



Newsletter

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PIPES NEW PRESIDENT OF AEEP

In the original organization of AAPSE special provision was made so that biologists, chemists, and other scientists associated with sanitary engineering educational programs could be full members. The name American Association of Professors in Sanitary Engineering was intended to convey this concept; although, the implication of the difference between the prepositions in and of may have been too subtle to be effective. The preposition was lost in the name change in 1972 but the membership article in the by-laws remained as it originally was.

This year, for the first time, AEEP has a biologist as president. Wesley O. Pipes is the Drew L. Betz Professor of Ecology and Professor of Biological Sciences at Drexel University. However, he can not fairly be classed as a non-engineer because he also holds the title of Professor of Environmental Engineering at Drexel and formerly was a member of the Civil Engineering faculty at Northwestern University for sixteen years.

President Pipes grew up in Texas where he received a B.S. in Biology (1953) and an M.S. in Biology (1955) from North Texas State. He then studied engineering at the University of California, Berkeley, and finally received a Ph.D. from Northwestern University in 1959. His major subject for his Ph.D. program was sanitary engineering. His research has included studies of tastes and orders in water supplies, algae culture, biological wastewater treatment, and receiving water biology.

A member of AAPSE and AEEP since 1966, President Pipes was active in organizing both the Second National Conference on Sanitary and Environmental Engineering Graduate Education (Northwestern University, 1967) and the Third National Conference on Environmental Engineering Education (Drexel University, 1973). He was chairman of the 1970 AAPSE Workshop and has been a member of the Board of Directors since 1971. As Vice-President of AEEP in 1974 he was responsible for the survey of graduate student enrollments and AEEP relations with Congress and Federal Agencies.

PAUL KING NEW AEEP VEEP



Paul H. King, newly elected vice president of AEEP, is Professor of Sanitary Engineering at Virginia Tech and has been a member of the faculty at that institution for nine years. He received B.S. and M.S. degrees from Caltech and a Ph.D. from Stanford.

Previous experience includes teaching at the University of Kentucky and engineering work with the U.S. Public Health Service and with Brown and Caldwell Consulting Engineers. Paul has been active in numerous AEEP Committees & has served as Co-Editor of the *AEEP Newsletter* for a period of two years. He is the author of numerous papers in Environmental Engineering. Our sincere congratulations to Paul.

HARD TIMES

Whether or not these are hard times is debatable; at least, President Ford is willing to debate the issue. However, it is quite clear that costs are very high, business is slow, and unemployment is rising. In these times many people and most politicians may come to believe that both environmental protection and education are lower priorities, items which can wait until we can solve some of our urgent, short range problems.

What is now the environmental engineering education establishment developed largely during the decade of the 1960's; although it clearly has roots which go back several decades before. It developed under the impetus first of large infusions of federal funds and later under the force of the environmental movement (although in many cases more as a reaction against the environmental movement rather than as part of the mainstream). If we find these pushes now weakening, we must develop our own rationales, drive, and leadership to carry forward.

There are many questions which we must face and ultimately answer. Are environmental protection issues to be resolved merely as a result of power politics among governmental agencies and between government and industry or is there a place for rational, objective technological solutions? Is it possible to run a large, active graduate program without federal monies for traineeships and fellowships? Can we bring the latest in technological solutions to pollution problems to practicing engineering who have been out of school for several years or who never had any education in environmental engineering? Can we develop new technological solutions within the new constraint of energy conservation? Will environmental engineering remain as a minor field of application in civil engineering, chemical engineering, and mechanical engineering or will it finally emerge as a major branch of engineering in its own right? These are questions which will eventually have de facto answers. If we want to influence what the answers are, we must struggle with the questions now.

AEEP (previously AAPSE) has, in the past decade provided what leadership there has been in dealing with the issues of environmental engineering education. Our collective successes are evident but these were achieved during good times and with many allies. It is not clear that we will continue to be successful during this hard time.

There are five objectives which we must pursue with greater vigor than before.

