

RISK *newsletter*

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SRA Sections, Chapters Expand Scope of Society

Even a cursory examination of this issue of *RISK newsletter* will reveal that the sections and chapters of the Society for Risk Analysis are a driving force that is rapidly expanding the number of risk issues on which the Society is focusing. And since most of the issues are of international and/or interdisciplinary concern, they are increasingly being addressed through collaborative efforts with other organizations. The SRA-Japan Section, for example, is joining with Japan's National Institute for Environmental Studies to co-sponsor a November international symposium titled "Risk Assessment on Chemicals." During the same month, the section will hold its own Fourth Annual Conference, using the theme "Moral Hazards and Risks."

Late last year, the SRA-Europe Section successfully collaborated with the USSR Academy of Sciences in organizing an environmental risk management conference held in Kiev. Now the section is planning to address several "cross-border" concerns at its third section conference, which will have the theme "Risk Analysis—Underlying Rationales." The conference will be held in Paris in December.

SRA, Philippines, an affiliate of the international SRA, is also hard at work in a cooperative effort to assess environmental and health risks associated with the introduction of transportation and communication systems in the developing world. During a major international congress/exhibition (Trans Comm '92) to be held next March in

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PSAM: A Success Story

*by Larry Froebe
Southern California Chapter*

In spite of increased airport security and reduced international travel during the Iraqi war, 480 professionals from the People's Republic of China, Brazil, the Soviet Union and many other countries gathered in Beverly Hills, California, on February 4-7, 1991, to attend SRA's International Conference on Probabilistic Safety Assessment and Management (PSAM), organized and hosted by the Southern California Chapter.

The idea for PSAM began in August 1988 with Professor George Apostolakis of the University of California in Los Angeles (UCLA). Perceiving the need to span all fields of risk assessment in one neutral forum for technical exchange, he first captured the imagination of the Executive Committee of the Southern California Chapter (SCSRA), later convincing the council of the Society for Risk Analysis that SRA should be the primary sponsor of the conference.

To build the technical program, Apostolakis organized a Senior Advisory Board, which included nine distinguished professionals from around the world and was chaired by B. John Garrick, president of PLG, Inc. and immediate past president of SRA. Taking advantage of his own professional network and the assistance of the Senior Advisory Board, Apostolakis then established a Technical Program Committee of 75 renowned risk assessment professionals. As a result, the Call for Papers, issued in 1989, was a resounding success.

To promote participation by professionals from diverse backgrounds, the Local Organizing Committee enlisted several societies and companies as co-sponsors, including the American Nuclear Society, the American Society of Civil Engineers, the American Society of Mechanical Engineers, the European Safety and Reliability Association, the IEEE Reliability Society, the Society of Automotive Engineers, and the Systems Safety Society. Support was also solicited from A. D. Little, Inc., ASI Systems International, IT Corporation, Lawrence Livermore National Laboratory, NUS Corporation, PRC, Inc., PLG, Inc., Scientech, Inc., TRW, Inc., and Unocal Corporation.

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1991 Nominees

The SRA Nominations Committee, chaired by Richard C. Schwing, has announced the nominees for the Society's 1991 election. They are:

President-Elect:	Ann N. Fisher James D. Willson	Councilors:	Donald Barnes Gordon Newell
Secretary:	Stephen Brown Vlasta Molak		Adam M. Finkel John D. Graham
Treasurer:	Raymond F. Boykin Fred D. Hoerger		Yacov Y. Haimes Rae Zimmerman

The Society acknowledges with appreciation the efforts of Schwing and the members of the Nominations Committee: Halina S. Brown, Daniel M. Byrd III, Paul F. Deisler, Jr., and Frances M. Lynn.

Sixth Annual SRA Risk Assessment Course Held

On May 20-22, 1991, the Society for Risk Analysis held its sixth annual course on risk assessment, with approximately 50 participants welcoming the opportunity to interact with and ask questions of major leaders in the field of risk analysis. SRA President Curtis C. Travis, of the Center for Risk Management, Oak Ridge National Laboratory, was course director. The title of the course, "New Directions in Risk Assessment," reflects the special emphasis this year on new developments in pharmacokinetics, biomonitoring, and reproductive, immunological, and neurological risks.

The intent of the course, held at the Hyatt Regency, Bethesda, Maryland, was to provide an introductory overview of methodologies, assumptions, and new research in risk assessment. Lectures showed how to perform and interpret risk assessments and how to use them in risk management. The lecturers were Roy Albert, Elizabeth Anderson, Mildred Christian, Vincent Covello, Bernard Goldstein, Loren Koller, Lester Lave, Paul Liroy, Ellen Silbergeld, Chris Whipple, and Travis.

Each participant received a complimentary membership in SRA, as well as a complimentary copy of the Society's book *Carcinogen Risk Assessment*. The book is currently being revised and updated for use at next year's course, which will be held in May in the Washington area.

Journal Changes Review Procedures

Effective immediately, *Risk Analysis: An International Journal* will have a change in review procedures. All peer-review articles will now be reviewed in a blind review manner. Authors' names will be removed from manuscripts, but the text will not be altered. This will encourage higher quality reviews, thus enhancing the quality of published articles. All instructions for contributors will remain as stated in the journal.

Expanding Scope

(Continued from page 1.)

the Philippines, the participating groups hope to adopt a set of recommendations for the United Nations 1992 Earth Summit Conference, which will be held in Brazil the following June.

In the United States, several SRA chapters, while not limiting themselves, are focusing on specific risk issues or related specialties. The Ohio Chapter, for example, is becoming known for its focus on risk software and databases and has been invited to present an exhibit at the Society's 1991 Annual Meeting. The Research Triangle Chapter is recognized for its annual fall workshops, which this year will focus on several high-risk ecological problems. Similarly, the Northern California Chapter traditionally co-sponsors a Spring Meeting related to various aspects of toxics in the environment.

The New England Chapter has the record for regular monthly seminars, which feature not one but *two* addresses separated by a dinner meeting. The programs, which cover the gamut of risk-related subjects, are held jointly with the Boston Risk Assessment Group.

Of all the SRA chapters, the Southern California Chapter has probably retained the strongest focus in a given area for the longest length of time. The year after the chapter was formed, it initiated what has become an annual workshop concentrating primarily on qualitative and quantitative risk assessments for large engineered systems. These activities led to the highly successful SRA-sponsored PSAM conference planned and hosted by the chapter (see page 1). At the same time, however, the chapter is taking steps to broaden its base in order to attract and interact with all risk assessment and risk management professionals in the area.

Other chapters have also been involved in regular events, most finding their own special niche. With such activities, the sections and chapters are not only expanding the scope of the Society, they are increasingly forging its character.

PSAM

(Continued from page 1.)

Since PSAM was a first-of-its-kind conference and the audience was expected to have diverse backgrounds, the conference was preceded on Sunday, February 3, with a short course on PSA methodology and applications. Organized by SCSRA President Michael Stamatelatos of Scientech, Inc., the course included presentations by many of the SCSRA Executive Committee, including Apostolakis and Stamatelatos, Bob Mulvihill of PRC, Inc., Doug Orvis of Accident Prevention Group, Stan Kaplan of PLG, Inc., Larry Froebe of IT Corporation, plus Jim Wells of Lawrence Livermore National Laboratory. Over 30 persons participated in the day-long short course.

PSAM officially opened on Monday, February 4, with a panel of distinguished experts and leaders in various disciplines and industries discussing risk assessment in management decision making. The panel was chaired by Garrick and consisted of C.A. Cornell of Stanford University, G.W. Elverum of TRW, Inc. (retired), D.L. Hanley of Unocal Corp., D. Okrent of UCLA, N.C. Rasmussen of Massachusetts Institute of Technology, and G.I. Schueller of the University of Innsbruck, Austria. While everyone agreed that PSA methods would be helpful to management, it was also recognized that different industries operate under different environments, and this is a major factor in the acceptability of these methods. For example, the nuclear power industry is heavily regulated, while the chemical process industry, at least in the United States, is not regulated to the same

extent. Unlike the nuclear industry, the chemical industry has to worry about protecting proprietary information, a fact that would appear to conflict with the requirement of open peer review. The active audience participation was a strong indication that these issues are indeed of great concern to many scientists and engineers in responsible positions, both in academia and in industry.

Individual topic sessions began after the panel discussion. A special feature was to reserve the last 25 minutes of each session for a general discussion between the authors of the presented papers and the audience. The sessions covered a wide variety of topics, including: regulatory uses of PSA; organizational impact on safety; human reliability; software system safety; reliability assessment of dynamic systems; dependent failures; PSA use in design and industrial standards; expert systems for safety analysis; seismic and fire safety assessment; risk communication; models of aging of structures and equipment; PSA models and methods; phenomenological uncertainties; and PSA applications to nuclear power plants, aerospace systems, chemical plants, radioactive and toxic waste disposal systems, and defense systems.

Of course, PSAM was not just a world-class technical program. PSAM capitalized on the attraction of the Mediterranean-type climate of Southern California, the elegance of Merv Griffin's Beverly Hilton Hotel, the ambience of UCLA's prestigious sister community, Beverly Hills, and the nearby movie and entertainment center in Hollywood. The conference banquet was held at Universal Studios Hollywood on Tuesday evening and was an old-fashioned, American barbecue. The delegates first toured the studios and back lot where major motion pictures and television shows are



Stan Kaplan, PLG, Inc., makes a point about integrity in risk communication in the general session of the PSAM Conference.

produced. Then they experienced the King Kong exhibit and an 8.0 simulated earthquake and were treated to the Miami Vice Action Spectacular. Following the show, the director addressed the audience and described the safety systems upon which the show was built. After the festivities, Rasmussen spoke with his usual eloquence about some great vignettes from his experiences in risk communication. In recognition of the unique contributions by Apostolakis and Garrick, they were awarded special appreciation awards by SCSRA.

PSAM also presented an exhibit of software and publisher products for risk assessment. The strength of PSAM was the melding of PSA professionals with those practicing environmental and health risk assessment. New programs tied to Windows 3.0 were unveiled, and the U.S. Environmental Protection Agency's Risk*Assistant program for health risk assessment, due out this June, was exhibited.

The delegates had an extra treat in having to "put up with" the 80th birthday reception for former President Ronald Reagan, held in the hotel at the same time. It was a great opportunity to see the arrival of a host of Hollywood stars and dignitaries, including former Prime Minister Margaret Thatcher, Vice President Dan Quayle, and the hotel owner, Merv Griffin himself.

The conference closed with another panel discussion on future research needs. The panel was chaired by Apostolakis and consisted of Stamatelatos, G. Alexeef of the California Department of Health Services, E.J. Bonano of Sandia National Laboratories, S.B. Guarro of Aerospace Corporation, and O. Svenson of the University of Stockholm.

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PSAM's panel for the general session included (left to right) D. L. Hanley, G. W. Elverum, N. C. Rasmussen, B. J. Garrick, C. A. Cornell, D. Okrent, and G. I. Schueller. G. Apostolakis is standing behind the panel group.

The conference program included over 220 papers which were available in a bound, two-volume set of proceedings presented to the attendees at registration.

