT POLICY

The Manpower Development Branch of EPA, Region IV, undertook a study to evaluate the effects of the phase out of EPA graduate training grants on those schools receiving funding in the Region. The study attempted to determine the impact of the phase out on the future availability of professional environmental manpower in the region. The decline in Federal funds was evaluated in terms of the effect on numbers of students and faculty and on the curriculum of affected schools. Nineteen programs at thirteen

schools in Region IV were evaluated. These represent schools currently receiving funding from EPA or schools whose funding has recently terminated. The schools included in the study are:

Georgia Institute of Technology, Atlanta, GA  
Shaw University, Raleigh, NC  
University of Florida, Gainesville, FL  
University of Kentucky, Lexington, KY  
University of North Carolina, Chapel Hill, NC  
Clemson University, Clemson, SC  
Mississippi State University, Mississippi State, MS  
Tennessee Technological University, Cookeville, TN  
Tuskegee Institute, Tuskegee, AL  
University of Alabama, Tuscaloosa, AL  
Vanderbilt University, Nashville, TN  
Central Florida Community College, Ocala, FL  
North Carolina State University, Raleigh, NC

The evaluation was based on questionnaires, personal visits to three schools representing seven programs and a telephone interview with one program director. A total of seventeen replies out of a possible nineteen were received. The study was conducted by Martha S. Cochran, Manpower Development Branch, EPA, Region IV.

Conclusions of this survey indicated that although the phase out may benefit EPA in the short run by alleviating a financial output, the long term prognostication is that it will be more costly to EPA due to the detrimental effects that a lack of trained professional manpower will have on the environment. This decline in quantity will be immediately apparent in the shortage of people to fill job openings. It may take several years for the decline in the quality of students to be recognized. This decline may well be seen in a lack of innovative research to solve environmental problems, plus a lack of manpower capable of training and instructing others in the changing environmental technology. The schools will not be able to make up for the loss of EPA funds through other sources. Therefore, the Agency's Legislated objectives in abatement and control of pollution may be constrained due to this lack of adequately trained manpower. In order to prevent this situation from developing, it is recommended that EPA reconsider its policy to phase out the training grants or provide some alternative funding methods at the same level.

AEEP commends Region IV for taking the initiative for conducting the study and hopes that other EPA regions will follow with similar studies.

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### AEEP RELATIONS WITH THE INTERNATIONAL ASSOCIATION ON WATER POLLUTION RESEARCH

The Association of Environmental Engineering Professors is one of five professional organizations in the United States which sponsors the United States of America National Committee for representation of the United States to the International Association on Water Pollution Research. The other sponsoring organizations are AIChE, WPCF, ACS, and ASCE. Each of the five organizations is represented by two delegates to the United States of America National Com-

mittee (USANC). Professor Warren Kaufman was an AEEP delegate to USANC at the time of his death in November, 1973 and he also served as Vice Chairman of USANC. The AEEP Board of Directors appointed Professor Richard Dick to replace Dr. Kaufman, and Dr. Dick subsequently was elected as Vice Chairman of USANC. AEEP's other delegate is Professor Bob Sylvester. Alternate delegates are Professors David Jenkins and Fred Pohland.

The Governing Board of the International Association on Water Pollution Research is comprised of representatives of the national committees of participating countries. Members of the Governing Board from the United States are the Chairman, Vice Chairman, and Secretary-Treasurer of USANC. These currently are Professor Bernard B. Berger, Richard I. Dick, and Robert A. Canham (a WPCF delegate), respectively. Officers in the International Association on Water Pollution Research (IAWPR) are elected by the Governing Board. Dr. G. J. Stander of South Africa is President of IAWPR, and Professor Bernard Berger serves as a Vice President.

One of the important activities of the International Association on Water Pollution Research is the International Conference held on even-numbered years. The Seventh International Conference will be in Paris on September 9-13, 1974. The technical program for the Paris Conference was selected by the IAWPR Program Committee on the basis of reviews by three to five experts of papers submitted. Of 270 papers (from 32 countries) submitted, 78 (including 23 from the United States) were selected for the technical program. The final program for the conference and information on chartered flights to Paris recently were mailed by USANC. AEEP members who have not received the information should contact one of the AEEP delegates to USANC.

