



PRESIDENT'S LETTER

AEEP President Clifford Randall suffered a mild heart attack the week before Thanksgiving but is doing well. We all wish him a speedy recovery, and look forward to his first President's Letter in the April '96 AEEP Newsletter.

1995 AEEP AWARDS



The 1995 AEEP/Ch2M Hill Outstanding Doctoral Dissertation Award was presented to Northwestern University student Eric A. Seagren (center) by Brooks Newbury for his dissertation "Quantitative Evaluation of Flushing and Biodegradation for Enhancing In-Situ Dissolution of Nonaqueous Phase Liquids." His advisor, Bruce R. Rittmann, is pictured left.



The First Place 1995 AEEP/Montgomery-Watson Master's Thesis Award was presented by Donal Bassett to Jeanine D. Plummer (center) of the University of Massachusetts/Amherst for her thesis "Removal of Chyptosporidium parvum from Drinking Water by Dissolved Air Flotation." Her advisor, James K. Edzwald, is on left.

The 1995 AEEP/Parsons Engineering Science Outstanding Doctoral Dissertation Award was presented to University of Cincinnati student Tian C. Zhang (center) by Nick Presecan for his dissertation "Influence of Biofilm Structure on Transport and Transformation Processes in Biofilms." His advisor, Paul L. Bishop, is pictured left.



The Second Place 1995 AEEP/Montgomery-Watson Master's Thesis Award winner, John E. Woolschlager (center), is congratulated by his advisor, Bruce Rittman (left), and AEEP President Clifford Randall for the award previously presented to him by Donal Bassett. His award winning thesis was titled "A Model to Determine the Actual Amount of Biodegradable Organic Matter in Drinking Water Supplies."



The 1995 Outstanding Publication Award, for the paper "A Unified Theory of Filamentous Activated Sludge Bulking," was presented to Mesut Sezgin (center) and Denny S. Parker by Stephen Randtke. (Not pictured is co-author David Jenkins.)



The 1995 AEEP Founder's Award was presented to Charles R. O'Melia "for sustained and outstanding contributions to environmental engineering education" by AEEP past president Steve Randtke.



Cliff Randall congratulates outgoing president Steve Randtke. (Editor's note: Notice who's smiling...)

AEEP NEWS AND ANNOUNCEMENTS

AEEP '96 Distinguished Lecturer Tour

Host institutions for the 1996 Distinguished Lecturer Tour are as follows: Arizona State University, Metropolitan Water Reclam. Dist. of Greater Chicago, Clemson University, New Mexico State University, North Carolina State University, University of Pittsburgh, University of Nevada/Reno, Tennessee Technological University, and Washington University/St. Louis.

The 1996 Distinguished Lecturer Tour will be given by Dr. Makram T. Suidan, professor of Civil and Environmental Engineering at the University of Cincinnati.

NEWS OF MEMBERS...

James K. Edzwald is the new Head of the Department of Civil and Environmental Engineering at the University of Massachusetts, Amherst.

David H. Howells, AEEP Emeritus Member and the first full-time director of the Water Resources Research Institute of the University of North Carolina, died November 24th in an automobile accident. He is survived by his wife, Virginia, of Chapel Hill, three children, nine grandchildren and one great grandchild.

Howells became director of the North Carolina Institute in 1965 after serving ten years with the U.S. Public Health Service. He guided the Institute during its formative years and established it as a highly respected source of scientific information about water resources issues in the state. Following his retirement in

1976, he was named Professor Emeritus at NCSU and continued to devote time and energy to the Institute, completing a history of public water supplies and a history of stream pollution control in North Carolina. Howells was a civil engineering graduate of Oregon State University and received the master's in sanitary engineering from the Massachusetts Institute of Technology.

Memorial gifts may be made to the Triangle Land Conservancy, 1100-A Wake Forest Road, Raleigh, NC 27604.

Dr. Desmond F. Lawler, the W.A. Cunningham Professor of Civil Engineering, is this year's recipient of the Chancellor's Council Outstanding Teaching Award at UT Austin.

Professor Roger Perry, AEEP Affiliate Member, died on October 1, 1995 at his farm in New Quay, Wales, at the age of 55. Professor Perry served as AEEP Distinguished Lecturer in 1979. In 25 years of academic service at the Imperial College of Science, Technology and Medicine, University of London, most recently as Director of the Centre for Environmental Control and Waste Management, which he created within the Department of Civil Engineering, Roger Perry trained a remarkable number of graduate students from around the world within an environmental research program he had led to international prominence. Professor Perry, who began in 1970 as a lecturer in Public Health Engineering, was promoted to his first Chair in Civil Engineering after only eleven years. He was widely sought as an environmental expert in Europe and throughout the developing world. His energetic and dedicated service to challenging the frontiers of environmental science and his good-natured guidance will be sorely missed by those fortunate enough to have learned from and known him.

Frederick G. Pohland has received the Stanley E. Kappe Award from the American Academy of Environmental Engineers. He was recognized for his efforts to increase public awareness of the environment. Pohland is Professor and Weidlein Chair of Environment Engineering at the University of Pittsburgh.

Dr. Tom D. Reynolds, emeritus professor of civil engineering, Texas A&M, has been elected to Emeritus Membership in AEEP.

Walter J. Weber, Jr., has received the Gordon Maskew Fair Award from the American Academy of Environmental Engineers. He was recognized for his professional conduct and achievements in the practice of environmental engineering. Weber is the Gordon M. Fair and Earnest Boyce Distinguished University Professor at The University of Michigan.

FROM THE EDITOR'S DESK...

As the current AEEP Newsletter editor, I have enjoyed the opportunity to serve the Association in this capacity for the past five years, but feel it is time to have a new editor. It is an excellent opportunity to learn more about AEEP activities and meet some dedicated environmental engineering professors. If you are interested in the position, please contact me through e-mail (chetrock@maine.maine.edu) or phone 207/581-2170. The most important qualification is to have an excellent administrative assistant. Certainly any success I have had as editor can be attributed to Ellen Manzo, our excellent administrative assistant.

1996 Committee & Liaison Assignments

<u>Committee</u>	<u>Chair</u>	<u>Vice Chair</u>	<u>Board Contact</u>
AAEELiaison	Gregory D. Reed		C.P. Leslie Grady
AEEP Graduate Register	M. Robin Collins	Gary L. Amy	Bruce E. Logan
AEEP Undergrad. Reg.	James C. Young		James C. Young
AICHELiaison	Michael Aitken		C.P. Leslie Grady
Archives	Richard Walters		JoAnn Silverstein*
Arrangements	James C. Young		James C. Young*
Audit	Brian A. Dempsey		James E. Alleman*
Awards	R. Scott Summers	Paul L. Bishop	Appiah Amirtharajah
AWMA Liaison	Mark J. Rood		James C. Young*
AWWARF Liaison	Gary Amy		Appiah Amirtharajah
Bylaws	Mark Benjamin	H. David Stensel	Stephen J. Randtke
Directory	Joanne Fetzner		JoAnn Silverstein
Distinguished Lecturer	Makram T. Suidan		Appiah Amirtharajah
Education Conference	Chet Rock (Co-Chair)	Joe Lagnese (AAEE Co-Chair)	Clifford W. Randall*
1996 AEEP Education Conference	P. Aarne Vesilind		C.P. Leslie Grady
Workshops, Lectures, and Receptions	James C. Young		James C. Young
Electronic Highway	Kurt Paterson		James F. Alleman
Emeritus Membership	George P. Hanna, Jr.		Clifford W. Randall*
Genealogy	P. Aarne Vesilind		James E. Alleman
Latin American Initiatives	Benito Marinas		Bruce E. Logan
Legislative Affairs	(Vacant)		JoAnn Silverstein
Long-Range Planning	James C. Young*		James C. Young
Membership	Radisav Vidic		JoAnn Silverstein*
Minority Recruiting	James H. Johnson, Jr.	Sandra L. Woods	
Newsletter	Chet A. Rock		Chet A. Rock
Nominating	Stephen J. Randtke*	Stephen J. Randtke*	
Publications	Desmond F. Lawler		Clifford W. Randall*
Student Organizations	James R. Mihelcic		Sandra Woods
Sustaining Member Liaison	Glen T. Daigger		Clifford W. Randall*
Syllabi	Bruce E. Logan		Bruce E. Logan
Textbook Review	P. Aarne Vesilind		Chet A. Rock
UCOWR Liaison	C. Robert Baillod	Howard S. Peavy	Chet A. Rock
USANC Relations	C.P. Leslie Grady (96)	Francis A. DiGiano (00)	
	Richard G. Luthy (98)	Paul L. Bishop (02)	C.P. Leslie Grady
WEF & WERF Liaison	William C. Boyle		James C. Young