1. We must continue our efforts to upgrade education in the environmental engineering field especially in part time graduate education and continuing education.
2. We must strengthen our ties with professional engineering organizations, particularly the American Academy of Environmental Engineers, in an effort to serve the employers of our students better and to have a broad base of professional support.
3. We must seek recognition for environmental engineers as the group which provides technological solutions for environmental protection problems.
4. We must broaden the membership of AEEP so that we include more of the educators who are working in the fields of air pollution control, environmental control, industrial hygiene, and environmental impact assessment.
5. We must speak out on local and national issues of environmental protection so that our views are, at least, available for those who will listen.

Hard times require a hard response. The AEEP Board of Directors is working hard on programs directed toward achieving these objectives. However, the Board is only a tool of the

membership. Please let us know what you would like to do personally and what you would like AEEP to do collectively. We will serve you only as well as you require us to and are willing to work with us.

Wesley O. Pipes

FROM THE PAST PRESIDENT'S DESK

It has been a pleasure to serve as your president for the past year. We have had a reasonably successful year which included several significant improvements in the Association and we suffered a few setbacks. In the following paragraph I will attempt to summarize some of our activities and express my appreciation to several individuals that have made an outstanding effort in behalf of AEEP.

One of the brightest new developments in AEEP has been the establishment of a new format for the Newsletter. Dr. Adnan Shindala of Mississippi State University has done an outstanding job in producing a professional Newsletter in a very attractive format. Dr. Shindala has agreed to continue to produce the Newsletter for another year and this will certainly be of tremendous benefit to the Association.

Dr. John O'Connor and his committee have produced a new edition of the Unit Operations and Unit Processes Laboratory Manual sold by the Association. The publication has been well received and the new edition has much to offer in addition to what was in the original version. The committee has worked very hard and produced a very useful document and are to be commended for their efforts.

The Register of Graduate Programs in Environmental Engineering was published in 1974. This represents the third edition of the Register and contains information about 71 schools offering Environmental Engineering or Science programs. The document was produced in cooperation with the American Academy of Environmental Engineers, the Environmental Protection Agency and the Association of Environmental Engineering Professors. The printing and preparation of the manuscript was supported by the Environmental Protection Agency. The Register is a well organized, attractive document that should be of great value to all prospective graduate students and employers. Dr. John Austin and Jane C. Klosky, both of Clemson University, did an outstanding job in preparing the Register and are to be commended for their outstanding efforts.

The Board of Directors prepared a series of policy papers discussing the various ramifications of Public Law 92-500 and presented these papers at an ASCE Environmental Engineering Division Specialty Conference held at Pennsylvania State University on July 9-11, 1974. Following the presentation, the papers were prepared in a format similar to that used for the Newsletter and were distributed to the membership and other interested parties. Copies of these policy papers are still available for distribution to congressmen, city officials, or others that the membership feels should receive the information. Please let me know to whom I should send these and I will have copies mailed.

AEEP workshops in the past have produced excellent information and resulted in Proceedings that were quite useful to the teaching profession. The 1974 AEEP Workshop on Environmental Impact and Linkages was no exception. The workshop was held in Charleston, South Carolina on December 19 and 20, 1974 and was attended by over 60 people. Drs. Jimmie E. Quon and Donald L. Fox did an outstanding job in arranging this very

informative and interesting program. Dr. David Eckhoff of the University of Utah has agreed to collect and edit the papers and produce a Proceedings from the Workshop. The Proceedings should be out within the next six months.

The Training Support Committee presented testimony on April 25, 1974 to the Sub-committee on Agriculture-Environmental and Consumer Protection of the Committee on Appropriations of the House of Representatives in support of environmental engineering and science training. Professor Howard Williford of Mississippi State University made the presentation and did an outstanding job. Although our case was well presented, it appears that we did not make significant inroads in reversing the trend toward less support for training. Our new president, Wes Pipes, is committed to continuing the testimony and contacts with Congress and EPA officials to reverse this trend, and I hope that all of you will give him your support in this activity. It is an impossible task for one or two individuals to carry out, and your letter writing efforts in the past have been very helpful. It may be necessary for us to exert significant effort in this area again in the very near future. The only promising actions that we have observed is that a request was made by Administrator Train that the present level of training support in the EPA budget be maintained. However, no indication has been given as to how these funds would be used.

