



Association Of
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Professors

NEWSLETTER

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D. W. HENDRICKS

PRESIDENT'S CORNER

Research Conference

The AEEP is sponsoring its third research conference. The theme of the conference is *Fundamental Research Directions in Environmental Engineering*. The conference will be held in Washington, D.C., November 13-15, 1988; additional information regarding location and registration for the conference is provided elsewhere in the *Newsletter*, as well as under separate mailings. The conference will address water, air and land environments and will therefore be multidisciplinary. The conference will be concerned with pollutant emissions, flow through the environment, and subsequent effects, as well as the link between these environmental science issues and policy questions.

The conference follows its predecessor by a period of six years. A considerable amount of environmental legislation has been enacted in this interval, much of which has focused on toxic and hazardous substances. These issues necessitate comprehensive approaches to managing and controlling environmental problems. While the problem scale may be local, regional, national or global, the need for optimal utilization of available resources is common to all scales. In this context, it is time for an assessment of fundamental research needs in environmental engineering as broadly circumscribed. The critical environmental problems of the future will entail intermedia processes in conjunction with complex societal and technical issues. The conference will address these matters and thus will help answer questions on the directions for the environmental engineer/scientist for the 21st century.

The conference will address approaches to achieve timely implementation of environmental research in order to help guide environmental policy and assist technology development. Four discussion sessions are planned. Each of the first three sessions will be

focused on processes with a specific scientific base — physical, chemical, or biological. Within each process area, individual researchers will assess research directions within a single medium — land, air or water. The fourth session will focus on intermedia processes and the identification of comprehensive approaches to environmental problems. One segment of the program will be devoted to risk assessment.

The format for the program will consist of short formal presentations, followed by prepared discussions. It is intended that the time allocated for general discussion from the audience will be as long as that given to prepared presentations. In this manner the program will emphasize the exchange of viewpoints and engage the participation of AEEP members. Reprints of conference papers will be provided to registrants prior to the conference. This research conference is an important activity of the AEEP; please make plans now to attend the conference in November.

Annual Luncheon

As is our tradition, the AEEP will sponsor an annual membership luncheon Monday, October 3, 1988 in Dallas, Texas during the Water Pollution Control Federation meeting (see Announcement and Reservation form at end of *Newsletter*). This luncheon will celebrate the 25th Anniversary of the AEEP. Preparations have been made to make this a special event, including perspectives on the history of the organization and its future directions. The luncheon will be held at the Hyatt Regency Hotel, across the street from the Dallas Convention Center beginning at 11:45 A.M. This will be a special event for which we can all join in celebration of 25 years service to our profession.

Richard G. Luthy
President

AEEP NEWS AND ANNOUNCEMENTS

Conference on Fundamental Research Directions in Environmental Engineering

November 13-15, 1988, Key Bridge Marriott Hotel, Arlington, Virginia

The Association of Environmental Engineering Professors is sponsoring a conference on Fundamental Research Directions in Environmental Engineering (see Registration form at end of *Newsletter*). The focus of the conference is on discussion of comprehensive approaches for managing and controlling environmental problems using a multidisciplinary and multimedia perspective. Four sessions are planned. Each of the first three sessions will address processes with a specific scientific base — physical, chemical or biological. The fourth session will address intermedia processes. In addition to specific research themes, the conference will consider how environmental science research may help guide national environmental policy while assisting the development of cost-effective control strategies. The manner in which research results may be effectively transmitted from research "producers" to research "users" will also be discussed.

The AEEP has sponsored research conferences in 1977 and 1982 on the general topics of water and wastewater systems. This conference will be wider in scope than the two previous meetings; it will be directed towards air, land and water environments. The conference is being supported in part by the National Science Foundation with supplemental funding from the Environmental Protection Agency.

Registrants will receive a packet of position papers and prepared discussions prior to the meeting. It is intended that sufficient time will be allowed following each presentation for general discussion involving conference attendees. The conference is open to all interested parties, and will commence on Sunday evening November 13 with a presentation and a reception. The formal program will begin on Monday, November 14 at 8:30 AM and conclude at 1:00 PM on Tuesday, November 15.

Please make plans now to attend the conference. A list of speakers and a schedule of events will be provided in a subsequent mailing. The AEEP conference will coincide with a portion of the 9th Annual Meeting of the Society of Environmental Toxicology and Chemistry to be held at the nearby Hyatt Regency Hotel in Arlington, VA. AEEP members may find it convenient to attend both the research conference and the SETAC meeting.