Richard Dick  
Vice Chairman USANC

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## REPORT ON AEEP ACTIVITIES AT PURDUE

### Board Briefs

The AEEP Board of directors met on Monday, May 6, 1974, at Lafayette, Indiana. Among the items discussed of interest to the membership were the following:

AEEP membership now stands at 171 with 158 regular members, 3 emeritus members and 10 affiliate members.

The Board of Directors Distinguished Service Award was authorized for John Austin and Wesley Pipes on the basis of their extended records of dedicated service to the profession in general and to AEEP in particular. These awards were presented at the membership meeting at the Purdue Conference.

Proposals have been developed for EPA funding of registers for programs in water chemistry and in undergraduate environmental engineering education. The water chemistry proposal was prepared by Phil Singer and the undergraduate education register is being handled by Don Aulenbach.

It was reported that approximately 1800 water chemis-

try manuals and 700 unit operations manuals have been sold since the development of these teaching aids.

It was reported that the next edition of the AEEP Register of Graduate Programs is expected to be released by July 1, 1974.

The Board also heard a variety of reports that included such items as progress on the revision of the unit operations manual, development of the 1974 and 1975 workshops, development of a microbiology laboratory manual, and review of position papers to be presented at the ASCE Specialty Conference at Penn State in July, 1974.

The next meeting of the Board was scheduled for Sunday, October 6, 1974, at Denver prior to the WPCF Conference.

Reported by Paul King

### Seminar Proceedings

Continuing Education in Environmental Engineering was the topic of the recent AEEP Seminar held at Purdue, May 7, 1974. Participants included David Long (Penn State University, Continuing Education), John Quigley (University of Wisconsin, Extension) and Don Riddell (Senior Partner, Greeley & Hansen, Engineers). Archie McDonnell was seminar chairman.

Discussions covered a wide range of ideas involving continuing education. University changes such as incorporation of extension specialist at Penn State into existing departments, merged units of general (university) and cooperative (federal) extension at the University of Wisconsin and the "Professional Development Degree" for the Department of Engineering in Extension at the University of Wisconsin were introduced.

The possibility of continuing education as a requirement to maintain professional engineering registration was suggested. Concern for the quality and quantity of short courses was aired. It was suggested that some form of accreditation or certification of various short courses that have a prescribed sequence of continuing education may be needed. Some present perceived an apparent saturation of the market as manifested by announcements of numerous short courses each week. Chairman McDonnell noted that presentations expressed pessimism, optimism, and criticism.

Reported by  
John T. O'Connor

### AEEP Open Meeting

President Joe Middlebrooks called the meeting to order. Comments were made by him concerning the membership drive for AEEP, the upcoming ASCE Specialty Conference at Penn State, and AEEP session at the Specialty Conference on "National Policy Issues - Water Pollution Control." President Middlebrooks also reported that a brochure describing environmental engineering was being prepared and a draft copy would be submitted to the membership for their comments.

Wes Pipes summarized the AEEP involvement in training activities to the present time. His discussion included the

presentation to Representative Whitten's Committee, the AEEP letter to EPA concerning training grants, and some comments on the survey made on graduate environmental engineering education.

President Middlebrooks made presentation-of the Board of Directors Awards to John Austin and Wes Pipes. The Association congratulates these members for their outstanding work and contribution to AEEP.

President Middlebrooks introduced the program for the open meeting. The first speaker was Dr. Ed Bryan, NSF, RANN program, who reviewed the proposal submission and evaluation procedure of the National Science Foundation. Dr. Bryan also commented on the present activities of NSF in the environmental engineering discipline. The second speaker was Dr. Robert Grieves who discussed his involvement and experiences on the Effluent Standards and Water Quality Information Advisory Committee created by PL 92-500.

