AEESP Newsletter
Association of Environmental Engineering and Science Professors

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In this issue...

AEESP News.....2
Organizations of Interest.....5
Member News.....7
Employment/Student Opportunities.....8
Book Reviews.....10
Member Application.....15

President's Letter

Like vacations, conferences can move us through a range of emotions– from the delight of renewed interactions with friends and acquaintances and the thrill of intellectual stimulation, to the disorientation of hurried goodbyes and the mild sadness in the ending of an experience. If you had these emotions at our recent conference in Toronto, it is because you felt part of a community for those few days. The networking, exchange of ideas and learning that take place at conferences all foster community-building, which in turn strengthens an organization and ultimately the profession it represents. We had these, and some lively debate as well, in an intense three days in Toronto last month. If you weren't able to make it to Toronto, I invite and encourage you to participate in our next conference in 2004.

Look for an announcement in this issue of the Newsletter requesting volunteers for a new standing committee on conference planning. The need for such a committee emerged from the recent decision to combine education and research topics in all future AEESP conferences, and from a decision by the Board of Directors earlier this year to hold our conferences every two years. This committee will have a broad charge, which can be summarized as "define the conference that best serves the membership of AEESP, facilitates the inclusion of all our various constituencies, and fosters the advancement of environmental engineering and science." If the committee approaches its task with open-mindedness, creativity and an appreciation for the community we represent, our conferences will evolve as the meeting of choice for more of our members. The success of these conferences ultimately will depend on the hard work of volunteers and on the participants themselves. Phil Byer, together with his colleagues and staff at the University of Toronto, set a standard for quality in delivering this year's conference experience that can serve as a model for future hosts.

It's hard to believe that my term of office is essentially over. Please assist our incoming President, Catherine Peters, in helping to move AEESP forward. She will benefit from your collective wisdom and criticism, as I did. In closing, I prefer to leave you with borrowed words from the poet Gary Snyder:[1]

> In the next century
> or the one beyond that,
> they say,
> are valleys, pastures,
> we can meet there in peace
> if we make it.
>
> To climb these coming crests
> one word to you, to
> you and your children:
>
> *stay together*
> *learn the flowers*
> *go light*

— Mike Aitken

[1]From "For the Children," in *Turtle Island,* New Directions Books (New York: 1974).

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www.uidaho.edu/aeesp

Demographics and Diversity Committee

AEESP wishes to form a committee to investigate the accuracy with which the sizes of the environmental engineering workforce and student enrollments are counted. Organizations that collect and disseminate demographic data on the engineering workforce and enrollments do not appear to account for environmental engineering accurately or consistently. Such organizations include the Engineering Workforce Commission (EWC) of the American Association of Engineering Societies, the National Science Foundation (NSF), and the U.S. Census Bureau. Without accurate demographic information, it is not possible to convey the size of the profession or student body to government agencies and other groups, nor is it possible to benchmark how the discipline is evolving over time. The committee would also identify other types of demographic data that will help quantify trends in environmental engineering and science programs as well as in the AEESP membership itself, including data that will enable continual assessment of diversity in these programs.

The committee's initial charge would include:

(1) Identify the methods by which groups within NSF, the EWC and the Census Bureau obtain data on populations in environmental engineering;

(2) Compare the methods identified in step 1 and critically evaluate their ability to assess accurately the environmental engineering workforce and student populations in environmental engineering academic programs;

(3) Recommend improvements to data collection methods of the relevant organizations;

(4) Identify types of demographic data for environmental engineering and science programs that would provide useful benchmarks for the AEESP membership; and

(5) Recommend methods and frequencies of obtaining the data identified in step 4.

The outcome of this initial charge should be a report that can be made available to the membership in electronic form. The committee's eventual standing charge would be to implement the recommended data collection plan, which should focus on those data not otherwise obtained by other organizations.

Members interested in serving on this committee should contact Mike Aitken (mike_aitken@unc.edu; 919-966-1481).

Conference Planning Committee

Over the past few years, the membership has indicated an interest in increasing the frequency of AEESP conferences to every two years. The Board of Directors recently approved this concept. The increased frequency, together with an earlier decision to combine the education and research foci in every conference, has created a need for a more systematic approach to planning our conferences. Our current approach is *ad hoc*, with most of the responsibility for developing the conference theme and scope, as well as local logistical planning, left to the host institution. Accordingly, the Board of Directors recently approved the creation of a standing committee on conference planning. We are seeking volunteers to serve on this committee, which must begin work immediately to plan our next conference. We are particularly interested in ensuring that the broad spectrum of institutions with environmental engineering and science programs is represented on the committee.

The committee's initial charge (with assistance from the Board of Directors) will be to:

(1) Identify the most appropriate format and scope for future conferences that will best serve the membership and the integrative development of environmental engineering and science;

(2) Develop mechanisms to maximize the involvement of members in all aspects of conference planning and execution, and to provide an open and inclusive venue for presentation of members' work;

(3) Develop mechanisms to ensure that programming quality is high, and that programming balances education, research, and advanced practice;

(4) Develop a mechanism for selecting conference locations that minimizes competition among institutions, promotes geographic diversification, and accounts for the potential expense and convenience of travel to the selected conference location;

(5) Identify the most appropriate time(s) of year for the conferences and whether the approximate time of year should be standardized;

(6) Develop a standard timetable for selection of the conference location, advertisement of the conference, submittal of abstracts or other information on which programming decisions will be based, and fundraising activities;

(7) Identify and document the primary responsibilities of the host institution in logistical planning, and identify a standard approach to developing a budget for the conference and the corresponding registration fee(s); and

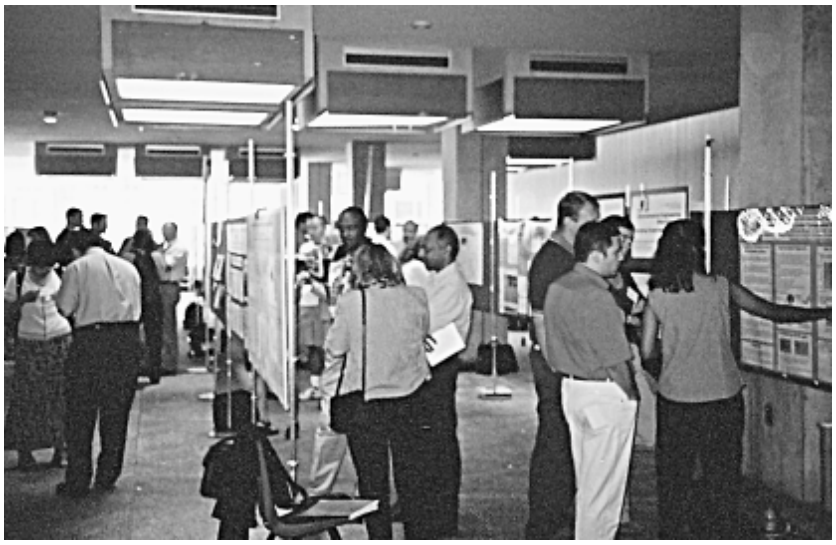
(8) Develop a plan for succession of committee members which ensures that the various constituencies represented in AEESP are balanced.

