



PRESIDENT'S CORNER

The intellectual argument for increased federal funding of university-based environmental research is as strong as it has ever been, but it has not yet succeeded in Congress. This is the message that came to AEEP through our recent meetings in Washington.

On January 15th, I presented a statement on behalf of AEEP to the National Research Council's Committee on Environmental Research. The complete statement, titled: "Environmental Research in the United States: Problems needing Solution and Programs Needing Improvement" appears elsewhere in this newsletter. You are encouraged to read it. Following the presentation, AEEP submitted a letter to the Committee on Environmental Research requesting that the proposed National Institutes of the Environment include an Engineering Directorate.

The AEEP Executive Committee met in Washington on Sunday, January 26th. Among the significant items discussed were:

- Planning for the AEEP Academic Reception to be held on Tuesday, May 26th at 6 p.m. in conjunction with the IAWPRC Water Quality International Conference in Washington: The reception will be similar to those co-sponsored by AEEP and Lewis Publishers at the recent WPCF meetings. We are looking forward to this opportunity for our membership to meet their international colleagues.
- Planning for AEEP Workshops to be held at the 1992 WEF and AWWA Conferences: Aarne Vesilind will do the WEF Workshop on "Ethics" as a component of environmental engineering education. "Membranes" was tentatively selected as the topic of the AWWA Workshop. Watch your mail for details.
- Initial planning for an Environmental Engineering Research Needs Conference to be held in the fall of 1993. Walt Weber has agreed to chair the conference to be held in the Ann Arbor area.
- Progress report on the second edition of the AEEP Software Manual. The committee chaired by Joe DePinto has arranged for initial funding from AWWARF and ASEE to complement the AEEP investment. The committee is also looking into arrangements with publishers.

- Development of a Seventh Edition of the AEEP Roster of Environmental Engineering Graduate Programs. You should begin working on revision of your present program descriptions for timely submission to Gary Amy by June 1st. You will receive more information from Gary in late spring.

- A closer relationship between AEEP and the Universities Council on Water Resources (UCOWR). An AEEP presence is encouraged at the UCOWR Conference on the Clean Water Act to be held July 28-31 at the University of Virginia at Charlottesville.

Following the Executive Committee meeting, the Past President (Bruce Rittmann), Vice President (Paul Bishop), and I visited with the EPA Office of Research and Development and with the Department of Energy, Environmental Restoration and Waste Management people.

At EPA, the Office of Exploratory Research (OER) is well organized to administer university-based environmental engineering and science research. Unfortunately, however, OER does not have much money. The annual EPA Research and Development Budget is about \$400 million of which OER gets about \$35 million. Of this about \$21 million is allocated to exploratory grants, and about \$9 million to the Centers Program. The grants program operates with six scientific review panels which meet once per year to review proposals. Over the past three years, the fate of proposals has been:

Proposals received/year:	about 450
Proposals approved/year:	about 150
New Proposals funded/year:	about 50

The 50 new starts per year at roughly \$140,000/year account for about \$7 million dollars/year. This leaves about \$14 million/year for continuation projects. The OER would like to increase the exploratory grants program to about \$40 million/year, but this does not seem likely to win congressional approval in the near future. The proposed National Institutes of the Environment could help to increase the funding for an exploratory grants program. Thus, it is important that the NIE have an engineering directorate.

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The DOE Environmental Research Program, on the other hand, has considerably more money than EPA's program but does not have an office well designed to deal with individual academic researchers. In addition to \$4.3 billion allocated to environmental restoration at DOE facilities in FY 92, DOE has a \$4.4 billion research and development budget. Within the DOE R&D budget, \$353 million is allocated to biological and environmental research, and \$602 million is allocated to environmental restoration and waste management. Moreover, DOE has developed a comprehensive Environmental Education Program consisting of academic partnerships with university consortia, national interaction with university faculty and graduate students, interactions with community colleges near DOE sites,

and other efforts. To date, three consortia have been formed under the academic partnerships program: one consisting of three South Carolina universities, one consisting of three New Mexico universities, and one consisting of 17 historically black and minority colleges and universities.

Many AEEP members have already been successful in obtaining DOE support for their environmental engineering research and educational programs. In view of DOE's problems, funding levels, and program development, it seems likely that even more of our members will be cultivating DOE support in the future.