#### AEEP Newsletter Editor Honored

Dr. Adnan Shindala, Professor of Sanitary Engineering at Mississippi State University, was the recipient of one of four faculty awards presented by the Mississippi State Alumni Association for outstanding achievement in the areas of teaching, research, teaching plus research and service. Receiving a plaque and a \$500.00 cash award, Dr. Shindala was selected for the award in the combined areas of teaching plus research. Our congratulations to Dr. Shindala.

Donald O. Hill  
Victor L. Zitta  
Department of Civil Engineering  
Mississippi State University

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#### MEMBERS IN THE NEWS



#### Heinke Named Chairman of Civil Engineering

Dr. G. W. Heinke has been appointed Chairman of the Department of Civil Engineering at the University of Toronto, Canada. Heinke joined the University of Toronto in 1965 as a part-time Assistant Professor and was promoted to Associate Professor in 1969. In addition to his academic work, he has been a consultant to industry and to various government agencies on environmental problems.

#### Howard K. Williford Testifies in Support of Training Grant

Professor H. K. Williford of Mississippi State University, Chairman of the Training Grant Support Committee of AEEP, testified in support of training grants continuation before the Subcommittee on Agriculture-Environmental and Consumer Protection of the Committee on Appropriations of the House of Representatives on April 25, 1974. A copy of Williford's statement was mailed to the entire membership. Non-members may obtain a copy of the statement by writing H. K. Williford, Drawer CE, Mississippi State, Mississippi 39762.

#### Richard Dick Named Vice Chairman of USANC

Professor Richard Dick, immediate past president of AEEP, was named vice chairman of the U.S. National Committee (USANC) which represent the United States to the International Association on Water Pollution Research.

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#### PROFESSOR SHUVAL'S TOUR CANCELED

Professor Hillel I. Shuval of the Hebrew University in Israel will be unable to visit the United States this year. **Several unfortunate circumstances** have effected a cancellation of the tour of this Foreign Distinguished Lecturer. Among these, the war in the Middle East brought about a change in the timing of the Hebrew University's semester break resulting in a postponement. The tour was finally canceled due to a severe illness in Professor Shuval's close family. AEEP members would have benefited from visits by this distinguished researcher and we regret such circumstances arose.

Professor Aarne Vesilind will be organizing next year's tour.

W. J. Jewell, Chairman  
Distinguished Foreign Lecturer  
Committee

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#### WELCOME TO AEEP NEW MEMBERS



Dr. William Gregory Characklis  
Assistant Professor of  
Environmental Engineering  
Rice University  
P. O. Box 1892  
Houston, Texas 77001

Dr. Edward G. Foree  
Associate Professor of  
Civil Engineering  
Civil Engineering Department  
University of Kentucky  
Lexington, Kentucky 40506

Dr. Atal E. Eralp  
Department of Civil Engineering  
SUNY/Buffalo  
Buffalo, New York 14214

Dr. Paul L. Bishop  
Department of Civil Engineering  
University of New Hampshire  
Durham, New Hampshire 03824

Dr. Muhammad Anis Al-Layla  
Assistant Professor  
941 N, 350 E  
Number 3  
Logan, Utah 84321

by all concerned Federal, State, local and private organizations for measuring and analyzing water has been recognized for some time. "This report," he said, "represents a first big step forward in setting up a common data base for water."

Copies of the report, "Recommended Methods for Water-Data Acquisition," prepared by the Federal Inter-agency Work Group on Designation of Standards for Water Data Acquisition, are available free from the Chief, Office of Water Data Coordination, U.S. Geological Survey, Room 102, 2100 M Street N.W. Washington, D.C. 20244.

ASCE, EED newsletter  
March 1974

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### NEW ADVERTISEMENT POLICY

The Board of Directors in its meeting at Purdue approved a new policy for advertisements for books and non-academic vacant positions in the Newsletter. The price for book advertisements is set at \$75 for a full page, \$50 for half a page and \$35 for a quarter page (minimum). Advertisements for non-academic positions available is set at a rate of \$10 per inch-column. All communications must be directed to the editor and must be received a minimum of one month prior to publication.