*Ex-officio

CONFERENCES/CALL FOR PAPERS

CALL FOR PAPERS

INNOVATIONS IN ENGINEERING EDUCATION ACCREDITATION BOARD FOR ENGINEERING AND TECHNOLOGY

1996 ANNUAL MEETING

SAN DIEGO, CALIFORNIA

OCTOBER 31 - NOVEMBER 1, 1996

Selected papers will be featured in three half-day sessions. Papers will address the following questions:

- ◆ What Innovations are Coming out of the Engineering Education Coalitions?
- ◆ How are Engineering Science and Design Integrated Throughout Current Curricula?
- ◆ What Impact are Advances in Electronic and Computerized Delivery Systems and Teaching Methodology having on Engineering Education?
- ◆ How are Universities Creating New Relationships with Industries?
- ◆ How are the Necessary "Soft Skills" Being Integrated Throughout Today's Curricula?

Abstracts are due by March 15, 1996. Send them to Dr. Stanley I. Proctor, ABET, Education and Information Services, 111 Market Place, Suite 1050, Baltimore, MD 21202-4012 or fax 410/625-2238. For more information, please contact ABET @ 410/347-7730.

IAWQ/IWSA 4TH INT'L CONFERENCE: *THE ROLE OF PARTICLE CHARACTERISTICS IN SEPARATION PROCESSES* JERUSALEM, ISRAEL 28-30 OCTOBER 1996

The Conference aims to bring together engineers and scientists who specialize in particle separation principles, equipment and their application. The Conference intends to present an up-to-date overview of world-wide particle technology, to share experiences obtained in research and development and in design and operation. The main themes of the meeting concern the scientific design and operational aspects of particle characteristics and monitoring in relation to water and wastewater treatment processes.

One thousand-word abstracts with two-four tables or diagrams should be submitted by February 15, 1996 to Professor K.J. Ives, IAWQ, 1 Queen Anne's Gate, London, SW1 H9BT England, telephone +44 171/222-3848 or fax +44 171/233-1197.

For more information, please contact Mrs. Sara Sher, Division for Development and Public Relations, The Hebrew University of Jerusalem, Mount Scopus, Jerusalem 91905, Israel, telephone 972-882817 or fax 972-2-322556.

212TH AMERICAN CHEMICAL SOCIETY MEETING *"FUNDAMENTALS OF MEMBRANE SEPARATION PROCESSES IN AQUATIC SYSTEMS"* ORLANDO, FLORIDA 26-29 AUGUST 1996

The symposium will focus on basic research on the use of pressure-driven membrane processes in environmental

separations. These processes include microfiltration, ultrafiltration, nanofiltration, and reverse osmosis. Possible topics are: chemical and physical characterization of membranes, process sustainability, colloidal fouling, natural organic matter fouling, precipitate fouling, biological fouling, characterization of fouled membranes, concentration polarization phenomena, transport of inorganic and organic solutes through membranes, membrane selectivity, membrane-chemical interactions, membrane integrity, and rejection of dissolved, macromolecular, colloidal, particulate, and microbial contaminants.

Abstracts are due by April 9, 1996. For additional information and ACS abstract forms, please contact: Menachem Elimelech, Dept. of Civil & Env. Engg., UCLA, Los Angeles, CA 90095, 310/825-1774 or fax 310/206-2222.

CALL FOR PAPERS SECOND NATIONAL CONFERENCE ON THE USE OF CONSTRUCTED WETLANDS FORT WORTH, TEXAS 15-18 MAY 1996

The use of constructed wetlands for the remediation of livestock, dairy, and aquaculture wastewater continues to increase. This workshop will bring together researchers from around the country to discuss current issues, ongoing research, and regulatory aspects of constructed wetlands. The workshop will consist of three parts: a one-day training session on the use and implementation of constructed wetlands led by a team of invited experts from around the country (Wednesday); a one-day field tour of current water quality issues and constructed wetlands in the Stephenville/Erath County area (Thursday); and a two-day contributed paper session (Friday-Saturday).

Submit paper title and abstract (max. one page) by 1 February 1996 or request to be placed on the mailing list for future announcements to: Paul J. DuBowy Dept. Wildlife and Fisheries Sciences Texas A&M University College Station, TX 77843-2258 PH: 409-845-5765 FX: 409-845-3786 p-dubowy@tamu.edu

39TH ANNUAL CONFERENCE ON GREAT LAKES RESEARCH ERINDALE COLLEGE/UNIVERSITY OF TORONTO 26-30 MAY 1996

Special sessions will cover a variety of current large lakes issues such as the effectiveness of international management agreements, endocrine disrupters, non-native species, effects of UV radiation, human health, sea lamprey controls, satellite imagery, food web interactions, and wetland restoration. Meeting information is published by the International Associate for Great Lakes Research in its fall Lakes Letter, and will be available on IAGLR's WWW home page (<http://www.geog.buffalo.edu/glp/iaglr/iaglr.html>). For any further information, please contact: W. Gary Sprules, Department of Zoology, Erindale College, University of Toronto, Mississauga, ON L5L 1C6, telephone 905/828-3987 or fax 905/828-3792 or email gsprules@cyclops.erin.utoronto.ca

EMPLOYMENT OPPORTUNITIES

University of California/Davis

The Department of Civil & Environmental Engineering, University of California, Davis, invites applications for a tenure track, full time position at the assistant or associate professor level. Candidates are sought with research interests in field or regional scale modeling of fate and transport of contaminants and/or remediation and control of subsurface contaminants. Ability to apply chemical, biological, geological, physical and mathematical principles is required. Collaboration in both research and teaching with environmental, geotechnical, and water resources faculty is anticipated. The appointment is to be a regular nine-month position with teaching and research given equal importance and effort. Contribution to university and public service and participation in professional activities will be expected. At least one degree in civil engineering is required. The Ph.D. should be in environmental engineering, geotechnical engineering, or water resources engineering, or hydrologic science. In addition to the teaching of existing specialty and core courses, development of new undergraduate and graduate courses related to the appointee's area of research specialization will be expected. The University of California, Davis, and the Department of Civil & Environmental Engineering are interested in candidates who are committed to the highest standards of scholarship and professional activities, and the development of a campus climate that supports equality and respect for differences based on gender, cultural ethnicity, level of disability and sexual orientation. Applicants should submit a complete resume, including a statement of teaching and research interests, list of relevant professional experience and publications, all college transcripts, and names of three references to Professor E. D. Schroeder, Department of Civil & Environmental Engineering, University of California, Davis, Davis, CA 95616. To be assured of consideration, applications must be received by March 15, 1996.

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

University of California/Irvine

The University of California, Irvine, Department of Civil and Environmental Engineering invites applications for a tenure-track position in environmental engineering, beginning July 1996. Applicants should have a distinguished research record or potential in one or more of the following areas: field-scale contaminant transport and/or remediation, modeling of environmental aquatic systems, and experimental or theoretical development of water treatment technologies. It is intended that the appointment will be made at the full or associate professor level; however, outstanding candidates at any level are encouraged to apply.

