SRA RISK newsletter

Volume 26, Number 3
Third Quarter 2006

Published by the SOCIETY for RISK ANALYSIS

SRA Organizes Key Public Events to Discuss OMB Risk Assessment Bulletin

Greg Paoli and Jack Fowle

In early January, the US Office of Management and Budget (OMB) released a document titled "Proposed Risk Assessment Bulletin." The document describes a broad set of standards for US federal agencies to follow in their conduct of risk assessments related to health, safety, and the environment.

Following release of the proposed bulletin, the Society for Risk Analysis (SRA) Conferences and Workshops Committee discussed the bulletin's potential impact on the practice of risk assessment. The committee determined that SRA should convene a timely public forum, ideally before the public comment deadline of 15 June 2006, to foster discussion and debate on the merits of the proposed requirements in the bulletin and their potential impacts. The event, titled "Public Forum on OMB's Proposed Risk Assessment Bulletin: Implications for Practice Inside and Outside Government," was held 23-24 May in Washington, DC. The forum was attended by 160 participants in addition to 35 invited speakers and panelists.

Following release of the proposed bulletin, SRA's Conferences and Workshops Committee discussed the bulletin's potential impact on the practice of risk assessment.

This week in May turned out to be a very busy week for public meetings on the impact of the risk assessment bulletin. A National Academy of Sciences (NAS) committee established to review the bulletin held its first meeting, including a public session on 22 May.

In a parallel activity, SRA's Public Policy Committee organized a luncheon congressional briefing on 24 May, in partnership with the American Chemical Society's Science and the Congress Project.

The forum was opened by SRA President Chris Frey, who described SRA's goals of holding a professional forum to present diverse viewpoints on the proposed bulletin. (For brevity, hereafter *the proposed bulletin* will be referred to as *the bulletin*). In the first session, Dr. Nancy Beck of OMB described the broader context of the bulletin, including the Information Quality Act and various key definitions within the bulletin, and described the various standards for risk assessments, including additional requirements for "influential" risk assessments. Beck's presentation was followed by a lengthy question-and-answer session with the audience.

It became apparent that the bulletin contains some controversial elements in the eyes of some audience members. One such controversial element was the definition of documents that would be considered risk assessments for the purpose of the bulletin. The proposed bulletin describes risk assessment as a "scientific and/or technical document that assembles and synthesizes scientific information to determine whether a potential hazard exists and/or the extent of possible risk to human health, safety, or the environment" and later, "this definition applies to documents that could be used for risk assess-

*(**OMB,** continued on page 4)*

Inside RISK

President's Message

A Process for Evaluating SRA's Structure

The question of whether the Society for Risk Analysis (SRA) should be doing anything differently in terms of growing as an international society is one that has been discussed for many years. This question is motivated by the notion that SRA may have untapped potential and could become stronger locally, regionally, and internationally, where "locally" could refer to any location in the world where there are persons interested in the risk analysis profession.

The SRA Executive Committee (ExCom) held a retreat on Thursday, 25 May 2006, to brainstorm on needs and considerations for SRA as an international society, review SRA's current structure, consider some basic alternatives to the current structure, and consider a process by which SRA should continue to move forward in obtaining member input, evaluating options, and proposing alternatives. The ExCom is comprised of the President, President-elect, Past President, Treasurer, Treasurer-elect, and Secretary of the SRA Council. At the retreat, we discussed what needs to be done to gather information as a prerequisite to consideration of alternative structures for the Society: (1) identify the stakeholders, (2) determine how to assess their needs, (3) assess their needs, (4) assess other areas of strengths, weaknesses, opportunities, and threats (SWOT), (5) review the status quo in order to determine if there are motivations for considering alternatives, (6) consider the history within SRA of dealing with internationalization and structure, and (7) identify professional societies that are peers, in some way, and compare with their structure.

Once information is gathered, then a design paradigm can be employed that will have the following major elements: (1) analysis of needs, (2) definition of objectives, (3) establishment of criteria by which accomplishment of objectives can be measured or evaluated, (4) determination of the major design categories (for example, major components of the design), and (5) enumeration of design options within each category.

There has been considerable progress in recent years regarding information gathering. For a more detailed history of SRA, including its internationalization, please see the article by Thompson, Deisler, and Schwing (2005) in the December 2005 issue of *Risk Analysis*. Here, I briefly summarize some recent history. In April 2003, the ExCom (then comprised of an entirely different set of persons compared to today's ExCom) made a SWOT assessment and did some comparative analysis of SRA versus other professional societies with regard to structural issues. In June 2004, Jonathan Wiener (then a member of the SRA Council) wrote a memo on "Internationalization of SRA" that included, among other items, a global scoping network plan, interim options for governance structure, increased international nominations for SRA Council positions, and availability of financial support for members worldwide. Many of these recommendations have been implemented. Examples include formation of an International Task Force, currently chaired by Bert Hakkinen, that is charged with information gathering and interaction with international organizational units of the Society, devoting what currently is a small number of seats on the SRA Council to candidates from outside of the United States, and a program for international travel support available to attendees of the annual meeting. In addition, SRA conducted a member survey in 2005, has approved several international chapters in recent years, and is planning the 2008 World Congress that is intended, among other goals, to increase participation by professionals from developing countries.

In my opinion, we are at a point where we need to begin translating information into a process of decision making for the long term. At its recent retreat, the ExCom identified short-term and long-term goals for action. The short-term goals include (1) encourage more internationalization of specialty groups and committees, (2) request input from sections, chapters, specialty groups, and committees on issues of internationalization, in response to charge questions, (3) form a task force on the structure of SRA specifically aimed at gathering information on stakeholders and needs and translating that into objectives, criteria, and decision options, and (4) have a public forum at the 2006 SRA Annual Meeting. A long-term strategy will be for the Council to take action as appropriate to restructure SRA based on input from the task force. Implementation of any alternative is likely to require bylaws changes, which must be put to a vote of the SRA membership.

My goal in the remaining time of my presidency is to follow through on these recommendations. One step is the formation of a Presidential Task Force on the Global Structure of the Society for Risk Analysis. At the time of this writing, I am in the process of appointing members to this committee. The committee will have significant representation not only from North America but also other parts of the world. The committee is charged with developing a needs assessment, developing a strategy for communication with members and organizational units of SRA to seek input on internationalization issues, and developing two or more alternative proposals intended for submission to the SRA Council regarding the international structure of SRA, including any necessary proposed changes to the bylaws and assessment of the implications of each proposal.

Your input in this process is strongly encouraged.

H. Christopher Frey
SRA President

SRA Initiates New Policies on Conflict of Interest and Disclosure

At its 12 June 2006 meeting, the SRA Council recognized the need to implement policies pertaining to conflict of interest and disclosure for various aspects of the Society and its operations. The development of such practices is becoming more common for professional societies and is viewed as both a necessary as well as prudent effort at promoting and protecting the integrity of such organizations. The Council is pleased to have taken initial steps to put some interim policies in place and to establish a procedure for their further exploration, development, and refinement.

