



PRESIDENT'S CORNER

In February of this year, the sixth edition of the Register of Environmental Engineering Graduate Programs was published. On behalf of the board of AEEP I extend my thanks to all of the members who took time from their busy schedules to fill out the necessary forms. The register is already a best seller and second printing has been ordered. Bill Knocke and Gary Amy, who compiled the register, deserve a round of applause for a job well done. Additional copies of the register can be obtained from Des Lawler.

The Executive Committee of AEEP held its annual meeting in Washington, D.C. on February 26, 1989. On Monday the 27th, we took advantage of being in Washington to visit with EPA, various congressional staff persons, NSF, and WPCF. The principal objectives of the meetings with EPA and congressional staff persons were to express the concerns of AEEP's membership with the limited availability of funding for investigator-initiated grants and to offer any assistance that might be of help in increasing the budget for the Office of Exploratory Research. In follow-up letters written to the congressional staffers with whom we visited, the initiative to increase the EPA budget for support of the peer-reviewed grants program was endorsed. Specifically, it was noted that the principal benefits to be derived from this program are:

- "The Exploratory Research Grants Program allows for the advancement of basic scientific information that is essential for the development of practical and cost-effective engineering solutions to environmental problems."
- "The Exploratory Research Grants Program helps to foster a diversity of scientific inquiry while at

the same time serving to train the professionals required to address our environmental needs."

The meetings with NSF and WPCF were primarily informational, dealing with issues of mutual concern, including funding (at NSF) and the new research journal (at WPCF).

Means of improving the effectiveness of the organization were also discussed at the meeting of the executive board. We will keep you apprised of any developments in this area. In the meantime, we welcome any suggestions you might have on how AEEP can be more effective in serving the membership.

Preparation of the AEEP history is progressing and, if all goes well, the printed volume should be available on or before the WPCF meeting in San Francisco. We have been contacted by the Pan American Health Organization about the possibility of developing a working program between AEEP, PAHO, and AID and our Latin American counterparts. We will keep you informed of any developments as we explore the options for effective interactions.

It has been called to my attention that many environmental engineering professors have stopped participating actively in the Standard Methods committee process. Notwithstanding the travails of committee work, I encourage all of you to participate and become more active in getting several of the methods that are now being used as "standard" into the next edition. I also encourage you to attend the Purdue Industrial Waste Conference and the AEEP Workshop in early May.

George Tchobanoglous
President

AEEP NEWS AND ANNOUNCEMENTS

AEEP Workshop — Biological Processes in Drinking Water Treatment

1989 AWWA Annual Conference, Los Angeles, California

Biological processes have the potential to remove pollutants that may be ineffectively removed by conventional treatment, such as biodegradable organics, synthetic organic compounds, ammonia, nitrate, iron, and manganese. Bio-oxidation of organic matter and ammonia decreases available substrates for microbial regrowth in distribution systems, reduces taste and odors, and decreases the amount of precursor available to form disinfection by-products. Biological removal of certain contaminants could extend the service time or capacity of subsequent physicochemical processes. In U.S. water treatment, the practice is often to impair or preclude development of biological activity. Nevertheless, use of biological treatment to provide a safe and high quality drinking water is becoming relatively common in other parts of the world, especially in Western Europe. Information on biological process fundamentals pertinent to drinking water and European experience will be presented at this AEEP Workshop.

1. Overview and Principles

Edward J. Bouwer
Geography and Environmental Engineering
The Johns Hopkins University
Baltimore, Maryland 21218

2. European Experience

Peter M. Huck
Dept. of Civil Engineering
University of Alberta
Edmonton
Canada T6G 2G7

Engineering Science and CH2M-Hill Dissertation Awards

Entries are sought for the 1989 Outstanding Doctoral Dissertation Awards, one sponsored by Engineering Science, Inc., and the other sponsored by CH2M-Hill. Two separate but equivalent awards will be given, each consisting of a plaque and a cash prize of \$1000 for the student and a plaque and a cash prize of \$500 for the faculty advisor.

Faculty advisors wishing to compete should send two copies of the thesis to Dr. Stephen J. Randtke, Civil

Engineering Department, University of Kansas, Lawrence, KS, 66045. The deadline for submission is **June 15, 1989**, and the thesis must have been completed during the 1988-1989 academic year. Faculty advisors are urged to limit themselves to a single entry (which will be considered for each of the two awards).

Faculty advisors should also be forewarned of the customary procedure for selecting the judges. According to long-established tradition, the faculty advisors of the winning theses serve as the judges for the following year. The winners of the 1988 awards were:

- James R. Mihelcic, "Microbial Degradation of Polycyclic Aromatic Hydrocarbons under Denitrification Conditions in Soil-Water Suspensions," under the supervision of Richard G. Luthy, Department of Civil Engineering, Carnegie Mellon University.
- John E. Tobiason, "Physicochemical Aspects of Particle Deposition in Porous Media," under the supervision of Charles R. O'Melia, Dept. of Geography and Environmental Engineering, The Johns Hopkins University.

Each thesis will be judged on the basis of 100 points allocated as follows:

Scientific and Technological Validity of Research — 25
Originality of Research — 25
Contribution to Advancement of Environmental Engineering and Science — 40
Clarity of Presentation (Organization) — 10

The selections will be made by September 1, 1989 so that the winning students and faculty advisors can be invited to the AEEP luncheon at the WPCF meeting.