The successful candidate will be expected to teach undergraduate and graduate courses in environmental engineering, direct graduate student research, establish a strong externally-funded research program and be professionally active. A Ph.D. in environmental or civil engineering, or an allied field is required and professional registration is preferred.

Candidates should send a detailed resume with at least three references by March 1, 1996 to: Professor Stephen G. Ritchie, Chair, Department of Civil and Environmental Engineering, University of California, Irvine, CA 92717.

The University of California is an Equal Opportunity employer committed to excellence through diversity.

Colorado School of Mines

Applications and nominations are solicited for the position of Head of the Division of Environmental Science and Engineering (ESE) at the Colorado School of Mines in Golden, Colorado. We are seeking a person of noted scholarly achievement in his or her chosen field of expertise, as well as one who possesses the energy and vision to lead one of the largest graduate programs at the University. The successful candidate will possess a national and international reputation in research and teaching, and have demonstrated abilities to foster cooperative environmental programs within a diverse scientific and engineering community and to communicate effectively with a range of disciplines, including the social sciences. An earned doctorate and expertise in environmental science and/or engineering, or a related field, is required. This is a tenured position.

The Division, established in 1992, currently has eight tenure-track and two research faculty with research expertise in the areas of contaminant fate and transport, aquatic chemistry and geochemistry, site remediation, biological and industrial waste treatment, and ecology. ESE offers M.S. and Ph.D. degrees in Environmental Science and Engineering and supports an 18 hour undergraduate minor. The Division has twenty-four full-time doctoral students and a non-thesis M.S. degree program which currently has an enrollment of approximately 90 students. ESE is housed in the newly-renovated Coolbaugh Hall; the 65,000 ft² of teaching and research space is shared with the Department of Chemistry and Geochemistry. It is desired that this position be occupied in August 1996. Applications should be received by 1 February 1996 for full consideration. Compensation for this position includes a nationally competitive salary. Candidates should submit a current vitae, letter of application and the names, addresses and phone numbers of at least three references to: Colorado School of Mines, Environmental Science and Engineering Division Head, Search #94-041270, 1500 Illinois Street, Golden, CO 80401.

Colorado School of Mines

The Colorado School of Mines Division of Environmental Science and Engineering invites applications and nominations for the recently established AMAX Distinguished Chair in Environmental Science and Engineering. The Division seeks a person of notable national and international achievement as a teacher and scholar who will contribute significantly to the growth and reputation of the Division through dynamic leadership in research, and graduate and undergraduate teaching. The successful candidate is expected to have an earned doctorate and expertise in environmental engineering or a closely related field, with a research specialization

complementary to that of the current faculty; profession registration is desirable. The CSM Environmental Science and Engineering Division has eight tenure-track and two research faculty and strengths in contaminant fate and transport, aquatic and geochemistry, site remediation, biological and industrial waste treatment, and ecology.

The Division offers M.S. and Ph.D. degrees, supports an 18 hour undergraduate minor and is the largest graduate program at the University. Division facilities include 65,000 ft² of new and renovated classroom and research space. Compensation for this position includes a nationally competitive salary and additional benefits to support the scholarly activities of the Chairholder. Interested candidates should submit a current vitae, letter of application and the names, addresses and phone numbers of at least three references to: Colorado School of Mines, AMAX Distinguished Chair, Search #95-041180, 1500 Illinois Street, Golden, CO 80401.

CSM is an AA/EEO employer.

Women and minorities are encouraged to apply.

Cook College - Rutgers

The Department of Environmental Sciences, Cook College, Rutgers - The State University of New Jersey, invites applications for two faculty positions in the area of environmental chemistry available July 1, 1996. It is anticipated that one appointment will be as an associate or full professor with immediate evaluation for tenure, and the other as a tenure-track assistant professor, although the Department will select the two best candidates meeting program needs. The Department, which dates from 1920, has the largest undergraduate and one of the largest graduate enrollments in the College, and is expanding into additional laboratory and office space within its new building. Rutgers University has identified the environment as a major thrust area, and is committed to growth and excellence in this area.

For the more senior position (DESCE-1), the Department seeks an environmental scientist who works at the interface between biology and chemistry, with emphasis on anthropogenic chemicals in aquatic systems (e.g. bioaccumulation; bioavailability and toxicity; transfer through aquatic food chains). The ideal candidate has experience in the fields of environmental chemistry, biology or engineering, aquatic toxicology, or closely related disciplines, and a strong record of teaching and funded research. The successful candidate will be expected to contribute significantly to a developing Department concentration in aquatic ecosystems exposure and assessment, and specifically to a focus in environmental chemistry. They will enhance collaboration with Marine and Coastal Sciences, the Environmental and Occupational Health Sciences Institute, Biology/Ecology, and Environmental Engineering on a university-wide basis in both teaching and research.

For the second position (DESCE-2), a focus in aquatic inorganic chemistry is sought. The ideal candidate obtained a Ph.D. in aquatic or environmental chemistry/engineering or equivalent, and has postdoctoral experience. A specialty in trace metals, nutrient cycling, or biogeochemistry in aquatic ecosystems is preferred, but other sub-specialties will be considered. The successful candidate will teach in the

undergraduate and graduate Environmental Sciences programs, and will be expected to develop a nationally-recognized and funded research program.

Please send a letter of application noting which position, curriculum vitae, transcripts (assistant professor position only), brief statement of research and teaching interests, and the names, addresses (including electronic) and telephone numbers of at least three references to: Dr. Peter F. Strom, Search Committee Chair (Environmental Chemistry Positions); Environmental Sciences, ENRSB; Cook College, Rutgers University; New Brunswick, NJ 08903-0231. Review of applications will begin January 4, 1996 and will continue until the positions are filled.

*Rutgers University is an Equal Employment Opportunity/
Affirmative Action employer.*

Hong Kong University of Science & Technology

The Environmental Engineering Program in the Civil and Structural Engineering Department would like to invite applications to fill the following two positions, start date will be July 1996: Lecturer/senior lecturer/reader in physical-chemical treatment, water chemistry, and/or soil remediation; and lecturer/senior lecturer/reader in water quality monitoring, system optimization, or water/wastewater treatment. Salary is competitive with generous fringe benefits. All faculty appointments are tenure track with the initial appointment normally on a three-year contract term. Current salary ranges are: reader (broadly equivalent to full professor) U.S. \$94,000-125,000/annum; senior lecturer (broadly equivalent to associate professor) U.S. \$90,450-121,500/annum; and lecturer (broadly equivalent to assistant professor) U.S. \$58,230-97,000/annum.

Candidates must have an earned Ph.D. degree. Candidates for senior lecturer and reader must also have strong track records of research and teaching experience. Benefits include a gratuity of 25% of the total basic salary drawn upon completion of the contract; medical and dental benefits; annual leave, and children's education allowances. Air passage and housing are also provided where applicable. Applicants should send their applications with a curriculum vitae and names and addresses (including emails and fax numbers) of at least three references to: Professor Ju-Chang Huang, Civil and Structural Engineering Department, Hong Kong University of Science and Technology, Clear Water Bay, Kowloon, Hong Kong, fax number (852) 2358-1534.

University of Delaware

The Department of Civil and Environmental Engineering at the University of Delaware invites applications for one additional tenure-track faculty position in environmental engineering starting September 1, 1996. It is anticipated that the position will be filled at the assistant professor level.

The successful candidate must have exceptional qualifications in environmental engineering and must be capable of developing an outstanding research program in the area of

modeling and experimental studies of environmental processes. An earned doctoral degree in environmental engineering or a closely related field is required and an EIT certificate or professional registration and a civil engineering degree is desirable. The successful candidate is expected to teach environmental engineering courses at the undergraduate and graduate levels.