C. Robert Baillod, President

ENVIRONMENTAL RESEARCH IN THE UNITED STATES: PROBLEMS NEEDING SOLUTION & PROGRAMS NEEDING IMPROVEMENT

A Statement By

C. Robert Baillod, Ph.D.

President, Association of Environmental Engineering Professors

**Presented to the Forum on the Organization, Management and Support of
Environmental Research in the United States
Committee on Environmental Research, Commission on Life Sciences
National Research Council
Washington, D.C.
January 15, 1992**

AEEP SPEAKS OUT ON THE NEED FOR ENVIRONMENTAL RESEARCH ¹

The Association of Environmental Engineering Professors (AEEP) is deeply concerned about the lack of commitment to the development of a sound scientific and technological basis for protection of the health and welfare to the American public and the global environment. An adequate scientific and technological basis for environmental protection is achievable only through a sustained and coherent program for nurturing and funding fundamental exploratory research and translating its results into practical solutions to problems.

Exploratory research provides a rational basis for setting national environmental standards as well as for developing new control processes to meet these standards. A recent example of national importance is EPA's regulation of trihalomethanes in drinking water. While toxicologists provided the basic data to suggest regulation of trihalomethanes, environmental engineering research developed economical ways to control trihalomethanes by modifications to existing water treatment processes. As a result, most water utilities have been able to meet the regulations with only moderate cost increases to consumers.

A secondary benefit of university-based exploratory environmental research is the production of doctoral graduates in environmental engineering and science. These young men and women will provide the vision and technological solu-

tions needed to sustain the nation's health, welfare and prosperity through the twenty-first century.

THE RESEARCH AGENDA: THE MOST IMPORTANT PROBLEMS NEEDING SOLUTIONS

Several organizations, including the U.S. Environmental Protection Agency, have set forth research agenda. The particular agenda presented here is drawn from several sources^{2,3,4} and highlights both fundamental and applied research directed at problem solutions.

Non-Trivial Pollution Prevention

The term "Pollution Prevention" has recently evolved to include waste minimization, source reduction and some aspects of material reuse. It is particularly attractive as it implies problem solution through problem elimination. To be sure, there have been some major instances of pollution prevention through minor process and material changes. However, as we move into the second generation of pollution prevention efforts, we find more tough, non-trivial problems to be solved. Most polluting waste streams cannot be "wished away". We need a major effort to develop new industrial processing technologies, separation technologies, and material reclamation technologies upon which pollution prevention of the 21st century will be based.

Pollution Control Technology

The optimal control of personal, municipal and industrial emissions to the air, water and land environment will be based on a combination of pollution prevention and pollutant control technology. We should strive to eliminate the pollutants that are difficult to destroy, and to destroy the pollutants that are difficult to eliminate. It follows that we should increase our efforts to improve current technologies for separation and destruction of pollutants. Technologies based on novel adsorbents, photo-reactive catalysts, and combinations of adsorbents with biological agents are worthy of additional research.

Fate and Transport of Pollutants

A recurring theme on every organization's research agenda is the intermedia transport and transformation of pollutants. This has implications for global-scale biogeochemical cycles. We recognize that toxic substance discharged into the atmosphere are deposited hundred or even thousands of miles away, either on the land or in the water. We need reliable models to predict the transport routes and fates of pollutants. These models should be based on sound physical and chemical principles and should be verified and calibrated. Such models will provide a basis for rational decisions on pollutant regulation and source control.

Multi-Disciplinary, Multi-Media Research

Environmental research by its very nature involves many disciplines and environmental media. We have physical, chemical and biological processes occurring in air, water, and soil. It follows that the best environmental research will be a product of team efforts involving a spectrum of scientific and engineering disciplines. This requires research support that is big enough and sustained enough to foster truly interdisciplinary teams. The large academic research center organized around a general theme can bring a good mix of disciplines together. Federal sponsorship of such centers should be encouraged.

Groundwater Contamination

The nation's groundwater is threatened by contamination from buried wastes and leaking tanks. We need to better understand the rate and extent of migration of pollutants in order to locate monitoring stations and to take reasonable and timely remedial action. Complex mathematical models are used to describe the physical, chemical and biological processes taking place in the soil-water system. Many sub-parts of these models cannot yet be used with confidence because the basic concepts are not well understood. Little is known about assimilation of wastes by soil, especially as a result of microbial degradation processes and sorption on soil particles. These natural processes retard the spread of contaminants, and more knowledge about them could provide insight into strategies of remedial action.