AEEP Outstanding Paper Award

Nominations are sought for the 1989 AEEP Outstanding Paper Award for a paper that has "withstood the test of time". Nominators should send a letter (2 pages maximum) to Dr. Stephen J. Randtke (Department of Civil Engineering, University of Kansas, Lawrence, KS 66045) giving the full reference and the reasons why the paper is considered a "landmark" and explaining how it has influenced the practice of environmental engineering. A nomination cannot be made by an author or co-author of the paper. Nominations are due **July 15**.

According to the current rules of the competition, any author on a winning paper is ineligible in the

competition for a period of three years. The previous winners were:

- 1983 — Stumm, W., and Morgan, J. J., "Chemical Aspects of Coagulation", *Journal of the American Water Works Association*, 54, 8, 971-992 (August, 1962).
- 1984 — Stumm, W., and O'Melia, C. R., "Stoichiometry of Coagulation", *Journal of the American Water Works Association*, 60, 5, 514-539 (May, 1968).
- 1985 — McCarty, P. L., and Lawrence, A. W., "Unified Basis for Biological Treatment Design and Operation", *Journal of the Sanitary Engineering Division, ASCE*, 96, SA3, 757-778 (June, 1970).
- 1986 — Dick, R. I., "Role of Activated Sludge Final Settling Tanks", *Journal of the Sanitary Engineering Division, ASCE*, 96, SA2, 423-436 (April, 1970).
- 1987 — Dick, R. I., and Ewing, B. B., "Evaluation of Activated Sludge Thickening Theories", *Journal of the Sanitary Engineering Division, ASCE*, 93, SA4, 9-29 (August, 1967).
- 1988 — McCarty, P. L., "Anaerobic Waste Treatment Fundamentals", *Public Works*, 95, 9, 107-112; 10, 123-126; 11, 91-94; 12, 95-99 (September-December, 1964).

Each year the papers ranked 2, 3, and 4 are automatically considered in the next year's voting. A paper is dropped from consideration if: (a) it finishes fifth or lower in any year, or (b) it has been in competition for three years without being selected. The only carryover nominations for this year's competition are:

Weber, W. J., and Morris, J. C., "Kinetics of Adsorption of Carbon from Solution", *SED, ASCE*, 89, SA-2, 31-55 (April, 1963). **Nominated 1988.**

Weber, W. J., and Morris, J. C., "Equilibria and Capacities for Adsorption on Carbon", *SED, ASCE*, 90, SA-3, 79-105 (June, 1964). **Nominated 1988.**

The Awards Committee consists of a voting Chairman with a three-year term and six members each with a rotating three-year term. The Chairman is appointed by the President of AEEP. The two new committee members are appointed each year by the Chairman. Each term starts at the end of the Annual WPCF Conference. The current Committee is:

Stephen J. Randtke, Chairman, term ends 1991
Perry L. McCarty, term ends 1989
Richard I. Dick, term ends 1989
Edward J. Bouwer, term ends 1990
Jack L. Cleasby, term ends 1990
Mackenzie L. Davis, term ends 1991
Jon C. Liebman, term ends 1991

Any Committee member who is an author or co-author of a nominated paper will refrain from voting on that paper.

The current Committee has been asked to consider whether any changes should be made in the nomination process or in the selection process. Suggestions from the AEEP membership are most welcome and should be conveyed (preferably in writing) to the Chairman of the Awards Committee.

Please take a few moments to reflect on the papers that you think have had the greatest impact on environmental engineering and consider nominating one of them for this award. Note that papers in all areas of environmental engineering, including air pollution, water quality modelling, solid waste disposal, etc., are eligible.

Nominations Requested for 1990 AEEP Lecturer

Nominations are being sought for the 1990 Distinguished Lecturer tour. If you wish to nominate a speaker for consideration, please contact Dr. Fred Pohland at the Dept. of Civil Engineering, 1141 Benedum Hall, University of Pittsburgh, Pittsburgh, PA 15261-2294 (☎ 412-624-1880). Nominations are due no later than **June 1.**

Emeritus Member Nominations Sought

The AEEP Board of Directors typically elects members to the status of Emeritus Member at its fall meeting. The Board wishes to solicit nominations for Emeritus Member status. Our by-laws read "Upon retirement, an AEEP member who has been active in the Association may be nominated by a member for the grade of Emeritus Member...The Emeritus Membership shall continue for the life of the member and all dues will be waived." If you wish to nominate any member who has recently retired, please send your nomination to Bill Knocke, our AEEP Secretary, as soon as possible.

AEEP Committee Assignments

Committee	Chairperson
AEEP Liaison	Paul Bishop
AWWARF Liaison	Jim Edzwald
Archives	David Hendricks
Arrangements	Tom Keinath
Audit	John Ferguson
Awards	Steve Randtke
Computer Software	J. B. Neethling
Distinguished Lecturer	Makram Suidan
Education	Bill Batchelor
1990's Education Conference	Robert Baillod
Enrollment Survey	Bill Ray
Legislative Analysis	Ray Letterman
Membership	Bill Knocke
Newsletter	Greg Boardman
Nominating	Dick Luthy
Publications	Desmond Lawler
Register	Bill Knocke

Relations with USANC
Sustaining Member Liaison
WPCF Liaison
Water Quality 2000
Hazardous Waste Curriculum Survey

Tom Keinath
Bill Knocke
Walter Weber
Walter Weber
Mark Benjamin

Deadline for the September 1989 Newsletter

Please mail articles for the September issue of the AEEP Newsletter to the editor, G. D. Boardman, by August 1, 1989.

GENERAL NEWS

AEE Certification

The American Academy of Environmental Engineers (AAEE) is a group of highly qualified professional engineers who have imposed self-testing and review for entry qualification. The Academy is an active participant in the accreditation of environmental engineering curricula, ensuring that educational standards are responsive to the needs of the professional. Thus, the activities of the Academy should be of major interest to all environmental engineering educators.