The Department of Civil and Environmental Engineering has a well-established graduate program in environmental engineering and applied sciences which offers Master's and Ph.D. degrees. A new undergraduate environmental engineering baccalaureate degree was initiated in Fall 1995. The environmental engineering core faculty maintain a high level of research activity and funding and have about forty full-time graduate students. The candidate selected is expected to interact effectively with the environmental engineering faculty as well as faculty in other interrelated disciplinary areas.

The University is located in Newark, Delaware, an attractive university community within easy reach of New York, Philadelphia, Baltimore, and Washington, DC.

Applicants should send a complete resume along with names, addresses and telephone numbers of at least three references prior to February 1, 1996 to Herbert E. Allen, Chair Search Committee, Department of Civil and Environmental Engineering, University of Delaware, Newark, DE 19716.

The University of Delaware is an Equal Opportunity Employer which encourages applications from Minority Group Members and Women.

Drexel University

Drexel University is seeking outstanding candidates for two anticipated tenure-track faculty positions, one in organic chemistry and one in analytical-environmental chemistry, effective September 1996. Appointments will likely be at a junior level, but distinguished candidates will be considered for higher level appointments including professorships. The analytical-environmental position is joint between the Department of Chemistry and the Environmental Studies Institute. For the organic position, we particularly invite applications from those whose research interests are related to polymer/materials chemistry. Successful candidates must have a Ph.D. degree and show evidence of the ability to establish strong, externally funded research programs. We seek excellence in teaching at both the undergraduate and graduate levels. To ensure full consideration, applications should be received by February 15, 1996. Please send a detailed resume, one to four representative reprints and a brief research plan, and arrange for three letter of reference to be sent to: Dr. Robert O. Hutchins, Professor and Head, Department of Chemistry, Drexel University, Philadelphia, PA 19104.

An EO/AA employer. Women and minority candidates are strongly encouraged to apply.

University Of Maryland

The University of Maryland at College Park, Department of Civil Engineering is seeking tenure-track faculty at the assistant professor level in several areas. Two of these areas are within the scope of environmental engineering. We expect that the positions will be filled at the assistant professor level, although outstanding candidates will be considered at the associate or full professor level. Duties include undergraduate and graduate teaching, student advising, and conducting externally funded research. Candidates should have a strong record of accomplishment in research and an earned doctorate, with at least one degree in civil or environmental engineering. The first type position will preferentially be filled by someone with research interests and specialization in bioremediation and/or biological treatment of refractory compounds. The candidate should have a demonstrated expertise in applied microbiology, modeling of biological processes and treatment systems, and hazardous waste treatment or minimization. The second position will preferentially be filled by someone with background and interests in one of several interdisciplinary aspects of environmental engineering including, but not limited to, geotechnical engineering, geohydrology, remote sensing and regional land use analysis, surface water quality and wetland studies, and coastal processes. This person is expected to collaborate with faculty in water resources and geotechnical engineering, or with faculty in other departments such as geography, geology, or meteorology.

Send resumes with clear indication of the position for which you wish to be considered to: Professor Robert Ragan, Chair, Faculty Search Committee, Department of Civil Engineering, University of Maryland, College Park, MD 20742. Further information is available at <http://www.ence.umd.edu/department.d/recruiting.html> Consideration of applications will commence on January 15, 1996 and continue until the positions are filled.

The University of Maryland is an Equal Opportunity, affirmative action employer.

North Carolina State University

An opening for a postdoctoral research associate biodegradation of synthetic organic chemicals in landfills is anticipated to be available about January 1, 1996. The researcher will lead a project on the biodegradation of alkylbenzenes, chlorinated aliphatics and ketones under anaerobic conditions representative of a solid waste landfill. Most of the work will be conducted under laboratory conditions with a small field component as well. Desirable qualifications include strong analytical (GC) and managerial capabilities, experience with ¹⁴C-labelled compounds, an understanding of anaerobic biodegradation and the ability to work in a group of graduate students. Interested applicants should send a letter of application, a resume and a list of references with phone numbers to Dr. Morton Barlaz, Dept. of Civil Engineering, N.C. State Univ., Box 7908, Raleigh, NC, 27695-7908 (e-mail: Barlaz@unity.ncsu.edu).

NCSU is an equal employment affirmative action employer.

University of Wisconsin-Madison

Applications are being accepted for a tenure track faculty position in environmental engineering with a target start date of September 1996. Applicants should have a strong commitment to excellence in teaching and will work with a group that teaches in the areas of: water and wastewater engineering; solid and hazardous waste management; industrial pollution prevention and control; and air pollution control. The person appointed will be expected to develop and direct funded research on problems of national importance in one or more of the areas mentioned. Interdisciplinary research is desirable and interaction with areas related to environmental engineering is expected. A Ph. D in engineering is required. Applicants should send a resume together with a statement of career goals and letters from three references. The deadline for applications is December 1, 1995. Should suitable candidates not be found, the deadline may be extended. Unless confidentiality is requested in writing, information regarding the applicants must be released upon request. Finalists cannot be guaranteed confidentiality. Send applications to: Professor P. M. Berthouex, Chair, Search Committee, Dept. of Civil and Environmental Engineering, 3204 Engineering Hall, 1415 Engineering Drive, Madison, WI 53706, 608/262-7248 or fax 608/262-5199.

The University of Wisconsin is an equal opportunity employer. Women and minorities are especially encouraged to apply.

Sabbatical and Exchange Programs

(Editor's Note: As a service to AEEP members, the newsletter will feature a column on requests and availability of members to host or serve as visiting faculty.)

Mark Milke, University of Canterbury, would like to visit engineering schools to investigate the teaching of introductory (year one or two) environmental engineering courses that incorporate concepts of systems engineering and the social aspects of engineering in addition to more traditional introductory concepts in environmental engineering and science. Mark is interested in visiting in late 1996 or early 1997. AEEP members interested in hosting a visit can contact him directly at the Department of Civil Engineering University of Canterbury, Christchurch, NEW ZEALAND, or e-mail him at milke@civl.canterbury.ac.nz

EMPLOYMENT OPPORTUNITIES

To place your free "EMPLOYMENT OPPORTUNITIES" ad in the AEEP Newsletter, please contact (by mail, fax or email):

Chet A. Rock
University of Maine
Dept. of Civil & Environmental Engineering
5711 Boardman Hall
Orono, ME 04469-5711
FAX: (207) 581-3888
Phone (207) 581-2170
email - chetrock@maine.maine.edu

GENERAL NEWS

Iowa State University Fellowships in Environmental Engineering

Iowa State University (ISU) announces the availability of fellowships for graduate degrees in Environmental Engineering through the Department of Defense (DoD) Environmental Scholarship/Fellowship Program, recently awarded to ISU. Research areas that will be emphasized in this program include environmental restoration technologies, groundwater remediation and hazardous waste management. Awards are for M.S. and Ph.D. degrees in Civil Engineering (Environmental Engineering) or in Water Resources. Amount of each fellowship is approximately \$16,000 per calendar year. Applicants must be a US citizen or permanent resident. For full consideration, applications must be received by Feb. 15, 1996 for 1996 Fall semester and June 15, 1996 for 1997 Spring semester. For more information, contact Dr. Say Kee Ong at 515/294-3927, e-mail: skong@iastate.edu or Dr. T. Al Austin at 515/294-0753, e-mail: austin@ceelab.iastate.edu

Short-Course from Environmental Education Enterprises

Subject: **Water Quality/Sediment Quality Evaluation-Sediment Quality**
Date: April 22-24, 1996 (three days)
Location: Seattle, Washington
Instructor: Dr. G. Fred Lee, PE, DEE, AEEP Member
35 years of experience in water and sediment quality issues - extensive publications on topic area
Fees: 45-day advance, \$720
Gov't/Student, \$810
Standard, \$900
For further info: 916/753-9630 or fax 916/753-9956

ORGANIZATIONS OF INTEREST

Academia & ASCE

"The Civil and Environmental Engineering Chairs of the Northeast move to create a new national coalition of Civil and Environmental Engineering Department Chairs to address effectively critically important educational issues. The move comes from unanimous concern with present professional organization mechanisms to deal with those issues. We seek more effective and direct influence within our academic institutions and within the profession on the education provided to our students at this time of exciting changes."