Methodology for Establishing Human and Environmental Risks

Human and environmental risk assessment is central to the setting of pollutant exposure standards. Better data and methodology are needed to reduce the uncertainty inherent in this process.

Adequate and Realistic Basis for Placement and Storage of Immobilized Pollutants and Residuals

Everything must go somewhere. We need fundamental exploratory research to evaluate the alternatives for storage of residual immobilized pollutants.

PROGRAMS NEEDING IMPROVEMENT: PROBLEMS WITH THE FUNDING, STRUCTURE AND ORGANIZATION OF ENVIRONMENTAL RESEARCH IN THE UNITED STATES

In recent years, environmental protection has attracted a large constituency whose preferences have been reflected in protective environmental quality standards. Environmental research, on the other hand, has a broad and diffuse constituency without appreciable political influence. This lies at the heart of the problem with environmental research. The political constituency has neither been sufficiently concerned nor sufficiently united to build an adequate governmental infrastructure for environmental research. There has not been adequate long term funding for environmental research.

The diffuse constituency problem is magnified further if one considers the diffuse nature of the federal environmental research establishment. Environmental research is spread over several federal agencies. EPA, DOD, DOE, and others all sponsor substantial environmental research programs.

Would establishment of a National Institutes of the Environment (NIE) for centralized federal funding of environmental research help this situation? It would certainly help. Too often research is viewed as peripheral by mission oriented agencies such as EPA and DOE. Establishment of the NIE would represent a significant step forward for environmental research. It would ensure the development and continuation of an adequate exploratory environmental research program.

Moreover, one of the greatest problems in the environmental engineering area is the shortage of qualified engineers. It is estimated that only about 1,000 to 2,000 environmental engineers are graduated each year to fill about 5,000 openings. If the NIE were to have education of the environmental work force as part of its mission statement, it could have a major impact on the quality and availability of the environmental work force.

In conclusion, the Association of Environmental Engineering Professors believes that the federal environmental research program ought to be more adequate and coherent, especially at the exploratory research level. We believe that the proposed National Institutes of the Environment can play a vital role in attaining this goal.

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REFERENCES

¹AEEP Legislative Analysis Committee, F.A. DiGiano, Chair, "Protecting our Environment: The Need for Exploratory Research," Association of Environmental Engineering Professors, 8 pages, 1986.

²Luthy, R.G., and M.J. Small, "Environmental Research: A Clearer Focus over a Broader Horizon," *Env. Sci. & Technology*, 24 (11): 1620-1623, 1990.

³Proceedings of the Association of Environmental Engineering Professors Conference on Fundamental Research Directions in Environmental Engineering, edited by R.G. Luthy and M.J. Small, November, 1988, Arlington, Virginia, published by AEEP, 164 pages.

⁴Report on Environmental Research, Development, and Demonstration Activities at the Environmental Protection Agency, Committee on Science, Space and Technology, U.S. House of Representatives, Committee Print, December 1990, 31 pages. ■

Deadline for September 1992 AEEP NEWSLETTER

Please submit articles for the September issue of the AEEP Newsletter to Chet A. Rock (Dept. of Civil Engineering, University of Maine, Orono, ME 04469 FAX: (207) 581-1215, Phone (207) 591-2170) by JULY 17, 1992.

AEEP NEWS AND ANNOUNCEMENTS

Long Range Planning Committee Seeks Corresponding Members

Following the Toronto meeting of the AEEP Board of Directors, the Long Range Planning Committee was established, with the objective of developing ideas for the future of AEEP as well as for charting the expected course of the environmental engineering field. The committee is chaired by Aarne Vesilind, and consists of Paul Bishop, Bob Bailod, Joe Middlebrooks, Mike Kavanaugh, and Bruce Hanes.

In order to provide the widest possible forum for the ideas and opinions of AEEP members, the Long Range Planning Committee seeks corresponding members who would like to participate in the project. Corresponding members would be sent all drafts of the documents and will be expected to respond with their concerns, suggestions and ideas.

All AEEP members interested in participating in this project as corresponding members are asked to notify Aarne Vesilind (Civil and Environmental Engineering, Duke University, Durham, NC 27706; Voice [919] 660-5204; FAX [919] 661-5219). A small note or message is adequate.