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### FLORIDA TECHNOLOGICAL UNIVERSITY GRADUATES ITS 50TH UNDERGRADUATE ENVIRONMENTAL ENGINEERING STUDENT

Opening in 1968, Florida Technological University in Orlando graduated its 50th undergraduate environmental engineering student at its annual commencement, June 19, 1974. FTU is one of the first undergraduate environmental engineering ECPD approved curriculums.

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### STANDARD METHODS FOR ASSESSING NATION'S WATER

A "How-To" handbook, providing a set of recommended methods for gathering and reporting data on the quantity and quality of the Nation's water resources, has been released by the U.S. Geological Survey, Department of the Interior. The result of the combined effort of more than seventy scientists representing fifteen Federal agencies, the 415 page technical report describes and lists selected methods for gathering data on surface water, ground water, water-borne chemicals, sediments and bacteria, and includes a section on the use of automatic water-quality monitors.

R. H. Langford, Chief of the USGS Office of Water Data Coordination, Washington, D.C., said that the need for establishing a standard set of methods that could be used

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### LABORATORY MANUAL AVAILABLE

Bob Sanks has just published the second edition of his unique laboratory manual for self-instruction. The manual is divided into sections on safety rules for the laboratory, elementary chemistry, operation of equipment, and chemical tests. The section on elementary chemistry correlates the many different means of expressing the concentration of solutions, describes the making of "exact" standard solutions and buffers, and gives helpful hints on how to pipet, titrate, and clean up the laboratory. The sections on operation of instruments and chemical tests are unique. Bob claims that with this manual a student who has never seen a flame spectrophotometer can walk into the laboratory, set the instrument up, and be operating it intelligently and safely with no instructions (except those in the manual) in about an hour. It is largely done with schematic drawings that show the instrument settings. The manual is intended to be augmented from time to time, so that pages are numbered in code (e.g., "COD-2") instead of consecutive numbers. The cost is \$3.00 in a plastic binding. Copies may be obtained from

Dr. R. L. Sanks  
Civil Engineering & Engineering Mechanics  
Montana State University  
Bozeman Montana, 59715

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### NEWS FROM EPA

#### Agee to Head EPA Water Programs

Russell E. Train, Environmental Protection Agency administrator, has nominated a regional administrator to head EPA's newly reorganized water and hazardous materials programs. James L. Agee, former regional administrator in Seattle, Washington, is now acting administrator for water and hazardous materials, pending confirmation by the Senate.

The reorganization plan, which took effect April 22, 1974, put the offices for all water pesticide, and toxic substances under Agee's direction. Roger Strelow, who con-

tinues as acting assistant administrator for air and waste management, is responsible for all air, noise, radiation, and solid waste programs.

#### EPA Proposes Best Practicable Treatment

The Environmental Protection Agency has issued a proposed report outlining alternative wastewater treatment systems that could provide a municipality with the required best practicable treatment technology. The report, "Alternative Waste Management Techniques for Best Practicable Waste Treatment," defines the subject in terms of a consideration of alternatives and not according to numerical standards.

The three major systems suggested in the report for meeting the 1983 deadline are: land application of wastes, reuse of wastewaters, and treatment and discharge of wastes to receiving waters. While EPA leaves the choice of which alternative to adopt up to the municipality or sanitary district, the agency states that the selected system must be cost effective.

The Federal Water Pollution Control Act of 1972 prohibits EPA from making grants to fund construction of waste treatment plants during fiscal year 1975 or later, unless the grant applicant has considered alternative treatment systems, and unless the proposed construction will provide for the application of best practicable treatment.

#### EPA to Support Changes To PL 92-500

The EPA will soon recommend to Congress that certain changes be made in the 1972 Federal Water Pollution Control Act, according to John T. Rhett, deputy assistant administrator for water program operations. Rhett, speaking before some 300 people attending the March 26 WPCF Government Affairs Seminar in Washington, D.C., said the recommendations will suggest a delay in the 1977 deadline for municipalities to install secondary treatment facilities, and a relaxation of the requirement for secondary treatment for ocean discharges.