The above resolution was unanimously approved by the Northeast Civil and Environmental Engineering Department Heads in their October 1995 meeting at Cornell University. This group has met annually under the aegis of ASCE and in preparation to the Department Heads Forum normally held in conjunction with the ASCE annual convention. The statement is a cry of frustration at the increasingly divergent views between our main professional association and those of us educating the professionals of the future. That we can have unanimity of opinion in a group spanning small under-graduate institutions to large research universities points to the depth and breadth of the developing rift.

I cannot speak for my colleagues, so I will take responsibility for the following comments, which are my interpretation of the feelings of the Northeast Department Heads.

Some of the discussions dealt with the need for a more nimble and effective organizational structure for the ASCE, one that can work with academia in searching for the way to educate the best civil and environmental engineers anywhere. Another issue is the need to recruit new blood, to empower youth to lead the way in what we consider an exciting field - a fertile ground for the latest science, technology, and policy development.

A particular concern of the group was an ASCE resolution calling for mandatory licensing for civil engineering faculties. This had been approved by ASCE's Professional Activities Committee and the Committee on Policy Review. (I understand it was just voted down at higher levels.) Although most, if not all, of those present were licensed, we interpreted this action as a serious misunderstanding and misconception of the educational enterprise. We encourage licensing but do not consider it an absolute requirement for being an excellent educator. Sadly, this action struck most of us as protectionist and defensive. It reinforces the myth that civil engineering academics live in isolation from the real world and practice. The ivory tower collapsed long ago!

These comments will, hopefully, encourage debate. The Northeastern department heads' resolution should be the subject of discussion among all Civil and Environmental Chairs, ASCE and the professional community at large. In fact, the dialogue has already started. ASCE's strategic planning effort has already identified all of the issues mentioned here and seems poised to act on them. I encourage all of you to read about it in your ASCE newsletter.

We should all work together to make our profession exciting, dynamic, open and flexible. ASCE is an organization of enormous strength, tradition, and potential. Its leadership should take the opportunity to make it nimble, responsive, and welcoming.

Rafael L. Bras
Department head, MIT

National Research Council

The National Research Council (NRC) is soliciting applications for two Young Investigator Programs, which the NRC will organize in Russia in 1996. One YIP will focus on Urban Water Quality Management and the other on Sustainable Forest Management. Each program will consist of a three-week session in Russia in the summer of 1996; some scholars will also be eligible for funding to continue collaborations with their Russian colleagues. All participants must have earned his/her Ph.D. or achieved equivalent professional accomplishments not earlier than June 1988. The application deadline for this program is February 21, 1996. For application guidelines and additional information on these programs, please contact Stephen Deets at the Office for Central Europe and Eurasia, National Research Council, 2101 Constitution Avenue, NW, Washington, DC 20418, 202-334-2658, sdeets@nas.edu.

1996 EPA Grants RFA

The 1996 EPA Grants RFA was released Tuesday, Nov 28. It is on the EPA Internet site (WWW.EPA.GOV). The areas this year include:

1. Ecological Assessment (includes Global Change).
Application deadline: 2/29/96
2. Exposure of Children to Pesticides.
Application deadline: 2/15/96
3. Air Quality. Application deadline: 2/29/96
4. Analytical and Monitoring Methods.
Application deadline: 2/15/96
5. Drinking Water. Application deadline: 2/15/96
6. Fate and Treatment of Toxics and Hazardous.
Application deadline: 2/15/96
7. Environmental Statistics. Application deadline: 2/29/96
8. High Performance Computing.
Application deadline: 2/29/96
9. General Solicitation. Application deadline: 2/29/96

The file, which includes introductory material, a description of the research topics, and application instructions, is 34 pages. Statistics and High Performance Computing are advertised as Cooperative Agreements; the rest are grants. There are plans for other announcements in collaboration with other agencies.

GEOLOGY FOR ENGINEERS AND ENVIRONMENTAL SCIENTISTS

(SECOND EDITION)

BY ALAN E. KEHEW

PRENTICE HALL 1995

Henry Clay, the "great compromiser," for many years was able to keep the Whigs and the Democrats from slicing each other's throats and plunging the nation into a civil war. His skill was to discover what really mattered to each camp and then to juggle these so that each thought they were getting the best deal. But in the end, the division between the two sides proved to be too deep and the Civil War erupted.

Compromises can work, and often prove useful in diplomacy and even in personal relationships. But if the division is too deep, then these compromises simply delay the inevitable.

Alan Kehew's excellent book is such a compromise, by his own admission. In the preface he relates how, while at North Dakota State University, he taught a course that was a required course for civil engineers but also served as the gateway course for geology majors. He first tried a classical geology course, which proved unacceptable to the engineers, and then an engineering geology course, which apparently blew the non-engineers out of the water. Finally he came to the not uncommon conclusion that if he was to teach the course he really wanted to teach he would have to write his own textbook. **GEOLOGY FOR ENGINEERS AND ENVIRONMENTAL SCIENTISTS** is the result. The great compromise has been published.

And indeed it seems to be a blending of the best of both. The first part of the book is classical geology, with chapters on igneous rocks, sedimentary rocks, metamorphic rocks, tectonics, weathering, rivers, and other topics. But included also are chapters on earthquakes, mass movement and slope stability, groundwater, rock mechanics, and pollutant transport. The last chapter on subsurface contaminant transport and remediation is new in this edition and reflects the increasingly important role of geologists in hazardous waste management. The text is well organized, clearly presented, and peppered with great pictures. Just leafing through it and taking the "National Geographic" approach to reading the book is an enjoyable experience.

But does the compromise hold? Is it truly a book that engineers can use and count as an engineering geology text? At the risk of starting another Civil War, it seems to me that it does not seem so.

The few equations that are included are simply presented as "and this formula can be used to solve that". Even the well-worn Stokes law is included in the sedimentation chapter, but nothing is done with it and none of the assumptions that are necessary in the derivation of the Stokes law are included. What the book tends to do for non-technical people is to convince them that all engineer do is plug and chug through equations.

In my opinion, if you are looking for a good geology text

for engineering students, this is a fine effort, but do not delude yourself or your students into thinking that this is engineering geology. The compromise does not seem to work for the engineers, and I suspect that this is true as well for the non-technical students who use this text. Geology should be a part of every engineer's bag of skills, and this is a very fine text for teaching geology to engineers. It is not, however, a text in engineering geology.

ENVIRONMENTAL ENGINEERING:

A DESIGN APPROACH

BY ARCADIO P. SINCERO AND GREGORIA A. SINCERO

PRENTICE HALL 1996

What distinguishes this book from others with similar names is the fluid mechanics approach to many environmental engineering problems. The authors use diffusion and transport theory to analyze anything from groundwater flow to the dissolved oxygen sag curve. A solid grounding in fluid mechanics is absolutely necessary to make this book useful for classroom instruction.

In the preface the authors suggest that the book could be used for three semesters, and there certainly is enough material for that. This dense packing is, however, at a cost in that none of the concepts are explained in depth, and there are few diversions to relate the material to the real world. If the book is to be used for three semesters the instructor will have to fill in much of the missing material.

After introducing environmental engineering to the reader, the book covers the elements of environmental chemistry, biology and hydrology. The next chapter is on hydraulics and pneumatics — a topic often neglected in environmental engineering courses. The chapter on environmental modeling is at a high technical level, based mainly on the Reynolds transport theorem. From that point the book looks familiar to anyone teaching undergraduate environmental engineering. In fact, some of the figures, presented without attribution, look entirely too familiar to some of us.