The Association of Environmental Engineering Professors is a sponsoring organization of the American Academy of Environmental Engineers. Each sponsoring organization of the Academy may submit a list of not more than five (5) of its qualified members for consideration by the AAEE Board for certification.

The candidates must meet the following AAEE criteria:

1. B.S. in engineering or a related field.
2. Professional Engineer's license.
3. Professionally engaged on a full-time basis.
4. Must have at least fifteen (15) years of environmental engineering experience in one or more of the specialty fields. Eleven (11) of the fifteen (15) years shall be in responsible charge, which work must include active participation with responsibility primarily in one or more fields of environmental engineering.

Candidates' applications will be reviewed to see that all criteria are met and then presented to the AEEP Board for approval. The Board-approved applications will be submitted with a letter of transmittal to AAEE for consideration by the Academy Review Committee and Board.

Any active AEEP member in good standing who meets the above criteria is eligible for nomination. All applications should include letters of endorsement from three AEEP members who are familiar with the candidate's achievements. Consideration shall be given to the record of service to AEEP.

Note that any AEEP members meeting the criteria may apply directly to the Academy for membership, and acceptance is conditional on an oral examination. In addition, any members that do not have the

experience noted above but have eight or more years experience in this field can apply directly to the Academy, and acceptance is conditional on a written and an oral examination. The Academy address and telephone number is:

American Academy of Environmental Engineers
132 Holiday Court, Suite 206
Annapolis, MD 21404
☎ (301) 266-3311

Qualified AEEP members wishing to be sponsored as a nominee of AEEP or desiring more information should apply directly to the AEEP-AAEE Trustee, Dr. Paul L. Bishop, Department of Civil and Environmental Engineering, ML 71, University of Cincinnati, Cincinnati, Ohio 45221.

Student Memberships in IAWPRC

The International Association on Water Pollution Research and Control (IAWPRC) has a graduate student membership classification that costs only \$28 per year. Since this enables them to receive subscriptions to both *Water Research* and *Water Quality International*, many may wish to avail themselves of this inexpensive opportunity to begin building their personal professional library. It is requested that environmental engineering faculty make this known to their graduate student body, and encourage them to join IAWPRC. An appropriate number of application blanks can be obtained by contacting Prof. T. M. Keinath either by mail (Department of Environmental Systems Engineering; Clemson University; Clemson, SC 29634-0919), or telephone (☎ 803-656-5572).

Reorganization of NSF's Engineering Directorate

The National Science Foundation's Engineering Directorate was restructured on March 12, 1989. The new Division designations in the Engineering Directorate are: Chemical and Thermal Systems, Electrical and Communications Systems, Mechanical and Structural Systems, Design and Manufacturing Systems, Biological and Critical Systems, and Engineering Centers.

The Environmental Engineering Program was re-named Environmental Systems, one of two "catego-

ries" in the new Environmental and Ocean Systems Program. The section of the Biological and Critical Systems Division within which this Program is located is named Bioengineering and Environmental Systems, and includes three other programs, viz. Biochemical Engineering, Biotechnology, and Biomedical Engineering and Aiding the Disabled. The other section in the Division of Biological and Critical Systems is made up of the Earthquake Hazard and the Natural and Man-Made Hazard Mitigation Programs.

The Director of the Biological and Critical Systems Division is Dr. Robert D. Hanson. The Head for the Bioengineering and Environmental Systems Section is Dr. Duane F. Bruley. Program Directors in the Environmental and Ocean Systems Program are: Dr. Edward H. Bryan (Environmental Systems) and Dr. Norman Caplan (Ocean Systems). The Assistant Director for Engineering is Dr. John A. White and his Deputy is Dr. Carl W. Hall.

Request for Information About Applications of Radiation Energy in Environmental Engineering

The American Society of Civil Engineers' (ASCE) Task Committee on Radiation Energy Treatment of Water and Wastewater met on January 18 in Emeryville, California. Committee Chairman is Paul Kruger, Professor Emeritus of Nuclear Civil Engineering at Stanford University. Control Group members present and their topic assignments are: S. B. Ahlstrom, Water and Wastewater Division Manager, CH2M Hill, Denver (Gamma Radiation); E. H. Bryan, National Science Foundation (High Energy Electron Radiation); Dale A. Carlson, School of Engineering, University of Washington (Ultraviolet Radiation); Richard I. Dick, Dept. of Civil Engineering, Cornell University (X-Ray Radiation).

The Committee plans to complete a preliminary draft of a report for discussion at a Committee meeting during the 1989 ASCE National Conference on Environmental Engineering in Austin, Texas (July 10-12, 1989). Any contributions by members of AEEP to the Control Members of the Task Committee that will assist them in compiling a summary of the state-of-the-art of radiation energy treatment of water and wastewater and other appropriate applications in environmental engineering practice are welcome.

Annual American Institute of Chemical Engineers (AIChE) Environmental Division Student Award

Call for Papers

1st Place — \$300.00
2nd Place — \$200.00

3rd Place — \$100.00

Certificates and awards will be presented at the Summer National AIChE Meeting to be held in Philadelphia, Pennsylvania on August 20-23, 1989. The AIChE will also provide the 1st place winner with the lowest cost airfare and two (2) days accommodation for attendance at the awards presentation. In addition, the paper is intended for publication in *Environmental Progress*.