The Council approved two specific policies: (1) Interim Policy on Use of Office and (2) Interim Policy on Financial Interests Disclosure for *Risk Analysis: An International Journal*. The latter was developed for consideration of the Council by the editors of the journal.

The Interim Policy on Use of Office specifically states:

> "Officers and appointees of the Society shall not use or attempt to use their SRA position for personal financial gain. Nor should they use their position to unduly influence or give undue preferential treatment to others, or represent that they may do so. They should not use their position to promote their personal or third party interests over those of the Society."

The Interim Policy on Financial Interests Disclosure for *Risk Analysis: An International Journal* specifically states:

> *Risk Analysis: An International Journal* requires authors to disclose any funding sources of their research and any other competing financial interests of the authors. Any funding source for the work contained within the article, including preparation of the article and development of the material used as a source for the article, should be disclosed in the Acknowledgments section of the paper. Additionally, authors should disclose any other competing financial interests related to the content of the article such as payment for expert witness services, personal financial interests, and affiliations with other institutions that may benefit financially from publication of the article. Any disclosures of this nature will be included at the end of the article. Ownership of diversified mutual funds is not considered a competing financial interest.
>
> The corresponding author should sign the declaration below that all funding sources and competing financial interests have been disclosed. The corresponding author should also assure that the disclosures required by any other authors are included. Failure to disclose the information stated on this form may result in a 3-year ban on publication and a retraction of the article.

In addition, a financial interests disclosure policy will be developed for peer reviewers. An author will be required to provide the assurance above at the time of first submission of a journal manuscript. A reviewer will be required to provide assurances at the time of agreeing to review a manuscript.

These policies above are a starting point. Both were unanimously adopted by the Council and will be evaluated at the Council's December 2006 meeting.

Furthermore, the Council created the Ad Hoc Committee on Journal Policy Related to Conflict of Interest, which has the following charge: (1) further develop conflict of interest and disclosure policies for the journal, *Risk Analysis*, (2) develop guidelines for peer review of manuscripts in situations when a submitted manuscript is authored by an editor or associate editor, (3) develop guidelines for when an expedited review of a manuscript may be appropriate (for example, to deal with a time-critical issue) and the conditions under which such a review must be conducted, and (4) evaluate what specific oversight role the Council should have. This ad hoc committee, comprised of Elaine Faustman, Adam Finkel, Baruch Fischhoff, Rick Reiss (chair), Pamela Williams, and Richard J. Burk, Jr., will deliver its report to the SRA Council at its December 2006 meeting.

All members of the Society are encouraged to share their comments and suggestions with any member of the ad hoc committee or any member of the Council.

Committees

Education Committee

David Hassenzahl, Chair

The Education Committee will sponsor a workshop introducing fundamental issues, methods, and controversies at the 2006 Society for Risk Analysis Annual Meeting.

We will also have a committee meeting Wednesday, 6 December, at lunch during the conference. All interested SRA members are welcome. Issues will include outreach to the international community, ongoing training sessions and workshops, and development of the academic risk program data base.

Conferences and Workshops Committee

Scott Ferson, Chair

There will be a North Atlantic Treaty Organization (NATO) Advanced Research Workshop—"Wastewater Reuse - Risk Assessment, Decision Making, Environmental Security"—12-16 October 2006 in Izmir, Turkey.

Details can be found at http://www.isu.edu/departments/natoarw.

*(**OMB,** continued from page 1)*

ment." Given this expanded definition of documents to be considered risk assessments, the bulletin preamble further states that all "publicly available" risk assessments are subject to the bulletin. "Publicly available" is defined to include documents that could be accessed via the provisions of the Freedom of Information Act. The definition that included documents that "could be used for risk assessment" combined with "available to the public" appeared to significantly "raise the stakes" for several stakeholders. To the extent that complying with the bulletin is resource-intensive, a significantly expanded scope of applicable documents would multiply that impact, including any associated delays, accordingly.

The timeliness of decision making and rule making was a frequently raised issue in assessing the potential impact of the bulletin. A few audience members who are employees of agencies likely to be subject to the final bulletin described scenarios where the bulletin might cause unacceptable delays in issuing a warning to the public or in other decision-making environments where time is clearly of the essence. Members of public interest groups and a former agency senior official argued that the bulletin would make an already slow process even slower, leading to delayed regulations and the associated delays in the protection of health and the environment.

Members of public interest groups and a former agency senior official argued that the bulletin would make an already slow process even slower, leading to delayed regulations and the associated delays in the protection of health and the environment.

The luncheon speaker, Dr. John Graham, a former SRA president and until recently the head of the OMB office that drafted the bulletin, offered an opposing theory of the impact of the bulletin on timeliness. Graham argued that a key role for OMB is the process of dispute resolution among multiple agencies that are involved in a risk issue. He offered that the bulletin's aim was to clarify what were established best practices and to set uniform standards. Through this mechanism, a risk assessment is seen as more likely to be acceptable to multiple agencies because of common expectations with respect to critical aspects of risk assessment methodology. In a similar way, normal rule-making documents (that is, those not involving interagency dispute) would more often be prepared, from the beginning of the process, to meet the minimal standards now made explicit by the bulletin. They would then avoid potentially significant delays associated with corrective actions to bring the risk assessment to an acceptable standard following OMB review.

A number of other features of the bulletin were explored in the overall discussion on timeliness. The bulletin makes use of qualifiers such as "to the extent appropriate" to provide some flexibility in its implementation. The bulletin also explicitly contains a provision for an agency head to waive some of the requirements where warranted by a compelling rationale. The net effect of the bulletin's ultimate implementation with respect to timeliness of decision making remains a matter of considerable debate.

The forum was primarily structured as a series of panel discussions, each followed by considerable time for audience comments and questions. Panels covered issues concerning implementation and effects on the regulatory decision-making process. One concern that was discussed was whether the bulletin was subject to "judicial review" whereby a regulation could be challenged by, for instance, a regulated industry on the basis of failure of a risk assessment underlying a rule to comply with one of the standards in the bulletin. An additional concern was related to the lack of a clear rationale for the exclusion of certain individual licensing and adjudication activities from these requirements even if they would explicitly involve considerable potential impacts on health, safety, and environmental risk. This was seen by some, absent a compelling rationale to exclude them, to unjustifiably exclude decision making that industry requires to advance business activities, while appearing to place burdensome requirements on decision making that might limit business activity.

The second day consisted of panel sessions covering impact on specific areas of professional practice ranging from assessments in food and agriculture to engineering and emerging hazards such as nanotechnology. One session was devoted to the elevated standards for uncertainty analysis and risk characterization that the bulletin requires for risk assessments deemed "influential." A final session discussed possible implications of the bulletin on the practice of basic science and data collection as well as the interplay between the bulletin's requirements and requirements for peer review.

At various points in the forum, panelists and audience members asserted that the bulletin was largely requiring what are considered best practices and was essentially amalgamating advice from previous commissioned reports of the NAS and other bodies. However, others described these same best practices as being problematic if applied in a "one size

fits all" approach to setting standards. At several points, participants seemed to struggle with vagueness in the bulletin's language and uncertainty with respect to the details of implementation and the exact nature of the flexibility offered by the "to the extent appropriate" clauses.