This large number of papers, together with the congregation of representatives from many countries, proves that it was, indeed, time to hold an international conference creating an opportunity for engineers and scientists working in diverse industries and disciplines to meet and exchange ideas. Furthermore, PSAM's success indicates that the Society for Risk Analysis was the ideal host for such a conference, since it did not have close ties with any of the industries involved.

The conference completely fulfilled the vision of the SCSRA Organizing Committee, whose tireless efforts made PSAM such a success. Committee mem-

bers included Andy Dykes of PLG, Inc.; Terry Fogle of TRW, Inc.; Sergio Guarro of Aerospace Corp.; Vincent Ho of The Ralph M. Parsons Corp.; Mardy Kazarians of A.D. Little, Inc. (also the registration chairman); in addition to Froebe (also the coordinator of software exhibits), Kaplan, Mulvihill, Orvis, and Stamatelatos. UCLA students who supported Apostolakis during the usual last-minute crises were Raul Tovar, Keyvan Davoudian, and Chris Garrett. Also, David Bell helped out with the software exhibits at the conference. Finally, UCLA staff contributing to the success of PSAM include Eve Bailey, who handled the Universal Studios Hollywood event, and Ophella Dano, who offered general secretarial support.

Already the conference is being referred to as PSAM I and planning for PSAM

II has begun. Those of us involved believe there is no better way for SRA to pursue its mission of the safe utilization of technology for the welfare of the world community.

Note: The author extends thanks to Professor George Apostolakis for providing much of the information included in this article.

Copies of the PSAM proceedings may be ordered from Elsevier Science Publishing Company, 655 Avenue of the Americas, New York, New York 10010 [Phone 212-989-5800]; or Elsevier's European address: Crown House, Linton Road, Barking, Essex IG11 8JU, United Kingdom [Phone 081-594-7272].

DRMS Calls for Grant Proposals

The Decision, Risk, and Management Science (DRMS) Program in the Division of Social and Economic Science of the National Science Foundation (NSF) will soon be announcing its first three awards under the Joint NSF/Private Sector Research Opportunities Initiative. In this initiative, NSF matches funds from a cooperating private corporation in the support of a research project which must involve individuals from the cooperating private organization. While NSF's funds go directly to the researcher's institution, the corporate matching funds may either go directly to that institution or be used to partially pay the salaries of any researchers from the cooperating organization who are an approved part of the proposed research project. Grants from NSF may total up to \$75,000 per year for each of two years. Deadlines for submitting proposals are August 15 and January 15 of each year.

Research supported by DRMS should address social, behavioral, or organizational aspects of operational processes or decision making. Problems to be studied include, but are not limited to, topics in the areas of operational

control, management systems, and strategic planning. Topics can range from production, manufacturing, pollution prevention, and marketing problems facing industrial firms and service organizations, to the role of decision analysis and decision support systems in improving the way individuals and groups make choices under conditions of risk and uncertainty. The topic should be of general interest to the research community but still relate to a specific problem facing the Cooperating Organization.

Further information and detailed instructions on submitting a proposal under this initiative may be obtained by contacting: Decision, Risk, and Management Science Program, Division of Social and Economic Science, National Science Foundation, Room 336, 1800 G Street, N.W., Washington, D.C. 20550 [Phone: 202-357-7417 or 202-357-7569; FAX 202-357-0357]. (The 1990-1991 Program Directors, Dr. Robert F. Bordley from General Motors Research Laboratory and Dr. L. Robin Keller from the University of California in Irvine, can be reached at bitnets rbordley@nsf and lkeller@nsf, respectively.)

Corrections

In the list of 1990 Sustaining Members published in the January 1991 issue of RISK newsletter, two organizations should have been identified as follows:

Center for Risk Management, Resources
for the Future
Hoffmann-LaRoche

Reflection on a Personal Risk

For 3-1/2 years, my doctors and I have not understood why I suddenly fell unconscious during a routine hospital test, requiring extraordinary attention for the next 24 hours. Now I think we have the answer. It came in the form of a March 29 medical alert from the Food and Drug Administration warning that water-soluble rubber proteins in devices made of latex appear to cause allergic reactions. Last year the deaths of at least four patients undergoing barium enemas, as I was, were linked with allergic reactions to an inflatable latex cuff used in the procedure. The FDA has also learned of life-threatening reactions in cases involving latex gloves and anesthesia equipment.—LSA

Comings and Goings

Dominic Golding is now a fellow in the Center for Risk Management at Resources for the Future. He was formerly a research associate at CENED, Clark University, and Tufts University. His new address is: Center for Risk Management, Resources for the Future, 1616 P Street N.W., Washington, DC 20036 [Phone 202-328-5031; FAX 202-265-8069].

* * *

Curtis Haymore, president of National Capital Area Chapter of SRA, is now a vice president with SocioTechnical Research Applications, Inc., 450 Maple Avenue East, Suite 304, Vienna, Virginia 22180 [Phone 703-242-0265; FAX: call phone number first].

* * *

Tom Laetz, president of Rocky Mountain Chapter, has accepted a four-year rotational assignment in the European office of the U.S. General Accounting Office (GAO). He will focus his attention on international health care issues for the U.S. Congress. Laetz will be leaving GAO at Denver in July.

John Perrecone, senior Superfund community relations coordinator for the U.S. Environmental Protection Agency in Chicago, Illinois, has been selected to serve on the Board of Directors of the National Association of Professional Environmental Communicators (NAPEC) for 1991.

* * *

Warren K. Sinclair of the National Council on Radiation Protection and Measurements (NCRP) in Bethesda, Maryland was elected as an honorary member of the Council at its 1991 Annual Meeting on April 4.

* * *

Pieter Jan M. Stallen, president of SRA-Europe, has left the Institute for Environment and Systems Analysis in Amsterdam and recently established his own company, Stallen Environmental Consult. Stallen is providing expertise for industrial companies who are establishing policies that will do justice to the environment and to the company in the longer

term. A particular focus of assistance is the development of policies by business chains to stimulate the integration of environmental health and safety concerns into systems of quality control (for example, life cycle management and risk communication). Stallen may be contacted at: Stallen - Adviesbureau voor Milieubeleid, Tooropstraat 34, 6813 KT ARNHEM, The Netherlands [Phone 31-85-437848; FAX 31-85-435310].

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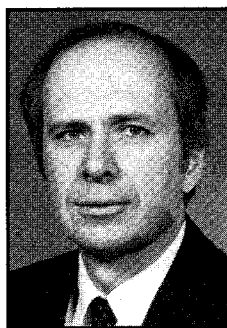
Primatech Inc. has opened new corporate offices in Columbus, Ohio. Headquartered in Columbus, the company specializes in providing consulting and training services in Process Safety Management and develops and licenses software used in conducting process safety studies. Primatech also has offices in Los Angeles, San Francisco, and Princeton, New Jersey. The new address is: Primatech Inc., 445 Hutchinson Avenue, Suite 200, Columbus, Ohio 43235 [Phone 614-841-9800; FAX 614-841-9805].

Colglazier Accepts NAS Post

E. William Colglazier, 1989-90 president of the East Tennessee Chapter of SRA, has been chosen to head the Office of International Affairs for the National Academy of Sciences (NAS) in Washington, D.C., a post which has been held by Victor Rabinowitch since 1981. Beginning in August, Colglazier will take a two-year leave of absence from The University of Tennessee, where he is a professor of physics and directs three research centers: The Energy, Environment, and Resources Center; the Water Resources Research Center; and the Waste Management Research and Education Institute. He also is a member of the Board on Radioactive Waste Management of NAS.

The NAS Office of International Affairs has foreign affairs committees for research in Japan, the So-

viet Union, Eastern Europe, and China. Colglazier will be the executive director with oversight of eight committees and research programs in science and technology, scholarly communications, economic development, human rights, and world peace and security.



E. William Colglazier

The deputy director for The Energy, Environment, and Resources Center, Jack Barkenbus, will become acting director during Colglazier's leave.

1989 SRA Proceedings Now Available!

The proceedings for the 1989 SRA Annual Meeting, which was held in San Francisco, have been published and are now available. The volume, the ninth in the series *Advances in Risk Analysis*, totals 720 pages and is entitled *The Analysis, Communication, and Perception of Risk*. It was edited by B. John Garrick and Willard C. Gekler, with contributing editors Caron Chess, Roger Kasperson, and Curtis Travis. First authors of the 68 papers included in the volume should already be receiving their complimentary copies.

To order the 1989 proceedings or earlier proceedings, please mail a check (for \$45 per copy) to Plenum Publishing Corp.:

Plenum Publishing Corp.
ATTN: Mary Safford
233 Spring Street
New York, New York 10013

Abstracts Due for SRA 1991 Annual Meeting

The date of June 28 has been set as the deadline for 250-word abstracts of papers submitted for presentation at the 1991 SRA Annual Meeting to be held in Baltimore, Maryland, December 8-11. Abstract forms and instructions have been sent to all SRA members, who are to return them to the SRA Secretariat.

Using the theme "Risk Analysis in Support of Public and Private Sector Decision Making," the Annual Meeting Program Committee and the recently formed SRA Special Interest Groups are planning an extensive set of invited sessions featuring both traditional areas of interest and emerging areas, such as ecological risk assessment.

Presentation Times Limited

Warner North, SRA's president-elect and chair of the Annual Meeting Committee, expects the 1991 meeting to set a new record both for attendance and for the number of papers presented. In anticipation of this, the presentation time for contributed papers will be limited, with a 90-minute session usually including six papers.

Papers To Be Distributed

As was the case for the 1990 Annual Meeting, proceedings of the meeting will not be published. However, authors are encouraged to bring copies of their papers to hand out at the meeting. An area will be set up for distribution of the papers to interested attendees.

RISKWARE '91 Exhibition at Annual Meeting

RISKWARE '91, an exhibition of risk analysis software and databases patterned after the successful RISKWARE '90 held by SRA's Ohio Chapter last December, will be an additional feature of the 1991 SRA Annual Meeting. The objective of this event is to bring together developers and users of computer-based risk analysis tools for a mutual educational exchange.

Applications of the products in the areas of human health, environmental impact, regulatory monitoring, process safety, finance, etc., will be demonstrated, presenting SRA conference attendees with the opportunity to evaluate the capabilities of the available programs for use in their own risk assessment, risk management, and risk communication activities and practices. The attendees will also be able to discuss problems and needs with programmers and software and database developers, as well as experience hands-on trials of the products.

NOTE: Commercial vendors, private developers, and individuals are encouraged to exhibit their programs, software, and/or databases. Those wishing to participate should contact Ron Marnicio (Phone 614-761-2008) or Steve Lutkenhoff (Phone 513-569-7951).

Special Interest Groups Focus on Annual Meeting

The formation of special interest groups within SRA has produced a structure for helping to organize sessions at the Annual Meeting. According to recent reports from the chairs of the groups, which were introduced in the January 1991 issue of *RISK newsletter*, their primary activity has been to prepare for the 1991 Annual Meeting.