The committee's immediate work will have to superimpose the broader charge with planning of the next conference in 2004. The AEESP Vice-President will work with the committee chair to help get planning for that conference off to a good start. After that, the committee should deliberate on the broader charge and prepare a draft report with recommendations in response to the charge for review by the Board of Directors.

Members interested in serving on this committee should contact Mike Aitken (mike_aitken@unc.edu; 919-966-1481) no later than October 15.

2002 Education and Research Conference

The AEESP/AAEE 2002 Education and Research Conference brought 190 delegates together in Toronto, Ontario from August 11-13, 2002. To the right are photos of the conference submitted by Philip Byer, conference chair: Top, attentive conference delegates listen to one of many presentations related to the conference theme, "Integrated Environmental Teaching, Research and Practice: Linking Engineering and Science to Address Complex Problems"; center, conference delegates view over 50 posters during 3 poster sessions; and bottom, participants Douglas Owen, John Koon, Lisa Alvarez-Cohen and Robert Baillod discuss the relevance of graduate education to the practice of environmental engineering.



AEESP Board Highlights

The AEESP Board of Directors met August 13-14 immediately after the Research and Education conference in Toronto. Mike Aitken (President), Catherine Peters (Vice President), Kim Hayes (Secretary), Dom Grasso (Past President), Lisa Alvarez-Cohen (Chief Information Officer), Jerry Speitel, Amy Zander, Charles Haas, and Marc Edwards were in attendance, along with newly elected Board members Pedro Alvarez and Lynn Katz.

- The Toronto conference was viewed as a major success, and the Board unanimously approved plans to hold the next conference in 2004. Special thanks to Phil Byer, AEESP President Mike Aitken, AAEE representative Mike Kavanaugh, and many others who contributed to stimulating presentations, lively discussion and smooth running of the Toronto meeting.
- Board member and AEESP Treasurer Susan Larson was recently appointed to Visiting Assistant Dean and Director of the College of Engineering's Women in Engineering Program at the University of Illinois at Urbana-Champaign. In order to properly execute that job, Susan deemed it unfortunate but necessary to resign from the Board. Her contributions to AEESP will be sorely missed, and the Board accepted her resignation with regret and wished her the best in her new assignment.
- Next year's officers elected on the first day of the meeting were: President-Catherine Peters, Vice President-Marc Edwards, and Secretary-Amy Zander. Charles Haas was elected Interim Treasurer, and Lisa Alvarez Cohen accepted a unanimous appeal to continue serving on the Board for a fourth year of service to AEESP.
- Membership of AEESP has been stable at about 600 total professors from 2000-2002, and total membership currently stands at 764 members.

New AEESP business office address

Please note that the AEESP Business Office address has changed. Address changes may be sent to:

AEESP Business Office
2303 Naples Court
Champaign, IL 61822

- The Board discussed and ultimately recommended modifications to the by-laws in relation to the Audit Committee, officer structure and consideration of electronic balloting. The rationale for these changes will be forwarded to the membership along with a ballot in the near future.
- Among other business, the Board reviewed finances and concluded the organization was in a responsible position. Significantly lowered expenditures were achieved by a variety of means that include scheduling of meetings at universities and a continued tradition of AEESP lecturers (Les Grady in 2002) who have taken care to minimize travel costs. Special thanks to Appiah Amirtharajah at Georgia Tech, Charles Haas at Drexel, and Phil Byer at the University of Toronto for arranging and hosting recent AEESP Board meetings.
- The success of the organization is completely dependent on volunteer efforts, and activities of all committees were reviewed. A high priority for the remainder of 2002 and into 2003 is to continue the success of the AEESP internet site developed by Kurt Paterson, and the Board approved additional funding to assist this endeavor.

AEESP / WEFTEC Activities

We would also like to remind you that the AEESP-sponsored events for WEFTEC 2002 in Chicago, IL on Monday, September 30, are:

- **AEESP/WEF Scientists' Luncheon** will be on Monday, September 30, 12:00-1:30 p.m., at McCormick Place. The WEFTEC 2002 Scientist Luncheon features Dr. Deborah L. Swackhamer. She will speak on "From Endocrine Disruption to Lake Levels: Current Challenges to the Great Lakes Ecosystem."
- **AEESP/WEF Lecture** will be given by Dr. George Tchobanoglous, Professor Emeritus of Civil and Environmental Engineering at the University of California at Davis. Dr. Tchobanoglous will deliver the AEESP/WEF Lecture, "Decentralized Wastewater Management," on Monday, September 30, 1:30-2:30 p.m., at McCormick Place, Technical Session 1.
- **AEESP Meet-and-Greet Reception & Awards Ceremony**, sponsored by John Carollo Engineers, will be held on Monday, September 30, 5:00-7:00 p.m., at the Sheraton Chicago Hotel and Towers in the Michigan Ballroom A&B. This event is always a great opportunity to meet old and new friends.

Highlights from AEESP Liaisons, August 2002

National Ground Water Association (NGWA) – John Gierke
The upcoming conferences of primary interest to environmental engineers and scientists include:

- *Innovative Approaches to Ground Water Disinfection: Coliforms, Pathogens, and Contaminants* (5-6 September 2002, Sacramento, CA)
- *Petroleum Hydrocarbons and Organic Chemicals in Ground Water* (6-8 November 2002, Atlanta, GA)
- *2002 Ground Water Expo* (9-11 December 2002, Las Vegas, NV)
- *3rd International Conference on Pharmaceuticals and Endocrine Disrupting*
- *Chemicals in Water* (19-21 March 2003, Minneapolis, MN)

Updated listings and links for NGWA events can be viewed at: www.ngwa.org/education/index.html.