Conventional water treatment is followed by conventional wastewater treatment, sludge treatment and disposal, and advanced treatment. The next chapters are on pollution from combustion sources, solid waste management and air pollution control. The last two chapters cover hazardous waste treatment and noise pollution. One of the best parts of this book are the multiple appendices that provide a wealth of information on EPA standards, conversion factors, and other useful information. A computer disk, included with the book, allows for the solution of diffusion problems.

Anyone interested in presenting an upper level environmental engineering course based on fluid mechanics principles would do well to consider adopting this imaginative and unique book.

P. Aarne Vesilind
AEEP Book Review Editor

PROFESSIONAL GROUNDWATER AND HAZARDOUS WASTE SCIENCE SERIES

(DR. LORNE G. EVERETT, EDITOR-IN-CHIEF)

Ann Arbor Press, Inc., is pleased to announce the establishment of new Professional Groundwater and Hazardous Waste Science Series. The Series Editor is Dr. Lorne G. Everett, Vice President and Chief Research Hydrologist for Geraghty & Miller, Inc., in Santa Barbara, California.

The objectives for the series are to concentrate on innovative and practical (how to) books related to characterization, remediation, and containment barriers. This "how to" series will focus not only on practical approaches in America, but will also include successful international applications of hydrogeologic characterization, remediation, and containment. For example, Dr. Everett will collaborate with Dr. Igor Zektser, Head of the Russian National Academy of Sciences, Water Problems Institute in Moscow, with respect to successful European and East Block technologies. Other tentative titles include Vadose Zone Monitoring for Solid and Hazardous Waste Sites, Aquifers and Wells, and Watershed Hydrology.

New book proposals will be reviewed promptly, and should be sent to Robert A. (Skip) DeWall, Jr., President, Ann Arbor Press, Inc., P.O. Box #310, Chelsea, MI 48118, USA.

NEW VIDEO AVAILABLE

ACADEMIC INTEGRITY:

A BRIDGE TO PROFESSIONAL ETHICS

Teaching professional engineering ethics is often difficult and frustrating, and yet ABET and other professional organizations continue to stress the need for ethics education in engineering curricula. The videotape entitled "ACADEMIC INTEGRITY: A BRIDGE TO PROFESSIONAL ETHICS" was developed with the assistance of the National Science Foundation, and is now available at cost.

If you would like to try this videotape in your classroom, please order it through: Aarne Vesilind, Center for Applied Ethics, School of Engineering, Duke University, Durham, NC 27708-0287. You can be billed for \$50, or you can send a check or purchase order. If you have any questions, give Aarne a call at 919/660-5204 or fax 919/660-5219 or e-mail pav@egr.duke.edu

WATERSHED HYDROLOGY, SECOND EDITION

BY PETER E. BLACK

Watershed Hydrology, Second Edition, provides the basis for a practical, middle-of-the-road approach to wildland water resource management. This revised and expanded edition (with nearly 800 literature references/430 pages) discusses the principles and process of water movement and storage in the context of a natural land unit of the hydrosphere - the watershed.

At \$49.95 it will be available from (order code 027-1) Ann Arbor Press, Inc., 121 South Main Street, P.O. Box 310, Chelsea, MI 28118, 313/475-8787, 800/858-5299 or fax 313/475-8852 in March.

ON-LINE INFO

AEEP WWW Site

Dear AEEP Colleagues:

The Electronic Highway Committee has just finalized a World Wide Web site for AEEP. We now unveil it to you. Check out the following URL: <http://bigmac.civil.mtu.edu/aEEP.html>

Among other things, our site features:

- ◆ AEEP news and upcoming events
- ◆ Committee activity reports
- ◆ Research opportunities (eventually)
- ◆ Job postings (already ten listed)
- ◆ Publications (books, software) by AEEP members
- ◆ Links to Environmental Engineering programs and university web sites
- ◆ A comprehensive AEEP member email list
- ◆ Complete information on membership

This is simply our "first draft." We envision this to be a fluid (and paperless) vehicle for collaboration among AEEP members. More advanced features will be added later.

We also feel the web site is more user-directed approach (versus email, for example). Instead of forcing information your way, the web site will allow you to obtain the information you want, when you want.

Submissions:

There is room for much more. If you want to add to the AEEP web site, follow one of these three approaches:

- 1) email your information (i.e. job posting, committee report, book review) to one of the Electronic Highway committee members (email addresses at the web site);
- 2) send, via attached email, an HTML file to one of the EH committee members;
- 3) email a URL for web pages on your site to one of the EH committee members (preferred method).

Of course all submissions are free of charge to all AEEP members. Spread the word to your colleagues and students who may find information of interest at our site. Use it and add to it.

Enjoy!

Kurt Paterson, Chair
AEEP Electronic Committee
paterson@mtu.edu



REMINDER

Deadline for the April 1996 AEEP Newsletter is Friday, March 1st.

AEEP TEACHING WORKSHOP

3 AUGUST 1996

UNIVERSITY OF MAINE

One of the primary objectives of AEEP is to assist the membership in developing teaching materials and techniques. In an effort to keep abreast of the revolution in engineering education taking place at this time, the Association is sponsoring a teaching workshop on the Saturday immediately preceding the AAEE/AEEP Engineering Education Conference. This workshop brings together some of the top engineering education theorists in the country, along with a panel of our own master teachers who will share some of their ideas with you, and solicit your comments and experiences in return. The cost of the workshop is \$50.

Preliminary Program

8:30 Introductions

8:35 Cynthia J. Atman, Department of Industrial Engineering

University of Pittsburgh

"Assessment of Engineering Learning"

10:00 Break

10:30 Karl A. Smith, Department of Civil Engineering

University of Minnesota, "Problem-based Learning"

12:00 Box lunch

1:00 "How do I...?" Break-out discussions, Group I

A. "...teach a capstone design course?" JoAnn Silverstein, University of Colorado

B. "...teach environmental organic chemistry?"

C. "...teach environmental microbiology?" Bruce Rittmann, Northwestern University

2:00 "How do I...?" Break-out discussions, Group II

D. "...teach environmental ethics?" Pl. Aarne Vesilind, Duke University

E. "...teach large introductory environmental engineering courses?" Jim Alleman, Purdue University

F. "...use the world wide web in teaching environmental engineering?" Kurtis Paterson, Michigan Tech

3:00 Break

3:30 Reports from break-out discussions

4:00 Informal discussions, adjournment, attitude adjustments, etc.

AAEE/AEEP ENVIRONMENTAL ENGINEERING EDUCATION & PRACTICE CONFERENCE

(Editor's note: The following are a few examples of the abstracts submitted for the poster session at this year's conference. There is still time and space for your submission. If you are interested please see page 14.)

THE ENGINEERING & PUBLIC POLICY

CAPSTONE PROJECT COURSE

Mitchell J. Small, Carnegie Mellon University

The Department of Engineering & Public Policy at Carnegie Mellon University offers engineering students the opportunity to study and understand the interface between technology and society, and to develop the skills necessary to work at that interface. Students pursue a double major in one of the five traditional engineering departments and in Engineering & Public Policy (EPP). The capstone educational experience in the double major program is the EPP project course. These courses typically involve between 20 and 35 students, and address topics with both technical and social dimensions. Each student takes two such courses. Roughly half of the project courses offered in recent years have involved environmental issues. Examples include:

- ◆ *The Automobile and the Environment: A Greener Automobile through Materials Substitution;*
- ◆ *Aral Sea Regional Ecological Crisis;*
- ◆ *Environmental Labeling;*
- ◆ *Pittsburgh's Urban Forest: Planning for the Future;* and
- ◆ *Automotive Emissions Testing Policies for the Commonwealth of Pennsylvania.*

Students, supervised by a team of faculty and graduate student managers, apply skills from their science, engineering and social science courses, and learn to work in an intensive group project setting. Deliverables from the course include oral presentations to an external review panel, some of whom may serve as informal 'clients', and a final report. EPP alumni usually report to us that project courses provided the most beneficial and realistic preparation for their subsequent career. Guidance on initiating and managing project courses of this type is provided.