Global Risk Analysis

Rob Coppock, chair of the Global Risk Analysis Special Interest Group, reports that the group plans to sponsor an Annual Meeting luncheon lecture by Daniel J. Evans, chairman of the committee that authored the National Academy of Sciences/National Academy of Engineering/Institute of Medicine report *Policy Implications of Greenhouse Warming*. In addition, the group is organizing sessions on climate change and energy strategy, focusing on both current research and policy issues.

Exposure Assessment

Paul Price, chair of the Exposure Assessment Special Interest Group, says the group hopes for an increased

emphasis on exposure assessment at the Annual Meeting and is working with the program committee to establish one or more continuing sessions on exposure and exposure/risk assessment issues throughout the 1991 Annual Meeting. Members of the group are also planning a workshop on dietary exposure to be held in conjunction with the Annual Meeting, with a second possible workshop on air exposure.

Risk Communication

Ann Fisher, chair of the Risk Communication Special Interest Group, reports that several SRA members have called to confirm their interest in participating in the risk communication sessions at the Annual Meeting and that details about the sessions will be published in the next issue of *RISK newsletter*.

Engineering

Bill Gekler, chair of the Engineering Special Interest Group, says the group is currently putting together five special sessions for the Annual Meeting. Several group

members have assumed responsibility for the sessions as follows:

Global Climate Change. Istvan Bogardi, University of Nebraska, and Lucien Duckstein, University of Arizona, are organizing one of the Annual Meeting sessions on global climate change, focusing on issues related to uncertainty and risk. Three main topics will be considered: (1) prediction of climate change, (2) consequences of climate change, and (3) engineering/decision making related to prediction and consequences. Studies of uncertainty analysis and formal risk analysis will be presented using probabilistic and nonprobabilistic methods.

Water Resources Infrastructure. Yacov Y. Haimes, University of Virginia, will put together a session on risk and reliability issues of water resources. Various parts of the water resource infrastructure will be examined, from dams and levees to water distribution systems.

Risk Analysis in the Engineering Professional Societies. Vicki M. Bier, University of Wisconsin, will organize a session on the scope of risk analysis applications that are being supported by other professional societies and by practitioners in the other societies.

Nuclear Waste. D. Warner North, Decision Focus, Inc., will organize a session on various risk analysis issues associated with high-level waste. Particular emphasis will be placed on work that is being performed with regard to the planned Department of Energy Yucca Mountain repository.

New Regulations for Process Hazards Management. Robert W. Myers, Stone & Webster Engineering Corporation, will put together a session on the impacts of new regulations, such as the Clean Air Act of 1990 and OSHA's

29 CFR 1910.119, on risk analysis requirements for industries using hazardous materials.

Note: Gekler and Hatice Cullingford, secretary of the group, are working to draw up a charter defining the objectives of the Engineering Special Interest Group. The charter will be submitted for approval when the group meets during the 1991 Annual Meeting.

Space

Hatice Cullingford, chair of the Space Special Interest Group, reports that the group is planning to sponsor two space-related sessions at the 1991 Annual Meeting. She points out that the year 1991 is expected to be a very important year for future space activities because of several high-level government reviews in progress now. In particular, Lunar and Mars exploration plans are expected to be specified, along with a major technology development program. Persons interested in participating in this special interest group and/or in space sessions should contact Cullingford at the address given in the box below.

Correction

An incorrect address was given in the January 1991 Risk newsletter for Hatice Cullingford, who is chair of the 1991 SRA Publicity Committee, chair of the Space Special Interest Group, and organizing secretary of the Engineering Special Interest Group. Her correct address is as follows: Dr. Hatice Cullingford, NASA, Johnson Space Center, Lunar and Mars Exploration Program Office, Mail Code X-E, Houston, Texas 77058 (Phone 713-283-8229; FAX 713-283-5818).

EPA Risk Communication Publications Available

Two new risk communication publications from the United States Environmental Protection Agency (EPA) Risk Communication Series are now available.

Hazardous Substances in Our Environment: A Citizens Guide to Understanding Health Risks and Reducing Exposure can be obtained through the Public Information Center PM-211B [Phone 202-382-2080 or 202-475-7751] for distribution to a wide public audience (ask for publication number EPA-230-09-90-081). [A highlights brochure, **Understanding Environmental Health Risks and Reducing Exposure: Highlights of a Citizen's Guide** (publication number EPA-230-0990-082), is also available for distribution and includes an order form for the more extensive

publication. Please be sure to differentiate between the two titles and publication numbers when ordering.]

Communicating Environmental Risks: A Guide to Practical Evaluations (publication number EPA-230-01-91-001) has been adapted to several types of evaluation to serve the goal of evaluating risk communication programs. The guidebook explains how to plan a practical, cost-effective evaluation strategy that can be integrated with a risk communication effort. This five-phase framework has been adopted to facilitate thinking about where and when various evaluation techniques and activities are most effective. To order, please call the EPA Risk Communication Hotline: 202-382-5606.

News from SRA-Europe

Pieter Jan Stallen, president of SRA-Europe, reports that the section gained 40 new members, all from Eastern Europe, as a result of the Kiev conference in November, 1990 [see January 1991 issue of *RISK newsletter*]. The section also has eight sustaining members for 1991:

Dutch Environmental Liability Pool
Ernst Basler and Partners, Switzerland
General Electric Plastics
Norsk Hydro
Netherland Organisation for Applied Scientific Research
Rhône Poulenc
Technica, United Kingdom
Zürich Insurance Company.

Elections Scheduled

The ballot for the first election of the SRA-Europe Executive Committee (for 1992) is being organized in May. Questions concerning SRA-Europe should be addressed to: SRA-Europe Secretariat, Tooropstraat 34, 6813 KT ARNHEM, The Netherlands [Phone 31-85-437848; FAX 31-85-435310].

Third Conference

The Third Conference of SRA-Europe will be held December 16-18, 1991, in Paris, France. The theme of the conference is "Risk Analysis—Underlying Rationales." Planners of the meeting point out that risk analysis is being used by growing numbers of professional groups that adapt it to various topics (i.e., operational safety and reliability analysis, structural uncertainties in dose-response relationships, variability and instability of expressed values, etc.), presenting problems to decision makers who may wish that risk analysis yielded facts and figures in ways that were acceptable to the parties in their political debates and facilitated decisions. They ask what, if any, commonality is there in these and other perspectives? What are the assumptions of the various approaches to risk? Do they predispose to particular attitudes towards the acceptability of risks? Also, which institutional or national differences exist in these respects? Members and non-members of SRA who will be responding to the Call for Papers (see box) are asked to pay particular attention to these questions. Contributions are solicited from professionals in business, government, and academia.

Call for Papers

Third Conference of the European Section of The Society for Risk Analysis

Paris, France
December 16-18, 1991

THEME: Risk Analysis—Underlying Rationales

PROGRAM CATEGORIES:

Engineering and Statistics
Health and Environmental Sciences
Social and Policy Sciences

TOPICAL ISSUES:

Ecological Risk Assessment
Risk Analysis in the Design Stages
Health Impact Assessment
Risk Communication
Dealing with Major Accidents
Quantitative Criteria for Acceptability of Risks
Risk Management in Eastern Europe

Uncertainty Analyses
Product Safety and Liability-Risks
Knowledge-based Systems for Risk Assessment
Establishing Criteria for the Acceptability of Risks
Long-term Hazards
Risk Management in Practice
Cross-border Environmental Risk Management

Abstracts of not more than 300 words should be sent before July 31, 1991, to: Dr. Ph. Hubert, CEA/IPSN, DPHD/SEGR, Boite Postale 6, 92265 Fontenay aux ROSES Cedex, France [Phone 33-1-46547091].

News from SRA-Japan

SRA-Japan will be a co-sponsor of an international symposium on "Risk Assessment on Chemicals," which tentatively is scheduled for November 11-12, 1991, at the National Institute for Environmental Studies (NIES) in Tsukuba, Japan. The symposium will focus not only on risk assessment/management methodologies in general but also on those for specific chemicals. The program will include three sessions: exposure assessment, cancer and non-cancer risk assessment, and risk management. For full details, contact: Dr. Takashi MIURA, Regional Environmental Division, NIES, 16-2, Onogawa, Tsukuba, Japan 305 [Phone 298-51-6111; FAX 298-51-4732].

Fourth Annual Conference

The Fourth Annual Conference of SRA-Japan will be held November 29-30, 1991, at Shinjuku in Tokyo. Using the theme, "Moral Hazards and Risks," the conference will include a general session open for any topic relating to risk analysis and three special sessions on the topics "Household and Industrial Waste and Risks," "Moral Hazards and Insurance," and "Science, Morals and Risks."

Please direct questions concerning SRA-Japan to: Dr. Saburo Ikeda, Secretary of SRA-Japan, Institute of Socio-Economic Planning, University of Tsukuba, Tsukuba, Ibaraki 305, Japan [Phone 0298-53-5380; FAX 1298-55-3849].

News from SRA, Philippines

SRA, Philippines invites SRA members to participate in Trans Comm '92, an international congress/exhibition on transportation, communications, and environment that will be held on March 2-6, 1992 at the Philippine International Convention Center (see Calendar of Events). The meeting theme will be "Transportation and Communications: Challenges and Opportunities in the Developing World."

SRA, Philippines is very actively involved in Trans Comm '92, with the group's president, Corazon PB. Claudio, serving both as program chair and as co-chair of the International Steering Committee. Trans Comm '92 aims to "contribute to the complementation and integrated development of the transportation and communication sectors for the sustainable development and growth of the developing world." It hopes to generate a set of recommendations that will be submitted to appropriate working groups for the Earth Summit (1992 United Nations Conference on Environment and Development [UNCED]). SRA members are invited to present papers on environmental and health risks of transportation and communications systems development and implementation, particularly in the developing world. For further information on Trans Comm '92 or SRA, Philippines, please contact: Dr. Corazon PB. Claudio, P.O. Box 12228, Ortigas Center Post Office 1600, Emerald Avenue, Pasig, Metro Manila, Philippines [Phone 632-631-3138; FAX 632-631-5714].

Molak Promoting SRA Internationally

At the April 9 meeting of the SRA Council, a decision was made to intensify the Society's international activities, making SRA a truly international professional society as new SRA sections are organized in additional countries. Vlasta Molak, chair of the Subcommittee for International Relations, reported that during much of the month of May she would be in Europe meeting with leading environmental professionals and giving lectures on the topics: "What Is Risk Analysis?"; "The Role of Risk Analysis in Evaluating and Prioritizing Environmental Problems"; "The Role of Risk Analysis in Technology Transfer"; and "Pollution Prevention: The Ultimate Way of Protecting Our Environment." After visiting Prague and Budapest, Molak will conduct a symposium organized by members of SRA in Yugoslavia on "The Role of Risk Analysis in Evaluating and Prioritizing Environmental Problems."

Molak will also join the Cincinnati delegation of the Kharkov-Cincinnati Sister City Project to visit Moscow, Kiev, and Kharkov (Ukraine). She chairs the Environmental Committee of the Cincinnati-Kharkov Sister City Project and has been asked by the U.S. Sister City Project organization to help organize workshops on the environment at the upcoming USSR/USA Sister City Conference, which will be held in Cincinnati on September 11-15, 1991. At least 350 delegates from over 100 cities in the

USSR and 500 delegates from corresponding USA Sister Cities are expected to attend.