Contest entry rules:

1. The work must be a first paper (i.e., report on original unpublished work).
2. The paper must report on research or investigation related to an environmental program.
3. The author must be the sole author and must be a full-time undergraduate student in a school with an accredited chemical engineering program.
4. The student author must be a member of the student chapter of AIChE.

Submit manuscript with cover letter by **May 14, 1989**, to the Second Vice Chairman of the Environmental Division:

Dr. Joseph J. Cramer
Stone & Webster Engineering Corporation
245 Summer Street - 11th floor
Boston, MA 02107

Southerly Wastewater Treatment Center Nominated for ASCE Engineering Achievement Award

The Southerly Wastewater Treatment Center, located in the Cleveland suburb of Cuyahoga Heights, Ohio, is one of 13 projects nominated for the American Society of Civil Engineers' (ASCE) 1989 Outstanding Civil Engineering Achievement Award (OCEA).

The OCEA award recognizes engineering projects that demonstrate the greatest engineering skills and represent the greatest contribution to civil engineering progress and mankind. The winning project and awards of merit will be named in April 1989 at the Society's Board of Direction meeting.

In continuous construction for 13 years, the Southerly Wastewater Treatment Plant is the largest in Ohio and one of the ten largest advanced treatment facilities in the United States. It has an average design flow of 200 million gallons a day (mgd) and a stormwater flow capacity of 735 mgd.

ASCE Announces Priority Issues

The American Society of Civil Engineers (ASCE) recently published the summary of ASCE Board-adopted policy statements, position papers, and

resolution concerning more than 100 issues of importance to the civil engineering community.

The brochure outlines the 1989 Priority Issues Agenda, policy issues that impact on the civil engineering profession which include clean air act sanctions, construction safety, Davis-Bacon Act reform, diverting dedicated user fees, employer paid educational assistance, expanding the use of the Brooks Act, federal capital budget, groundwater, infrastructure financing, infrastructure research,

liability/tort reform, National Science Foundation Budget, political campaign contributions, small business set-asides, solid and hazardous waste disposal, and USGS water data collection.

To receive a copy of ASCE's 1989 *Policies and Priorities* brochure, write:

Public Relations Department
American Society of Civil Engineers
345 East 47th Street
New York, NY 10017

PERSONAL ACCOMPLISHMENTS

Pittsburgh Chaired Position

The University of Pittsburgh, School of Engineering, appointed **Frederick G. Pohland** as the Edward R. Weidlein Chair of Environmental Engineering and Professor of Civil Engineering on January 1, 1989. Best wishes to you in Pennsylvania, Fred.

ASCE's Hilgard Prize

Dr. **Jorg Imberger**, professor of civil engineering at the University of Western Australia's Centre for Water Research, won the American Society of Civil Engineers' (ASCE) 1988 Karl Emil Hilgard Hydraulic Prize.

The award is given to the author of a paper dealing with a problem of flowing water. Imberger received the award for his paper titled "Mixing in a River Underflow," which investigated the transfer of mass, momentum, and energy vertically within a reservoir.

Imberger conducted a large-scale parallel shear flow experiment in the Wellington Reservoir, located 105 kilometers south of Perth, West Australia. Using data from that experiment and theoretical considerations, he postulated that a subtle interaction between internal waves and shear introduced by a through-flow of water were responsible for the observed increased mixing of water in the reservoir. The results can be applied not only to lakes, but also to ocean and coastal seas where similar dynamic processes prevail.

ASCE's Horner Award

Susan Sarah Kaufman, Environmental Engineer at Tighe & Bond Consulting Engineers in Easthampton, MA, and **Douglas Haith**, professor of civil engineering at Cornell University, won the American Society of Civil Engineers' (ASCE) 1988 Wesley B. Horner Award for their contributions to the environmental engineering profession.

Kaufman and Haith received the award for a paper they co-authored on the disposal of municipal sewage treatment plant sludge.

The award was instituted in 1968 and is endowed by the partners and family of **Wesley B. Horner**, past president of the Society.

Kaufman and Haith worked to develop a method for characterizing uncertainties associated with land application of sludge and quantifying the risk of nitrate-nitrogen groundwater contamination. The resulting method can be used on a particular site basis to determine the severity and frequency of nitrate-nitrogen contamination and subsequent sludge application rates.

ASCE's Bechtel Award

Dr. **Reynold K. Watkins**, professor of civil and environmental engineering at Utah State University, won the American Society of Civil Engineers' (ASCE) 1988 Stephen D. Bechtel Pipeline Engineering Award. He received the award in recognition of his contributions to the advancement of pipeline design.

Watkins' work has focused on improving life in the arid Great Basin and arid lands around the world by designing pipelines to bring in water. He developed pipeline principles in terms of dimensionless parameters, a concept borrowed from his colleagues in hydraulics.

His work showed that buried pipes could be much larger than had been thought previously, resulting in the manufacture of large diameter pipes. He also showed that a good backfill contributes more support to the pipe-soil system than had been acknowledged, serving as part of the structure instead of just another load on it. Therefore, the use of lighter-weight, lower-cost pipes, including plastics, became feasible alternatives to traditional pipes, especially in corrosive environments.

AEE Awards

The American Academy of Environmental Engineers recently announced the winners of its national Excellence in Environmental Engineering competition.

Awards were made in the following four (4) categories:

Research

Entrant: Electric Power Research Institute
Engineer in Charge: **Robert L. Glover**, P.E.
Project Name: High Sulfur Test Center
Location: Barker, New York

Planning

Entrant: Metropolitan Water Reclamation District of Greater Chicago
Engineer in Charge: **William Macaitis**, P.E.
Project Name: Sidestream Elevated Pool Aeration (SEPA) on the Calumet Waterway System in the Greater Chicagoland Area
Location: Chicago, Illinois

Design

Entrant: Malcolm Pirnie, Inc.
Engineer in Charge: **John J. Stankunas**, P.E.