Aquatic Microbiology Laboratory Manual

AEEP developed an Aquatic Microbiology Laboratory Manual during 1976 and has had copies available for purchase since then. The current supply of copies has become relatively low, and the question has been raised regarding whether additional copies should be printed or not. A companion issue is whether there is any interest among AEEP members in developing a revised, updated version of this Manual. Interested members of AEEP are asked to respond to Bill Knocke regarding the following questions:

- (1) Do you currently use the AEEP Aquatic Micro Manual?
- (2) Would you be interested in having such a manual available for classroom/laboratory use?
- (3) Would you be willing to participate in a committee effort to update the existing manual?

Those who wish to respond should send their answers by June 15th to the following address:

Dr. William R. Knocke
Department of Civil Engineering
200 Patton Hall
Virginia Tech
Blacksburg, VA 24061

1991-92 AEEP Committee Assignments

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HIV Transmission in the Environment: What are the Risks to the Public's Health?

More than twenty scientists from around the U.S. came together at the Johns Hopkins School of Public Health to discuss data they have collected for three years on a little known aspect of the AIDS epidemic, the risks to the public's health of HIV transmission in the environment.

The symposium participants concluded that health care and laboratory settings are the only presently known intramural (inside) environments where HIV transmission is possible and cases have been documented. There appear to be no public health hazards due to HIV transmission in the outside environment since the virus is extremely sensitive to temperature, synthetic and biological chemicals and occurs in concentrations that are too low for transmission, they said.

In 1988, the first investigations of environmental transmission of HIV were sparked by public concern when traces of the HIV virus were found on used syringes in urban litter, explained the symposium organizer, Homayoon Farzadegan, Ph.D., Associate Professor of Epidemiology, Hopkins School of Public Health.

HIV can survive outside the body in blood, urine, saliva, tears and fecal waste, confirmed Gerald Berg, Ph.D., Professor, Department of Civil and Environmental Engineering, University of Cincinnati. According to studies by Farzadegan, HIV can survive in waste water containing urine and feces up to 48 hours and in dried blood for less than one hour.

"In order to pose a realistic public health threat, HIV must remain viable in wastewater," according to Barbara Moore, Ph.D., Instructor, Department of Microbiology, The University of Texas Medical Branch. Historically, environmental virologists have paid close attention to viruses that survive in the gastro-intestinal tract and are spread by an oral-fecal route. Norwalk virus and hepatitis A are examples of diseases which infect populations in this manner, Moore stated.

For this reason, several of the symposium participants presented research on the potential of HIV to be transmitted by contact with sewage or waste waters. "The critical variable in transmission through human contact with sewage is concentration of the virus," according to Farzadegan and others at the symposium. "The low concentrations of HIV found in untreated or treated sewage do not pose any risk of viable transmission at present," Farzadegan commented. "However, it is possible that HIV

concentration in sewage will increase as more of the population becomes infected and new therapies prolong their lives." He adds, "Thus, it is important that we continue to monitor sewage as a potential source of risk."

To date, studies of workers at sewage treatment plants have revealed no case of HIV infection related to occupational exposure to sewage. In fact, sewage treatment workers' overall health has been shown to be better than the national average for all industrial service workers, according to a study by Bernard P. Sagik, Professor, Drexel University.

Martin Favero, Ph.D., Chief, Environment Laboratory Branch, Hospital Infections Program, Centers for Disease Control, said, "There are no known cases of HIV transmission through an air-borne route or an outdoor environment (i.e., swimming pools, sea water, sewage, soil or air)."

The only work environment that has been associated with a risk of HIV infection is the health care setting. There are roughly 800,000 needles sticks per year in medical clinics in the U.S., according to David Vlahov, Ph.D., Associate Professor, Johns Hopkins School of Public Health. "Based on numerous studies, a health care worker has a 0.3 percent risk, or less than one-half of one percent chance, of getting the virus that causes AIDS from working in a health care setting. However, because AIDS is a fatal disease, the consequences are extremely serious to the health care worker," Vlahov says. He urged that engineering efforts concentrate on developing safe, single-use syringes.

Other environmental risks to health care workers include exposure to dried blood on equipment, medical instruments, laboratory samples or surfaces. "Those health care workers who appear to be most at risk are nurses, since they have most frequent contact with patients," says Farzadegan. Environmental standards for protecting the medical and laboratory workers must be determined through further research and government regulations, the symposium participants concluded. "While ongoing research in this area is important, there is no indication at present that we need to increase the scale," remarked Edward H. Bryan, Ph.D., Program Director of Environmental Engineering, National Science Foundation.