Letter to the Editor

Dear Editor:

I think SRA should establish a new domain of "riskology" as an integrated discipline of natural and social sciences for scientific bridging between risk assessment and risk management. Its necessity is emphasized in Fortune ("The big cleanup gets it wrong," May 20, 1991), which says the U.S. is spending too much on minor threats...and not enough on major pollutants... I think Fortune is impressing the public of the necessity of riskology (risk comparison, risk perception, risk communication, risk statistics, risk geography, financial and physical risk control, risk distribution, etc.). Thus I believe the concept and the system of riskology should be established because [of the constant necessity for human beings to respond] to various risks by balancing benefits, costs, and probabilities of loss.

Sincerely yours,
Shigenori Sanari

Honshio-Cho 21, Kaasa Yotsuya 1301,
Shinjuku-ku Tokyo, Japan JN 160

Chapter News

National Capital Area Chapter

Donald Barnes of the Science Advisory Board (SAB) of the U.S. Environmental Protection Agency spoke at the March meeting of the National Capital Area Chapter on SAB's report *Reducing Risk* and the use of comparative risk assessment. At the April meeting, **Jimmie Powell**, U.S. Senate Environment Committee, and **Adam Finkel**, Resources for the Future, addressed concerns about the use of comparative risk assessment.

The 1991 officers of National Capital Area Chapter are: President, **Curtis J. Haymore**, SocioTechnical Research Applications, Inc.; President-Elect, **Herbert C. Hammond**, Department of Health and Human Services, Office of Health Policy; Secretary, **Adam M. Finkel**, Center for Risk Management, Resources for the Future; Treasurer, **Lee R. Abramson**, Office of Nuclear Regulatory Research, Nuclear Regulatory Commission; Councilors, **Stephen L. Brown** and **Mary Burr Paxton**, ENVIRON Corporation, and **Michael E. Ginevan**, Versar, Inc.

The chapter may be contacted through its secretary: **Dr. Adam M. Finkel**, Center for Risk Management, Resources for the Future, 1616 P Street, N.W., Room 504, Washington, D.C. 20036.

New England Chapter

SRA's New England Chapter continues to coordinate its monthly seminars, which are held at the Massachusetts Institute of Technology (MIT), with the Boston Risk Assessment Group. A late afternoon presentation is followed by dinner and a second address in the evening. In March **Ruddie Clarkson** of JM Montgomery Engineers spoke on the topic "The Saint Gabriel, LA Miscarriage Study," and **Charles Menzie** of Menzie-Cura Associates addressed the current developments of GRI and EPRI programs related to risk assessment at manufactured gas plant sites. At the April meeting, **John McCarthy** of Environmental Health Engineering spoke on "Indoor Air Quality—Theory & Practice," and **George Seage** of the Department of Public Health, City of Boston, presented "AIDS Epidemic—Overview & New Research." The May meeting featured **Harlee Strauss**, speaking on "Bioremediation—Technology and Risk," and **Susan Santos** of ABB Environmental Services, Inc., who shared the results of her 1989

Michigan SRA Chapter Being Formed

A new chapter of SRA is currently being formed in southeastern Michigan. Anyone interested in participating is urged to contact **Richard Schwing** [Phone 313-986-1348] or **Douglas Kononen** [Phone 313-986-1351], both of General Motors Research Laboratories. The newly formed Program Committee, chaired by **Michael Kamerin** of Michigan State University, has scheduled a program for Friday, September 13, 1991, at which SRA President Curtis Travis will be the featured speaker. Additionally, the Nominating Committee is seeking nominations for six officer positions; those interested in being nominated or in submitting names for the of-

fices of president, vice-president, secretary, and treasurer or for the two councilor positions should call the committee chair, **Rebecca Head**, Washtenaw County Environmental Coordination Office [Phone 313-994-2398]. Please note: only members of The Society for Risk Analysis qualify to run for these offices.

To add to the existing roster of over 50 risk analysts in Michigan, please send names of colleagues who might be encouraged to participate in activities of the Michigan Chapter to: **Dr. Douglas Kononen** or **Dr. Richard Schwing**, c/o Operating Sciences Department, General Motors Research Laboratories, Warren, Michigan 48090-9050.

study of public health assessments in Germany, The Netherlands, France, and Great Britain.

A June 27 meeting will begin at 3:30 p.m. with refreshments that will be followed at 4:00 by a panel discussion on "Sampling and Data Analysis." The results of the April election of new officers for the New England Chapter have been announced: President (for 1991-1992), **Harlee S. Strauss** of H. Strauss Associates, Inc.; President-Elect (for 1992-1993), **Charles A. Menzie**, who is currently supporting the U.S. Environmental Protection Agency Risk Forum on the development of Ecological Risk Assessment Guidelines; and Treasurer (for 1991-1993), **Yee Cho**, CDW Consultants, Inc.

Please contact the chapter through its current president: **Dr. David E. Burmaster**, Burmaster and Associates, P.O. Box 2667, Harvard Square Station, Cambridge, Massachusetts 02238.

Northern California Chapter

The Northern California Chapter's traditional Spring Meeting, co-sponsored this year with The Genetic and Environmental Toxicology Association of Northern California (GETA) and the Northern California Chapter of The Society of Toxicology, will be held on June 7 at the Holiday Inn, Fairfield, California. The day-long event

includes two symposia, platform and poster presentations, and a panel discussion. The topic of the morning symposium is "Molecular Biology of Neurodegenerative Diseases and Risk Assessment of Neurotoxins," with addresses by **Tilman Oltendorf**, Athena Neurosciences Inc.; **Peter S. Spencer**, Center for Research on Occupational and Environmental Toxicology, Oregon Health Sciences University; and **Thomas B. Starr**, ENVIRON Corporation. The afternoon symposium on "In Vitro Alternatives to Ocular Irritation Test" will have presentations by **Claude Anger**, Allergan Pharmaceuticals; **William McCormick**, Clorox Corporation; **Ken Hintze**, Proctor and Gamble; **Dan Bagley**, Colgate-Palmolive; and **Jack Griffith**, Proctor and Gamble.

In keeping with the tradition of GETA, awards of \$100 each will be given for the best platform or poster presentation in three categories: student, bachelor of science/master of science, and post-doctoral.

To inquire about the chapter, please contact the secretary: **Thomas E. McKone**, Lawrence Livermore National Laboratory, P.O. Box 5507, L-453, Livermore, California 94550-0617.

Greater Pittsburgh Chapter

In January the Greater Pittsburgh Chapter co-sponsored a well-attended

presentation on indoor air pollution by John Spengler of the Harvard School of Public Health. In May the chapter is sponsoring a symposium entitled "Risks from Exposure to Electric and Magnetic Fields (EMF), featuring Fred M. Dietrich of Electric Research and Management, Inc., Paul Heroux of McGill University, and M. Granger Morgan of Carnegie Mellon University. Co-sponsors include local chapters of the Air and Waste Management Association, Health Physics Society, and the Society of Toxicology.

The 1991 officers of Greater Pittsburgh Chapter are: President, **Julian B. Andelman**, Graduate School of Public Health (GSPH), University of Pittsburgh; President-Elect, **Jeanette Trauth**, GSPH, University of Pittsburgh; Secretary, **Jon F. Merz**, Department of Engineering & Public Policy, Carnegie Mellon University; Treasurer, **Harilel L. Patel**, Allegheny County Health Department, Bureau of Air Pollution Control. Councilors are **Barbara Henry**, PPG Industries; **J. David Pipozar**, Allegheny County Health Department, Director's Office; and **Daniel J. Strom**, GSPH, University of Pittsburgh.

East Tennessee Chapter

The East Tennessee Chapter sponsored a session titled "Environmental Protection: Facing the 90s" at the 18th Annual WATTEC Technical Conference in Knoxville, Tennessee, on February 20. Milton Russell of the University of Tennessee acted as session moderator. Lawrence M. Barnhouse, Oak Ridge National Laboratory, spoke on "Integrating Ecological Risks with Remedial Action Decisions" and E. William Colglazier, The University of Tennessee, spoke on "Future Costs of Hazardous Waste Remediation: Report on the Results of the UT Study."

The following chapter officers for 1991 have been elected: President, **John Auxier**, International Technology (IT) Corporation; President-Elect, **Jan Borkowski**, Hazardous Waste Remedial Action Program (HAZRAP), Martin Marietta Energy Systems, Inc.; Secretary, **Amy Wolfe**, Oak Ridge National Laboratory (ORNL); Treasurer, **Elizabeth Etnier**, ORNL. **Robin White** of Martin Marietta Energy Systems, Inc. and ORNL continues her term as chapter councilor. Future meetings and a fall membership drive are being planned by the officers.

For information about the chapter, please contact: **Dr. John Auxier**, IT Corporation, 312 Directors Drive, Knoxville, Tennessee 37923.

Columbia-Cascades Chapter

More Hall on the University of Washington (UW) campus was the location of the April and May meetings of the Columbia-Cascades Chapter. The meeting agenda included a seminar, co-sponsored by the chapter and the Department of Civil Engineering at UW, and a business meeting. The April seminar featured **Colin B. Brown** of the UW Department of Civil Engineering, who spoke on "The Risk of Failure in Bridges: Examples in the Puget Sound." [The Puget Sound region has been the scene of three infamous bridge failures beginning in 1940, an unusual frequency in one region.] **Ted Yellman**, a product safety specialist for the Boeing Company, spoke at the May seminar on "Event-Sequence Analysis," a recently developed method of task analysis which is an alternative to or can be used to supplement the Fault Tree, a methodology commonly chosen to do system/mission probabilistic-risk assessments. The Event-Sequence Analysis method was originated and developed by Yellman.

For more information on the chapter, please contact the president: **Dr. Richard Palmer**, Department of Civil Engineering, FX-10, University of Washington, Seattle, Washington 98195.

Ohio Chapter

Ronald J. Marnicio, president of the Ohio Chapter, reports that the chapter's March meeting, coordinated by **Bert Hakkinen** of the Proctor & Gamble Company (P&G), was attended by approximately 35 people. Following an afternoon meeting of chapter officers, a technical presentation

was given by **James Barnum** of P&G's Environmental Safety Department and a special dialogue was held with **Curtis Travis**, SRA president. The evening concluded with a buffet dinner and informal discussion.

Barnum addressed two major topics: (1) the use of "life cycle analysis" by P&G in the context of decisionmaking about consumer product manufacturing and packaging options, and (2) P&G's Experimental Stream Facility and environmental fate and effects research program. President Travis presented an update on the size and makeup of SRA and opened up the floor for discussion and comment on the directions in which SRA is moving, the format of the Annual Meeting, and aspects of *Risk Analysis* (the journal of SRA) and *RISK newsletter*. Risk communication was reported as one of the fastest growing segments of the Society, especially with regard to publications in the journal. Waste minimization and recycling, biomarkers, and chemical process safety were highlighted as new areas into which SRA may be moving in the near future. Forums to promote more mixing and interdisciplinary activities within SRA were explored, as were alternative formats for providing educational and technical exchange to a larger portion of the membership. More regional meetings and "road shows" were discussed.