Although speakers and audience members were in general agreement that the bulletin was important, it was equally clear that there was no consensus on whether the bulletin, assuming implementation as proposed, would do more good than harm. Much of the discussion was prefaced with variations on "The bulletin has a number of highly desirable properties that will benefit risk assessment and risk management, however, I have concerns regarding . . . ." The lack of a clear problem statement, and clear elaboration of the benefits of the proposed bulletin, was seen by some as a fundamental concern, eliciting a number of comments that were variations on a theme that calls for OMB to "follow its own advice and provide a cost-benefit assessment" of what is essentially a "regulation of regulators."

Participating in the 24 May congressional luncheon briefing were, left to right, Rena Steinzor, Program Moderator Curtis Copeland, John Graham, and Don Elliott.

A number of the themes discussed in the session were reiterated in the congressional luncheon briefing on 24 May. This session included a moderated session involving Dr. John Graham, Mr. Don Elliott (an attorney and former EPA General Counsel), and Professor Rita Steinzor of the University of Maryland's School of Law and Center for Progressive Reform. This discussion again focused on competing arguments of the impact of the bulletin with respect to regulatory delay. A risk assessment of perchlorate prepared by the Environmental Protection Agency (EPA) and, in the context of an interagency dispute, later reassessed by an NAS committee was used as an example. According to one argument, the overall assessment process would have benefited by avoiding significant delay, had EPA applied the standards that are now explicit in the proposed bulletin. The ensuing questions and discussion also reiterated some of the concerns, expressed during the public forum, for the burden associated with full compliance with the standards. This issue arose with respect to the the apparent confusion over whether the intensive NAS risk assessment was itself in full compliance with the proposed bulletin, or whether there was a need to appeal post hoc to the "to the extent appropriate" clause. To some extent, the question still remains as to how long a fully compliant perchlorate assessment would have taken to complete. A more detailed description of the congressional luncheon briefing can be found at www.sra.org.

The public forum served as an interesting case study in the "governance" of risk assessment and risk management processes. While the forum raised more questions than answers, it provides a glimpse into a future of "regulated" risk assessment and into the issues that might need to be considered in "certification" of risk assessors currently being discussed in some parts of the world.

SRA would like to express its appreciation to the many members who volunteered their time, energy, and creativity to make these two events happen in a very limited time. Information about the workshop, including links to the bulletin and presentations are available at www.sra.org/omb.

Journal Notes

Journal Update—Availability of Online Archives

Rick Reiss, Risk Analysis *Managing Editor, 2005-2008 Councilor*

Have you ever needed to obtain an article in *Risk Analysis: An International Journal* that dates to before your personal collection starts? Well, it just became a lot easier. The journal is pleased to announce the availability of the full electronic archive of historical issues of the journal. SRA members can access the archive through the SRA Web site or directly through our publisher, Blackwell (http://www.blackwell-synergy.com/).

The archive begins with the first issue in March 1981. The first article was titled "Is Risk Assessment a Science?" by Society cofounder Robert Cummings. We have come a long way since then!

Special thanks are due to Stephen Brown and Edmund Crouch for donating back issues of the journal that were used to construct the archive.

Please enjoy this new free resource for Society members.

Graham Cites Perchlorate Dispute to Defend Need for OMB Risk Guide

Steve Gibb, Editor, Risk Policy Report

Former White House regulatory chief John Graham is defending his controversial guidance instructing agencies on how to conduct risk assessments by claiming it could have prevented a multiagency dispute over an Environmental Protection Agency (EPA) evaluation of the risks posed by the rocket fuel component perchlorate.

Graham until earlier this year headed the Office of Management and Budget's (OMB) regulatory review office, and under his tenure OMB crafted a number of ambitious documents encouraging agencies to alter their practices for developing and issuing risk assessments and guidances, among other efforts.

Graham's reference to the perchlorate dispute comes as he and current OMB officials have faced skepticism from critics who have questioned why the guidance is needed. John Ahearne, the chair of a National Academy of Sciences (NAS) panel reviewing the document, asked the officials at a 22 May workshop "what problems OMB is trying to solve" with the bulletin.

Similarly, Marty Spitzer of the House Science Committee majority staff asked Graham at a 24 May event hosted by the American Chemical Society what problem Graham was trying to fix in issuing the guide.

John Graham, far right, speaking to attendees at the 24 May congressional luncheon briefing.

Graham responded that EPA's perchlorate risk review was illustrative of the general problems often found in EPA risk assessments.

EPA's perchlorate assessment, which prompted significant concern from the Department of Defense (DoD) and industry, did not conform with the preferred practices outlined in the OMB's 9 January Proposed Risk Assessment Bulletin. For example, EPA did not consider human and animal data together, did not present central estimates of risk, just "worst case" scenarios, and did not look at the uncertainty surrounding its risk estimates.

The bulletin would mandate new analytical requirements such as providing "central" estimates of risk in addition to high-end estimates, more detailed justifications for agency findings of "adverse effects," and risk ranges instead of single risk estimates.

In its perchlorate risk assessment, EPA relied on studies of test animals and identified changes in thyroid hormone levels as an "adverse effect" in setting a 1 part per billion (ppb) "safe" level of exposure to the contaminant.

Industry and DoD heavily criticized the finding, and EPA's assessment triggered intense and lengthy interagency conflicts over DoD and other agencies' ability to review and influence conclusions in EPA risk reviews. Because of the dispute, OMB and the agencies elected to send EPA's risk assessment to the NAS for review in 2003, and the academy issued its report in January 2005.

Unlike EPA's assessment, the NAS based its review on a study of 37 human subjects and found that EPA's "adverse effect" was actually a precursor event to what should be of concern in the human population. Consequently, the NAS panel recommended a 20-ppb "safe" level of exposure to perchlorate.

Graham argued that if EPA followed OMB's proposed requirements to provide "central" risk estimates, in addition to what he claims are EPA's conventional "worst-case" scenarios, and faced stricter mandates for defining the adversity of the health effects, this would have dampened the infighting that broke out among federal agencies about perchlorate's risks in 2002-2003.

But staff from the House Science Committee criticized Graham's claim, saying the NAS review may not meet the bulletin's objectives and OMB may be establishing unrealistic requirements for EPA risk reviews.

The staffers at the meeting questioned whether risk assessments performed even by leading experts would conform to the strict standards set out in the proposed bulletin. "Would the NAS perchlorate review have conformed with the OMB bulletin?" queried one majority science panel staffer.

Graham did not respond at the time, but when asked in a later interview, said, "My guess would be yes with one exception: the NAS panel did not prepare a probability analysis or quantitative uncertainty analysis. However, one could argue that such an analysis was not 'appropriate' in that case. Recall the draft OMB guidance permits agencies to bypass analytic requirements when they are not appropriate in a specific situation."

But other federal officials are skeptical that the NAS review would meet the OMB guide's draft requirements. "They did not quantify uncertainty or combine plausible risk models in the way the bulletin calls for," according to one official. And another source says, "You would think that Graham holding up the NAS perchlorate review as a gold standard and touting it, he would know whether it's in conformance."