The AEEP Visiting Foreign Lecturer Committee continued its outstanding activities this past year and invited Mr. Kjell Baalsrud, Director of the Norwegian Institute for Water Research, Oslo, Norway to participate as the foreign lecturer for 1974. Mr. Baalsrud's visit was quite successful and well received by the participating institutions.

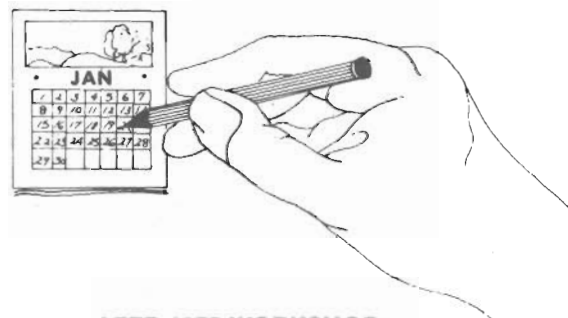
Recently you received the first announcement of the 1975 Workshop which will be held aboard a Princess cruise ship leaving from Los Angeles and going up to Vancouver, British Columbia with an intermediate stop in San Francisco. The Workshop is scheduled to begin on Saturday, June 14 and end on Tuesday, June 17, 1975. Professor Don Anderson of Loyolla University in Los Angeles has arranged some excellent air fares to and from your home, and you should contact Don for specific information about your location. I would like to encourage each of you to participate in this program. The program will be oriented toward providing the economic and technical tools, analytical methodology, and political and institutional realities required to interpret environmental plans and strategies in the light of the utilization of energy resources. This should be a very stimulating and informative subject and one that we definitely should be incorporating into our environmental courses. It is imperative that we have an early estimate of the number of participants, and I would encourage you to respond to Don's inquiry as quickly as possible.

Many of the other committees of AEEP have been quite active during 1974, and I hope that they will not be offended by the fact that I did not mention each of these committees individually. I am most appreciative of the concerted effort made by the majority of the membership and would like to take this opportunity to thank each of you for your efforts in behalf of AEEP. I have found the membership of AEEP to be the most active and hard working group of professionals with whom I am associated. If all members of professional organizations contributed at the same level that the AEEP membership does, there would be little need for the constant call for service.

Again, I would like to thank you for the honor and privilege of serving as your president, and I look forward to continued service on the Board of Directors and participation in many of the AEEP activities.

E. Joe Middlebrooks

MARK YOUR CALENDAR



AEEP 1975 WORKSHOP

Plans are under way for the 1975 AEEP Workshop. A 4-day cruise off the west coast is being scheduled with a planned departure from Los Angeles on Saturday, June 14, and arrival in Vancouver, B.C., on Tuesday, June 17, 1975.

This workshop should provide attendees with economic and technical tools; analytical methodology; and political and institutional realities required to interpret environmental plans and strategies in the light of the utilization of energy resources. AEEP members using the knowledge gained at the workshop and through the proceedings should broaden their competencies in the classroom and research situations.

The formal program should be completed by the committee by the first of December. Watch for their finalized plans and make your plans to attend. This should be both an enjoyable and informative experience.

BOARD BRIEF

The AEEP Board met at Charleston, South Carolina following the Workshop program. Many of the deliberations are reported in other portions of this Newsletter. A few assorted items of interest are discussed in the following paragraphs:

The Board met with Walt Purdom, a representative of the American Academy of Environmental Engineers and mutual concerns were discussed. Among these were the use and updating of graduate curriculum accreditation criteria (pro and con), development of criteria for evaluation of undergraduate curriculum, and development of a policy on continuing education for environmental engineers. Board activity in these areas will be coordinated by George Hanna.

Don Aulenbach reported on progress achieved in the development of a register of undergraduate programs in environmental engineering.

Bob Ruhl of EPA reported on current happenings in Washington. No new policies regarding training grants have been developed in spite of considerable efforts by AEEP and others to obtain reversal of the well-known phase-out decision. The implications of the new Safe Drinking Water Act were also discussed.

The Board recommended that the Newsletter feature available audio-visual aids for the teaching of environmental engineering. A description of such material should be forwarded to the editor for inclusion in future issues.