The Ohio Chapter has drafted a proposal to SRA National to host a followup to RISKWARE '90, the chapter's conference and exhibition on risk-related computer software and databases, at the 1991 Annual Meeting in Baltimore. [The review

Chapter Contacts

Columbia-Cascades Chapter: Richard N. Palmer (president), 206-685-2658.

East Tennessee Chapter: John Auxier (president), 615-690-3211.

Greater Pittsburgh Chapter: Jon F. Merz (secretary), 412-268-5609.

Lone Star Chapter: Ben Thomas (president), 713-520-9900.

Metropolitan Chapter: Paul D. Moskowitz (president), 516-282-2017.

National Capital Area Chapter: Adam M. Finkel (secretary), 202-328-5110.

New England Chapter: David E. Burmaster (president), 617-491-2176.

Northern California Chapter: Thomas E. McKone (secretary), 415-422-7535.

Ohio Chapter: Ronald J. Marnicio (president), 614-761-2008.

Philadelphia Chapter: Branden B. Johnson (president), 609-633-2324.

Research Triangle Chapter: Deborah Amaral (president), 919-966-6691.

Rocky Mountain Chapter: Ralph Grover (president-elect), 303-450-0005.

Southern California Chapter: Michael Stamatelatos (president), 619-759-0348.

article on RISKWARE '90, coauthored by chapter members, is scheduled to be published in the June 1991 issue of *Risk Analysis*.] Other plans for the chapter include: preparing a budget; repaying one-half of the seed money which was provided by SRA to launch the chapter two years ago; producing a chapter directory; initiating an educational liaison group to support the region's community and academic programs on risk assessment and management; incorporating the chapter; and collaborating with other regional professional societies (such as the Ohio Valley Chapter of the Society of Toxicology).

The Ohio Chapter has scheduled a poster meeting in June. For more information, please contact: **Dr. Ronald J. Marcic**, Ebasco Environmental, 5000 Bradenton Avenue, Suite 200, Dublin, Ohio 43017-2546.

Philadelphia Chapter

The Philadelphia Chapter now has 44 members in good standing—triple the number for last year. **Branden Johnson**, chapter president, reports that the January meeting on Superfund risk assessments was a great success. At the April meeting, Johnson addressed the topic "Risk Communication: Is Agency Behavior or Technical Detail More Important in Public Risk Perception?" The last meeting before a summer break will be June 12 at the University of Pennsylvania Faculty Club. **Robert Hazen** of the Bureau of Risk Assessment, Division of Science and Research, New Jersey Department of Environmental Protection, will speak on "Federal Approaches to Ranking Hazardous Waste Sites." Also before the summer break, members of the chapter will be receiving ballots for the election of new officers.

To contact the chapter, please write: **Dr. Branden Johnson**, 1801 Buttonwood Street, Apartment 505, Philadelphia, Pennsylvania 19130.

Research Triangle Chapter

In addition to monthly meetings, the Research Triangle Chapter has been focusing on its annual fall workshop. The chapter newsletter *RISK NOTES*, edited by **Harvey Richmond** of the U.S. Environmental Protection Agency (U.S. EPA) reported that **Bill Mitchell** of ABB Environmental has volunteered to chair the Workshop Committee. The topic "Ecological Risk Analysis" has been selected for the September 15 workshop, which will focus on several high-risk ecological prob-

lem areas cited in the September 1990 U.S. EPA Science Advisory Board's report *Reducing Risk*. The areas include global climate change, stratospheric ozone depletion, habitat alteration and destruction, and species extinction and loss of biological diversity. A forum for presentation of current developments in quantitative risk analysis for these high risk ecological problem areas is the principal objective of the workshop. Anyone interested in helping to plan the workshop or with ideas for speakers (preferably in North Carolina) may call Mitchell [Phone 919-493-2471].

At a March meeting, the chapter heard **Terry Yosie**, Vice President for Health and Environmental Affairs, American Petroleum Institute, speak on "An Industrial Perspective on Risk Analysis: Past, Present, and Future." The April meeting, held jointly with the Research Triangle Park Chapter of the Air and Waste Management Association, consisted of a panel discussion on the topic "Siting the North Carolina Hazardous Waste Incinerator: Issues in Risk Communication." The panelists included **Alvis Turner**, North Carolina Hazardous Waste Management Commission and Department of Environmental Sciences and Engineering at the University of North Carolina, Chapel Hill; **Billie Elmore**, Waste Awareness and Reduction Network; and **Karen Blanchard**, Office of Air Quality Planning and Standards of the U.S. EPA. **Edith Sylla** of the College of Humanities and Social Sciences, North Carolina State University, was the moderator. The May meeting featured **Fred Hauchman**, Pollutant Assessment Branch of the OAQPS, U.S. EPA, and **Terrence Plerson**, Center for Environmental Analysis, Research Triangle Institute, who spoke on "Risk Assessment in Developing Countries."

At a June 6 meeting, chapter members will hear **Judith A. Graham**, Associate Director, USEPA Environmental Criteria and Assessment Office, give a report on NAPAP (the National Acid Precipitation Assessment Project).

Please address questions concerning the chapter to its president: **Deborah Amaral**, School of Public Health, University of North Carolina, 311 Pittsboro Street, CB#7410, Chapel Hill, North Carolina 27599-7410.

Rocky Mountain Chapter

Tom Laetz, president of Rocky Mountain Chapter, reports that at the chapter's February meeting representatives from three organizations collaborated to

present a systems approach to risk analysis: **Richard Newton**, Systems Science Institute; **Francis Splane**, Systems Science Enterprises; and **Arthur Bowman**, Colorado Institute for Risk Analysis. The program developed a case study to illustrate how this approach could be used to balance project risks and values and to improve decision making. In April, **Ralph Grover** of WASTREN, Inc. and **Tony Cox, Jr.** of Cox Associates addressed qualitative and quantitative aspects of engineering risk analysis. Included in their presentation was a British Broadcasting Corporation film that assessed the dramatic destruction of the North Sea Piper Alpha platform in 1988. The chapter will meet again in June and September.

By encouraging members to identify potential new members, the chapter seems to be growing slowly but consistently, now having nearly 60 members representing 28 organizations. In preparation for September elections, a committee has been formed to identify individuals for chapter offices. Due to the present need to increase the number of chapter councilors, the steering committee recently appointed **Yvette Lowney**, Gradient Corporation, to serve as councilor in charge of soliciting new members to the chapter.

Tom Laetz will be departing from Colorado in July [see *Comings and Goings* in this issue]; therefore, President-Elect **Ralph Grover** will assume the duties of chapter president. Future contacts with the Rocky Mountain Chapter should be directed to: **Ralph Grover**, Manager, Commercial Programs, WASTREN, Inc., United Bank Plaza One, 12000 North Pecos, Suite 250, Westminster, Colorado 80234.

Southern California Chapter

The Southern California Chapter is basking in the success of their recent PSAM Conference, now referred to as PSAM I as plans begin for PSAM II (see lead story on page 1).

The chapter is also preparing for its annual election in September, at which time the president's gavel will be transferred from **Michael Stamatelatos** to **Bob Mulvihill**. Nominees for the elections are **Larry Froebe**, president-elect; **Doug Orvis**, secretary; **Andy Dykes**, treasurer; and **Natasha Pantich**, councilor.

Metropolitan Chapter

Paul D. Moskowitz, president of Metropolitan Chapter, has contacted the

chapter members with a letter proposing several new ideas which might help in planning activities for the chapter, whose members live and work over a wide geographic region. Since luncheon and evening meetings have not been well attended, a one-day seminar on a topic of broad interest, such as toxic gas hazards and management options, has been suggested for a meeting in the fall. To encourage dialogue within the chapter, Moskowitz is planning to publish a quarterly newsletter which will provide information on meet-

ings, industry/personnel news, employment opportunities, etc., and hopes to have the first issue out by July. Finally, a directory containing information on all of the chapter members and their interests will be prepared. Besides being of general interest to members, the directory will be helpful to the chapter president, who frequently gets calls requesting the names of individuals in the Metropolitan area with particular skills and interests.

The chapter officers are: President, Paul D. Moskowitz, Brookhaven National

Laboratory; President-Elect, Mariam de Salequi, Independent Consultant in Environmental, Occupational, and Toxicological Risk Assessment; Secretary, John M. Cozzolino, Department of Management Science, Pace University; and Treasurer, Samuel C. Morris, Brookhaven National Laboratory. The chapter councilors are Elayn K. Bernay, Pace University, Lubin Schools of Business; Richard Califano, Malcolm Pirnie, Inc.; Jill F. Greenberg, McLaren and Hart; and Barry Micarek, Mobil Corporation.

Calendar of Events

June 24-25. REGULATING RISK—THE SCIENCE AND POLITICS OF RISK, Sheraton Washington Hotel, Washington, DC. Sponsored by The National Safety Council, in cooperation with The ILSI Risk Science Institute, the conference will be a "forum for raising the right questions, addressing vital issues, and exchanging ideas among experts" in the areas of health, safety, and the environment. SRA members participating in the program are Peter M. Sandman, Carol J. Henry, Joseph V. Rodricks, Roger O. McClellan, John F. Ahearne, Vincent T. Covello, Lester B. Lave, Paul Slovic, Michael Taylor, Fred D. Hoerger, and Richard C. Schwing. For registration information, contact Sophie LoBue, National Safety Council, 444 N. Michigan Avenue, Chicago, Illinois 60611-3991 (Phone 312-527-4800, extensions 8132 or 8006, from 8:30 am to 4:45 pm, Central Time; FAX 312-527-9381). For hotel reservations, call the hotel directly and identify yourself as attending the National Safety Council "Regulating Risk" Conference (Phone 202-328-2000). After the May 22 reservation cut-off date, requests will be accepted if space is available.

June 29. FOURTH ANNUAL MEETING OF SRA-JAPAN, Yamagami Kaikan, University of Tokyo (see article on page 9 of January 1991 RISK newsletter).

July 30-August 2. CLEAN AIR ACT: EMPHASIS ON THE AIR TOXICS PROVISION, Harvard School of Public Health, Boston, Massachusetts. Course fee: \$900. For more information on this course and many others from July through December, contact: Mary F. McPeak, Office of Continuing Education, Harvard School of Public Health, 677 Huntington Avenue, Boston, Massachusetts 02115 (Phone 617-432-3515; FAX 617-432-1969).

August-September. SAFETY ANALYSIS AND RISK ASSESSMENT FOR CHEMICAL PROCESS INDUSTRY PRACTITIONERS. Hyatt Regency, Pittsburgh, Pennsylvania. Organized by the American Institute of Chemical Engineers (AIChE) in association with the Center for Chemical Process Safety of AIChE and JBF Associates, Inc., Knoxville, Tennessee. August 5-9, Course I: *Hazards Evaluation: Qualitative Methods*; August 26-30, Course II: *Hazards Evaluation: Quantitative Methods*; September 9-13, Course III: *Consequence Assessment and Mitigation*. For more information, contact the AIChE Continuing Education Registrar (Phone 212-705-7526).