IN SITU SUBSURFACE REMEDIATION TECHNOLOGIES: INTEGRATION INTO AN INTERDISCIPLINARY ENGINEERING CURRICULUM

*John S. Gierke, David R. Shonnard, and Alex S. Mayer
Michigan Technological University*

The subject of this poster pertains to our activities towards incorporating the state of knowledge and practice in subsurface remediation into the upper-division laboratory component of undergraduate engineering curricula. We are building a laboratory facility for demonstrating subsurface remediation techniques at a range of scales from benchtop to a large soil box (24' x 24' x 8' high) for simulating field conditions. This facility is being used in developing a set of interdisciplinary, senior-level, laboratory-based courses in subsurface remediation. The first course in the set was offered this past fall to 20 B.S. and 10 first-year M.S. students in chemical, civil, environmental, and geological engineering. This course introduced fundamental and applied concepts underlying a wide range of remediation techniques. The course was team taught and presented from various disciplinary (chemical, environmental, and geological engineering) viewpoints. In some cases, outside speakers were brought in to teach about particular technologies. The second course is a concentrated study of a particular set of remediation techniques. The example presented in this poster is a laboratory study of soil vapor extraction and air sparging for removing volatile organic chemicals from soils and groundwater. This course is currently underway and is comprised of six undergraduate engineering students from three disciplinary backgrounds. As part of the laboratory work, the students are building and operating column experiments and a pilot test using a 9'-diameter x 7'-high tank. In addition, computer models for air flow and vapor transport are being used to design the experiments and analyze the test results. The students are using case studies to assist in designing the pilot study and for testing the computer models. The project courses complement the research activities of the three faculty involved in this project.

In addition, about six graduate students contribute to the course activities in various forms. Support for this project is being provided jointly by National Science Foundation Combined Research-Curriculum Development Program and the State of Michigan Research Excellence Fund.

USING THE WORLD WIDE WEB AND MULTIMEDIA AS ENVIRONMENTAL LEARNING TOOLS

Randy Dymond, University of Wisconsin - Platteville

The integration of current information technology into the civil/environmental engineering classroom is imperative in order to teach our undergraduates the ultimate lesson, that is, how to learn. Demonstrating and requiring students to use the World Wide Web (WWW) early and often only increases their ability to learn more and to research pertinent information about a particular topic. At many universities, including the University of Wisconsin-Platteville, the WWW and local multimedia technology are being used as study tools for students needing refreshment of previously learned information, students trying to study more advanced topics not included in their curriculum, or students trying to enhance their understanding of a particular topic. The range of information available on the Internet is growing exponentially while the use of multimedia lessons is more constrained by budget and authoring time. This poster session will demonstrate how these two powerful tools are being utilized in a strictly undergraduate civil/environmental engineering curriculum, will describe the difficulties involved in moving toward this type of teaching environment, and will discuss how their use translates into professional civil engineering practice.

INNOVATION IN AN UNDERGRADUATE ENVIRONMENTAL LABORATORY: APPLICATION OF VIRTUAL INSTRUMENTS TO MONITOR SIMULATIONS OF LAKE ACIDIFICATION

Monroe L. Weber-Shirk, Leonard W. Lion, and James J. Bisogni, Jr. Cornell University

Cornell's School of Civil and Environmental Engineering is developing a new undergraduate laboratory in Environmental Engineering. This laboratory is designed to contain innovative experiments that are directly related to ongoing research by the CEE environmental faculty and that illustrate current environmental problems and options for engineered remediation. Current topics explored include: Dispersion in engineered reactors; Acid rain/lake chemistry; Contaminated soil - site assessment, risk assessment, and remediation; Pollutant dispersion and transport in rivers; Ripening agents for slow sand filters; and Dissolved oxygen sag. A laboratory exercise entitled "Acid Precipitation and Remediation of Acid Lakes" will be used to illustrate the features of these new laboratory exercises including: just-in-time education, computerized data acquisition and analysis, scaling to reduce size and time of processes, and real time measurement of dynamic processes. The laboratory exercise models acidification and remediation of a lake with finite watershed acid neutralizing capacity. The experiment is easily performed by students in 3 hours. Data acquisition and instrument control is performed using Virtual Instruments (VIs) written in Labview (National Instruments). A pH/ion meter with two pH probes and RS232 interface is used to acquire time-varying pH data.

LABORATORY EXERCISE: PARTITION OF SOLUTES BETWEEN ENVIRONMENTAL COMPARTMENTS

Susan E. Powers, Clarkson University

After a few years of teaching a course in hazardous waste management to seniors at Clarkson University, I have found that many students have difficulty comprehending the partitioning of solutes between environmental compartments. It is critical, however, that students learn these processes early in the semester so that lectures on the environmental fate of hazardous substances and remediation techniques can be understood. The simple and inexpensive laboratory exercise described here was developed to promote a conceptual understanding of solubility and sorption. The laboratory is qualitative and strikingly visual, enabling all students to be active participants, even with a large class.

The experiment focused on the partitioning of solutes between a nonaqueous phase liquid (NAPL) and water, and then from the contaminated aqueous phase to sand. Three NAPLs with distinctive colors and large range of properties were prepared. As any two of the phases were mixed, the transfer of color between the phases were mixed, the transfer of color between the phases provided a visual illustration of solute partitioning.

The NAPLs were developed by adding a dye to non-toxic organic phases. They include:

"Red" Oil-red-o added to mineral oil. (Oil-red-o is available through Fischer Scientific.)

"Blue" Methylene blue dissolved in a small amount of octanol which was then dissolved in mineral oil. (Note: the volume fraction of octanol in the final mixture should not exceed approximately 5%. Otherwise the octanol will create an emulsion with water and change the extent of sorption.)

"Yellow" Methyl orange dissolved in ethanol.

A wide range of partitioning behavior was observed during the laboratory. During the first phase of the experiment, a small amount of the NAPL was added to water in a 40-ml vial. The students observed: complete mixing between the yellow NAPL and water; some transfer of the blue solute from the NAPL to the aqueous phase; and no apparent change in the color of the water mixed with the red NAPL. Questions were posed to help students relate these observations to the idea of soluble versus insoluble organic phases. During the second phase of the experiment, the yellow and blue aqueous phases were poured through sand. With the blue water, it was observed that the sand turns blue and the water becomes clear, illustrating the slightly soluble components can be strongly sorbed. The yellow solute was not sorbed as evidenced by the lack of color change in either the soil or aqueous phase.

Students completed a series of questions during the laboratory to relate the experimental results to material covered in lecture. The questions focused on the relative mobility of solutes, their ultimate fate in the environment, and their probable chemical structure. All of the students felt that this simple laboratory experience provided them with greater insight into the fate of both NAPLs and solutes in the environment. And, although no formal assessment of their increased comprehension was conducted, the students had far fewer problems than in past years completing homework problems on the partitioning of hazardous constituents in the environment.

AAEE/AEEP ENVIRONMENTAL ENGINEERING EDUCATION AND PRACTICE CONFERENCE

ORONO, MAINE

AUGUST 3-6, 1996

Starting in 1960, the Association of Environmental Engineering Professors (AEEP) and the American Academy of Environmental Engineers (AAEE) have organized a half dozen conferences to guide the growth of environmental education. The conferences have had a major influence of the development and direction of environmental engineering education.

The focus of the Seventh Conference will be the examination of the structure and function of environmental engineering education and practice. Specifically, conference participants will

- ◆ Evaluate the undergraduate curriculum as it relates to inclusion of basic science fundamentals, laboratory experience and engineering design coursework;
- ◆ Evaluate the graduate curriculum as it relates to integration of teaching engineering design, conducting basic and applied research, and advancing the profession;
- ◆ Evaluate outcome assessment, certification programs, and continuing education requirements for practicing environmental engineering; and
- ◆ Evaluate the role of the practitioner in education, including site visits, case studies, capstone design, exchange programs, and teaching.