And an observer says EPA was prohibited from using human data in the perchlorate review because of a policy banning the practice after a controversy over human pesticide studies.

Graham said it was the combination of studies selected and assumptions made in EPA's risk review that led to the flaws NAS identified, and the OMB bulletin "would require EPA to look harder at these issues pre-NAS involvement."

Congressional staffers say they are less interested in individual chemical reviews like perchlorate than they are in ongo-

ing reforms to EPA's Integrated Risk Information System (IRIS). Data on chemical risks contained in IRIS form the basis for cleanup targets and other environmental standards at the local, regional, and federal level and a congressional staffer says "EPA should seek public comment on any major reforms they propose for IRIS."

A congressional staffer also asked why peer-review processes traditionally handled by the scientific community should be incorporated into OMB's role. Graham said EPA's peer-review processes are based on the "agency's framing of the questions," rather than objective peer-review criteria, a sentiment echoed by another participant in the debate, legal scholar and former EPA general counsel in the George H.W. Bush administration, E. Donald Elliot.

"Peer reviews conducted by EPA don't have any teeth. There is no obligation in the agency's process, or through the administrative law process, to force EPA to make changes" based on external science advice, according to Elliot.

But EPA sources disagree, with one agency source saying, "The reality is there is a strong burden on the agency to explain to skeptical administrators and OMB how they responded to criticisms from peer reviewers."

And the third debate participant, professor of law and founder of the Center for Progressive Reform Rena Steinzor, said, "If OMB is involved in both defining good science and policing it, this will drag politics even more into government science." Steinzor also warned the bulletin would lead to "endless screaming like we saw with the tobacco-risk debates" that resulted in delays of consumer safeguards.

Graham responded by saying OMB also issued peer-review guidance, which despite warnings to the contrary has not shut down health, safety, and environmental regulation. Graham added that the OMB guide and other information quality controls will shorten the "classic dispute resolution process in the executive branch which is to keep elevating it up to higher management levels until someone is worn down in the process."

2006 SRA Annual Meeting Continuing Education Program

The continuing education program for the annual meeting in Baltimore this December will include the following half- and full-day workshops. Consult the Society for Risk Analysis Web site at http://www.sra.org/events.php or the preliminary program mailed to members for descriptions of the workshops. (Contacts from whom further information can be obtained are given in parentheses.)

Risk Analysis: Fundamental Concepts, Applications, and Controversies
HALF DAY, http://www.unlv.edu/faculty/dmh/RATL/SRA2006.html
(David M. Hassenzahl, David.hassenzahl@unlv.edu)

Sensitivity Analysis Methods Applied to Exposure or Risk Assessment Models
FULL DAY, http://www.ce.ncsu.edu/risk/workshop04/ (Amirhossein Mokhtari, amirh357@yahoo.com)

What Monte Carlo Cannot Do: An Introduction to Imprecise Probabilities
FULL DAY, http://www.ramas.com/ipbaltimore.htm (Scott Ferson, scott@ramas.com)

Beyond Point Estimates: Risk Assessment Using Interval and Possibilistic Arithmetic
HALF DAY, http://www.ramas.com/interval.htm (Arlin Cooper, arlincooper@msn.com)

An Introduction to Health Risk Assessment of Chemical Mixtures
HALF DAY, http://cfpub.epa.gov/ncea/cfm/recordisplay.cfm?deid=155775 (Linda K. Teuschler, teuschler.linda@epa.gov)

Incorporating "Omic" Information into Risk Assessment and Policy
HALF DAY, http://depts.washington.edu/irarc/SRA_genomics_seminar.html (Elaine Faustman, lry@u.washington.edu)

Applying Publicly Available Environmental Models and Databases within a Single Human and Ecological Risk Assessment Tool: "Hands-on" Training Using ARAMS
FULL DAY, http://www.ndcee.ctc.com/ (Chuck Tomljanovic, chuck-t@ctc.com)

Risk Assessment and Decision Support Applications in Military Settings
FULL DAY, www.risk-trace.com/Mil_MCDA.html (Igor Linkov, linkov@cambridgeenvironmental.com; Renae Ditmer, Renae.Ditmer_CONTRACTOR@dtra.mil; and Elizabeth Ferguson, Elizabeth.A.Ferguson@erdc.usace.army.mil)

Replacing Default Values for Uncertainty Factors with Chemical Specific Adjustment Factors: Reducing Uncertainty in Noncancer Risk Assessment
HALF DAY, http://www.tera.org/education/SRA_CSAF2006.htm (Lynne Haber, Haber@tera.org)

Approaching Adversity: What's Adverse? What's Not? Why You Should Care
FULL DAY, http://www.tera.org/education/sra_adversity2006.htm
(Sara Hale Henry, sara.henry@fda.hhs.gov; James Wilson, wilson.jimjudy@attnet.net)

What Do We Do?

— a quarterly look at the incredibly diverse field of risk analysis —

Sandy Hoffman

What is your job title?

Hoffman: I am a Fellow at Resources for the Future. We are a nonprofit, nonpartisan think tank that is structured much like a university department. We don't have students, but we do have an outreach goal that is educational. Each researcher sets his or her own research agenda, which can be affected by the need to raise external funding. We work on a wide range of topics from air quality to invasive species, both in the United States and abroad. Our overarching goal is to help improve environmental policy through sound, impartial research. Our outreach efforts are focused on getting our research out to those in policy circles, at universities, and in the general public who can make use of it to improve policy or educate the next generation of citizens and environmental and resource managers.

How is risk analysis a part of your job?

Hoffman: The focus of my work is conducting research that improves regulatory risk management affecting public health. I work on a variety of environmental and public health issues, ranging from food safety to childhood exposure to lead to air pollution in China. I am particularly interested in developing more effective ways to integrate economic analysis with risk assessment. Often economists are thought of as accountants who tally up the costs and benefits of proposed actions or, worse, of decisions that have already been reached on technical grounds. But economists are behavioral scientists who study how people respond to market incentives and institutional structures. I am particularly interested in what drives peoples' risk-generating behavior. This is relevant both to predicting risk levels and to evaluating alternative means of reducing risk.

How did you decide to pursue this career?

Hoffman: I started out with an interest in American history and museum studies. As an undergraduate, I worked in a living history museum for a summer. I realized that I needed to be more engaged in current issues than this. I sat back and looked around and asked, "What's worth putting your life into?" And since I had been sitting in Iowa for the prior 20 years, I said soil, water, food . . . making sure there's enough food for people, that it's safe, and that the way we produce food is also sustainable and safe for the rest of the environment. I looked around for ways to do this and met a wonderful mentor in the Iowa State University agricultural economics program, Dr. John Timmons. He took me on as an undergraduate research assistant. From him, I learned to appreciate that farms are businesses whose actions are heavily affected by both economics and policy. He was an "old school" institutional economist who understood that markets don't exist independently of law and social norms. So I came away with the vision that the best tools I could bring to working on food and agricultural issues were law and economics.

What got you to where you are in the field of risk analysis today?