September 4-6. RISK ASSESSMENT IN OCCUPATIONAL AND ENVIRONMENTAL HEALTH, Harvard School of Public Health. Participants will learn the epidemiology of environmental and occupational hazards, the development of data from toxicological studies, the use of animal and other data as predic-

tors of human risk, risk analysis within the context of the law, and calculation of risk when data are uncertain. Fee: \$750. For whom to contact, see calendar entry above (July 30).

September 23-26. HYDROCARBON CONTAMINATED SOILS: ANALYSIS, FATE, ENVIRONMENTAL AND PUBLIC HEALTH EFFECTS, AND REMEDIATION, School of Public Health, University of Massachusetts at Amherst. (See article on page 17.)

November-December. SAFETY ANALYSIS AND RISK ASSESSMENT FOR CHEMICAL PROCESS INDUSTRY PRACTITIONERS. Hyatt Regency, Los Angeles, California. November 11-15, Course I: *Hazards Evaluation: Qualitative Methods*; December 2-6, Course II: *Hazards Evaluation: Quantitative Methods*. [See above for more information.]

November 3-8. RISK BASED DECISION MAKING IN WATER RESOURCES V. Sheraton Santa Barbara Hotel & Spa, Santa Barbara, California. [See article on page 16 of this newsletter.]

November 13-15. HAZTECH INTERNATIONAL 91, Puerto Rico. Topic: "Hazardous Waste." For more information, contact Neal Schwartz, Executive Director, Institute for International Research - Bellevue, 13555 Bel-Red Road, Bellevue, Washington 98009 (Phone 1-800-468-7644 [206-746-4173 in Washington or internationally]; FAX 206-643-2146).

December 8-11. ANNUAL MEETING OF THE SOCIETY FOR RISK ANALYSIS, Hyatt Regency Hotel, Baltimore, Maryland. Theme: Risk Analysis in Support of Public and Private Sector Decision Making. [See article in this issue.] Contact SRA Secretariat for further information (address on last page of newsletter).

December 16-18. THIRD CONFERENCE OF THE EUROPEAN SECTION OF THE SOCIETY FOR RISK ANALYSIS, Paris, France. (See Call for Papers on page 8 of this newsletter.)

March 2-6, 1992. TRANS COMM '92, Philippine International Convention Center, Manila, Philippines. An international congress/exhibition on environmental and health risks associated with the introduction of transportation and communications systems in developing countries. Coordinated by Technology, Risk, and Development Foundation, Inc. Abstracts due on June 30, 1991. For more information, contact the SRA, Philippines president: Dr. Corazon P.B. Claudio, Program Chair, c/o Technology, Risk and Development Foundation, Inc., P.O. Box 12228, Ortigas Center Post Office 1600, Emerald Avenue, Pasig, Metro Manila, Philippines (Phone 632-631-3138; FAX 632-631-5714).

You *DID* Give Us Feedback!

Our request (January 1991) for feedback on what the SRA membership likes, dislikes, or wants to see in RISK newsletter prompted a number of responses. As noted below, those who wrote mostly approve of the newsletter as currently structured, but some would like other types of articles to be added. Many thanks for your letters. Now we don't feel that we are working in a vacuum.—LSA

General comments and suggestions:

"The newsletter is O.K. as such. It's extremely informative, and it should not be shortened."—*R.H., New Jersey*

"Perhaps because of its length or its content, the January 91 issue was carefully read cover to cover. This interest is possibly because I have been unable since a paper presented in 1985 to justify the expense of attending annual meetings. Your meetings also often conflicted with the fall ORSA meeting on decision analysis, an organization which encourages volume attendance by lower fees." "The talks summarized on pages 8, 9, and 10 [Rasmussen, Mossman, and Russell] are...quite thought provoking, but some comments might be made in a letters to the editor section of your newsletter."—*E.A., Arizona*

"I find the newsletter one of the most informative pieces of literature on the subject of risk and routinely keep it as an active reference."—*M.M., Ontario, Canada*

"I am encouraged by the quality of the January 1991 newsletter. In my opinion, its length and content are appropriate." "I believe a substantial newsletter is particularly important to SRA because it must meet the needs of a diverse group of professional interests. In so doing, it helps coalesce these members and gives purpose to the Society."—*T.L., Colorado*

"I guess you don't hear from us much down in this part of the world, but I must say that I do enjoy receiving and reading the newsletter." "Having been a part of a few smaller organizations and clubs, I know just how costs can be a bit of a burden. Might I therefore boldly suggest that you look into allowing advertising, relative to the objectives of the organization, within your newsletter. Maybe this would be some means of allowing you to expand the newsletter as far as you wanted without increasing the costs to SRA."—*B.S., Invercargill, New Zealand*

"I am one of the approximately 1600 you talked about...in the January 1991 RISK newsletter. I always read the newsletter and store the journal [*Risk Analysis*]. The newsletter is the most valuable part of my membership in the Society." "I vote for timely publication of as much as you deem important. I would not mind seeing ads included in the newsletter if that would help the finances."—*N.C., New York*

"I caution against too much use of corporate sponsors. I'd hate to see this newsletter look like *Nuclear News* (where you can't find the articles for the ads)." "It might be interesting to pose a problem and ask the readers how they'd solve it, just so that we can see the various techniques used by others in the field."—*R.M., Washington*

On SRA development:

"I am writing on the origins and development of the field of risk analysis and the Society. The newsletter was invaluable—a veritable mine of information on society membership, composition, officers, interests, and internal debates. It appears that this is the only place where much of this history is written down. I urge the Society to maintain the present scope and content of the newsletter, not only for historical reasons but also because the newsletter is the only source of such information for many members...."—*D.G., Washington, D.C.*

"Of great interest were pages...on the special interest groups. OSHA 119 and API 750 [noted in the report on the engineers' special

interest group organizational meeting, page 12 of the January 1991 issue]...are examples of new items in special fields which must be brought to attention of all disciplines. [In the same report]... I believe it is wrong to limit infra-structure to dams and bridges as cultural bias may also be a risk."—*E.A., Arizona*

On chapters and sections:

"I don't much care for...the international news. I really don't care about the chapters."—*R.M., Washington*

"The newsletter...provides critical insight into the activities of other chapters and information that can be shared with local chapter members who presently are not members of the national society."—*T.L., Colorado*

"Information on Society debates and chapter direction helps me keep my focus."—*N.C., New York*

On people:

"I enjoy the results of the elections, the biographies, and the committee organization.... I don't much care for the who-got-what award...news." "I like the 'Comings and Goings.'"—*R.M., Washington*

"Also appreciated and not applicable for the Society's journal were the biographies and addresses of officers and councilors...."—*E.A., Arizona*

"Reports of risk-related activities, with or without personal biographical information, are also important."—*N.C., New York*

On risk-related meetings:

"I have been a regular attendee at the annual meetings, and yet I find it impossible to keep up with all the internal debates. After all, one can only be in one place at one time! The newsletter is great for both documenting what you thought went on and filling in gaps."—*D.G., Washington, D.C.*

"I really enjoy the reports from the various business and topical meetings, especially the synopses of the important talks [and] I like...the 'Calendar of Events.'... I think it would be helpful if you published the schedule of papers for the Annual Meeting and important topical meetings to better inform us if it's worth our while attending."—*R.M., Washington*

"...as part of the estimated 10 percent population that could not attend the New Orleans conference because of last-minute government travel restrictions, I certainly appreciated reading about the events that occurred."—*T.L., Colorado*

"To me it is quite important that we receive as much information as possible because, as you say, many of us don't attend SRA Conferences because of distance, costs, work commitments, etc."—*B.S., Invercargill, New Zealand*

"Summary reports of SRA meeting content also is/would be very helpful."—*N.C., New York*

"The Society of Toxicology and American Institute of Chemical Engineers meetings on page 17 could be stressed as opportunities for interaction" (last paragraph of the President's Goals, page 7).—*E.A., Arizona*

On reports on risk issues:

"I think a monthly column on what's going on in Washington, NRC, DOE, etc., with respect to risk pronouncements, methodolo-

NCRP Announces New Initiatives

At its annual meeting on April 3-4, 1991, the National Council on Radiation Protection and Measurements (NCRP) released its annual report for 1990, in which the availability of the following new publications was announced: *Influence of Radiation Quality (LET) on Relative Biological Effectiveness* (NCRP Report No. 104); *Limit for Exposure to "Hot Particles" on the Skin*, (No. 106); *Implementation of the Principle of As Low As Reasonably Achievable (ALARA) for Medical and Dental Personnel* (No. 107); *Radiation Protection Today—The NCRP at Sixty Years* (NCRP Proceedings No. 11); and *Radiation Protection and the Internal Emitter Saga* (Taylor Lecture No. 14 by J. Newell Stannard).

Other reports nearing completion discuss the conceptual basis for calculations of absorbed dose distributions, strontium radiobiology, effects of radiation on aquatic organisms, and radon exposure.

The annual report also announced new scientific initiatives undertaken during 1990 to develop recommendations on the following eight topics: collective dose; uncertainties in the application of screening models; risk of lung cancer from radon; radiation protection in space activities; radionuclide contamination; hot particles in the eyes, ears, and lungs; radioactive waste; and effects of radiation resulting from misadministration in nuclear medicine.

Eight additional projects were authorized in the event that funding becomes available: revised guidance on radiation protection in mammography; revised guidance on precautions in the management of patients who receive therapeutic amounts of radionuclides; the concept of ALARA (As Low As Reasonably Achievable) and its implementation; radiation exposures resulting from air travel; identification of radiobiological research needed to support radiation protection in space activities; fluence as the basis for radiation protection for astronauts; plutonium-238; and design of facilities and equipment for handling unsealed radioactive sources.

For additional information on NCRP activities, contact W. Roger Ney, Executive Director, Phone 301-657-2652 (301-907-8768).

"Right-to-Know" Not Fully Used

After an in-depth study of four communities with different types and levels of industrial activity (Springfield, MA; Baytown, TX; Texas City, TX; and Newark, NJ), Tufts University's Center for Environmental Management has concluded that the right-to-know aspects of the 1986 federal Emergency Planning and Community Right-to-Know Act (also known as SARA Title III) may be "taking a back seat to emergency planning activities." Although the local emergency planning committees (LEPCs) mandated by the Act can obtain specific information about toxic chemicals within their borders, they are not using such information to prevent pollution or reduce risks.

"Such information could be used to persuade local governments and industry to go beyond emergency planning and get involved in accident prevention, risk reduction and pollution prevention activities," says Kathleen Rest, the project manager. The researchers identified specific problems and made recommendations on how to improve the implementation of the law's community right-to-know provisions:

—The U.S. Environmental Protection Agency could organize a task force to discuss realistic roles for the LEPCs and provide guidelines for their involvement in prevention activities.

—LEPCs could be encouraged to be inclusive of all community interests.

—LEPCs could share data on accidental releases, chemical inventories, and emissions with public health officials.

—The media could play a significant role in making risk information accessible to the public.

—LEPCs should enhance public involvement by working with grassroots, citizen and environmental groups who have been successful in motivating citizens to take action about toxic hazards issues.

—LEPCs should become forums for constructive interaction among citizens, local government, industry, and the public health community.