Paul King reported on the graduate enrollment survey. Responses have been received from over 100 schools. Data is currently being tabulated and should be available in the early spring.

The Board agreed to encourage circulation of the AEEP policy papers by the membership to appropriate Federal and

State governmental officials.

The next meeting of the Board will be held on Monday, May 5, 1975, prior to the Purdue Conference. An AEEP membership meeting will be held at Purdue on the evening of May 6, 1975.

Paul King

1974 AEEP WORKSHOP EMPHASIZES ENVIRONMENTAL LINKAGES

The 1974 AEEP workshop was held on December 19 and 20 at Charleston, South Carolina. Co-sponsored by the Midwestern Universities Consortium for Environmental Education and Research, the theme of the sessions was problem definition and teaching techniques relating to environmental impact and linkages. A total attendance of 55 enthusiastic participants heard 28 papers discussing various facets of the topic. Workshop chairman was Jimmie E. Quon of Northwestern University. Co-chairman was Donald L. Fox of the University of North Carolina.

Conference sessions were built around the following themes: Current and Emerging Problems in Air Pollution; Linkages Between Air and Water Pollution; Linkages Between Ultimate Waste Disposal and Environmental Quality; Linkages Between Land Use and Environmental Quality; and Teaching of Environmental Impact and Linkages. Session chairmen were Don Fox, Larry Canter, Jim Patterson, Russ Christman and Ed Edgerley. The Proceedings of the Conference are being compiled and edited by David Eckhoff of the University of Utah. Their availability will be announced in future editions of the Newsletter.

Paul King

MEMBERS IN THE NEWS

David Jenkins Named Director of SERL

Professor David Jenkins has been named Director of the Sanitary Engineering Research Laboratory, University of California, Berkeley. He has been Acting Director for one year and succeeds the late Professor W. J. Kaufman. Dr. Jenkins has been associated with the University of California, Berkeley and the Sanitary Engineering Research Laboratory since 1960 in both research and teaching capacities. David has been very instrumental, in AEEP activities and has served on the Associations' Board of Directors. Our sincere congratulations to Dr. Jenkins.

were written, editorially evaluated, and tested in various laboratories for workability. The laboratory manual is intended to enhance the development of unit operations and unit processes laboratory courses in environmental engineering. It was edited by John T. O'Connor, Chairman of the Department of Civil Engineering, University of Missouri-Columbia.

The manual has been substantially revised over the first (1972) edition. The 220-page, single spaced, illustrated manual includes description of 32 laboratory experiments related to:

Coagulation and Flocculation
Mixing and Continuous Flow Models
Sedimentation
Thickening
Filtration
Microstraining
Vacuum Filtration
Flotation
Disinfection
Chemical Oxidation and Reduction
Corrosion and Corrosion Control
Water Stabilization
Chemical Precipitation
Adsorption
Ion Exchange
Membrane Processes
Heat Transfer
Gas Transfer
Biological Oxidation in Batch and Continuous Systems
Aerated Lagoons

In addition to the experiments, the manual contains sections on laboratory rules and safety regulations, the submission of laboratory reports, and a novel method of teaching a unit operations and unit processes laboratory course which employs the "Job Captain" concept. A new section discusses the organization of the laboratory schedule and the use of "Demonstration" experiments.

The manual can be obtained by writing to the University of Texas, Austin, Texas, which is the repository for all AEEP publications. The cost if \$6 per copy to AEEP members and their students. The non-member price is \$12 per copy.

AEEP Unit Operations Manual

Dr. Joseph F. Malina, Jr.

Department of Environmental Health Engr.