NGWA is now taking requests for scheduling next year's Darcy Lecturer, Dr. Richelle Allen-King. Academic institutions throughout the United States and abroad are invited to submit their requests before October 15, 2002, for the lecture series. Dr. Allen-King will offer a choice of two lectures, "A Hydrogeochemist's Perspective on Organic Contaminant Transport in Groundwater" and "Ground and Surface Water Contributions to Chemical Mass Discharge: Considering the Problem at Field and Basin Scales." Host institutions will be able to select the topic of greater interest to their population. Request forms for universities interested in hosting the 2003 Darcy Lecturer can be obtained at http://www.ngwa.org/pdf/03darcyrequest.pdf.

Water Environment Research Foundation (WERF)– John Novak
WERF continues to spend about $7 to $9 million per year on research and has 4 groups or research areas. These are:

CATS – collection and treatment systems (~30%)

HHE – human health effects (~30%)

WEM – watershed management and ecosystem sustainability (~30%)

SM – stormwater management (~10%)

The split in research areas and distribution of money is determined by the Board of Directors. The Research Council is a larger group that selects specific projects, writes RFPs and reviews proposals. They also serve on the project advisory committees for the projects.

Air and Waste Management Association – Sarina Ergas
The Air & Waste Management Association's (A&WMA) 95th Annual Conference & Exhibition was held in Baltimore, June 23-27, 2002. Nick Clesceri of NSF was the speaker at the well attended AEESP meet and greet breakfast. Nick spoke about opportunities at NSF. Student events and programs included an excellent student poster session, a scholarship and awards event, a behind-the-scenes tour of the National Aquarium, social gatherings and career tutorials. A&WMA would like to encourage AEESP members to have their students submit posters and scholarship applications to A&WMA. Also, they would like to encourage more AEESP members to get involved in A&WMA higher education activities. Next year's meeting is in San Diego. More information can be found on the A&WMA web site (www.awma.org).

American Water Works Association – Steve Randtke
The AEESP Lecture at the AWWA Conference in New Orleans was presented by Professor Vern Snoeyink of the University of Illinois at Urbana-Champaign. The title of his presentation was "Aluminum, Magnesium and Iron Scales in Distribution Systems: Formation and Control." He gave a very nice presentation, there was a great turnout, and the response from the audience was very enthusiastic. The lecture was sponsored by Black & Veatch, a Sustaining Member of AEESP.

Environmental and Water Resources Institute (EWRI) of the ASCE – Debra Reinhart
Upcoming EWRI sponsored conferences include:

- *9th International Conference on Urban Drainage*, Portland, Oregon, September 8-13, 2002
- *First International Conference on Scour of Foundations ICSF-1*, Texas A&M University, College Station, Texas, November 17-20, 2002
- *2003 CONFERENCE: EWRI World Water and Environmental Congress*, Philadelphia, Pennsylvania, June 23-26, 2003
- *2004 CONFERENCE: EWRI World Water and Environmental Congress*, Salt Lake City, Utah, June 28-July 1, 2004

For more information visit http://www.ewrinstitute.org/aboutewri.html.

Amercian Chemical Society (ACS) – Bruce Logan
There will be an AEESP/ACS special session in the Environmental Chemistry division of the ACS meeting at New Orleans in 2003 (March 23-27). The tentative sessions are as follows:

- *Molecular level aspects of bacterial adhesion, transport and biofilm formation.* Organizers: Bruce Logan, Jim Kubicki, Darrell Velegol, Penn State University (co-sponsored with Geochemistry and Colloids). This session explores both initial bacterial attachment and biofilm formation, with particular emphasis on new chemical and biological molecular techniques used to probe and understand such processes.
- *Metal-Organic Interactions in Environmental Systems*. Or-

ganizers: William Arnold (arnol032@tc.umn.edu) and Kristopher McNeill (Department of Chemistry, University of Minnesota, mcneill@chem.umn.edu). We would anticipate the session to focus on 1) transformation of organic contaminants by metals or metal centers, 2) binding of metals by NOM, and 3) sequestation and/or transport of metals by synthetic ligands.

- *Micro-scale biosensors for environmental monitoring*. Organizer: Nancy Love, Virginia Tech. This session will focus on micro-scale sensors that incorporate either biological (e.g., whole cells, biomolecules) or biomimetic elements that are targeted toward environmental monitoring. The session will primarily target biosensing strategies that go beyond the simple identification of a single chemical or class of compounds. Abstracts on how biosensors (or a collection of biosensors) provide information on macroscale effects, such as performance of engineered systems or changes in complex ecological systems, will be sought.

ACS JobSpectrum.org

JobSpectrum.org—an opportunity for chemistry-oriented AEESP members and other environmental scientists and engineers. The Internet provides new ways of finding jobs, and the American Chemical Society (ACS) has developed JobSpectrum.org to help chemical and allied scientists use the Internet to find a job. JobSpectrum is a service provided by ACS to help employers recruiting in the chemical sciences to identify candidates quickly and cost effectively. It is a comprehensive online resource for career management, job searching, and candidate recruitment within the chemical sciences community. The site focuses on job seekers that have experience and expertise in the chemical sciences and employers who value that expertise and experience especially as it is applied to a broad variety of jobs. Scientists that have specialized career needs should find JobSpectrum more useful than general employment sites such as Monster or Headhunter.net. Employers and candidates within the broad range of the chemistry community have been invited to participate. Let your colleagues and students know about this employment-searching tool if they are in a chemistry-related field.

The submissions deadline for the January 2003 AEESP News is

December 2, 2002

Photo submissions

Photo submissions to the AEESP Newsletter are encouraged. Please submit your photos electronically (to amyec@unr.edu) in jpeg format at the highest dimension for downsizing to print resolution (preferably less than 750 KB). Also, please include captions with names, locations and dates.

AEESP Newsletter policies

Submissions deadline

The deadline for Newsletter submissions is one month prior to the publication date.

Please keep in mind when submitting items with deadline dates that members receive issues four to six weeks after the submissions deadline.

Advertising policy

Any advertisement, including faculty, post-doc or student ads, or other types of announcements submitted by an AEESP member, will be free for the first 250 words (approximately 1/4 page) and then charged at $1 per word for additional content, if formatted to fit in a column.

Non-members will be charged at the per word rate for any size column-formatted ad. Full page formatted advertisements will be charged at $500 for members and $1,000 for non-members. All formatted full page ads will be accompanied by a free web ad.

AEESP members, please share items of professional achievement with other AEESP members. Send a brief note via e-mail to: Amy E. Childress, AEESP Newsletter Editor, amyec@unr.edu.