Hoffman: After law school at the University of Michigan, I wanted a break before starting my PhD in agricultural economics. At that point the US Environmental Protection Agency (EPA) was not hiring much and opportunities to do law work related to agriculture and the environment were rare. I was offered an opportunity to work for one of the few firms in the United States that specialized in pesticide regulatory law; it was then called McKenna, Conner, and Cuneo. I was thrilled. I practiced there for three years with a focus on both the Federal Insecticide, Fungicide, and Rodenticide Act and the Toxic Substances Control Act. I worked on the 1987/88 diazinon cancellation proceeding, the first pesticide cancellation EPA brought solely on the basis of wildlife hazard. I also helped draft the petition for writ of certiorari in the Alar case. As an attorney you have to integrate substantive knowledge about hazards with knowledge about the law. I learned a tremendous amount about toxicology, animal testing, chemical engineering, agronomy, risk assessment, and the way a major federal agency was trying to manage environmental hazards. This gave me an introduction by immersion into the world of federal risk regulation. This was shortly after the Red Book had come out and there was tremendous change going on in thinking about risk management and risk assessment. This was probably the start of a broadening of my interests to encompass a wider range of hazards and the process of risk analysis more generally. I also saw the increasing role that economic analysis was playing in federal regulatory policy. This confirmed my belief that an understanding of both economics and law would provide a good foundation for working on environmental risk policy.

I went back to graduate school and got an MA in agricultural and applied economics at the University of Wisconsin-Madison and a PhD in agricultural and resource economics from the University of California, Berkeley. My dissertation was a set of three papers on the economic theory foundations of regulatory risk analysis. I was on the faculty at the University of Wisconsin-Madison LaFollette Institute of Public Policy for a year and a half before coming to Resources for the Future (RFF) so that I could focus on research.

I arrived at RFF at a time when senior researchers there were interested in starting a program on food safety. I saw an opportunity to return to prior interests in food and agriculture and to learn more about microbial hazards. I also continue to work on chemical hazards including pesticides and neurotoxins.

What is the most interesting/exciting part of your job?

Hoffman: The most interesting/exciting part of my job is producing new results or new means of analysis that people who are managing risk find useful. For example, I am currently writing up analysis of an expert elicitation survey

attributing foodborne illnesses caused by specific pathogens to consumption of particular foods. This is giving food safety scientists and risk managers an alternative, systematic picture of the relationship between food consumption and a range of pathogen-specific illnesses. People are excited about the results because they offer a point of perspective on this issue that we didn't have before and could help us better focus food safety policy.

What would you recommend to those entering the field of risk analysis interested in a job like yours?

Hoffman: Effectively, I am an academic researcher. It is simply critical to have as good a foundation in a discipline as you can have and to establish your reputation in that discipline. That gives you something to contribute and gives you credibility. I also conduct research in order to improve public policy. As soon as you're concerned about applied policy research, you have to have a broader understanding than a single discipline gives you. There are lots of ways to get this breadth. You can get it as I did through a combination of education in multiple fields and job experience. I also see people developing it through persistent curiosity and a willingness to invest in learning about things outside your core discipline.

I will say that it is difficult to do interdisciplinary research even when one is trained in multiple disciplines. The norms about what is acceptable research in different fields make it difficult to find acceptance for work that brings in multiple disciplines. But even within one's own self, I think it takes very significant creativity to see new ways of conducting research that draw on multiple backgrounds.

How has membership/involvement in the Society for Risk Analysis (SRA) helped you in your work?

Hoffman: Membership in the Society for Risk Analysis has given me a home where people from a wide array of disciplines are working on the same core substantive problem—how to improve risk management. I find it to be a very welcoming community and one in which I can explore ways to focus on the risk analysis problem rather than the disciplinary approach. I think this focus on the problem is one of the best ways of figuring out how to integrate relevant perspectives from different disciplines. Problems exist in the world. Disciplines are ways of thinking that people have developed to focus on different aspects of problems. Disciplines are useful because they give you a structured way to study a particular aspect of a problem. Without that, I'm not certain we would make much progress in advancing knowledge. Refocusing on a problem that needs to be addressed gives a structure for reintegrating knowledge. It gives a benchmark for deciding what knowledge needs to be brought to bear and how different kinds of knowledge need to be combined. I find SRA to be an exciting place where that kind of integrative thinking is happening.

Specialty Groups

Risk Communication Specialty Group
www.sra.org/rcsg

Felicia Wu, Chair

We are excited about the large number of abstracts related to risk communication that were submitted for this year's annual meeting in Baltimore. We will be sponsoring symposia covering topics that include "Better Regulation Across the Atlantic: Regulatory Analysis, Information Quality, and Precaution," "Strategies for Risk Communication: Evolution, Evidence, Experience," "Drinking Water Risk Management and Public Perceptions," and "The Risk Communication Challenges of Avian Influenza/Pandemic Flu."

Many thanks to Robert O'Connor of the National Science Foundation for his work on the SRA Program Committee to review abstracts related to risk communication.

Dose Response Specialty Group
www.sra.org/drsg

Sara Henry, Secretary/Treasurer

The Dose Response Specialty Group has proposed a Continuing Education Course for the Sunday preceding the annual SRA meeting. The course is to be titled "Approaching Adversity: What's Adverse? What's Not? Why You Should Care." As regulatory frameworks increasingly seek a general way to approach toxicological endpoints in addition to cancer, the importance of determining appropriate "adverse effects" in toxicological assessments has been on the rise. In this full-day course, participants will gain an understanding of the general legal background that gives weight to "adverse effects," the differences among agency approaches to determining an "adverse effect," and the complicated scientific issues upon which such a determination rests. The morning will begin with an overview of the statutory and regulatory background central to adverse effects, including how different federal agencies approach risk assessment concerning "adverse effects." The course will then lead participants through an examination of four cases, each of which will raise a different issue with an "adverse effect" determination. Issues will range from using biomarkers as surrogates for deciding that an "adverse effect" is present to the challenge of extrapolating from adverse neurological effects in animals to humans to deciding when, in a continuous spectrum of response, the response becomes "adverse." The day will conclude with a summary of the general challenges involved with "adverse effects" as a key regulatory designation, including a discussion of the utility of formal guidance.

Engineering and Infrastructure Specialty Group

James H. Lambert, Chair

Including members of the SRA Engineering and Infrastructure Specialty Group, the North Atlantic Treaty Organization (NATO) convened the Advanced Research Workshop (ARW) on "Computational Models of Risks to Infrastructure" in Primosten, Croatia, 9-13 May 2006. SRA and Enconet International (Zagreb) cosponsored the ARW. The program included presentations and posters by the 40 engineers and scientists who participated from over 20 countries. Exploring methodologies and applications, the participants addressed four major topics: Modeling Complex Systems, Simulation Models, Probabilistic Modeling, and Nonprobabilistic Modeling. Extensive discussion concentrated on the following issues: the state of the art and practice, gaps between the arts and practices, ways

to bridge the gaps, and future research directions. The organizing committee, consisting of SRA members and several others, included Dejan Skanata, Davor Sinka, Daniel Byrd, Igor Linkov, Jacques Ganoulis, Adrian Gheorghe, and Jim Lambert. The participants contributed chapters to a book that is forthcoming in the NATO series whose theme is "Security through Science."