Project Name: Southerly Wastewater Treatment Center

Location: Cuyahoga Heights, Ohio

Operations/Management

Entrant: Pima County Wastewater Management Department
Engineer in Charge: **George A. Brinsko**, P.E.
Project Name: Regional Sludge Management Program
Location: Tucson, Arizona

Thirty-five (35) entries were received from industry, consulting firms, government agencies and institutions. The entries were judged by a four (4) person panel composed of: Dr. Edward H. Bryan, P.E., DEE, Program Director Environmental Engineering, National Science Foundation; Rear Admiral Benjamin F. Montoya, P.E., Commander, Naval Facilities Engineering Command U.S. Navy; William S. Parker, P.E., DEE, Assistant Secretary of Defense Environment; and Howard B. Stussman, Editor-in-Chief, *Engineering News Record Magazine*.

CONFERENCES AND EDUCATIONAL PROGRAMS

ASCE Call for Papers: National Forum on Education and Continuing Development for the Civil Engineer: "Setting the Agenda"

Las Vegas, Nevada, April 17-20, 1990

This program will focus on the theme "Setting the Agenda" so as to generate recommendations for civil engineering education for the next decade and into the twenty-first century.

The forum will join educators, practitioners, human resource managers, employers and professional societies in specific discussions on how to take action regarding the key issues in civil engineering education.

There is a need for papers in both specialty areas and professional concerns as noted below:

Specialty Areas

- Construction
- Engineering Mechanics
- Environment
- Geotechnical
- Hydraulics
- Management
- Materials
- Structures
- Surveying and Mapping
- Transportation

- Water

Profession-Wide Concerns

- Accreditation
- Aerospace
- Cold Regions Engineering
- Computers and Computer Applications
- Continuing Education: Professional Development
- Design, Creativity, Safety, QA/QC
- Professional Considerations (including ethics, communications, legal aspects)
- Students: Quality; Quantity: Career Guidance
- Urban Planning

The forum will rely on input from selected papers which will be published in the pre-conference proceedings and mailed to all registrants. Papers will be scheduled for discussion rather than presentation and may reflect significant issues other than or in addition to the above suggested topics.

Please submit paper topic (a brief summary is required) by **April 30, 1989**. Authors will be notified of the acceptance of their paper topic by May 31, 1989.

To obtain your author's information packet, write or phone:

Charles Day
Director of Education Services
ASCE
345 East 47 Street
New York, NY 10017
(212) 705-7669
or toll-free, 1-800-548-ASCE

Announcement of ASM Programs

The following programs will be sponsored by the American Society for Microbiology (ASM) in the coming year:

In Houston, Texas:

- **Water Quality: Current Status of Indicator Organisms and Newly Emerging Microbiological Problems**
Friday, 15 September
- **Biotechnology Applications in Hazardous Waste Treatment**
Friday and Saturday, 15-16 September
- **Purification and Analysis of High-Purity Water Systems**
Saturday, 16 September

In Minneapolis, Minnesota:

- **Water Quality: Current Status of Indicator Organisms and Newly Emerging Microbiological Problems**
Thursday, 19 October
- **Biotechnology Applications in Hazardous Waste Treatment**
Thursday and Friday, 19-20 October
- **Purification and Analysis of High-Purity Water Systems**
Friday, 20 October
- **Techniques for Detecting and Evaluating Biofouling**
Friday, 20 October
- **Biodegradation Assessment of Environmentally Relevant Chemicals**
Saturday, 21 October

Fees: \$150 - \$310

Sponsor: American Society for Microbiology

Contact: Workshop Registrar, American Society for Microbiology, 1913 I St. NW, Washington, DC 20006

NATO / Advanced Study Institute on Transport Processes in Porous Media

**Washington State Univ., Pullman,
Washington, July 9-18, 1989**

A NATO/ASI will be held at Pullman, Washington to present the fundamentals and recent developments in transport phenomena in porous media. Because of the pressing needs in areas of practical interest, the meeting will address various aspects of contamination and flow in soils and groundwater. Lectures will be given by leading experts in the field. Oral and poster presentations by participants are also

planned. Travel and/or accommodation grants are available for selected participants from NATO countries. The meeting will be directed by

M. Yavuz Corapcioglu
Dept. of Civil and Env. Engg.
Washington State University
Pullman, WA 99164-3001. USA

and

Jacob Bear
Dept. of Civil Engg.
Technion-
Technion City, 32000. Israel

Those who are interested in participating should contact M. Yavuz Corapcioglu, ☎ (509) 335-4678.