Auburn University

The environmental engineering program at Auburn University (http://www.eng.auburn.edu/department/ce/environmentalengineering.html) is pleased to announce the addition of two new faculty members. **Dr. Willie Harper, Jr., P.E.** recently earned his Ph.D. at the University of California, Berkeley. He also has degrees from UCLA and Cornell to complement five years of consulting experience with CH2M Hill, Inc. His research interests include biological nutrient removal, transient response mechanisms, and industrial wastewater treatment. **Dr. Prabhakar Clement, P.E.** received his Ph.D. from Auburn in 1993 after receiving degrees from the Indian Institute of Technology. Dr. Clement has been a senior research engineer for Battelle Pacific Northwest Laboratory where he was the principal investigator for the RT3D software development and field demonstration project. His other research/teaching interests in this area include the laboratory investigation of density-dependent groundwater flow, analysis of saturated-unsaturated flow systems, and finite-difference/finite-element modeling. Dr. Clement will join our faculty from the University of Western Australia where he was a senior lecturer. It is an extremely high honor for someone to be invited to join the faculty where he received his Ph.D., and we are very excited to have Dr. Clement back in Auburn.

The Cooper Union School of Engineering

Professor Constantine Yapijakis of The Cooper Union School of Engineering has received one of the first two Fulbright grants under ex-President Clinton's Aegean Initiative. He has been lecturing on Pollution Prevention and Hazardous Wastes Management in several major Greek and Turkish universities from March to June 2002. In July, he organized and conducted a binational seminar/workshop for invited professors and graduate students, sponsored by the U.S. State Department and the Greek University of the Aegean, on the Island of Rhodes, Greece.

Villanova University

Dr. Metin Duran joined the faculty of Civil and Environmental Engineering at Villanova University as an assistant professor in August 2002. Dr. Duran received his Ph.D. from Vanderbilt University in 1996. Prior to joining Villanova, he taught environmental microbiology at Miami University.

University of Wisconsin, Madison

Dr. Joel Pedersen joined the faculty of the Department of Soil Science at the University of Wisconsin, Madison as an Assistant Professor in September 2001. Dr. Pedersen is also a faculty member in the Molecular and Environmental Toxicology Center and Environmental Chemistry and Technology Program. His research focuses on the behavior of organic toxicants in aquatic, soil and sediment systems with a particular emphasis on understanding the role played by natural organic matter in controlling their bioavailability, degradability and mobility. Major research interests include the behavior of and selective pressure exerted by antibiotics in the environment; elucidation of molecular mechanisms responsible for sequestration and time-dependent decline in bioavailability of sediment- and soil-associated contaminants; and the interaction of natural organic matter components with mineral surfaces.

Dr. Pedersen received his B.S. in Biological Sciences from the University of California, Irvine (1988) and M.S. in Environmental Engineering Science from the California Institute of Technology (1990). He worked for five years in consulting and as a visiting lecturer in Kazakstan prior to earning his doctorate in Environmental Science and Engineering at the University of California, Los Angeles (2001).

Virginia Tech

Robert C. Hoehn, Professor Emeritus, Charles Edward Via, Jr. Department of Civil and Environmental Engineering, Virginia Tech, Blacksburg, Virginia has been awarded the 2002 Abel Wolman Award of Excellence from the American Water Works Association. This award recognizes those whose careers in the water works industry exemplify the vision, creativity, and excellent professional performance characteristic of Abel Wolman's long and productive career. Professor Hoehn was honored with this award in recognition of his considerable expertise as a researcher, teacher, consultant, and mentor to many, and for his career-long energetic support of the water works community.

Colorado State University

Knowledge to Go Places

TWO TENURE TRACK WATER FACULTY POSITIONS, DEPARTMENT OF CIVIL ENGINEERING. The Department of Civil Engineering at Colorado State University invites applications for two tenure track water faculty positions at the assistant or associate professor level in hydrology, hydraulics, and in water resources.

Responsibilities: The successful candidates are expected to: (1) teach graduate and undergraduate courses in hydrology, hydraulics, and water resources planning and management; (2) conduct innovative research in their areas of expertise; and (3) develop an active multidisciplinary sponsored research program. The position is intended to strengthen multidisciplinary research activities in hydrology and groundwater, hydraulics and fluid mechanics, water resources planning and management, and environmental engineering. Collaboration with faculty members within the Department and across the University is essential.

Qualifications: The degree requirement is a Ph.D. in Civil Engineering, Environmental Engineering or a closely related field completed by August 1, 2003. Applicants must have outstanding credentials in one or several of the following areas: water resources planning and management, hydrologic sciences and engineering, and hydraulics. The candidates must have a demonstrated commitment to obtaining and conducting sponsored research. Applicants should also have a demonstrated ability to work on multidisciplinary research teams. Candidates will be evaluated with regard to excellence in research, teaching and professional service. The appointment will be made at a level commensurate with the candidate's experience and qualifications. Under exceptional circumstances, full professor positions may be considered. CSU provides full academic year salary, excellent benefits and extensive facilities and laboratories.

Salary: Competitive, commensurate with qualifications and experience. Benefits package included.

Proposed Starting Date: As early as August 15, 2003.

Closing Date: Applications are due by October 15, 2002, for full consideration. However, applications will be accepted until the position is filled.

Application Process: To apply, please submit a resume, a detailed list of research projects and publications, a statement of teaching and research interests, and a minimum of three names of references to: Water Search Committee Chair, Department of Civil Engineering, Colorado State University, Fort Collins, CO 80523-1372. Questions about the position can be directed to Bernadette Shepard at (970)-491-5049 or bshepard@engr.colostate.edu. Inquiries and initial applications will be treated confidentially. For more information about our department and academic programs, please visit our web site at: http://www.engr. colostate.edu/ce/. *CSU is an EEO/AA employer. Women and minorities are encouraged to apply.*

Tulane University

DEPARTMENT CHAIR, CIVIL AND ENVIRONMENTAL ENGINEERING. The Department of Civil and Environmental Engineering, Tulane University, invites nominations and applications for the position of Department Chair. The position is available immediately and will remain open until filled.