AEEP Workshop at the WPCF Conference

Charles Eckert and Carl Lira will present an AEEP Workshop on Sunday, October 2nd, at the WPCF Conference in Dallas. The workshop is entitled "Reactions and Extractions Using Supercritical Fluids", and will be held in the Dallas Convention Center, Room N-215, from 1 to 5 PM.

Professor Eckert is from the University of Illinois. He is a member of the National Academy of Engineering, has directed over 37 Ph.D. theses, and has published extensively in the area of supercritical fluids (SCF). A great deal of his work has dealt with environmental applications of this technology.

SCF has been used for the direct extraction of DDT, trichlorophenol, and other toxic organic materials from soils, as a regeneration technique for granular activated carbon or polymeric adsorbents, for the direct destruction of organic waste streams by supercritical water oxidation, and for the precombustion desulfurization of high-sulfur coals. Professors Eckert and Lira will present an Overview of SCF, Fundamentals of Phase Equilibria that are necessary in order to understand the process, General Applications, Environmental Applications, and Cost Estimates for processes such as wet oxidation, soil detoxification, and GAC regeneration.

You may register in advance (Brian Dempsey, 212 Sackett Building, Penn State University, University Park, PA 16802) or at the door. Registration is \$25 for AEEP members and \$10 for students. Notes will be provided.

AEEP Distinguished Lecturer for 1989

Professor Peter Grau of Czechoslovakia has been selected as the AEEP's Distinguished Lecturer for 1989. Information concerning the selection and details of his lecture topics was not available for this issue of the *Newsletter*; however, Makram T. Suidan (University of Illinois, 217/333-9017) will soon have the information and prepare an announcement for AEEP members. Professor Grau's address is as follows:

Prof. Peter Grau
VSCHT
Prague Institute of Chemical Technology
Suchbatarova Five
CS 166 28
Prague, Czechoslovakia

AWWA Research Foundation

The following article was prepared by James K. Edzwald, AEEP's representative on the Public Council on Water Supply Research (PCWSR), a public advisory committee to AWWARF. The purpose of the article is twofold: to provide information to AEEP members about research funding opportunities with AWWARF and to let you know about the PCWSR.

AWWARF serves as a private centralized research organization for the water supply industry of North America. It was formed in 1967, but had little money for research until about five years ago. At that time Congress provided seed funds through EPA to help the Foundation develop a sponsored research funding program. The Foundation no longer receives funds from EPA; it is now funded solely through a Subscription Program with water utilities. In 1987 the income from the Subscription Program was \$2.8 million. The goal for 1990 is \$5 million.

Quoted below is the mission of the foundation from their *Five Year Research Plan: 1988-1992*.

The mission of the AWWA Research Foundation is to sponsor practical, applied research in behalf of the drinking water industry of North America. The scope of the research program embraces all aspects of water supply operation, from development and maintenance of water resources to treatment technologies and water quality issues, from storage and distribution system operations to health effects studies and utility planning and management activities. AWWARF serves as the centralized industry institution for planning, managing, and funding cooperative research and development in drinking water, including the subsequent transfer of technology and results for practical application by the water utility community.

The Foundation has both a Solicited Research Program and an Unsolicited Research Program. The Solicited Research Program operates through the issuance of RFPs (Requests for Proposals). The RFPs come out once per year in late winter or early spring. The deadline for proposals is usually May 1 and awards are announced in June at the time of the Annual AWWA Conference. In 1988 the funds allocated for the Solicited Research Program amounted to \$3.1 million. The Foundation's funding of unsolicited research prior to 1987 was, by policy, 7½% of the total research budget. In 1987, upon recommendation of the PCWSR, the Foundation increased the allocation to a minimum of 15% of the total research budget. This means that in 1988 a minimum of \$555,000 will be awarded through the Unsolicited Research Program. Of course as the Foundation's total budget grows so will the Unsolicited Research Program. Proposals for the Unsolicited Research Program are due April 1 of each year. Awards are announced in June. Information can be obtained from the AWWARF, 6666 West Quincy Avenue, Denver, CO 80235.

Finally, a little bit of information about the PCWSR. The Council is a 10 member advisory committee to AWWARF representing diverse groups from the professional, environmental, and consumer segments of the water supply industry. Dr. Edzwald has been serving as AEEP's representative since December 1986 and will continue until December 1989. The major issues the Council dealt with over the last 18 months has been the Unsolicited Research Program and the Foundation's *Five Year Research Plan*. As mentioned earlier, the Foundation upon recommendation of the Council increased its percentage funding of unsolicited research. The *Five Year Research Plan* was reviewed by the Council during 1987, approved by AWWARF's Board of Trustees in January 1988, and is now available from AWWARF.