SRA members wishing to affiliate with the Engineering and Infrastructure Specialty Group should contact the group chair, Jim Lambert (lambert@virginia.edu), associate director of the Center for Risk Management of Engineering Systems at the University of Virginia.

Biological Stressors Specialty Group
http://members.tripod.com/Cristina704/Foodrisk

Felicia Wu, Chair

The Biological Stressors Specialty Group is looking forward to sponsoring a number of exciting oral presentations, symposia, and posters at our annual meeting in Baltimore this December. Among the symposia we will be sponsoring are topics as diverse as "Building on Microbial Risk Assessment to Address Bioterrorism," "Health Risks in Home Environments: Sources and Solutions," "Food Allergies: Issues in Establishing Thresholds," and "Rebutting the Presumption in Favor of Peer Review." We look forward to interesting discussions on a wide variety of biostressor-related topics.

Decision Analysis and Risk Specialty Group

Igor Linkov, President, and Greg Kiker, Secretary-Treasurer

We are now celebrating the first anniversary of establishing the Decision Analysis and Risk Specialty Group (DARSG) and we have many exciting developments to report to our members. Even though the decision analysis and risk track was added only this year to the Call for Papers for the SRA annual meeting, almost half of the submitted abstract and symposia proposals identified it as a potential presentation theme. The large number of submitted abstracts has allowed us to sponsor many sessions in the areas of risk management, decision analysis and risk in industry, risk assessment and decision support for natural disasters, critical infrastructure protection, and many others.

We would specifically like to highlight the "Risk Assessment and Decision Support for Military and DHS Applications" track. It includes a Sunday workshop on "Risk Assessment and Decision Support Applications in Military Settings" (organized by I. Linkov); symposia on "Modeling and Communicating Risks to Support Decision Making for Natural Disasters" (R. Dillon), "Applications and Advances in Risk Analysis for Homeland Security" (H. Willis), "Risk Assessment and Decision Analysis: State of Applications in DoD and DHS" (I. Linkov, R. Ditmer, and E. Ferguson), "Decision Analysis for Risk Management of Catastrophic Events" (R. Zimmerman), and "Health Advisories and Homeland Security: Methodology to Application" (M. MacDonell); as well as multiple sessions highlighting different aspects of decision analysis and risk management in military and DHS settings, including engineering, environmental, social, international, and communication challenges.

Many of these sessions were organized jointly with other specialty groups. The Defense Threat Reduction Agency, Department of Homeland Security, and Army Corps of Engineers are actively supporting this effort.

DARSG also plans to offer a Best Student Paper award. Several submissions have been received; if you are interested in being a peer reviewer of submitted papers, please let us know.

As you know, DARSG's mission is to provide leadership and play an active role in advancing the use of decision analysis and risk assessment tools in policy and practice, and we will also facilitate knowledge development and idea exchange. To this end, we would like to organize an SRA forum or conference on bringing together decision analysis and risk assessment. We would appreciate receiving your ideas, especially sponsorship opportunities.

The DARSG is currently sponsoring two North Atlantic Treaty Organization Workshops, a fall 2006 workshop on water security in Turkey and a spring 2007 workshop on nonchemical stressors in Portugal; see announcements in the News and Announcements section on page 13 of this newsletter.

In the fall, we will be running our first election for the group leadership. According to the bylaws, the group is led by the president and the secretary-treasurer with support of the past president and the president-elect. Please send your nomination for the president-elect and treasurer-elect positions to Igor Linkov.

We would like to solicit your ideas on activities and topics you would like us to address. Please feel free to contact Igor (ilinkov@yahoo.com) or Greg (gkiker@ufl.edu).

Annual Meeting Committee Update

Make your plans now to attend this year's annual meeting 3-6 December in Baltimore, Maryland. The meeting theme of "Risk Analysis in a Dynamic World: Making a Difference" and our return to the DC metro area led to a record number of abstracts submitted. The meeting will include three FULL days of interesting sessions, so plan to stay through Wednesday evening. Registration forms for the meeting and a listing of the preliminary program will be available in mid-August. Please note that this year the meeting will include box lunches on Monday and on Wednesday (at no extra charge). The specialty groups will all hold their business meetings at staggered times during the Monday lunch block, so plan to learn more about what's happening and take the opportunity to get more involved in one or more of these groups on Monday during lunch. During the Wednesday lunch block, the Annual Meeting Committee is planning sessions to discuss (1) SRA Internationalization and (2) the recent OMB guidelines. We will hold our annual business meeting and honor our awardees during lunch on Tuesday. Also new this year, on Monday evening we will feature a dedicated poster session and reception. During this session, which will begin at 5:30 and offer food, participants will get to place their votes for the five Best Poster Awards that will be given during the Tuesday lunch. The next issue of the RISK *newsletter* will feature a preview of the annual meeting and will reveal the fabulous lineup of plenary speakers. Watch your email and check out the SRA Web site (www.sra.org) for more information about the meeting, and see you in December!

Chapter News

Philadelphia Chapter

Eileen Mahoney, Cochair

The Philadelphia Chapter is reorganizing and planning a series of meetings beginning in the fall. Anyone interested in helping organize the chapter should contact Eileen Mahoney (e.mahoney7@verizon.net) or Patrick Gurian (pgurian@drexel.edu).

New England Chapter
www.sra-ne.org

Jo Anne Shatkin and Tom Angus, Copresidents

The New England Chapter has just wrapped up its monthly speaker series and will break for the summer. April's meeting featured Dr. Michael Hutcheson of the Massachusetts Department of Environmental Protection (MassDEP) speaking about his agency's research on spatial and temporal trends of mercury concentrations in Massachusetts' freshwater fish.

Mercury emissions in northeastern Massachusetts are estimated to have decreased by > 85% since 1999 and, in Massachusetts overall, by about 70% since the mid-1990s, largely through programs which will be outlined and implemented under a regional New England Governors and Eastern Canadian Premiers Mercury action plan. Statistically significant decreases in yellow perch and largemouth bass fish tissue mercury concentrations occurred over the same five-year period as the emissions reductions.

In May, Dr. Ragnar Löfstedt of Kings College, London, spoke about the changing nature of environmental regulation in Europe, focusing on the European Commission's better regulation agenda that began in November 2004. Löfstedt's talk focused on whether the Commission's regulatory thinking has moved away from the precautionary principle to regulatory impact analysis.

Our speaker series will resume in September under the leadership of our newly elected president, Dr. Michael Hutcheson. Hutcheson is head of MassDEP's Air and Water Toxics Section in the Office of Research and Standards (ORS). His responsibilities include the setting of exposure standards for toxic chemicals in water and air in Massachusetts, review of risk assessments concerning these media, provision of toxicological guidance, development of new risk assessment procedures, and management of ORS's research program for mercury in fish.

With a few exceptions, the meetings are typically held on the second Wednesday of each month from 4:15 to 6:30 at CDM in Cambridge, Massachusetts.