List of Contributors and Topics

P. M. Adler (CNRS, France) — Fractal Porous Media

J. Auriault (Grenoble, France) — Dynamic Behavior of Porous Media

J. Bear & Y. Bachmat (Technion, Israel) — Deletion of Nondominant Effects in Transport Models

J. M. Buchlin (Von Karman Inst., Belgium) — Transport in Process Associated with Nuclear Reactors

T. H. Christensen (Tech. Univ., Denmark) — Heavy Metals in Soils

M. Y. Corapcioglu (Wash. St. U.) — Wave Propagation in Porous Media: A Review

F. A. L. Dullien (Waterloo, Canada) — Structure of Porous Media

B. D. Kay & E. Perfect (Guelph, Canada) — Transport in Freezing Soils

W. Kinzelbach (Kassel, FRG) — Random Walk Modeling

P. K. Kitanidis (Stanford Univ.) — Parameters for 3-D Flow

J. C. S. Long (Lawrence Berkeley Lab) — Fractured Porous Media

P. L. McCarty, C. S. Criddle & L. Alvarez (Stanford Univ.) — Microbial Processes in Porous Media

P. V. Roberts (Stanford Univ.) — Migration of Organics in Aquifers

K. R. Rushton (U. Birmingham, UK) — Groundwater Modeling: A Review

D. Schweich (CNRS-ENSIC, France) — Theory of Chromatography

F. Schuille (FRG) & H. O. Schiegg (Switzerland) — Movement of Hydrocarbons in Groundwater

W. J. Weber (U. Michigan) — Adsorption Processes in Porous Media

S. W. Wheatcraft (U. Nevada) — Applications of Fractal Geometry

Additional contributors and topics may be added.

IWEM Technology Transfer in Water and Environmental Management Conference and Exhibition

Metropole Hotel, NEC, Birmingham, September 12-14, 1989

Topics for the Institution of Water and Environmental Management (IWEM) Conference will range over the

whole area of water and environmental management, but IWEM 89 will have a heavier-than-usual emphasis on technology: new technology, technology with relevance to both industrialized and developing countries and technology transfer.

Plenary sessions will be held on Monday, Wednesday afternoon and Thursday morning. On Wednesday morning three concurrent sessions will deal with water and wastewater treatment, river engineering and solid and hazardous waste.

Authors are drawn from the USA (EPA), France, WRc, water authorities, water companies, consultants, contractors, a waste regulation authority and research and training consultants.

EMPLOYMENT OPPORTUNITIES

University of California, Los Angeles

Faculty Position in Environmental Science and Engineering, School of Public Health. Upper level tenure-track appointment in the Interdepartmental Environmental Science and Engineering Program and, jointly, in the Division of Environmental and Occupational Health Sciences. The candidate should have the potential to be director of the ESE program. Research and teaching in an environmentally pertinent area of biology, microbiology, chemistry, or biochemistry, as broadly defined. The ESE Program emphasizes the relationship between science and public policy, so a demonstrated interest in this relationship plus an outstanding record of research in a specialized area is required. Opportunity to participate in the M.S. and Ph.D. training programs of the Division and for other departments such as Biology, Microbiology, Biological Chemistry, Chemistry, Engineering, Earth Sciences, etc. Send curriculum vitae, statement of research and teaching goals, and names of three references by **March 15, 1989** to: Robert A. Mah, Chair, ESE Search Committee, School of Public Health, UCLA, Los Angeles, CA 90024. *UCLA is an affirmative action, equal opportunity employer. Women and minorities are encouraged to apply.*

University of California, Riverside

The newly formed College of Engineering at the University of California, Riverside expects to make a faculty tenure/tenure-track appointment in the area of Environmental Engineering on or after July 1, 1989. While the appointment level is open, preference will be given to exceptionally qualified individuals having an established record in research. Applicants in all areas of environmental engineering science are welcome. Research within the fields of aquatic chemistry, water quality, groundwater pollution, haz-

ardous wastes, risk assessment, and air pollution control are of particular interest. The individual appointed will be expected to play a strong role in the development both of Environmental Engineering and the College of Engineering. Please send a resume and names of at least three individuals willing to write letters of references to:

Chair, Search Committee
Environmental Engineering
College of Engineering
Riverside, California 92521

The University of California, Riverside is an equal opportunity, affirmative action employer.

University of Cincinnati

The Department of Civil and Environmental Engineering at the University of Cincinnati invites applications for a tenure-track position at the full professor level in environmental engineering. Research expertise should be in the area of biological treatment processes with a specialization in anaerobic treatment preferred. Applicants should have a record of outstanding scholarly achievement and must have demonstrated strong leadership abilities in research with a proven record of significant publications and sponsored research. Responsibilities include: teaching at both the graduate and undergraduate level; the development of a strong research program; and advising of students at the B.S., M.S. and Ph.D. levels. The anticipated starting date is September 1989. Applications will be received until the position is filled. *UC is an affirmative action/equal opportunity institution and in that spirit, we encourage applications from a broad spectrum of people including women and members of ethnic minorities.* Applicants should send their resumes and the names of three references to: Dr. R. Scott Summers, Search Committee Chairperson, Depart-

ment of Civil and Environmental Engineering, University of Cincinnati, Cincinnati, OH 45221-0071.

Clarkson University

The Department of Civil and Environmental Engineering, Clarkson University, is accepting applications from any academic rank to replace faculty on sabbatical leave. Ph.D. in environmental engineering or a related field is required. Contribution to graduate teaching and participation in graduate research program is desirable. Salary and responsibilities are negotiable. Closing date for applications is **August 1, 1989**. Submit resume to: Dr. Norbert L. Ackermann, Chairman, Dept. of Civil and Environmental Engineering, Clarkson University, Potsdam, NY 13676. *An Affirmative Action/Equal Opportunity Employer.*

Duke University

Duke University, Department of Civil and Environmental Engineering requests applications for a tenure track entry level position in environmental engineering, starting in September 1989 or soon thereafter. Requirements include 1) an ability and interest in teaching, 2) potential for independent scholarly research and 3) a doctoral degree. Although all areas in environmental engineering will be considered, backgrounds in water treatment processes, water and wastewater design, and aquatic chemistry/biology are preferred. Send resumes and references to:

Dr. P. Aarne Vesilind
Dept. of Civil and Environmental Engineering
School of Engineering
Duke University
Durham, NC 27706

Duke University is an equal opportunity employer.