Sheldon Krinsky, principal investigator and professor of urban and environmental policy at Tufts, says that if Congress would provide funds to support state and LEPC activities, and if states would enact statutes to fund Title III activities, then the committees would have some incentive to extend their purview and become more effective advocates for prevention activities.

gies, new regulations which use (or require) risk considerations, etc., would help keep us current."—*R.M., Washington*

"As I work in the telecommunications field, much of the material doesn't pertain directly to us; but there are articles that do have a bearing on some of our peripheral areas of concern. To get these bits of information, we need all the information that you...can give us."—*B.S., Invercargill, New Zealand*

"I am busy/frantic, like many today, and having a timely presentation of the broad issues in safety assessment is critical to my professional performance as a pharmaceutical R & D consultant. As my consultancy has grown, my clients, particularly those from overseas, have asked me to help with non-FDA regulatory matters, especially those relating to environmental safety. The *RISK newsletter* is

my only source of information on CURRENT, BROAD safety issues. Summary reports on risk issues are critical."—*N.C., New York*

Note: Following the publication of the January issue of *Risk newsletter*, several requests were made for copies of the 1990 SRA Annual Meeting plenary and luncheon addresses and the Risk Communication Round Table reports.

On job and grant opportunities:

"I think the 'Positions Available'...[section is] good."—*R.M., Washington*

"Also appreciated...[was] Bob Bordley's presentation on NSF [National Science Foundation]."—*E.A., Arizona*

Risk-Related Happenings

SRA to Co-Sponsor 1992 ANS Risk Management Meeting

"Risk Management—Expanding Horizons" will be addressed in an embedded topical meeting sponsored by the American Nuclear Society's (ANS) Power Division at the ANS Spring Meeting to be held June 8-10, 1992, in Boston, Massachusetts. SRA is one of several co-sponsors of the topical.

The two objectives of the meeting are: (1) to provide a forum for discussing issues and sharing ideas regarding risk management in potentially hazardous industries and (2) to address identification, evaluation, and reduction of risks of all types from multi-disciplinary, multi-industry, and geographically diverse perspectives. Sessions include but will not be limited to: organization culture, management and feedback systems, human performance, quantitative assessment application, and systematic risk management. The Technical Program Committee will invite all speakers.

Summaries for *ANSTransactions* are due January 10, 1992, with full papers on diskette due at the meeting for book publication. Topic proposals of 100-200 words should be sent as soon as possible, but no later than August 15, 1991, to: Dr. Ronald A. Knief, ERCE, P.O. Box 7010, Mechanicsburg, PA 17055-7010 [Phone 717-691-1142].

SRE Symposium in Finland

The Scandinavian Chapter of The Society of Reliability Engineers is presenting SRE Symposium '91, the twelfth in a series of annual symposia on reliability and safety, on October 1-3, 1991, at Tampere Hall, Tampere, Finland. This year's theme is "Reliability and Safety of Processes and Manufacturing Systems," with sessions on safety and reliability management, maintenance, computer-aided tools, software reliability, safety of flexible manufacturing systems, plant safety, environmental safety, and dependability. The symposium is also being sponsored by the Safety Engineering Laboratory of VTT (Technical Research Center of Finland) and the Center for Continuing Education of Tampere University of Technology. For further technical information and second circular, contact one of the symposium secretaries: Yngve Malmen, VTT, Safety Engineering Laboratory, P.O. Box 656, SF-33101 Tampere, Finland [Phone 358-31-163276; FAX 358-31-163495] or Raill Slekkinen, Tampere University of Technology, P.O. Box 527, SF-33101 Tampere, Finland [Phone 358-31-162441; FAX 358-31-162164].

Risks of Transporting Dangerous Goods

An International Consensus Conference on the Risks of Transporting Dangerous Goods will be held on April 6-8, 1992, at the Hotel Admiral at Harbourfront, Toronto, Canada. Sponsored by the Institute for Risk Research (IRR) at the University of Waterloo, the Transportation of Dangerous Goods Directorate of Transport Canada, and The Canadian Society for Civil Engineering, "the basic objective of this conference is to pool the world experience in estimating, validating, and communicating risk and to produce an authoritative and definitive document in a form suitable for explaining the sometimes confusing and complex material on societal risk and the transportation of

dangerous goods." Topics include the risk estimation process, risk communication for the transport of dangerous goods, standards for data gathering and interpretation, and risk criteria. [The call for papers deadline was in April.] For further information, contact either of the conference program chairs: Marjorie Matthews, Transport Canada [Phone 613-990-1139] or Frank Saccomanno, IRR [Phone 519-885-1211 extension 3355].

Risk-Based Decision Making in Water Resources

The Engineering Foundation announces its fifth conference on "Risk Based Decision Making in Water Resources V" to be held November 3-8 in Santa Barbara, CA. The conference chair is Eugene Z. Stakhiv, U.S. Army Corps of Engineers, Institute of Water Resources; co-chair is SRA's Conferences and Workshops Committee chair, Yacov Y. Haimes, University of Virginia. The conference will concentrate on those issues of public decision making in which risk analysis plays a prominent role and will: (1) evaluate current risk assessment issues confronting water resources planners and areas of uncertainty; (2) identify the requirements and procedures currently promoted by engineering professions which are in use by federal and state water resources agencies; (3) review and evaluate decision and analysis models/methods which can explicitly incorporate risk preferences; and (4) develop information exchange mechanisms. For additional information, contact: Charles V. Freiman, Engineering Foundation, 345 East 47th Street, New York, New York 10017 [Phone 212-705-7835; FAX 212-715-7441].

EPRI to Host Air Toxics Workshop

The Electric Power Research Institute, Inc. (EPRI) is organizing a workshop for utility personnel, "Air Toxics: Assessing and Managing Risks," to be held October 1-3, 1991, at Duquesne Light Company in Pittsburgh, Pennsylvania. It will provide the hands-on training needed to help utilities formulate and evaluate alternative strategies for responding to evolving toxics issues. EPRI's Air Toxics Risk Analysis Framework will provide a decision-oriented structure for analyzing a broad range of operational, regulatory, and control alternatives to help managers integrate all of the pieces of the air toxics problem and understand the implications of current and future management decisions on air toxics emissions and risks. The framework consists of three tools: Air Emissions Risk Assessment Model (AERAM), a methodology for assessing potential cancer risk from inhalation of hazardous air pollutants emitted from power plants; AirTox, a framework for structuring a comprehensive air toxics analysis and examining the impacts of a range of regulatory and/or control alternatives; and RiskPISCES, a risk assessment model for estimating cancer and non-cancer health risks. For further information, contact Electric Power Research Institute, Attn: Leonard Levin, P.O. Box 10412, Palo Alto, California 94303-9743.

EPRI to Host Air Pollutants Conference

The Electric Power Research Institute, Inc. (EPRI) will host an international conference, "Managing Hazardous Air Pollutants: State of the Art," on November 4-6, 1991, at The

Capital Hilton, Washington, DC, with the cooperation of organizations from the United Kingdom, France, Canada, and the United States. In light of the increased worldwide awareness towards health and environmental risks posed by potentially hazardous airborne pollutants, particularly those from power plant emissions, the conference objective is to stimulate international technical exchange among representatives of electric utilities, industry, government agencies, equipment suppliers, consulting firms, and research and academic institutions. This conference will launch an ongoing international forum for dialogue and information exchange, presenting topics such as legislation/regulatory trends; emission sources, measurements, and quantities; health and environmental information; models for risk assessment, risk management, and design; control strategies and applicable technologies; and emerging information, technologies, and tools. Inquiries concerning attendance or exhibitions at the conference [call for papers deadline was May 15] should be directed to Electric Power Research Institute, Attn: Lori Adams, Conference Coordinator, P.O. Box 10412, Palo Alto, California 94303-9743 [Phone 405-855-8763].

Call for Papers: Health Effects of Gasoline

An international symposium on "The Health Effects of Gasoline" sponsored by the American Petroleum Institute and 11 other organizations will be held November 5-8, 1991, at the Doral Resort and Country Club in Miami, Florida. The symposium will address human health effects, including results of epidemiology and animal studies, mechanistic studies, and risk characterization with reference to exposure to unburned motor gasoline. Also considered will be health effects of methyl tertiary butyl ether, ethyl tertiary butyl ether, methanol, ethanol, benzene, and butadiene as these substances may present a human exposure potential from unburned gasoline or exhaust emissions. Other exhaust emissions, other gasoline additives, and gasoline produced from coal and shale oil will not be included. Papers for oral presentation will be by specific invitation. Proceedings will appear in a peer-reviewed publication.

Abstracts (300 words) for poster presentations should be submitted by June 30, 1991 and should include the name, degree, title, affiliation, and complete address and telephone number of each author. Mail to: David B. Disbennett; American Petroleum Institute; 1220 L Street, NW; Washington, DC 20005 [Phone 202-682-8333; FAX 202-682-8270]. For information on registration and hotel accommodation, contact: Madeleine D.

Sellouk, American Petroleum Institute (see API address and FAX number) [Phone 202-682-8332].

Hydrocarbon Contaminated Soils

The University of Massachusetts at Amherst will hold its sixth national conference on "Hydrocarbon Contaminated Soils: Analysis, Fate, Environmental & Public Health Effects, and Remediation," September 23-26, 1991. The conference will focus on national and international approaches to cleanup; field screening and analytical methodologies; remediation; risk assessment and management; regulatory policy; environmental fate/modeling; cleanup standards; real estate, banking, and insurance issues; petroleum product identification; and legal considerations.

For general information, contact the conference director, Dr. Paul T. Kostecki, Division of Public Health, University of Massachusetts, Amherst, Massachusetts 01003, or call the conference coordinator, Linda S. Rosen [Phone 413-545-2934]. For information about exhibit booths, contact Charles Bell (same address as above) [Phone 413-545-4269]. *Registration material available after July 1, 1991.*

WPI Conference on Firesafety Innovations

At the Conference on Firesafety Design in the 21st Century, held at Worcester Polytechnic Institute May 3-10, it was stated that in the United States fire is a \$128 billion modern-day problem being solved with 19th century ideologies. The goal of this conference was to begin a national dialogue aimed at expanding the day-to-day use of innovative firesafety design practices, with the assistance of attendees from foreign countries. Conferees argued that the underlying philosophy of U.S. building regulation and firesafety design practices should be updated. One proposal was to establish a U.S. version of the highly successful Warren Centre for Advanced Engineering, a university/industry/government collaboration effort aimed at dramatically changing fundamental approaches to firesafety design and regulation in Australia. Examples of cost-effective concepts were given by speakers from the United Kingdom, Sweden, and Australia. Sweden reported a 65% savings in construction costs for structural fire protection systems, using science-based design techniques. In addition to WPI, the conference was sponsored by the Society of Fire Protection Engineers and received partial support from the National Science Foundation.

NRC: Household Radon Risks May Be Overestimated

The risk models used by the National Research Council's Committee on the Biological Effects of Ionizing Radiation in its 1988 BEIR IV report may overestimate the actual risk of developing lung cancer from exposure to radon in households by as much as 20% to 30%, according to a new NRC study by a seven-member committee of experts chaired by Jonathan M. Samet, Professor of Medicine, University of New Mexico School of Medicine.