Tulane University is located in New Orleans, Louisiana. The University is a private institution, a Carnegie doctoral research-intensive institution, and a member of the AAU. The Department of Civil and Environmental Engineering offers undergraduate and graduate programs in Civil Engineering and in Environmental Engineering. The successful candidate must have distinguished research and teaching records, national recognition, and skills to lead a research-active academic department. Preference will be given to applicants who have an earned doctoral degree in Civil Engineering or Environmental Engineering. Applicants should send a Curriculum Vitae and a list of three references to: Chair, Search Committee, c/o Department of Civil and Environmental Engineering, 206 Civil Engineering Building, Tulane University, New Orleans, LA 70118. *Tulane University is an Equal Opportunity, affirmative action employer. We encourage applications from women and ethnic minorities.*

University of California, Riverside

THE DEPARTMENT OF CHEMICAL & ENVIRONMENTAL ENGINEERING AT THE UNIVERSITY OF CALIFORNIA, RIVERSIDE invites applications for multiple tenure-track or tenured faculty positions. We are particularly interested in (1) Biomaterials/Bioinformatics, (2) Nanotechnology/Advanced Materials, (3) Colloidal and interfacial phenomena with relevance to natural aquatic environments, microbial and pathogen transport, subsurface colloid mediated transport, or biofilms, and (4) Renewable Energy/Fuel Cell. Please indicate on the application the research area (1-4) you would like to be considered for. Applicants should have a Ph.D. in Chemical or Environmental Engineering or a related field. Candidates for a junior position should demonstrate evidence of outstanding potential in research and teaching. Candidates for a senior position must have established a significant record of achievement in research and teaching. Salary is commensurate with education and experience. Senior applicants should send a letter of professional intent addressing teaching and research objectives, a curriculum vitae, and the names, addresses, and telephone numbers of at least five references. Junior applicants should send a letter of professional intent addressing teaching

and research objectives, a curriculum vitae, and three reference letters or the names, addresses, and telephone numbers of three references to: Chemical & Environmental Engineering Search, College of Engineering, University of California, Riverside, CA 92521. To receive full consideration, applications must be received by December 31, 2002, however, late applications will be considered until the positions are filled. For further information, please visit our web site at http://engr.ucr.edu/. *The University of California, Riverside is an Equal Opportunity, Affirmative Action Employer.*

Lehigh University

ENVIRONMENTAL ENGINEERING: The Department of Civil and Environmental Engineering at Lehigh University seeks applicants for a tenure-track faculty position in environmental engineering. The position will be filled preferentially at the rank of Assistant Professor. The particular area of interest pertains to *fate and transport of chemicals in the environment* involving microbial and chemical processes for engineered and/or natural aquatic systems. Other closely related areas will also be considered for exceptional candidates. The candidate must possess an (1) earned doctorate in Civil and Environmental Engineering or a closely related field, (2) excellent potential in research and scholarship, and (3) ability and commitment to teaching environmental engineering courses at both undergraduate and graduate levels. This position is part of the ongoing initiative at Lehigh University to strengthen interdisciplinary environmental engineering and science programs encompassing the departments of civil and environmental engineering, earth and environmental science, chemistry, biological science and chemical engineering. The successful candidate is expected to develop an externally funded research program, and supervise M.S. and Ph.D. students. Applicants should send a detailed resume and the names and addresses of at least three references to Chair, Environmental Engineering Search Committee, Department of Civil and Environmental Engineering, Lehigh University, 13 East Packer Avenue, Bethlehem, PA 18015; phone (610) 758-3540; fax (610) 758-6405; http://www.lehigh.edu/~incee. Lehigh University is an equal opportunity employer. Women and members of the minority groups are encouraged to apply. Review of applications will begin December 1, 2002 and will continue until the position is filled.

SUNY at Buffalo

Ph.D. OPPORTUNITIES: High Performance Groundwater Modeling. Openings are available immediately for three doctoral students to join the multi-disciplinary UB Groundwater Research Group. Research activities will focus on the development and application of high-performance analytic and numerical models for predicting groundwater flow and reactive contaminant transport. The new simulation models will be developed using the massively parallel computing platforms maintained by the UB Center for Computational Research. Multi-year research funding is available through the National Science Foundation and the U.S. Environmental Protection Agency. For more information, visit www.groundwater.buffalo.edu.

Buffalo is a thriving metropolitan area that offers access to natural recreation and nearby Toronto. Motivated students with excellent communication skills (musicians especially welcome!) are encouraged to send a brief vitae and statement of research interest to rabideau@eng.buffalo.edu or by regular mail to: Dr. Alan J. Rabideau, Department of Civil, Structural, and Environmental Engineering, State University of New York at Buffalo, 230 Jarvis Hall, Buffalo, NY 14260-4300.

Bucknell University

POST-DOCTORAL POSITION. The Department of Civil and Environmental Engineering at Bucknell University solicits applications for a potential post-doctoral position in the area of anaerobic biological treatment of municipal solid wastes (MSW). Specifically, the project will evaluate various process configurations for improving the biodegradation potential of MSW. Four pilot-scale systems have been under evaluation. Additional opportunities will likely exist to work on development of on-site denitrification systems. Duties will involve experimental design, maintenance and analysis of reactors, data analysis and progress reporting. The successful candidate should have a solid background in biological waste treatment processes and proven laboratory skills. Previous experience with sample analysis via gas chromatography, and operation and monitoring of bench- or pilot-scale biological processes is desirable. Good written and oral communication skills are required. The position will be funded for 1 year.

The potential project is scheduled to begin during Fall 2002, and applications will be accepted until the position is filled. The annual salary is highly competitive and includes benefits. Send application letter, curriculum vitae, and the names, addresses, telephone numbers, and email addresses of three references to: Thomas D. DiStefano, Ph.D., P.E., Department of Civil and Environmental Engineering, Bucknell University, Lewisburg, PA 17837; 570-577-1647 Office; 570-577-3415 Fax; distefno@bucknell.edu. *Bucknell University encourages applications from women and members of minority groups (EEO/AA).*

Florida A&M University / Florida State University

We are pleased to announce the Outdoor Shooting Range Student Design Competition for engineering students. The competition is sponsored by the Florida Department of Environmental Protection, the National Association of Shooting Ranges

(continued on page 14)

Book Reviews

Sludge into Biosolids–Processing, Disposal and Utilization

Edited by Ludovico Spinosa and P. Aarne Vesilind, IWA Publishing, 2001

When I came to the U.S. to take a position as an assistant professor in solid waste management, I only knew what the German word "Klärschlamm" means (literally translated: "clarification by-product sludge"), and I had learned that the English translation is sewage sludge. In my first meeting with New Jersey regulators, they were talking about "biosolids," and I had no clue what they were talking about. After the meeting, I found the following definitions in the dictionary:

- Sludge (noun, term in use since 1640-1650) 1. Mud, mire, or ooze; slush. 2. A deposit of ooze at the bottom of a body of water. 3. Any of various mudlike deposits or mixtures. 4. Broken ice, as on the sea. 5. Sediment during the treatment of water. (Random House, Webster's College Dictionary, 1992)
- Biosolid (noun, term in use since 1977) Solid organic matter recovered from a sewage treatment process especially as fertilizer, usually used in plural. (Merriam Webster's Collegiate Dictionary, 1998)

If the book reviewed here had been available at that time, I would have better understood the subtle differences in terms. Ludovico Spinosa and Aarne Vesilind, both well known in the international sludge (or is it biosolids?) community, have edited a significant new book called "Sludge to Biosolids," published by the International Water Association. Twenty-nine authors from academia, government and private companies from eleven countries contributed to this book about sludge/biosolids management.

The book is separated into 3 parts: I. Sludge Production and characterization. II. Options for biosolids utilization and sludge disposal. III. Treatment options. Part I covers: 1. Production and regulations, and 2. Characterization. Part II discusses 1. Agricultural and other uses, 2. Landfilling, 3. Incineration with energy recovery, 4. Other thermal processes, 5. Production of usable materials, 6. Other energy and resource recovery, 7. Storage and transportation. Part III addresses: 1. Preliminary treatments, 2. Introduction to stabilization, 3. Aerobic digestion, 4. Anaerobic digestion, 5. Chemical stabilization, 6. Composting, 7. Conditioning, 8. Thickening, 9. Dewatering, 10. Other treatment techniques.

This very comprehensive overview is a fine introductory book on the topic that is enhanced by an international flavor and will be valued by researchers and graduate students. Many chapters address advantages and disadvantages of various technologies that will be useful for practitioners as well. According to the cover, the book also addresses politicians, decision-makers and public administrators. While a few chapters might be understandable by a broad audience, most chapters require a scientific and technical background to be useful. While this book might not solve controversies communities face concerning sludge/biosolids management, it definitely will help each better understand the complex technical issues regarding various use, disposal and treatment options.

— Uta Krogmann, Associate Professor, Rutgers University

Process Science and Engineering for Water and Wastewater Treatment

Simon Judd, IWA Publishing, London, 2002

Every morning, a little man came into the clockmaker's store and asked what time it was. Having been told the time, the little man thanked the clockmaker and left without another word. This went on for many years. Finally, the clockmaker could not stand it any longer.

"Pardon me for being so curious," said the clockmaker, "but you have been coming to my shop every day for over 20 years asking for the correct time. Why do you want to know what time it is?"

"Oh, I work at the large manufacturing plant across the street. My job is to blow the factory whistle at exactly the right time every morning" said the little man.

"The factory whistle?" said the clockmaker, "But I set all my clocks by that!"

Choosing how to teach certain material is often like the problem confronting the clockmaker and the little man. What do you teach first – BOD or the dissolved oxygen sag curve? Trying to do the Streeter-Phelps equations without an understanding of BOD is difficult, but introducing BOD without explaining what it is to be used for is equally daunting.

I am sure this is the problem that confronted the author of this book. How to explain particle settlement without talking about settling tanks, or introducing microbial kinetics without mentioning activated sludge? What the author has done is to simply ignore the applications and to write an unabashedly fundamental book that is the first volume in a series entitled *Water and Wastewater Process Technologies*, edited by Professor Tom Stephenson.

While this first volume could be used in regular university classes, its main objective is self-study. The book often addresses the reader personally, as in "you vill learn this or else" and provides a lot of problems for practice. The chapters are

well written and the illustrations are adequate. Judd has a clear writing style and obviously is a careful teacher (Does he do BOD before Streeter-Phelps?).

The topics covered are: fundamentals of chemistry (from the very basic git-go, assuming no previous knowledge of chemistry), chemical kinetics and equilibria, colloid and surface chemistry, fundamentals of microbiology, fundamentals of biochemistry, microbial kinetics, fundamentals of process engineering, mass and heat balances, introductory mass and heat transfer, reactor design theory, engineering hydraulics, and particle settlement. This is of course much too much for any single book, and the chapters are short and to the point. What this means is that anyone who has not had a course in hydraulics or fluid mechanics, for example, will not be much wiser having gone through the painfully brief section on engineering hydraulics. I just cannot believe that the uninitiated reader would get anything useful from the discussion of pipe flow, for example. Laminar and turbulent flow and the Reynolds number are not learned in one sentence.

It is also unclear what level of student background is assumed. The chemistry is high school level, engineering hydraulics is at a technical college level, but reactor theory uses calculus.

Two additional troubling problems with this book are:
1. There is no index. For a book that is supposed to be for self-study, how could this happen? An index would be an invaluable tool.
2. Two entire pages at the front of the book are advertisements for the School of Water Sciences at Cranfield University, UK. I know I am an old fuddy-duddy, but this is simply inappropriate. Good manners allow a notation of the author's organization, not a full-blown ad encouraging students to enroll at the author's university. I believe IWA made a great blunder in allowing such advertising. It dates and cheapens the book and makes it essentially unusable by any other than students already enrolled at Cranfield.

Other than the lack of index and the advertising, I should temper my criticism and hope that the subsequent volumes will turn out to be wonderful and useful, and that this introductory book will fit effectively into the entire scheme. But in the meantime, I will not ask this book to tell me the time of day.

Tom Stephenson, the series editor, is Professor of Water Sciences, and Simon Judd, the volume editor, is Reader in Water Sciences, both at Cranfield University, UK.

— P. Aarne Vesilind, Bucknell University

Water Recycling and Resource Recovery in Industry: Analysis, Technologies and Implementation

Edited by Piet Lens, Look Hulshoff Pol, Peter Wilderer and Takashi Asano, IWA Publishing, London, 2002

One of the greatest men of the last century was Albert Schweitzer. He was an extraordinary intellect who took a degree in medicine, then was trained as a preacher, and along the way became the foremost interpreter of Bach organ sonatas. At the apex of his career, he chucked it all to go to Africa and to set up a hospital far up the Congo River. At great personal sacrifice, Schweitzer continued to spend the latter part of his life in the jungle in the service to humanity, returning to Europe only to play Bach recitals and earn enough money to keep the hospital going. Schweitzer is most famous for his philosophy, called the *reverence for life*, arguing that we all have an obligation not to kill other animals or plants except in order to fulfill our own immediate and pressing needs. All life, according to Schweitzer, has value in the spiritual sense, and we should do our best to protect it.