#### EPA Industrial Effluent Guidelines

##### To be Ready by October 1974

By an order issued in U.S. District Court in the District of Columbia, the Environmental Protection Agency must prepare a schedule for preparation and publication of all industrial effluent guidelines by September 30, 1974. The order was issued as a result of a suit brought against the EPA by the Natural Resources Defense Council. The EPA had intended to prepare and publish guidelines by mid 1975. However, the NRDC proposed an earlier timetable for publication of the guidelines so that they could be meaningfully applied to the national program for wastewater discharge permits—which must be issued by 31 December 1974. The order directing the EPA to meet the earlier date was issued by Judge June L. Green, and allows the EPA to submit justified proposals for modification of the original NRDC proposed schedule. The overall NRDC proposal for adoption of discharge guidelines includes a number of point source discharges for which EPA had no previous plans to establish effluent standards. These include, among others: public warehousing, research labora-

tories, hospitals, fuel oil dealers, automotive repair services, structural clay products, miscellaneous mineral products and point source categories not otherwise listed.

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#### VERN HAMMER HEADS WATER AND AIR RESOURCES DIVISION

Professor Vernon B. Hammer has been named head of the Water and Air Resources Division of the Department of Civil Engineering at the University of Washington. Professor Hammer was formerly Associate Dean of the College of Engineering at the University of Washington and has served in various positions since 1947. He replaces Professor Robert O. Sylvester who became the first director of the University's new Institute for Environmental Studies.

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#### ENVIRONMENTAL MODELING

##### Graduate Research Scholar Assistantships Available for Fall 1974

A new program of research and education in Environmental Modeling has been initiated by the NASA-Langley Research Center and the George Washington University's School of Engineering and Applied Science in the Joint Institute for Acoustics and Flight Sciences.

A number of Research Scholar Assistantships are available for the 1974 fall semester to qualified students seeking an outstanding opportunity for graduate study and research leading to the degree of Master of Science with a concentration in Environmental Modeling. Successful applicants will be awarded Research Scholar Assistantships with stipends of up to \$6,500 a year for a Master of Science degree, and will be enrolled in the George Washington University/NASA-Langley Graduate Program.

Applications and additional information may be obtained from S. W. Yuan, Chairman, Department of Civil, Mechanical, and Environmental Engineering, School of Engineering and Applied Science, George Washington University, Washington, D.C., 20006, Telephone (202) 676-6665; or John L. Whitesides, Jr., Assistant Research Professor of Engineering, JIAFS, Mail Stop 169, NASA-Langley Research Center, Hampton, Virginia 23665, Telephone (804) 827-2219.

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#### ACADEMIC MARKETPLACE

##### POSITIONS AVAILABLE

##### Montana State University

A faculty position is open for the 1974-1975 academic year to fill vacancy left by a professor on sabbatical. Responsibilities include instruction in environmental and environmental health engineering at the graduate and



undergraduate level. Reply to the Civil Engineering and Engineering Mechanics Department, Montana State University, Bozeman, Montana, 59715.

#### Cornell University

The Department of Agricultural Engineering at Cornell University is seeking research personnel to assist with research studies that have recently been approved. There are presently 4 vacancies immediately available — two require Ph.D. or equivalent experience in Environmental Engineering, one a Master's degree and one research technician. For further information contact Dr. William J. Jewell, 202 Riley-Robb Hall Cornell University, Ithaca, New York, 14850.

#### University of Wyoming

The Department of Civil and Architectural Engineering at the University of Wyoming has an opening for a new faculty member in the area of Environmental Engineering beginning in the Fall of 1974. The most likely rank would be an Assistant Professor, but both rank and salary will depend on the qualifications of the individual. The candidate must hold a Ph.D. degree in Environmental Engineering with a preferred secondary interest in microbiology. Responsibilities include both undergraduate and graduate instructions as well as the direction of graduate research and a presumed program of individual research. Send resume to Professor Phillip M. Hoyt, Acting Department Head, Department of Civil & Architectural Engineering, The University of Wyoming, Laramie, Wyoming 82071.