The symposium was supported by a grant from the National Science Foundation and was held November 21-22.

For more information, please call Allison Barlow or Jo Martin, 410-955-6878. ■

USAID OPENS UNIVERSITY CENTER

Administrator Ronald W. Roskens formally inaugurated the Agency Center for University Cooperation as an operational unit of USAID at a recent reception at the State Department.

"The center will strengthen the ability of colleges and universities to include development in their plans to internationalize, and will provide a point of contact for institutions seeking to become active with USAID," said Roskens, who established the center last year as one of his first actions as administrator.

The first awards in the University Development Linkages Program (UDLP) also were announced at the reception. In the first program initiative of the center, UDLP is a competitive program linking U.S. and developing country institutions in partnerships of mutual benefit.

"This is a new type of program that will help U.S. universities carry out their own plans for international involvement as they engage in collaborative efforts to enhance the ability of developing country institutions to better meet the needs of their societies," Roskens explained.

The initial awards, given on a matching basis, involve 11 U.S. and 17 developing country institutions in 13 countries. Among the participating U.S. institutions and the

countries they will work with are Boston University-Nepal; Central State University-Ghana; Harvard University-Mexico and Mozambique; Johns Hopkins University-Mexico and Nigeria; Morgan State University-Bangladesh; University of California at Davis-Guatemala; University of Massachusetts-

"This is a new type of program that will help U.S. universities carry out their own plans for international involvement..."

Nepal; University of Montana-Belize; University of North Carolina-India and Columbia; University of Pennsylvania-Botswana, Nigeria, Tunisia and Colombia; and Worcester Polytechnic Institute-Ecuador.

The proposed linkage activities are in diverse fields of development, including health, nutrition, education, agriculture, rural and community development, forestry, environment and business management.

During the five-year terms of these cooperative agreements, USAID will award approximately \$7 million, which will be matched by more than \$13 million from U.S. and linked institutions, for a total investment of more than \$20 million. ■

CONFERENCES

Gordon Research Conference on Environmental Science

The Gordon Research Conference on Environmental Science will be held this coming summer at the New Hampton School, New Hampshire, June 16-19. This is an exciting look at current topics in redox chemistry that brings together environmental engineers, chemists and microbiologists.

The program and an application form were published in the March 6th issue of *Science*. Applications are also available from:

Gordon Research Conferences
Gordon Research Center
University of Rhode Island
Kingston, RI 02881-0801
(401) 783-4011

Information concerning the program content may be obtained from Jerry Schnoor, University of Iowa (319) 335-5649.

24th Mid-Atlantic Industrial Waste Conference Morgantown, West Virginia July 15th - 17th, 1992

The 1992 Mid-Atlantic Industrial Waste Conference will be held July 15th-17th, 1992 at the Lakeview Resort and Conference Center, Morgantown, WV (90 minutes south of Pittsburgh, PA). The conference is hosted by West Virginia University.

The 24th Mid-Atlantic Conference will have as its primary focus waste treatment, site remediation, and waste management. In addition, there will be sessions on sludge treatment, solids disposal, fluid flow, and waste to energy issues. The majority of the sessions are technical in nature. A balance is maintained between state-of-the-art and state-of-practice presentations. The General Session focuses on pollution prevention. Representatives from the USEPA, Battelle, Union Carbide, and the Environmental Defense Fund will speak. Wesley Eckenfelder, Jr. will be the Conference Keynote Speaker.

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The Lakeview Conference Center has two world class USGA golf courses, a sports center, several indoor and outdoor pools, and other recreational activities. Nearby is Cheat Lake which offers a wide variety of outdoor activities. People interested in attending should contact:

Brian Reed
Tele: (303) 293-3031, ext. 613
FAX: (304) 293-5024.

**Environmental Applications
of Gene Probe Methodologies Workshop
July 20th - August 7th, 1992**

Intensive three week lecture and laboratory course whose purpose is to provide a basic exposure to the techniques of molecular biology, followed by selected environmental applications. A background in molecular biology is not required. Inquires and applications to:

Center for Microbial Ecology
540 Plant and Soil Sciences Bldg.
Michigan State University
East Lansing, MI 48824-1325
(517) 353-9021

**The First Israeli/Palestinian International
Academic Conference on Water
October 20th - 23rd, 1992
Jerusalem/Bethlehem
The Tantur Conference Center**

The Conference program will include lectures, round tables and discussion groups on the water resources conflicts between Israelis, Palestinians, and others in the area and approaches to their solution.