AEEP members are encouraged to write to Dr. Edzwald regarding their views and ideas pertaining to AWWARF.

AEEP Register of Graduate Programs

Efforts are underway to compile and publish the next edition of AEEP's *Register of Environmental Engineering Graduate Programs*. The last edition, published in 1984, was considered successful based upon sales to libraries and other groups around the U.S. and Canada. Co-editors Bill Knocke (Virginia Polytechnic Institute and State University) and Gary Amy (University of Arizona) have developed the following publication schedule for the 1989 edition:

July 15, 1988 Mailing of instruction packets to candidate programs regarding submittal preparation.

October 15, 1988 Deadline for submittal of completed program description.

January 1, 1989 Release of 1989 edition of AEEP *Register*.

If your environmental engineering program did not participate in the 1984 edition of the *Register*, but wishes to be involved in the 1989 edition, please write for submittal instructions to Dr. W. R. Knocke, Department of Civil Engineering, 200 Patton Hall, VPI & SU, Blacksburg, Virginia 24061.

Member Address Changes

David W. Ostendorf is on sabbatical leave from the University of Massachusetts until June 1, 1989. He may be contacted at the following address:

Dr. David W. Ostendorf
Robert S. Kerr Environmental Research Lab
U.S. Environmental Protection Agency
P.O. Box 1198
Ada, OK 74820

Deadline for the December, 1988, Newsletter

Please mail articles for the December issue of the AEEP *Newsletter* to the editor, G. D. Boardman, by November 1, 1988.

GENERAL NEWS

Environment Canada's Wastewater Technology Centre

The Wastewater Technology Centre (WTC) is operated by Environment Canada, the department of environment of the federal government of Canada. The main responsibility of the Centre is to develop, demonstrate, and optimize processes for treating and disposing wastewaters and sludges. In addition, WTC staff provide advice on technical issues to industries, municipalities, and other government agencies.

WTC's research and development mandate is carried out by approximately 50 full-time staff and a number of contractors. Facilities at the WTC building in Burlington, Ontario, enable research to be conducted at bench-scale or pilot-scale using municipal sewage piped from the City of Burlington or industrial wastes and sludges trucked to the Centre and stored in outside tanks. Research is also carried out at full-scale municipal and industrial sites located across Canada.

The following project descriptions provide a brief overview of the scope of work sponsored and conducted by the Wastewater Technology Centre:

1. **Dynamic Modeling and Expert Systems in Wastewater Engineering** — With financial support from the WTC and other sponsors, a major research project is underway at McMaster University to develop a comprehensive library of dynamic models for major biological and physical-chemical treatment processes. Software is being designed to facilitate interactive simulations using these models, enabling users to intervene in a simulation in progress, for instance by changing the recycle in an activated sludge plant, and see the response in the simulated process performance. By combining an expert system — programs which can perform at or near the level of a human expert — with simulations from dynamic models, a system is being created for the control and operation of wastewater treatment plants.
2. **Stripping of Volatile Organic Contaminants in Municipal Wastewater Treatment plants** — On behalf of the Ministry of Environment of the province of Ontario, the WTC is conducting a comprehensive study to measure and predict the release of volatile organic compounds to

the atmosphere. At full-scale, off-gas samples have been collected at selected plants in conjunction with a wastewater and sludge sampling program at 40 Ontario municipal treatment plants. Using a pilot plant, theoretical models for predicting the fate of volatile organic compounds will be developed and tested. The objective of these studies is to develop an understanding of the fate of hazardous compounds entering municipal treatment plants so that appropriate regulations can be established by the province.

3. **Control of Polymer Addition for Sludge Dewatering** — The WTC has developed, over the past ten years, a measurement and control system for polymer addition to belt filter presses. Prior to dewatering, the viscosity of a sample is measured and compared to the viscosity of an optimally conditioned sample to determine correct polymer dosage. If the dosage is not optimum, the controller changes the rate of the polymer feed pump. Following evaluation of the sludge conditioning controller at a full-scale treatment plant, the control system was licensed to Zenon Environmental Inc. of Burlington, Ontario.

Other areas in which significant research is being conducted include: the application of high rate anaerobic technology for the pretreatment of high strength organic wastes, computer control of municipal activated sludge plants, land application of sludge, the characterization and treatment of water produced from enhanced oil recovery, and the assessment of solid waste leaching and disposal.