Great as the man was, however, he was clearly wrong. (How is *that* for chutzpah on the part of yours truly!?) Where Schweitzer went wrong was in believing that it was *life* that was important, when in fact it is what is *done* with life that is important. Life is a concept in biochemistry, defined perhaps as the ability to reproduce organically (leaving unanswered the question of viruses, of course). It is an abstraction from science, much like an "idea" is an abstraction. The concept alone of "idea" is useless unless one explains what the idea is. Similarly, life is of little value except in how it is played out.

The word "life" has operational meaning when it signifies the sum of one's activities, accomplishments, and failures. Expressions like "He has led a good life," or "She accomplished much in her life" use the word "life" as a story, or as one would describe a movie. So we have this abstract idea of life that has meaning only once it is made concrete.

Using a life to achieve some good (or bad) is like using an engineering topic to write a book – a good or a bad book. A topic, as a concept, is neither good nor bad. It is what is done with the concept in translating it into a book that can be evaluated as good or bad.

Fortunately, in this edited volume, the authors have made excellent use of the topic of water recycling and produce an outstanding volume. The basic premise for the book is sound. Water will soon become a scarce commodity in many parts of the world and recycling water for many uses will be a necessity. The list of contributors for this book reads like an international who's who of water technology, and each chapter is a state-of-the-art review of the topic. While each chapter can stand alone,

the whole also makes good sense and there are numerous connections between the chapters.

Space does not permit a review of all the chapter headings (there are 32 chapters in the nearly 700-page book), but let me list just a few that caught my eye. Johannes Kappen and Peter Wilder wrote a great chapter entitled "Key parameter methodology for increased water recovery in the pulp and paper industry" in which they introduce two rate constants derived from mass balance equations that can be used to understand the potential for water recycling within a pulp and paper plant, and might well be generalized to other water systems. Jo Dewulf and Herman Van Langenhove wrote a chapter entitled "Quantifying the sustainability of technology by exergy analysis" which presents some exciting ideas for thinking about energy within large systems. They illustrate these concepts using the problem of ethanol production. Fernando Fdx-Polanco and friends authored a chapter entitled "Novel biological processes for advanced wastewater treatment" that should be required reading for anyone working in advanced wastewater technology. Finally, Julian Blanco and Sixto Malato are the authors of "Solar photocatalysis: applications to the treatment of pesticides in water" that presents some new ideas on the destruction of organic pesticides.

In all, the book is tastefully laid out and the illustrations are clean and carefully done. The editors and authors have done a fine job of producing a book of immediate value to engineers, scientists, and managers who are confronted with the problem of water scarcity and are turning to water recycling. This is a book whose time has come, full of useful material of current and pressing interest – an important concept well rendered.

Piet Lens and Look Hulshoff Pol are both with the Department of Environmental Technology, Wagenigen University in The Netherlands, Peter Wilderer is with the Institute of Water Quality Control and Waste Management, Technical University Munich in Germany, and Takashi Asano is with the Department of Civil and Environmental Engineering, University of California, Davis.

— P. Aarne Vesilind, Bucknell University

Geotechnical Aspects of Landfill Design and Construction

Xuede Qian, Robert M. Koerner and Donald H. Gray, Prentice Hall, Englewood Cliffs, NJ, 2002

We use symbols to signal to the world who we are. I am not talking about symbols that have some value, such as a lunch pail or a raincoat, but rather symbols whose only reason for being is to define the person. One favorite place for symbols is the back of a car, and these symbols might include college insignia, fraternity letters, international ovals, political statements, and even astrological birth signs. The back of the car spells out "This is who I am and this is what I believe."

Professionally we use symbols to tell others who we are, such as the white coat worn by physicians and the clerical collar by the priests. A lawyer does not dare appear in court without a necktie, of course, although the exact form of the necktie is not specified.

We men (I might ask female readers to excuse us for a second here while we discuss a purely male phenomenon) wear neckties for many different reasons. The necktie is the only truly individualistic piece of clothing allowed, and we use it as a symbol to make a statement about ourselves. We of the gray suits use the necktie to help us stand out in the crowd. Some people like President Bush wear boring and unimaginative neckties to match their characters, or wear red neckties in the vain attempt to convince others that they are really with it. Professor-types often wear wool neckties of earth tones, typically over gray or brown shirts that come in handy if the washing machine is broken. Such men use the tie symbol to tell the students that they are too smart to worry about style (and too preoccupied with greater issues than to wash their clothes regularly).

People who wear striped neckties are actually classified into two groups, depending on which way the stripe goes. British regimental ties have the stripe going from upper left to lower right, and the American yacht club ties have stripes going from upper right to lower left. Those with the American stripes are just putting on airs, while the wearers of British striped ties proclaim their *savoir-faire*. Bow ties are in a class by themselves. People who wear bow ties might as well walk around with a sandwich board proclaiming, "I am cool." Interestingly, most of the people I know who wear bow ties actually are cool guys.

Whatever the style, wearing a necktie is a signature, a statement about oneself to the world, and wearing a necktie does not differ much from placing one's name on a book. A book with your name on it is you – it defines your character. Nobody writes a book (even a bad book) without showing something about oneself, and in this book we find out a lot about Qian, Koerner, and Gray.

First and foremost, this is a great engineering book. It is full of technical data, case studies, useful equations, and just plain good advice on the design and construction of landfills. The only gripe I have with the book is the title which suggests a limited scope, while in fact the book covers many more aspects of solid waste engineering than geotechnical landfill design. A far better title might have been *Engineering Design and Construction of Landfills*. For proof, look at the chapter titles: land-

fill siting and site investigation, compacted clay liners, geomembranes, geosynthetic clay liners, engineering properties of municipal solid waste, leachate generation and evaluation, liquid drainage, leachate collection and removal systems, gas collection and control systems, final cover system, landfill settlement, landfill stability analysis, vertical landfill expansions, bioreactor landfills, construction on compacted landfills, installation of liners, and postclosure uses of landfills. In short, this is a complete book on landfill engineering.

Those who teach a course on landfills, even at a technology level, should consider this for a text, and those who teach a solid waste course should without doubt buy this book and use it as a source of useful lecture material to supplement the landfill sections of the available texts. It is a fine effort, and the authors have every right to proudly write their names on the cover.