305 Engineering Labs Bldg.

University of Texas

Austin, Texas 78712

WELCOME TO AEEP NEW MEMBERS

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Dr. Walter J. Maier
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Civil and Mineral Engineering
Minneapolis, Minnesota 55455

AEEP PUBLISHES ENVIRONMENTAL ENGINEERING UNIT OPERATIONS AND UNIT PROCESSES LABORATORY MANUAL, SECOND EDITION, JANUARY, 1975

The Association of Environmental Engineering Professors has published the Second Edition of the *Environmental Engineering Unit Operations and Unit Processes Laboratory Manual*. The development of the manual has taken place over the past five years, during which time experimental procedures

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ACTIVITIES OF THE INTERNATIONAL ASSOCIATION ON WATER POLLUTION RESEARCH

AEEP is one of five sponsoring organizations of the U.S.A. National Committee (USANC) for Representation of the United States to the International Association on Water Pollution Research (IAWPR). AEEP's Delegates to USANC are David Jenkins and Richard Dick; and Fred Pohland and John Andrews serve as Alternate Delegates. Questions on activities of the International Association should be directed to any of the AEEP Delegates or Alternate Delegates.

Following is a brief summary of current IAWPR activities:

8th International Conference - 1976

The 8th IAWPR Conference will be held in Sydney, Australia. It has just been announced that the scheduling of the Conference has been changed from the previously announced date in August to October 17-22, 1976. Dr. Fred Pohland of Georgia Tech has accepted the task of developing possible travel arrangements for American participants in the Conference.

The first invitation to submit papers for consideration for the Conference program has been issued. The program will be selected on the basis of review of completed papers. The deadline for submission of papers is September 15, 1975. Application forms, details on the format for preparation of manuscripts, and information on the subject matter to be considered for various sessions can be obtained from:

Dr. S. H. Jenkins
Program Committee
IAWPR
Headington Hill Hall
Oxford OX3 OBW
England

Specialized Conference on Nitrogen as a Water Pollutant

The Danish National Committee and IAWPR will sponsor a Conference on "Nitrogen as a Water Pollutant" at the Technical University of Denmark in Copenhagen on August 18-20, 1975. A brochure describing the Conference may be obtained from Richard Dick (University of Delaware, Newark, Delaware 19711), and additional information is available from:
Conference Secretariate
IAWPR - Nitrogen as a Water Pollutant
c/o DIS Congress Service
3 Knabrostraede
DK-1210 Copenhagen K
Denmark

Marine Municipal and Industrial Wastewater Disposal

IAWPR is cooperating with the Politecnico Di Milano-Instituto Di Ingegneria Sanitaria, the University of California-Berkeley, and the Associazione Nazionale Di Ingegneria Sanitaria in sponsoring the Third International Conference on Marine Municipal and Industrial Wastewater Disposal. The Conference will be held in Sorrento, Italy on June 23-27, 1975. Requests for information on the Conference and requests to present reports may be sent to:

Instituto Di Ingegneria Sanitaria
del Politecnico Di Milano
Segreteria per i Convegni Internazionali
Via F.lli Gorlini, 1
Milano, Italy

IAWPR Publications

IAWPR plans to commence publication of a second journal, *Progress in Water Technology*, in 1975. Papers presented at International Conferences (starting with the Paris Conference) and Specialized Conferences will be published in the new journal, and publication of Conference Proceedings will be discontinued for financial reasons.

Water Research will continue as in the past. John Andrews of the University of Houston has accepted the responsibility of serving as the American Editor of *Water Research*. Manuscripts should be submitted to John, who will coordinate the review process and communications with the Editor of *Water Research*.

Richard I. Dick

AMERICAN ACADEMY OF ENVIRONMENTAL ENGINEERS CERTIFICATION EXAMINATION

The next qualifying examination for certification by the American Academy of Environmental Engineers will be held on Tuesday, June 24, 1975. The examination will consist of two parts: (1) the specialty field selected by the applicant, and (2) oral.

Areas of specialty recognized by the Academy are: General Sanitary and Environmental Engineer, Air Pollution Control Engineer, Industrial Hygiene Engineer, Radiation Protection Engineer, Solid Waste Management Engineer, Water Supply

and Wastewater Engineer.

Application forms may be obtained from the office of the Executive Director, American Academy of Environmental Engineers, P. O. Box 1278, Rockville, Md., 20850. For consideration of admission to the examination, applications must be received no later than **May 15, 1975**.

Each applicant certified becomes a Diplomat of the American Academy of Environmental Engineers. Requirements for certification include good moral and professional character, graduation with a degree in engineering from a qualified institution, registration as a professional engineer in one of the states of the United States or provinces of Canada, eight years of professional environmental engineering work—four of which must be in responsible charge, and satisfactory completing of written and oral examinations.