#### University of Notre Dame

The University of Notre Dame, Department of Civil Engineering, has an opening for a full time position in the field of Environmental Health Engineering in the specialty area of water and wastewater treatment including some interest in environmental planning and management and/or solid waste. A complementing interest in hydraulics and hydrology is desirable but not required. The professional rank and salary is open and depends on professional qualifications, education and experience. Applicants should send their resumes with at least three letters of recommendation and a transcript of their graduate study to Dr. Don A. Linger, Chairman, Department of Civil Engineering, University of Notre Dame, Notre Dame, Indiana 46556.

#### Ball State University

The Department of Natural Resources, Ball State University, Muncie, Indiana, invites applications for positions in the areas of Air Resources and Water Resources. Applicants should have a doctorate in an environmental area such as Natural Resources, Conservation, Environmental Studies with a basic understanding of ecological relationships. Demonstration of teaching competency necessary although research ability will be taken into consideration. Previous professional employment in the environmental field is highly desirable. Rank and salary based upon academic qualifications and professional experience. Written inquiry should be directed to Dr. Clyde W. Hibbs, Chairman, Department of Natural Resources, Ball State University, Muncie, Indiana, 47306.

#### Tulane University

A faculty position is open in the Department of Civil Engineering at Tulane University. Candidates should possess a Ph.D. in Environmental Engineering with specialization in one or more of the following areas: Water Supply, Wastewater Treatment and Solid Wastes Management. Professional and teaching experience is desirable. A good research background, including publications, is essential. Rank and salary are open. Contact Dr. Walter E. Blessey, Head, Civil Engineering Department, Tulane University, New Orleans, Louisiana, 70118.

#### University of Illinois

Faculty positions are available Summer or Fall, 1974. Duties include teaching and research in environmental health sciences graduate school program of the School of Health. Candidates must possess a Ph.D. or M.S. and qualifications related to the following areas: Water Quality, Waste Management, Consumer Protection, Sanitary Engineering, Pollutant Analytical Methods, and Urban Environmental Problems. Preference will be given to applicants who present strong backgrounds of experience and training involving useful combinations in several of the above areas. Environmental or health agency service, research and/or teaching experience desirable. Rank and salary (\$12,000 to \$22,000, 12 months) dependent on qualifications. Opportunity for concurrent advanced academic studies. Send biographical and other pertinent information, transcripts and direct at least three letters of reference to Dr. Arthur H. Wolff, University of Illinois Medical Center, P. O. Box 6998, Chicago, Illinois, 60680.

#### Environmental Protection Agency (EPA)

The U.S. Environmental Protection Agency (EPA) is seeking a faculty member for a period of one year. Assignment will be with the storm and combined sewer section which is responsible for research, development and demonstration programs related to Urban stormwater pollution technology. Contact Richard Field, Chief Storm & Combined Sewer Section, EPA Advanced Waste Treatment Research Laboratory, Edison, New Jersey, 08817.

GET INVOLVED

Support A E E P  
Activities

In a statement signed by a number of well-known people in the filtration world, all interested individuals and groups are urged to recognize the problems caused by lack of research and education in solid-fluid separation. A programme of resolute and purposeful action is proposed as being essential to the advancement of the science and art of solid fluid separation. The text of this important statement follows . . .

The authors of this paper view with concern the present state of the art in solid-fluid separation technology, particularly in those areas commonly referred to as cake filtration granular bed and cartridge filtration, centrifugation, dust collection, cycloning, scrubbing, electrostatic precipitation, thickening, flocculation, and deliquoring of cakes. Solid-fluid separation operations are basic to treatment of waste streams, filtration in the chemical and allied industries, and mineral and solid fuel processing. With tightening environmental restrictions, increased utilization of poorer grades of raw materials, and mounting fuel costs, the existing dearth of teachers, researchers, and specialists in solid-fluid separation technology presents a real danger to finding adequate solutions to long neglected, but key areas involving particular separations.