Xuede Qian is a Geotechnical Engineering Specialist with the Waste Management Division of the Michigan Department of Environmental Quality, Robert Kerner is the H. L. Bowman Professor of Civil Engineering at Drexel University, and Donald Gray is Professor Emeritus of Civil and Environmental Engineering at the University of Michigan.

— P. Aarne Vesilind, Bucknell University

The Organic Machine: The Remaking of the Columbia River

Richard White, Hill and Wang, New York, 1995

Humans, salmon, and a powerful river share center stage in Richard White's thoughtful, often brilliant environmental history. At 113 pages, this is an excellent little book to get engineers and historians alike thinking about big issues: economic development, environmental conservation, and popular attitudes towards nature and technology.

In the first of his four chapters, White introduces one of his central concepts: energy. For White, the idea of energy helps us understand historical and current connections between humans, salmon, and the river. White begins with a description of the Columbia as it existed in the nineteenth century, focusing on its flow and friction against rocks and gorges. The places where the river expended the greatest amounts of its own energy, chafing against rock in rapids and chutes, were also the places where salmon spent the greatest energy traveling upstream. Indians of the Pacific Northwest learned that these were also the spots where salmon were easiest to catch. Indians and later whites thus concentrated their labor (human energy) in those places.

This is not the kind of book that attempts to provide tables or equations or even maps to display energy on the river. Instead, White simply but effectively uses the concept to tie together the disparate threads of geology, salmon, Native Americans, and whites, threads that might unravel into incoherence in the hands of a lesser historian.

White moves in his middle two chapters to industrial development in the Pacific Northwest. As early as the 1890s, whites battled over a finite supply of salmon. Here White offers a compelling analysis of how Americans fought over conservation policies in an age long before the EPA. The heart of White's book, however, runs from the 1930s through the 1960s, when regional boosters, progressive reformers, and the federal government began remaking the river. Each added competing visions of how human energy along the river should turn from salmon fishing to hydroelectricity, or later nuclear power. White is especially skillful in recreating the almost utopian optimism of progressive planners in the 1930s. While environmentalists today might see the Bonneville Dam as an invasion or rape of nature, White convincingly shows us how progressives in the 1930s, drawing on what White describes as an "Emersonian" philosophy, instead saw dams as perfectly complementary with nature.

The salmon, which appear through the entire book, take the lead role in the fourth and final chapter. White adroitly describes more recent efforts to salvage the salmon runs in an age when overfishing and a series of dams challenge their survival. Readers gain an appreciation of the complicated web of energy that now operates along the Columbia. To save the salmon, and the human economy based on salmon, we now expend energy in new ways, creating hatcheries and fish barges to help the fish reach the Pacific Ocean and return home. The salmon industry, which once exploited the energy of the river and the fish, now depends on human intervention to preserve the salmon runs. This combination of natural and human work illustrates what White means when he calls the river an "organic machine." In the end, White offers not a story of increasing efficiency, but instead a tale of increasingly ironic and costly expenditures of energy.

Despite his predilection for ironic conclusions, White tells his story of competing human interests fairly. One detects greater sympathy for the Indians and the gillnetters (some of the original white fishermen), but the author also does an admirable job showing how all the human players, from the small fishermen to the mighty bureaucrats, had at least some fine and noble intentions. There are no evil villains in this story, and White's ability to transcend a simplistic morality tale is what makes this book a wonderful springboard for discussions on environmental ethics and the consequences of public works projects.

White also deserves praise for his beautiful writing, and

this is one of the rare scholarly works that encourages you to reread passages for the sheer pleasure of it. Any engineer and all citizens should mull over this gem of a paragraph which White uses to help explain how the Bonneville Power Administration obtained such massive power in the Pacific Northwest:

> "Planning is an exercise of power, and in a modern state much real power is suffused with boredom. The agents of planning are usually boring; the planning process is usually boring; the implementation of plans is always boring. In a democracy boredom works for bureaucracies and corporations as smell works for a skunk. It keeps danger away. Power does not have to be exercised behind the scenes. It can be open. The audience is asleep. The modern world is forged amidst our inattention." (p. 64).

One can always quibble over small omissions. The book aims for accessibility over scholarly apparatus, and so its discussion of various secondary literature is minimal. A useful annotated bibliography, however, helps compensate. Some topics receive extended treatment, as with the intellectual attitudes towards nature and technology in the 1930s. Other questions, such as the perspectives of the engineers who designed the dams, leave readers curious for more. Readers are also left to supply broader historical context for some of the key events in this story. For instance, White trusts that his readers will have at least some prior understanding of the progressive movement and the New Deal, whose political currents made the dams possible. Also, for a book that dwells so much on the natural and manmade geography of the Columbia, one might have hoped for photographs and more than one map to support White's writing. Yet these shortcomings should not prevent any reader from appreciating White's offerings.

In all, this book skillfully bridges the disciplinary divide between history and engineering. Concise and forceful, The Organic Machine can easily energize student discussions on environmental and engineering ethics. Some books make you fight against the current to get to the end and then leave you wondering if the destination was worth the effort. Not this one.

Richard White is Professor of History at the University of Washington.

— Christopher Endy, Department of History, California State University, Los Angeles

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Florida *(continued from page 9)*

and the Sporting Arms and Ammunition Manufacturers' Institute. It is being managed by the Department of Civil & Environmental Engineering, Florida A & M University / Florida State University, College of Engineering.

The objective of this competition is to stimulate innovative ideas and solutions to the primary environmental concern associated with shooting ranges—lead contamination. The focus will be on shooting ranges in Florida and its environmental, geologic, and geographic conditions, but with applicability to other parts of the country.

There will be both individual and team design competitions. All designs must address two critical aspects: (a) establish criteria and regulations for siting the proposed shooting ranges and (b) design shooting ranges in conjunction with the specified design criteria and with regard to public safety and environmental quality.

The student design competition is open to all engineering students enrolled in any university, college, or community college in the United States and may be done in conjunction with design courses. Applications for intent to compete should be submitted by September 27, and final designs must be submitted by October 28, 2002.

Cash prizes will be awarded to the first, second, and third place winners. The top prize is $2,500 for teams and $1,500 for individuals. All interested applicants may find additional information at http://www.eng.fsu.edu/designcomp or by contacting Dr. Danuta Leszczynska at danuta@eng.fsu.edu or 850-410-6119.

NOTE: The AEESP membership application is also available online at **http://www.aeesp.org/org/membership.html**.

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