ADDENDUM TO REGISTER OF ENVIRONMENTAL ENGINEERING GRADUATE PROGRAMS

Inadvertently, the Environmental Engineering program housed in the Chemical Engineering program at Cornell University was omitted from the new edition of the Register of Environmental Engineering Graduate Programs. This information is offered in the Newsletter and should be clipped and inserted into one's Register. Those desiring further information may obtain this from Prof. Charles D. Gates, Cornell University, or from any AEEP director.

Cornell University's Department of Environmental Engineering offers an MS or PhD in Environmental Engineering and Water Resources Systems Engineering. Also available is an ECPD accredited Environmental Engineering Master of Engineering degree. The Environmental Engineering program permits masters and doctoral candidates to strengthen their knowledge of process design and engineering, optimization of treatment systems and process-quality control, environmental impact of effluents and reclamation and reuse of wastewater. Water Resources Systems Engineering is concerned with the planning, analytical and computational techniques used in defining and evaluating alternative designs and/or management policies applicable to the various aspects of environmental quality control.

"STATE OF THE ART" BOOK ON INSTRUMENTATION AVAILABLE

The International Association on Water Pollution Research wishes to announce the availability of a "state of the art" book on Instrumentation, Automation and Control of Wastewater Treatment Systems. This book contains 70 papers and associated discussions which were presented at an IAWPR Specialized Conference held in London in September of 1973. Topics covered include plans and accomplishments of national, state and local government agencies, specific instrumentation for measurement of wastewater characteristics, control systems for sewers and individual wastewater treatment processes, and the application of computers in wastewater management, collection and treatment systems.

The book may be ordered from Pergamon Press using the information given below:

PROGRESS IN WATER TECHNOLOGY

Volume 6

Instrumentation, Control and Automation of Wastewater Treatment Systems (London Conference 1973). Edited by J.F. Andrews, R. Briggs and S. H. Jenkins.

ISBN 0 08 017976 2he Cloth binder, 570 pages, \$37.50
Pergamon Press, Inc., Maxwell House, Fairview Prk, Elmsford, N.Y. 10523

LACK OF PERSONNEL WILL CURTAIL POLLUTION CONTROL EFFORTS

A group of consultants to the Environmental Protection Agency has told the agency that, unless professional scientists and engineers continue to be trained at the present or higher rate, the goals of the 1972 Federal Water Pollution Control Act will not be met. The consultant group, whose academic members represent 25 colleges and universities; issued the statement as part of an extensive study of the personnel required to meet the Act.

The consultants concluded that federal support for professional education in the environmental field must be continued if state, regional, and federal agencies and the private sector are to have adequate personnel available to meet their needs. The report added that failure to continue such support would curtail the innovative research and development necessary to achieve the most cost-effective solutions to water pollution.

The increasing need for competent professionals in all environmental areas and the possibility of an inadequate supply of them prompted the group to recommend the following: 1. That the present level of federal funding for academic training programs (\$3.5 to \$4 mill/yr) be continued on an interim basis; 2. That EPA analyze the present and long-term need for professional personnel; and 3. That alternative professional education programs (such as working fellowships in state agencies and continuing education classes) be studied.

Because the public is the primary beneficiary of the activities of the environmental scientist and engineer, the consultants conclude that the primary source of support for education in environmental studies should come from a public agency.

Readers interested in more information on the report should contact the chairman of the consultants' subcommittee, Donald J. O'Connor, Manhattan College, Bronx, N.Y. 10471.

ACADEMIC MARKET PLACE

POSITIONS AVAILABLE

Michigan State University

The Department of Civil and Sanitary Engineering at Michigan State University is recruiting for a faculty member to teach and conduct research in the sanitary engineering program. The position is open between January 1, 1975 and September 1, 1975. Teaching duties will include undergraduate and graduate water and wastewater treatment courses. In addition, the appointed faculty member would be expected to develop research in the area of wastewater treatment. Laboratory facilities and initial research support are available to assist in this development effort. A Ph.D. in Sanitary Engineering is required with a special interest in water and wastewater treatment. Write to Dr. William C. Taylor, Chairman, Department

of Civil and Sanitary Engineering, College of Engineering, Michigan State University, East Lansing, Michigan 48824. An equal opportunity employer.