We draw attendees to our meetings (and speakers) from New England generally, not just the Boston area. Membership is not necessary for attendance at meetings and activities; however, those interested in becoming members or in reading our electronically distributed monthly newsletter should communicate with Chapter Secretary Karen Vetrano (kvetrano@trcsolutions.com) or with copresidents Jo Anne Shatkin (JShatkin@cadmusgroup.com) or Tom Angus (thomas.angus@state.ma.us).

We also have a Web site which is linked to the national SRA site and stands alone at www.sra-ne.org.

Upstate New York Chapter
http://esc.syrres.com/sraupstateny/

Heather Clark, Secretary

Members of the Upstate New York Chapter participated in monthly teleconferences to plan two major events for 2006. The first event sponsored by the chapter was an informal luncheon mixer in Syracuse on 23 June for members and others interested in risk issues in the Upstate New York region. The luncheon provided opportunities for exchange of ideas and practical experiences among members of the academic, professional, industrial, and regulatory communities involved in risk analysis (risk assessment, risk communication, risk management) in Upstate New York. The luncheon agenda included planning for the fall symposium that will be held in the Albany area on 13 October.

The selected theme for the symposium is "When Scientists Disagree." The first pair of recruited speakers applying this topic to microbial dose-response assessment will be Chuck Haas of Drexel University and Peg Coleman of Syracuse Research Corporation.

Two positions will be explored regarding evidence for thresholds for microbial pathogens in healthy adults. One position that will be taken is that exposure to a single pathogen cell or particle has potential to cause disease; an alternative position is that innate and adaptive host defenses protect against low-dose challenges of pathogens. Application of the first position could be calculation of the likelihood of illness given exposure to a dose of one pathogenic microorganism. The application of the second position could be description of a threshold region or boundary of resistance to symptomatic disease.

The symposium will be open to all, including our neighboring SRA chapters (Metro Chapter, Rao Kolluru, chapter president; Eastern Canada, Anne-Marie Lafortune, chapter president; Philadelphia Chapter, Eileen Mahoney, chapter president). Upstate New York Chapter organizers Tim Negley (negley@syrres.com) and Faith Schottenfeld (fls02@health.state.ny.us) seek additional pairs of potential speakers who could be in the Albany area 13 October to present different positions on the following:

- utility of fish advisories
- utility of total coliforms as an indicator of safety or fecal contamination of water
- utility of biomarkers in risk assessment
- threat of avian flu to humans in the United States
- utility of geospatial analysis in risk assessment and management.

For more information on the Upstate New York Chapter and events, visit our Web site (http://esc.syrres.com/sraupstateny) or email Chapter President Peg Coleman (mcoleman@syrres.com) or Chapter Secretary Heather Clark (hac4@cornell.edu).

Computational Models of Risk to Infrastructure

Daniel Byrd

The North Atlantic Treaty Organization (NATO) sponsored the Advanced Research Workshop (ARW) "Computational Models of Risk to Infrastructure" 9-13 May 2006 at the Zora Hotel in Primosten, Croatia. The ARW was cosponsored by the Society for Risk Analysis and Enconet International Zagreb and helped meet needs for improved security, stability, and coordination in NATO countries by exploring modeling technology and its application to the assessment of risks to infrastructure.

The workshop brought together experts and scientists who explored new computational models of infrastructure risk.

Risk modeling, a developing technology applicable to infrastructure, can help to counter terrorism threats. Sensitivity analyses of models can reveal points for countermeasures to attacks. Risk analysis can provide a coherent terminology and a comprehensive mathematical framework for models of infrastructure risk.

Does risk analysis help the programmer of an infrastructure model? The answer seems to be yes. The separation of likelihood from severity apparently helps programming. However, in this operation, we might recall that more futures exist than we can realize.

Does severity correlate with likelihood? Unfortunately, in this arena the answer is also yes, higher severity brings on greater likelihood.

In making predictions, bringing risk management considerations into the analysis becomes tempting. Doing so prematurely is, however, a mistake. Assessors need to compare risks separately, without conducting a poll about how people feel regarding the risk each time. Risk perception does enter the process in the risk management phase. So do other factors, such as legal structures.

The workshop program included posters and/or papers by most of the approximately 40 engineers and scientists. The organizers stated the ARW's objective of exploring different methods and recognized four kinds of models: (1) complex, (2) simulation, (3) probabilistic, and (4) nonprobabilistic. Extensive discussion concentrated on the state of the art and practice, gaps between the art and practice, ways to bridge the gaps, and future research directions.

Strategies for Risk Communication: Evolution, Evidence, and Experience
Summary of the Montauk Symposium

W.T. Tucker and Scott Ferson

Theorists and practitioners of risk communication, risk perception, neuroscience, and the evolutionary social sciences met recently to explore practical methods and robust theories of risk communication. Rapid progress in these disparate fields is opening a new window on the proximate neurological bases of risk perception and cognition, and on the evolutionary origins and functions of these mental calculators. The purpose of the symposium was to encourage interdisciplinary research and to begin the synthesis of findings with practical implications for risk communication.

The symposium was held 15-17 May 2006 at the Montauk Yacht Club Resort Hotel and Marina in scenic Montauk, New York. It was sponsored by the Society for Risk Analysis (SRA) and supported by a grant from the National Science Foundation (NSF) Decision, Risk, and Management Sciences program and the NSF Cognitive Neuroscience program, donations from Pfizer, Inc., and Applied Biomathematics, and participant registration fees.

Participants hailed from eight countries and represented a broad swath of practicing risk communication professionals. Eleven speakers gave in-depth one-hour presentations on topics ranging from behavioral economics and fMRI (Functional Magnetic Resonance Imaging) studies of equity, fairness, justice, and uncertainty to concrete strategies for studying and reducing the negative impact of innumeracy on risk communication.

Five additional speakers each gave a half-hour presentation detailing corporate, legal, and government problems and initiatives in the risk communication arena. Two distinguished evolutionary biologists gave enjoyable and thought-provoking after-dinner presentations of their human behavioral biology research.

A general theory of the human brain's information processing methods and goals would provide significant insight into human risk perception and communication.

Recent research in neuroscience and in the evolutionary social sciences is developing just such an explanatory and predictive theory.

Studies by anthropologists, psychologists, economists, and neuroscientists are providing broad-based experimental and observational support. Yet many productive researchers in these disciplines remain unaware of complementary and parallel work performed in other fields.

During 2½ days at Montauk, representatives of each tradition presented some of their best work and discussed that of the others. Cross-disciplinary research opportunities were uncovered, a common language and research agenda were debated, and a list of prescriptions and proscriptions useful for practical risk communication was begun.

Speakers at the symposium included Paul Bingham (Stony Brook University), Ann Bostrom (Georgia Institute of Technology), Mark Burgman (University of Melbourne), Martin Clauberg (University of Tennessee), Adam Finkel (Princeton University and the University of Medicine and Dentistry of New Jersey [UMDNJ] School of Public Health), Charles Janson (Stony Brook University), Joseph Kable (New York University), Elke Kurz-Milcke (Pedagogical University of Ludwigsburg, Germany), Ellen Peters (Decision Research), David Ropeik (Harvard School of Public Health), Alan G. Sanfey (University of Arizona), Chris Shilling (Pfizer, Inc.), Andrew Stirling (University of Sussex), W.T. Tucker (Applied Biomathematics), X.T. Wang (University of South Dakota), Karli Watson (Duke University), and Peter C. Wright (Dow Chemical Company).