New Mexico State University

Tenure-Track Faculty Position in Environmental Engineering. The Department of Civil, Agricultural and Geological Engineering at New Mexico State University invites application for a tenure-track faculty position in Environmental Engineering. The position is at the rank of Assistant Professor or Associate Professor commencing Fall Semester 1989. Candidates for this position should have a degree in Engineering and an earned doctorate with emphasis in Environmental Engineering. Design experience is desirable and a strong potential to establish a research program and to publish in peer-reviewed journals is essential. Responsibilities include teaching at the undergraduate and graduate levels and the development of an externally-funded sponsored research program. Among the areas of interest are general environmental engineering, water and waste treatment processes, and hazardous waste management. Candidates with a background in the

physical-chemical processes and in contaminant movement in porous media are of particular interest. This position offers an excellent opportunity for personal and professional growth. Good communication skills in both spoken and written English are required.

Applications including a detailed resume and three letters of reference are required by March 1, 1989, but applications will be accepted until the position is filled. Inquiries and applications should be sent to:

Dr. K. R. White
Professor and Head
Department of Civil, Agricultural,
and Geological Engineering
Box 30001 - Dept. 3CE
New Mexico State University
Las Cruces, NM 88003

New Mexico State University is an equal opportunity educational institution, equal opportunity employer.

University of North Carolina at Charlotte

The Department of Civil Engineering, The University of North Carolina at Charlotte invites applications for a possible tenure track position in an interdisciplinary biotechnology program. Candidates with a background in biotechnology with research and practical experience in industrial fermentation/bioprocess engineering are preferred. The successful candidate will work with an interdisciplinary team of faculty from the Chemistry Department, Biology Department, and College of Engineering. This tenure track position at the Assistant or Associate Professor level requires a doctoral degree or near completion of same in civil engineering or a closely related field. Duties include undergraduate and graduate teaching, student advising, pursuit and development of sponsored research, and participation in ongoing research. Good communication skills in both spoken and written English are necessary and University teaching and/or research experience is desirable. The position will be available as early as August 1989. Applications received before **June 1, 1989** will be given priority. Applicants should send a complete resume including publications, transcript or list of courses included in graduate program and the names, addresses and telephone numbers of four references to: Dr. L. Ellis King, Chairman, Department of Civil Engineering, The University of North Carolina at Charlotte, Charlotte, NC 28223. *The University of North Carolina at Charlotte is an equal opportunity/affirmative action employer.*

Rutgers University

Extension Specialist in Environmental Science, Cooperative Extension, Cook College/New Jersey Agricultural Experiment Station, Rutgers University, New Brunswick, New Jersey. 12 month, tenure track fac-

ulty appointment. 100% Extension. Responsible for planning, implementing and **evaluating** educational programs in municipal solid **wastes** including recycling, incineration, landfills and composting as well as industrial and agricultural wastes and sewage sludge. Programs will be carried out with and through County Extension **Agents** to government officials, agencies and professional **organizations**. Conducting research projects consistent with extension program area **responsibilities** is expected. Ph.D. in Environmental Sciences or related area is required. Competent computer, speaking and writing skills are essential. Applications accepted until **May 1, 1989**. Send resume with names and addresses of three or more references to: Anne L. Sheelen, Assistant Director of Extension, **Cooperative** Extension, P.O. Box 231, New Brunswick, NJ 08903. *Rutgers University is an Equal Opportunity Employer.*

Tennessee Technological University

Tennessee Technological University invites applications for a tenure-track position at the Assistant/Associate Professor level in Civil (Environmental) Engineering available July 1, 1989. Candidates are expected to be actively involved in research (85-90% time), attract external funding for support of a research program and teach undergraduate and graduate courses (10-15% time). A Ph.D. in Engineering (Environmental emphasis), U.S. citizen or permanent resident, and possession of, or ability to obtain, a Tennessee P.E. license are required. The successful candidate will conduct research at the Center for the Management, Utilization and Protection of Water Resources and teach in association with the Civil Engineering department. Review of applicants begins **April 15, 1989**. Position will remain open until filled. Please send resume with names and addresses of three references, a list of publications, and a statement of research interests to:

Dr. V. Dean Adams, Director
Center for the Management, Utilization
and Protection of Water Resources
Tennessee Technological University
Box 5082
Cookeville, TN 38505

TTU is an EOE/AA Employer.

Tennessee Technological University

Assistant Professor of Chemistry (Environmental). A key position in the Center for the Management, Utilization and Protection of Water Resources is to be filled by a qualified Environmental Chemist.

The position requirements include:

Providing expertise for environmental chemistry aspects of the Center's research, teaching, and public service roles.

Developing long-term research programs in the area of environmental chemistry.

Advising the Center Director in retaining the necessary environmentally oriented personnel and other resources needed to conduct interdisciplinary research.

Operating an environmental chemistry research program in a highly independent, self-motivated manner.

Teaching courses at the graduate and undergraduate level related to:

Basic Environmental Chemistry
Selected topics in Environmental Chemistry
Advanced Environmental Chemistry

Applicants must hold a doctorate in Chemistry or Environmental Chemistry, have a strong record of research and a strong potential for securing external funding. A demonstrated expertise in an area related to environmental aspects of water quality is necessary with postdoctoral experience being preferred.

This position is to be filled at the Assistant Professor level and is a tenure-track position. The position is available July 1, 1989. Salary will be commensurate with qualifications and experience. Position is open until filled.