Humboldt State University

The College of Engineering, Humboldt State University, Arcata, California has an immediate opening for a faculty member with specialization in water quality and solid waste management. The position involves teaching in a new engineering program which emphasizes natural resources and the environment. Candidates must hold a doctoral degree. Experience in the engineering aspects of water pollution control and solids waste management as well as university teaching background is desired. Rank and salary depend on qualifications. Write to Dr. F. G. Alden Burrows, Chairman, Department of Engineering, Humboldt State University, Arcata, California, 95521 (An Equal Opportunity Employer)

University of Pittsburgh

The Water and Environmental Engineering Program of the Civil Engineering Department has two full time faculty openings, one dealing with the fundamentals of industrial and municipal waste engineering and the other in the general area of Environmental Modeling and Systems; each may begin in September, 1974. Responsibilities include teaching and research at both the undergraduate and graduate levels. A Ph.D. is required, salary and rank commensurate with experience. Submit an experience resume with brief description of current academic interests to Dr. Joel I. Abrams, Chairman, Department of Civil Engineering, University of Pittsburgh, Pittsburgh, PA, 15261. An equal opportunity/affirmative action employer.

Clarkson College

The Department of Civil and Environmental Engineering, Clarkson College of Technology, is accepting applications for the position of Asst. Professor in environmental engineering. Ph.D. required. Responsibilities include undergraduate and graduate teaching in water and wastewater treatment. Research emphasis in the area of wastewater treatment is desirable. Send resume to Dr. James K. Edzwald, Department of Civil and Environmental Engineering, Clarkson College of Technology, Potsdam, New York 13676. Equal opportunity employer.

University of Cape Town

Applications are invited from candidates specially qualified in any of the branches of Civil Engineering for the above post, vacant from January 1, 1976. Appointment, according to qualifications and experience, will be made on the salary scale R8 460 x 360 - 9 900 x 450 - 11 250 per annum.

Applicants should submit a curriculum vitae, stating present salary, research interests and publications, when available if appointed, and the names and addresses of three references.

Memoranda concerning the position and further information should be obtained from The Registrar, University of Cape Town, Private Bag, Rondebosch, 7700, South Africa, by whom applications must be received not later than 1st April, 1975.

Appointment will be subject to a satisfactory medical examination.

The University reserves the right to appoint a person other than one of the applicants or to make no appointment.

University of Minnesota

Two openings in the Department of Civil and Mineral Engineering in the area of Environmental-Water Resources Engineering effective September, 1975. Ph.D. or equivalent required; duties include teaching/research.

Position 1.

Training or experience in engineering or applied mathematics. Academic and/or research experience in one or more of the following areas: Aquatic Chemistry, Chemical Engineering, Geochemistry, Limnology or Ocean Chemistry.

Position 2:

Academic and/or research experience in Environmental-Water Resources Engineering with strength in either Microbiology or Aquatic Biology.

Positions may be filled at the senior or junior level. Preliminary inquiries should be addressed to: Dr. Charles Fairhurst, Head, Department of Civil and Mineral Engineering, University of Minnesota, Minneapolis, Minnesota 55455 and include resume of academic preparation and professional experience.

Final deadline date is May 1, 1975

The University of Minnesota is an equal opportunity and an affirmative action employer.

Washington State University

Washington State University has an immediate opening for a new position at the assistant professor level in Environmental Engineering. The position requires teaching and research responsibilities in the area of water quality engineering with emphasis in mathematical and physical modeling of aquatic and wastewater systems. Undergraduate degree in engineering and Ph.D. degrees are desired. Preference will be given to candidates with industrial and/or research experience. Submit detailed resume with copies of the course work taken and have three reference letters sent directly to: Dr. S. K. Bhagat, Professor and Head of Environmental Engineering, Washington State University, Pullman, Washington 99163. An equal opportunity employer.

In case you find a mistake in one of our issues, please remember we put it there for someone's benefit. We try to please everyone and some people are always looking for mistakes.



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