Protection of the environment ultimately depends upon the separation of particulates in the form of solids or immiscible liquids from water or air. Every home, community, and industrial plant experiences an inward flow of materials and an outward flow of waste streams. The waste streams must be treated and turned into harmless form before being discharged into the environment. Treatment generally produces new particles or modifies old ones which must be separated from the carrier fluid in one of many different types of operations such as filtration, screening, centrifugation, and decanting. Economical separation processes are fundamental to satisfactory progress in the present drive to obtain a relatively pollution free ambient.

In addition to processing of waste streams, solid-fluid separation is a significant operation in a wide variety of human endeavour. Chemical plants and petroleum refineries depend heavily on filtration. Municipal authorities with responsibility for water treatment, swimming pool operators, and food and pharmaceutical manufacturers are among those concerned with particulate separation processes.

Mineral processing is particularly affected by the economics of solid-fluid separation. As utilization of poorer grades of raw material becomes prevalent, upgrading through grinding and beneficiation assumes substantial importance. Increased dependence on coal and tar sands as energy sources makes particle processing a critical factor in future fuel costs. As man looks into the future, conservative predictions point to the need for marked improvement in particle processing, transport, storage, and separation from fluids if raw material costs are to be kept at a reasonable level.

The vast quantities of particles which stream forth from stacks are particularly inimical to public welfare. Their economic separation is all important to the health of many industries. Separation of oil and other immiscible liquids from water is a widely dispersed operation in need of augmented investigation.

It is against this background that the authors of this statement emphasize the importance of particle science, technology, and separation in critical problem areas faced throughout the world. There is a dangerous lack of knowledge and knowledgeable people. Programmes to solve existing deficits must be put in action immediately if foreseeable consequences are to be avoided a decade hence. Nothing can be done quickly. It will take time to develop research, plan and enlarge curricula, introduce training programmes for engineers in industry, and in general increase activity in the field.

#### Programme of Action

The authors believe that the following measures must be undertaken soon if industry and government are to avoid serious problems related to the economics of separation a decade from now.

##### A. Educational institutions should provide:

1. Basic material in particle science and surface chemistry
2. Optional course sequences in solid-fluid separation at the undergraduate and graduate levels
3. Increased research activity
4. Encouragement to faculty members to develop expertise in particle separation

##### B. Engineering and scientific societies should:

1. Establish committees to identify problems in solid-fluid separation
2. Encourage existing environmental groups or committees to focus more attention on particle separation
3. Stimulate publication
4. Support short courses and seminars
5. Develop quantitative surveys of manpower, technical problems, and investment in solid-fluid separation equipment
6. Urge industry and government to take decisive action to solve problems related to solid-fluid separation technology

##### C. Grant-awarding bodies should:

1. Increase support for research in areas basic to solid-fluid separation
2. Organize centres of excellence
3. Stimulate post-doctorates and young instructors to investigate problems in particulate separations
4. Offer summer courses for teachers and researchers
5. Support research conferences

##### D. Manufacturers of solid-fluid separation equipment should:

1. Encourage a more scientific approach to process design
2. Provide increased funds for basic research
3. More broadly educate their representatives and employees in the entire field of solid-fluid separation technology
4. Support industry-wide research and development

**E. Users of solid-fluid separation equipment should:**

1. Form Permanent groups with responsibility for internal consulting
2. Analyse performance of existing equipment
3. Contribute to the design of equipment
4. Develop testing laboratories
5. Report on experiences with bench-, pilot-, and full-scale operations and scale-up experiences

**Signatories of the Statement:**

**Christian Alt**, Professor, University of Stuttgart, Germany

**E. Robert Baumann**, Professor, Iowa State University, U.S.A.

**D. A. Dahlstorm**, Envirotech Corporation, Salt Lake City, Utah

**Richard Dick**, Professor, University of Delaware, Newark, Del., U.S.A.

**R. G. Dorman**, Chairman of the Filtration Society 1972-73, England

**Donald Freshwater**, Pro-Vice Chancellor, University of Technology, Loughborough, England

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