Specific topics to be discussed: history of the water conflicts of the region; role of international water law; technical options for increased water resources; regional projects for importing water and/or desalination; non-conventional water sources-water recycling, cloud seeding, fossil water, brackish water; efficient water use and conservation; environmental quality management of shared water resources; joint commissions for monitoring, control and management of shared international water resources and projects; technical assistance; international financing and others.

The conference language is English and is open to scientists, engineers, and policy makers from all countries. Low cost hotel facilities are available at the Tantur Conference Center which is conveniently located on the main road between Jerusalem and Bethlehem.

For further information write to either one of the conference co-chairs and sponsoring organizations:

Dr. Jad Isaac
Applied Research Institute
P.O. Box 860
Bethlehem
ISRAEL
FAX: 972-2-741889

or

Professor Hillel Shuval-Truman
Institute for the Advancement of Peace
The Hebrew University of Jerusalem
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FAX: 972-2-322545/666804

**1st International IAWPRC Specialized
Conference
Diffuse (Nonpoint) Pollution:
Sources, Prevention, Impact and Abatement
September 20-24, 1993
Chicago, Illinois**

This international conference will be sponsored by the International Association for Water Pollution Research and Control (IAWPRC), US EPA (Region V) and several other agencies, professional organizations and institutions. The following three major themes will be featured by the conference: (1) sources of diffuse pollution and their impact; (2) diffuse pollution prevention and abatement; and (3) policies and institutions.

The program committee is seeking qualified abstracts for the above and other related topics. The maximal length of the abstract should be 500 words. The authors should also specify whether the abstract describes a platform or poster presentation. After the review of the abstracts by the program committee the selected authors will be asked to prepare a full paper for platform or poster presentations at the conference. Selected peer reviewed papers will be included in a special issue of Water Science & Technology, an official conference journal of the IAWPRC.

The deadline for the submission of the abstract is June 15, 1992.

Prospective authors should submit the abstract to:

Dr. Vladimir Novotny, Conference Chair
Department of Civil and Environmental Engineering
Marquette University
1515 West Wisconsin Avenue
Milwaukee, WI 53233
FAX: (414) 288-7082

EMPLOYMENT OPPORTUNITIES

Bucknell

The Department of Civil Engineering at Bucknell University invites applications for a temporary leave-replacement appointment for the 1992-93 academic year with an area of interest in Environmental Engineering. This position is at the Visiting Instructor/Assistant Professor rank depending upon qualifications. Applicants should have an earned doctorate in civil engineering and an undergraduate civil engineering degree from an ABET-accredited institution. Professional registration, some industry experience, and previous teaching and research experience are desirable. In addition to environmental-related courses, the successful candidate may be asked to teach fundamental engineering mechanics courses/laboratories. Bucknell University, which emphasizes teaching, is primarily an undergraduate institution with an MSCE program. Applicant should be interested in and capable of teaching well-qualified undergraduate students. Please send resumé and names of three references to Professor Larry Younkin, Acting Chair, Department of Civil Engineering, Bucknell University, Lewisburg, PA 17837. Applications are due by April 15, 1992.

Bucknell University is an EO/AA employer and encourages applications from women and members of minority groups.

Michigan Technological University

Michigan Technological University invites applications for two tenure-track faculty positions in the Department of Civil and Environmental Engineering. Candidates should have interest and research expertise in integrated, air-water-land approaches to environmental pollution control and risk reduction with an emphasis on integration of clean industrial and waste treatment technologies. A doctoral degree in environmental engineering or a related field is required for employment. Preference is for candidates at the assistant professor level, but candidates at all levels will be considered. Responsibilities include teaching at the baccalaureate and graduate levels, supervising graduate students, and developing an externally funded research program.

The Environmental Engineering Program at Michigan Tech includes seven faculty, 35 full-time graduate students, and 240 undergraduate majors. Annual research

expenditures in environmental engineering approach 1.5 million dollars including the new EPA-sponsored Center for Clean Industrial and Treatment Technologies and the Lake Superior Ecological Monitoring and Assessment Program.