The structure for the August 1996 meeting will include a pre-conference teaching workshop; invited speakers and papers; presentation of papers selected from the "Call for Papers"; and a poster session featuring case studies on successful laboratory experiments, capstone design projects, and utilization of interactive television and electronic media. The emphasis will be on providing information that can be used in environmental engineering education and practice.

The success of the Conference will depend upon the active involvement of both educators and practitioners and is especially important for the poster session. Many AEEP members have asked for a Conference that provides "information that can be taken home". The poster session has been added to facilitate this exchange. Although the "Call for Papers" deadline has passed, we would like to expand the poster session and would welcome additional submittals. Authors are also encouraged to prepare papers for publication in the proceedings to ensure the widest dissemination. Examples of some of the accepted abstracts are printed on pages 12 and 13. Submittals should be sent to, or if you have an idea you would like to discuss, contact: Chet A. Rock, 5711 Boardman Hall, University of Maine, Orono, ME 04469-5711, TEL: 207-581-2170 FAX: 207-581-3888 ore-mail: chetrock@maine.maine.edu

"RELEVANCE BETWEEN ENVIRONMENTAL ENGINEERING EDUCATION AND PRACTICE"

SATURDAY, AUGUST 3, 1996

Teaching Workshop

SUNDAY, AUGUST 4, 1996

- 1:00 pm Welcome and Opening Remarks
- 1:15 pm *Environmental Engineering Work Force and Markets: Today and Tomorrow*
- 4:30 pm Social Hour with Book Publishers displays
- 5:30 pm Lobster Boil/Steak BBQ
- 7:00 pm Tim Sample, Maine Humorist
- 8:00 pm *Faculty and Practitioner Interaction*
- 8:00 pm Movie for families

MONDAY, AUGUST 5, 1996

- 9:00 am *Skills and Attributes Required of the Environmental Engineer: Practitioners' Perceptions*
- 10:15 am Break
- 10:45 am *Educational Approaches and Curricula for Development of Requisite Skills: Educators' Perceptions*
- 12 noon Luncheon
- 1:30 pm *Role of Practitioners in Education*
- 3:00 pm Break
- 3:30 pm *Involvement of Educators in Practice*
- 5:00 pm Social Hour with posters on display
- 6:00 pm Banquet
- 7:30 pm *Poster Session (posters also displayed Tuesday)*
- 7:30 pm Movie for families

TUESDAY, AUGUST 6

- 9:00 am *Outcome Assessment*
- 10:15 am Break
- 10:30 am *Outcome Assessment*
- 11:30 am *Summary Session*
- 12:30 pm Adjourn



A great resource guide for planning your trip to Maine is published by the Maine Publicity Bureau, and is entitled "*Maine Invites You!*" For this and other helpful publications call 207/623-0363.

Also, the January '96 issue of "Downeast" magazine is dedicated to the greater Bangor area, of which Orono is a part. This would be a great resource for anyone visiting the area. This can be purchased throughout the US or by calling 800/727-7422.

AAEE/AEEP
ENVIRONMENTAL ENGINEERING EDUCATION & PRACTICE CONFERENCE
UNIVERSITY OF MAINE
AUGUST 3-6, 1996

Name: _____
Company: _____ Title: _____
Address: _____
City: _____ State: _____ Zip: _____
Telephone: _____ (Work) _____ (Home)

Pre-Conference Workshop (AEEP Day-long Teaching Workshop on August 3 - limited to 50 participants):

- \$50.00 by June 15, 1996 (includes lunch) \$ _____
 \$60.00 after June 15, 1996 (includes lunch)
\$ _____

Conference Registration Fee (August 4-6):

- \$175.00 by June 15, 1996
 \$200.00 after June 15, 1996 \$ _____

On-Campus Housing:

- Double Room @ \$21.00/person/night x _____ # of nights \$ _____
Roommate: _____
 Single Room @ \$33.00/person/night x _____ # of nights \$ _____

Please indicate which nights you will be staying:

- 8/2 8/3 8/4 8/5

TOTAL \$ _____

Payment Method:

- Check made payable to the University of Maine
 Visa or Mastercard # _____ Exp. _____
 Purchase Order #: _____
Billing Address: _____

Mail this form with payment to:

Environmental Engineering Conference
Conferences and Institutes Division
University of Maine
5724 Dunn Hall
Orono, ME 04469-5724
Tel: 207/581-4092 FAX 207/581-4087

A block of rooms have been reserved for the conference at the following hotels. The participant is responsible for arranging for their own off campus lodging accommodations.

Black Bear Best Western
207/866-7120
Double Room: \$50.00/night*
Single Room: \$45.00/night*

University Motor Inn
207/866-4921
Double Room: \$50.00/night*
Single Room: \$45.00/night*

*plus tax & gratuity

Reservations should be made by July 8, 1996. The block of rooms will be released after this date and will be available only on a first come, first serve basis.

OFFICERS

President - Clifford W. Randall
C.P. Lunsford Professor
Dept. of Civil Engineering
VPI & SU
Blacksburg VA 24061
TN: 703/231-6018 FN: 703/231-7916

Vice President - James C. Young
Kappe Professor of Environmental Engr.
Dept. of Civil and Environmental Engr.
The Pennsylvania State University
Blacksburg VA 24061
TN: 703/231-6018 FN: 703/231-7916

Secretary - Jo Ann Silverstein
Dept. of Civil, Enir. & Arch. Engr.
University of Colorado
Engineering Center, Rm. OT 4-21
Campus Box 428
Boulder CO 80309-0428
TN: 303/492-7211 FN: 303/492-7317
email: silverst@spot.colorado.edu

Treasurer - Mark J. Rood
Dept. of Civil Engineering, MC-250
Univ. of Illinois at Urbana/Champaign
205 N. Mathews Avenue
Urbana IL 61801-2352
TN: 217/333-6963 FN: 217/333-9464
email: m-rood@uiuc.edu

Past President - Stephen J. Randtke
Civil Engineering Department
University of Kansas
Lawrence KS 66045
TN: 913/864-3731 FN: 913/864-5379
email: srandtke@kuhub.cc.ukans.edu

DIRECTORS

Jim Alleman (1995-98)
Purdue University

Appiah Amirtharajah (1994-97)
Georgia Institute of Technology

C.P. Leslie Grady (1993-96)
Clemson University

Bruce Logan (1995-98)
University of Arizona

Chet Rock (1995-98)
University of Maine

JoAnn Silverstein (1994-97)
University of Colorado

Sandra L. Woods (1993-96)
Oregon State University

Jim Young (1994-97)
The Pennsylvania State University

Clifford W. Randall (1993-96)
Virginia Polytechnic Inst. and State Univ.

Joanne Fetzner
AEEP Business Office
2101 Winchester Drive
Champaign, IL 61821
217/398-6969 Fax 217/333-9576
jfetzner@psych.uiuc.edu

SUSTAINING MEMBERS

Amoco Oil Company
Naperville, IL

CH2M Hill
Denver, CO

Montgomery & Watson, Inc.
Pasadena, CA

Ann Arbor Press
Ann Arbor, MI

Eastman Kodak Co.
Rochester, NY

The Proctor & Gamble Co.
Cincinnati, OH

Black and Veatch
Kansas City, MO

Engineering-Science
Pasadena, CA

D.W. Ryckman & Assoc., Inc.
St. Louis, MO

John Carollo Engineers
Walnut Creek, CA

Lewis Publishers, Inc.
Chelsea, MI



ASSOCIATION OF ENVIRONMENTAL ENGINEERING PROFESSORS

NEWSLETTER

Chet A. Rock
Editor, AEEP Newsletter
University of Maine
Department of Civil and Environmental Engineering
5711 Boardman Hall
Orono ME 04469-5711

BULK RATE
U.S. POSTAGE
PAID
CHAMPAIGN, IL
PERMIT NO. 75