The Wastewater Technology Centre supports Canadian universities in training environmental engineers and conducting research. The WTC currently funds a number of major research projects at Canadian universities. WTC professional staff are encouraged to serve as part-time lecturers in environmental engineering. A number of research or demonstration projects are conducted using a combined team of university and WTC personnel. Frequently during such programs conducted at WTC facilities, senior WTC personnel supervise graduate students in their thesis work. Finally, co-op and summer employment programs at the Centre offer undergraduates the opportunity to spend a work term in a research environment and gain meaningful engineering experience.

The WTC produces an annual report and a quarterly newsletter. For copies of these or for more information concerning WTC's programs or services, please write Dr. Bruce Jank, Director, Wastewater Technology Centre, P.O. Box 5050, Burlington, Ontario, L7R 4A6, Canada.

1989 AWWA Academic Achievement Award Competition

The American Water Works Association recently announced the opening of the 1989 Academic Achievement Award Competition. Awards are made annually to graduate students whose theses or dissertations are judged to have significant value to the water supply industry. The Association established this award to give recognition to those students who have made outstanding contributions to the field of public water supply through their work at a university. Professors who serve as major advisors to winners are also recognized during the award program and receive a commemorative plaque. The competition is open to students majoring in any subject provided the work is directly related to the drinking water supply industry.

The deadline for entries for the next competition (for theses completed between 9/1/87 and 9/1/88) is October 1, 1988. Entry forms and additional information can be obtained by calling AWWA headquarters at 303-794-7711 (ext. 2307).

Availability of Textbook Concerning "Environmental Technology in Developing Countries"

Environmental Technology in Developing Countries (ETDC textbook) is written by Harvey F. Ludwig, J. W. Evans, W. Y. Brockelman, and B. N. Lohani. The authors have experience in both industrial country and developing country environmental technology (IC/ET and DC/ET), and is written from the DC point of view; i.e., how to solve environmental problems using appropriate technology at budget levels much less than available in the ICs for the same problems.

The ETDC textbook comprises two volumes totalling over 1,000 pages. Volume I deals with overall ET issues including environmental impact assessment, regional economic-cum-environmental development planning, industrial waste permit systems, and environmental quality monitoring and standards. Volume II deals with individual environmental sector problems such as water supply, pollution control, forestry and wildlife, watershed management, tourism resources, precious ecology, etc.

The ETDC textbook is available from the Seatec International Publishing Company, P.O. Box 8-101, Bangkok, Thailand, at a cost of US\$ 100 plus mailing costs (maximum of \$40).

New Books Available from ASCE

Mathematical Models in Coastal Engineering

Basic methodology for the formulation and numerical solution of mathematical models in coastal engineering is provided in this book.

Edited by Christopher G. Koutitas
Published by Pentech press, Ltd., 1988
165 pages, \$42.00

Specification for Ground Treatment

The papers in this two-volume set provide guidance for the non-specialist based on practical experience of ground treatment contracts.

Published by Thomas Telford, Ltd., 1987
64 pages, \$18.00

Controlling Waterborne Giardiasis

A State-of-the-Art Review prepared under the auspices of the Committee on Water Supply and Resources Management of the Environmental Engineering Division.

Edited by Gary S. Logsdon
Published by ASCE, 1988
112 pages, \$16.00

Energy/Environment Opportunities for Civil Engineers

Proceedings of sessions sponsored by the Energy Division — Nashville, TN — May 9-11, 1988. These papers discuss opportunities that have developed for engineers to solve problems resulting from the conflict between the need for energy development projects and the environmental acceptability of such project.

Edited by Ronald D. Neufeld
Published by ASCE, June, 1988
158 pages, \$16.00

Who's Who in Environmental Engineering

The source for those needing Board-Certified environmental experts with proven special knowledge; listed by specialty, state, and country.

Published by AAEE, April, 1988
166 pages, \$50.00

Critical Water Issues and Computer Applications

Proceedings of a conference sponsored by the Water Resources Planning and Management Division — Norfolk, Virginia — June 1-3, 1988.

Edited by Mike Strech
Published by ASCE, June, 1988
408 pages, \$35.00

Pipeline Infrastructure

Proceedings of a conference sponsored by the Pipeline Division — Boston, Massachusetts — June 6-7, 1988.

Published by ASCE, June, 1988
536 pages, \$44.00

Marine Treatment of Sewage and Sludge

Proceedings of a conference organized by the Institution of Civil Engineers — Brighton, England — April 29-30, 1987.

Published by Thomas Telford, Ltd., 1988
302 pages, \$86.00