Michigan Tech is located in a rural community on Lake Superior's south shore, in an area known for unspoiled natural beauty, pleasant summers, and heavy snowfall. To apply, please send a resumé and names of three references to Professor Neil Hutzler, Environmental Engineering Center, Michigan Technological University, 1400 Townsend Drive, Houghton, Michigan 49931-1295. Applications will be reviewed beginning March 1992, and accepted until the positions are filled. Women and under-represented groups are especially encouraged to apply.

Michigan Technological University is an equal education institution/equal opportunity employer.

Oregon State University

The Department of Civil Engineering at Oregon State University invites applications for a tenure-track faculty position in Environmental Engineering, at the Assistant or Associate Professor level, starting in September 1992. Position responsibilities include teaching at both the undergraduate and graduate levels, development of an externally-funded research program, and active participation in undergraduate and graduate student advising and program development. An earned Ph.D. degree in Environmental Engineering or related field is required. Applicants should have interest and expertise in natural and engineered systems, including but not limited to any of the following: chemistry, fate, and transport of contaminants in water or soil environments; treatment of waters, wastewater, and hazardous wastes; and management of hazardous wastes. Applicants should submit a letter of interest, current resumé, and names, addresses, and phone numbers of at least three references to: Dr. Peter O. Nelson, Environmental Engineering Search Committee Chair, Department of Civil Engineering, Oregon State University, Corvallis, OR 97331-2302. Phone: (503) 737-6835. Review of applications will begin on May 1, 1992 and continue until the position is filled.

Oregon State University is an Affirmative Action/Equal Opportunity Employer and complies with Section 504 of the Rehabilitation Act of 1973. Oregon State University has a policy of being responsive to the needs of dual-career couples.

continued...

University of Pittsburgh

The Department of Civil Engineering at the University of Pittsburgh invites applications for an entry-level tenure-track position. The successful candidate must have an earned Ph.D. or equivalent degree by time of appointment. Eligible candidates are expected to have a strong commitment to teaching at both the undergraduate and graduate levels, and to developing and sustaining an active and productive research program in the associated areas of environmental engineering operations and processes, including an emphasis on fundamental principles, applications, modeling and design.

Please send a detailed resumé and names of three or more references to: Dr. Frederick C. Pohland, Department of Civil Engineering, University of Pittsburgh, Pittsburgh, PA 15261.

The University of Pittsburgh is an equal opportunity employer.

PUBLICATIONS

Plain Talk About Drinking Water

A new book, *Plain Talk about Drinking Water - Answers to 101 Important Questions about the Water You Drink* (by James M. Symons) has recently been published by the American Water Works Association. This paperback book, written for the layperson in an easy question and answer format, would give undergraduate students an overview resource on the subject. The book is unique, achieving the seemingly incompatible goals of being authoritative and technically accurate, but simple and fun to read; being valuable but inexpensive. No other book like it exists.

The topics of the questions range from the informative; about health risks and regulations, to the practical; about conservation and advice for backpackers and campers; to the lighthearted, like why are fire hydrants called "fire plugs" and what does the President drink. The book is written for both US and Canadian readers.

For further information contact the publisher of the book (ISBN 0-89867-606-1), the American Water Works Association, 6666 W. Quincy Avenue, Denver, CO 80235-3098 or call 303-794-7711.

ADVANCED NOTICE

AEEP Luncheon and Awards Ceremony

Monday, September 21, 1992
12:00 - 1:30 p.m.

Water Environment Federation Conference
St. Charles B Room
Sheraton Hotel
New Orleans, Louisiana

AEEP Meet & Greet Reception

5:00 to 7:00 p.m.

Pontchartrain Ballroom D
Sheraton Hotel
New Orleans, Louisiana

TEXTBOOK

"Chemical Kinetics and Process Dynamics in Aquatic Systems"

by Pat Brezonik
University of Minnesota

Published by
Lewis Publishers, Inc.
P.O. Drawer 519
Chelsea, MI 48118

(Available in late 1992)

Directorio de Programas en America Latina

The Pan American Health Organization in collaboration with the Inter-American Association of Sanitary and Environmental Engineering (AIDIS) has prepared a Directory of Sanitary and Environmental Engineering Programs in Latin America. The directory has a similar format to our register and is written in Spanish and Portuguese. Programs at 82 universities are described in nearly 400 pages. If you would like a copy, please inform Brian Dempsey (212 Sackett Building, Penn State University, University Park, PA 16802.)

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 University of Iowa
 Iowa City, IA 52242
 (319) 335-6555

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Association of Environmental Engineering Professors

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