Send letter of intent, including a statement of research interests, curriculum vitae and names and addresses of three references to:

Dr. V. Dean Adams, Director
Center for the Management, Utilization
and Protection of Water Resources
Tennessee Technological University
Box 5082
Cookeville, TN 38505

TTU is an EOE/AA Employer.

Tennessee Technological University

Assistant Professor of Plant & Soil Science (Environmental). A key position in the Center for the Management, Utilization and Protection of Water Resources is to be filled by a qualified Soil Scientist.

The position requirements include:

Providing technical support for soil chemistry aspects of the Center's research, teaching, and public service roles.

Developing long-term research programs in the area of soil chemistry.

Advising the Center Director in respect to retaining the necessary environmentally oriented personnel and other resources needed to conduct interdisciplinary research.

Operation of a soil chemistry research program in a highly independent, self-motivated manner.

Teaching courses at the graduate and undergraduate level related to soil chemical analysis and soil chemistry.

Applicants must hold a Ph.D. in Soil Science, be ARPAC-certified, or have the ability to obtain certification within a period of one year from date of appointment. Expertise in sorption and movement of soil contaminants relating to protection of water resources is required. Demonstrated knowledge of soil isotope and radio-isotope analytical methods is highly desirable.

This position is to be filled at the Assistant Professor level and is a tenure-track position. The position is

available July 1, 1989. Salary will be commensurate with qualifications and experience. Position is open until filled.

Send letter of intent, including a statement of research interests, curriculum vitae and names and addresses of three references to:

Dr. V. Dean Adams, Director
Center for the Management, Utilization
and Protection of Water Resources
Tennessee Technological University
Box 5082
Cookeville, TN 38505

TTU is an EOE/AA Employer.

APPLICATION FOR MEMBERSHIP in the Association of Environmental Engineering Professors

Name _____

Official Title _____ Dept. _____

Business Address _____ Tel. _____

Home Address _____ Tel. _____

Applying for: Membership Status Rank: _____ Affiliate Status

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Dues are payable to the Association on a calendar year basis.
The AEEP annual dues payment, prorated according to the date of application, is shown below.

INITIAL DUES PAYMENT REQUIRED BASED ON RANK AND DATE OF APPLICATION

RANK	1 Jan. 31 Mar.	1 Apr. 30 June	1 July 30 Sept.	1 Oct. 31 Dec.
Professor	\$50.00	\$37.50	\$25.00	\$12.50
Associate Professor	25.00	18.75	12.50	6.25
Assistant Professor	25.00	18.75	12.50	6.25
Affiliate Member	20.00	15.00	10.00	5.00

Please return this form along with your dues to:

William R. Knocke
Department of Civil Engineering
Virginia Polytechnic Institute and State University
Blacksburg, Virginia 24061

Enclosed are my AEEP dues in the amount of: \$ _____

Signature

Date

AEEP Publications Available

The publications from AEEP are shown on the order form in this edition of the newsletter. This new order form reflects several changes in the publications that have occurred in the last few months.

The *Laboratory Manual for Unit Operations and Unit Processes* has been fully revised under the direction of Makram Suidan and is now available. This 1989 edition of the Manual has had a few new experiments added and a few deleted from the previous edition. In addition, all experiments were carefully reviewed (by several volunteers) prior to publication, so this new edition of the manual maintains the strengths of previous editions and includes several improvements.

The new edition of the *Register of Graduate Programs in Environmental Engineering* is also now available from the publications committee. This new 1989 edition has entries from 104 schools, with several pages for each program describing degree requirements, courses available, and faculty research interests. Compiled and edited by Bill Knocke and Gary Amy, this new publication should be invaluable in talking to students about attending graduate school. The price is slightly higher than the pre-publication price available when dues notices were mailed. As always, member prices for AEEP publications are set merely to cover costs.

Finally, the *Proceedings of the AEEP Conference on Fundamental Research Directions in Environmental Engineering* will soon be available and is now listed on the order form. This conference, held in Washington, D.C. in November, 1988, had sessions on physical, chemical, and biological aspects of air, land, water, and inter-media phenomena. All papers and formal discussions of the papers are included in the proceedings. For those who were not able to attend the conference, these proceedings are an excellent way of getting a glimpse of the directions of our field in the coming years. The views presented span several orders of magnitude in both time and space; many would form good discussion items among groups of graduate students and faculty.

ASSOCIATION OF ENVIRONMENTAL ENGINEERING PROFESSORS

Attn: Dr. Desmond F. Lawler
 Department of Civil Engineering, ECJ 8.6
 The University of Texas at Austin
 Austin, Texas 78712

Item #	Title	Member Price	Non-Mem. Price	Quantity	Amount
1	Environmental Engineering Unit Operations and Unit Processes Lab. Man. (Ed.: Suidan)	\$10.00	\$20.00		
2	Aquatic Microbiology Laboratory Manual (Cooper, et al.)	\$ 7.00	\$ 7.00		
3	Proceedings, Fifth Conference on Environmental Engineering Education (July, 1986, Houghton, MI)	Free	\$ 3.00		
4	Fundamental Research Directions for Environmental Engineering (Proceedings of the Nov., 1988 AEEP/NSF Conference)	\$ 8.00	\$16.00		
5	Register of Environmental Engineering Graduate Programs (1989 Edition)	\$25.00	\$50.00		
6	So You Want to Be an Environmental Engineer?	\$.50	\$.50		
7	AEEP Computer Manual (Ed.: Crittenden)	\$20.00	\$40.00		
8	AEEP Diskette (Set of 5 Discs)	\$10.00	\$20.00		

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Association Of Environmental Engineering Professors

NEWSLETTER

Gregory D. Boardman
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