To date, estimates of household radon exposures have been based on models derived from the exposure of underground miners. The NRC committee has now concluded that a given level of radon exposure causes a somewhat greater dose to the lung tissues of a miner than it does to a person in a domestic environment. The higher breathing rate of miners due to exertion increases the amount of air breathed in and, thus, the amount of radon prog-

eny inhaled. On the other hand, the smaller average size of household dust particles, to which the progeny become attached, increases the likelihood that they will be deposited in the lung, but not to the extent that it outweighs the impact of rapid breathing.

The committee's report, *Comparative Dosimetry of Radon in Mines and Homes*, is available from the National Academy Press (Phone 800-624-6242).

Positions Available

Risk Evaluation Professionals

At Geraghty & Miller, we have one priority: to provide superior quality environmental services to industry and government, ensuring a cleaner and safer environment today and for generations to come. To help fulfill our goals, we are seeking a risk assessment project manager and an entry-level scientist to join our Risk Evaluation Group, located in Raleigh, North Carolina and the Midwest, which provides a wide range of risk-related services including risk assessment, NPDES support, risk communication, and in-depth toxicological evaluations.

Working with industrial clients, regulatory agencies and other divisions of Geraghty & Miller, the risk assessment project manager will manage and perform site-specific risk assessments for contaminated areas as well as coordinate other scientists contributing to the project. An M.S. or Ph.D. and extensive experience in performing site-specific risk assessment under Superfund, RCRA, UST or state regulations are essential.

The entry-level scientist will have a unique opportunity to contribute to human health and environmental risk assessments for contaminated sites while gaining valuable hands-on experience and professional growth. A B.S. or M.S. in a related discipline such as public health, engineering, chemistry, or environmental and life sciences is essential. The applicant must be a detail-oriented individual possessing superior written communications skills, solid math competence and a familiarity with computers.

In addition to excellent career growth potential with a progressive organization, successful applicants will receive an outstanding company-paid benefits package including profit sharing and 401K plans. For immediate consideration, please send your resume, indicating salary history, in confidence to:

Jenifer S. Heath, Ph.D.
Geraghty & Miller, Inc.
2840 Plaza Place, Suite 350
Raleigh, North Carolina 27312
[Equal Opportunity Employer]

Risk and Reliability: Lead Engineer and Project Managers

Det norske Veritas is a leading classification company with worldwide operations providing classification and certification of ships and offshore platforms. Det norske Veritas-Houston is expanding its activities which provide risk and reliability analysis to the process, offshore, and transportation industries. There are openings for a lead engineer and project managers in the Houston District.

The successful applicant for lead engineer will be responsible for continued development of our group for risk and reliability services in Houston, with responsibilities in marketing, bid preparation, and project definition. The person will also be project manager for our largest projects. This position, which offers considerable growth potential, requires an M.S. degree in engineering/mathematics and 5+ years of directly applicable experience.

The successful applicants for project managers will be responsible for risk and/or reliability analysis projects for the process, offshore, and transportation industries. The work will

also include participation in marketing and bidding. An M.S. degree in engineering/mathematics is required, though applicants with a B.S. degree will also be considered in cases with good job related experience. At least 2+ years of directly applicable experience are required.

Competitive remuneration packages, including medical and pension benefits, will be offered to the successful candidates. The salary will be commensurate with qualifications. Reply, including a resume and salary history, should be sent to:

Det norske Veritas Classification
The Personnel Manager
1325 South Dairy Ashford, Suite 100
Houston, Texas 77077-2399
[Equal Opportunity Employer]

Risk Assessment Professionals

CH2M Hill, a leading environmental consulting firm, is currently seeking risk assessment professionals for technical and project management roles in interdisciplinary projects requiring quantitative human health risk assessments. Particular projects are in the public and private sectors, driven by regulatory requirements of CERCLA, RCRA, CAA, CWA, and state environmental programs. Openings are in Los Angeles and San Francisco in California; Oak Ridge, Tennessee; Denver, Colorado; and Reston, Virginia.

Position requirements depend on specific locations but generally include an M.S. (or Ph.D.) in toxicology, public health, environmental chemistry, environmental sciences, or related fields and at least two years experience in site-specific risk assessment. Experience in regulatory programs and interdisciplinary teams is desirable. Send a resume, including salary history and requirements, in confidence to:

Manager of Recruiting
RA22;591
CH2M Hill
P.O. Box 221111
Denver, Colorado 80222-9998
[An Equal Opportunity Employer]

Environmental Toxicology and Environmental Health

Harding Lawson Associates (HLA) is an expanding, dynamic firm providing environmental services related to hazardous and solid waste disposal facilities, investigation and remediation of contaminated waste sites. As a result of our growth, we offer exceptional opportunities for qualified persons at our Novato, California (Bay Area) location.

HLA has immediate openings for senior, junior, and entry level persons with capabilities in public health and environmental risk assessments. The positions will involve evaluation of public health and environmental impacts from hazardous waste sites using U.S. EPA and California Department of Health Services, methodologies, including toxicological evaluation of chemicals, modeling of chemical transport, exposure assessment, development of cleanup criteria for waste sites, client and regulatory agency contact, and preparation of reports. Excellent written and oral skills necessary; special consideration will be

given to persons with computer skills, advanced degrees in Environmental Toxicology or related fields. Please send a resume to:

Harding Lawson Associates
02GH Staffing
P.O. Box 6107
Novato, California 94945
[Equal Opportunity Employer]

Risk Manager

Humana Hospital-Michael Reese (HH-MR) seeks an individual to coordinate risk management activities. Responsibilities include establishing and implementing risk prevention methods, analysis, and purchasing as well as coordinating all claim management methods for insurance carried by the hospital.

To qualify, you must have six or more years of advanced experience encompassing various areas of management administration and the development/management of risk programs. In addition to management certification, you must have a Bachelor's degree in business or science with upper-level training in risk management. HH-MR, located in a conveniently accessible area minutes from downtown Chicago, offers a competitive salary and attractive benefits program. For confidential consideration, send resumes to:

Human Resources-SLM
Humana Hospital-Michael Reese
Lake Shore Drive at 31st Street
Chicago, Illinois 60616
[An Equal Opportunity Employer]

Risk Assessment Analysts

The Bethesda, Maryland office of DAMES & MOORE, an environmental consulting and engineering firm, is seeking experienced risk assessors for CERCLA and RCRA sites. These opportunities offer involvement in a variety of projects which include RI/FS and RFI work for government and private clients, data management and interpretations, and scoping of field sampling programs to fulfill regulatory and technical requirements.

The ideal candidates will possess a strong background in sciences such as hydrogeology, chemistry, toxicology, or related areas and prior experience with risk assessment in accordance with RAGS. Excellent written and oral communications skills and pc-level data management abilities are also a must.

DAMES & MOORE offers professional challenges and growth, an excellent work environment, and flexible benefits program (including 401K). Please send your resume to:

Sandra Smith, Department SRA
DAMES & MOORE
7101 Wisconsin Avenue, Suite 700
Bethesda, Maryland 20814-4870
[Equal Opportunity Employer]

Environmental Professionals Risk Assessment Specialists

Science Applications International Corporation (SAIC), an employee-owned firm and national leader in solving complex environmental problems for government and industry, is expanding our risk assessment and risk management services in waste site evaluation.

Openings exist at several levels of experience and expertise requiring B.S./M.S. or Ph.D. in environmental or health sciences (that is, toxicology or related natural science, engineering, or chemistry). Successful candidates will have two or more years experience in conducting risk assessments under CERCLA RI/FS and RCRA RFI/CMS programs, a sound understanding of U.S. EPA risk assessment guidelines, and PC skills, including LOTUS 1-2-3 and statistics and graphics packages.

SAIC offers excellent compensation and benefits programs, and career growth. Send your resume and salary history in confidence to:

Larry Brown
1710 Goodridge Drive, MS2-4-3
McLean, Virginia 22102
[An Equal Opportunity Employer]

Risk Assessment Professionals

Clement International Corporation, a nationwide firm specializing in environmental risk assessment has immediate openings for experienced risk assessors in its San Francisco office. Please send resumes to:

Clement International Corporation
ATTN: V. Parness
160 Spear Street, STE 1380
San Francisco, California 94105

Risk Assessment Professionals

PRC Environmental Management, Inc., a national environmental consulting firm, has openings for experienced risk assessment professionals in its San Francisco office. Most projects entail evaluations of hazardous waste sites. Candidates should have an advanced degree in an appropriate discipline with 2 to 10+ years experience in conducting and coordinating human health risk assessments, ecological assessments, or both. Project management experience is desired. Strong communication and technical report writing skills are required. Qualified candidates please send resume to:

K. Gilmore
PRC Environmental Management, Inc.
Dept. RAF
120 Howard St., #700
San Francisco, CA 94105

Environmental Scientists/Risk Assessment Specialists

ICF Incorporated, one of the nation's leading environmental consulting firms, has immediate openings for human health risk assessment specialists to assist in projects for EPA, DOE, and other clients. The qualifications of an associate or senior associate position include an M.S. or a Ph.D. in environmental science, toxicology, risk assessment, or related fields; strong quantitative skills; and excellent oral and written communication abilities. Previous consulting experience is preferred.

ICF offers competitive salaries and excellent benefits. For immediate consideration, please send resume and salary requirements to:

ICF Incorporated Personnel-CHJL
P.O. Box 2606
Fairfax, Virginia 22031-1207.
[Equal Opportunity Employer]



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1303 Wilson Road
Knoxville, TN 37912
(Phones: 615-927-4640; 615-689-5315 [Res.]

New Classified Ad Policy

Beginning with this issue, the classified advertise-
ment policy of RISK *newsletter* has been revised with
respect to costs to non-sponsoring organizations. So that
all potential advertisers will understand what the current
policy is, it is restated in full below.

(1) Individual, paid-up members of SRA may place,
at no charge, short advertisements in the newsletter seek-
ing employment for themselves (one per issue) as a benefit
of SRA membership.

(2) Organizations which are paid-up sponsors or
supporters of SRA may place, at no charge, short adver-
tisements in the newsletter advertising openings for
employment (one per issue) as a benefit of SRA sustaining
membership. [Additional ads may be purchased.]

(3) Organizations which are not sponsors or support-
ers of SRA may publish, at a cost of \$250 per advertise-
ment, per issue, short advertisements in the newsletter
advertising openings for employment.

The newsletter editor has the responsibility and the
absolute right to in any way modify the text of any adver-
tisement to make it both suitable and short enough for
publication, to limit the number of issues in which any
advertisement may appear to not more than four consecu-
tive issues per request, and to deny, on reasonable grounds,
any request to publish an advertisement under (1), (2), or
(3), above, in any specific issue or in any issue whatso-
ever.

The newsletter currently is published in January, May,
and September, and advertisements should be submitted
to the editor by the first day of each of those months. Non-
member organizations should include billing instructions.

SOCIETY FOR RISK ANALYSIS
8000 Westpark Drive, Suite 130
McLean, VA 22101

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