For presentation titles and abstracts and speaker biographies, visit the symposium Web site (www.ramas.com/riskcomm.htm).

Edited presentations and a summary of the discussion will be available soon.

In addition, a two-session symposium has been proposed for the upcoming SRA annual meeting in Baltimore, Maryland. At the SRA meeting, participants will give summaries of their Montauk presentations, provide a synoptic review of the Montauk symposium, and hold a panel discussion.

The Montauk symposium was convened by W.T. Tucker and Scott Ferson of Applied Biomathematics and organized by a committee that included Adam Finkel (Princeton University and UMDNJ School of Public Health), Charles Janson (Stony Brook University), Thomas F. Long, (The Sapphire Group, Inc.), Chris Shilling and David Slavin (Pfizer, Inc.), and Peter C. Wright (Dow Chemical Company).

SRA Sponsorship of Two NATO Workshops

Igor Linkov

The Society for Risk Analysis Conferences and Workshop Committee has recently approved sponsorship for two North Atlantic Treaty Organization (NATO) Advanced Research Workshops.

The first workshop on "Wastewater Reuse—Risk Assessment, Decision Making, and Environmental Security" is organized by Drs. M Zaidi (Department of Energy) and Nava Haruvy (Netanya College, Israel). It will take place in Izmir, Turkey, 12-16 October 2006. More information is available at http://www.isu.edu/departments/natoarw/.

The second workshop on "Risk, Uncertainty, and Decision Analysis for Environmental Security and Non-Chemical Stressors" is organized by Drs. Elizabeth Ferguson (US Army Corps of Engineers), Mohammed Abdel Geleel (Atomic Energy Agency, Egypt), Jose Figueira (Technical University Lisbon), and Igor Linkov (Cambridge Environmental Inc.). It is tentatively scheduled in Lisbon, Portugal, in March 2007. Please contact Igor Linkov (Linkov@CambridgeEnvironmental.com) for more information.

TERA to Convene Voluntary Children's Chemical Evaluation Program (VCCEP) Peer Consultation on Toluene

TERA (Toxicology Excellence for Risk Assessment) has tentatively scheduled a VCCEP peer consultation meeting on toluene for Tuesday and Wednesday, 7-8 November 2006. The meeting will be held at the Northern Kentucky University METS (Metropolitan Education and Training Services) Center located near the Greater Cincinnati International Airport.

The public is invited to attend and to provide written and/or oral comments.

The meeting also will be available in real time to registered off-site observers via a Web cast. More information regarding the meeting logistics, registration for attending the meeting or observing the Web cast, and procedures for submitting comments will be provided soon on TERA's Web page (http://www.tera.org/peer/VCCEP/Toluene/TolueneWelcome.html).

The goal of VCCEP is to enable the public to better understand the potential health risks to children associated with certain chemical exposures.

Companies volunteered to collect or develop health effects and exposure information on 20 chemicals and then to integrate that information into risk and "data needs" assessments.

The assessments are evaluated by a group of scientific experts using a peer-consultation process, which is organized and operated by TERA.

Panels include experts in toxicity testing, exposure evaluation, and risk assessment.

More information about VCCEP is available at EPA's Web site (http://www.epa.gov/chemrtk/vccep/childhlt.htm).

TERA's VCCEP responsibilities include selecting panel members, convening and chairing meetings to evaluate sponsors' submissions, and preparing reports of the meetings. Information on policies and procedures, updated schedules, and meeting reports are available on TERA's Web page (http://www.tera.org/peer/VCCEP/VCCEPIntroduction.html).

2006 Midwestern States Risk Assessment Symposium

The 2006 Midwestern States Risk Assessment Symposium will be held 21-25 August at the Hyatt-Regency Hotel in Indianapolis. This year's agenda focuses on the complex toxicology and cleanup issues surrounding trichloroethylene (TCE) and perchloroethylene (PCE), as well as vapor intrusion. These issues will have a major impact on environmental policy in the coming years, including the derivation and use of cancer slope factors for these and other compounds.

In addition to platform presentations and panel discussions, case studies will be presented which discuss some of the difficulties related to evaluating and managing TCE and PCE sites. Some of the top scientists and policy makers in the United States will be presenting. Dr. Jay Zhao and Dr. Lynne Haber of Toxicology Excellence for Risk Assessment (TERA) will be conducting classes on Monday and Tuesday. There is also a vendor exhibit and poster session.

Because the event is about applications of science, it has become a very important risk assessment event for those who are implementing hazardous-waste cleanup programs. It attracts an international audience of about 400.

Dr. George Gray, US Environmental Protection Agency Assistant Administrator for the Office of Research and Development, will be the keynote speaker this year.

The Web site is http://web.e-enterprise.purdue.edu/wps/portal/Environment/msras.

Update your SRA membership information on the Members Only page of the Society Web site—www.sra.org

Member News

Eugene (Gene) Rosa

Eugene (Gene) Rosa, Professor of Sociology and Edward R. Meyer Professor of Natural Resource & Environmental Policy in the Thomas S. Foley Institute for Public Policy and Public Service at Washington State University, was awarded the Distinguished Faculty Achievement Award for teaching, research, and service by the College of Liberal Arts.

Tee L. Guidotti

Dr. Tee L. Guidotti, president of the National Capital Area Chapter of the Society for Risk Analysis, was installed on 9 May 2006 as the president of the American College of Occupational and Environmental Medicine at the American Occupational Health Conference in Los Angeles.

Guidotti also was media spokesperson for the high-profile public release of the Western Canada Study on Animal Health Effects Associated with Exposure to Emissions from Oil and Natural Gas Field Facilities, in Calgary in May. Guidotti had served as cochair of the Scientific Advisory Panel for the massive six-year, $17 million study, which spanned four provinces. Using it as a case study for health, energy, and sustainability issues, Guidotti delivered the prestigious Peter J. Kilburn Lecture on Sustainability at the University of Alberta and invited addresses to the Gulf Cooperation Council Occupational Health Conference in Dubai and at the University of Calgary. The study provided definitive results and will find direct and immediate application in public policy.

Pertti J. (Bert) Hakkinen

Pertti (Bert) Hakkinen, SRA councilor and chair of SRA's Internationalization Task Force, will join Gradient Corporation (Cambridge, Massachusetts) on 5 July 2006 as a Principal. His area of focus at Gradient will be product safety. He leaves the staff of the European Commission's Joint Research Centre in Italy after several years of work on consumer exposure-related tools (for example, development of guidance, taxonomies, and databases of bibliographic, exposure factor, and exposure data information) of potential use by industry and others for the EU's forthcoming REACH (Registration, Evaluation, and Authorisation of Chemicals) legislation and other purposes. Gradient Corporation is an environmental and risk science consulting firm with internationally recognized specialties in toxicology, risk assessment, product safety, contaminant fate and transport, and environmental chemistry.

Prior to his European Commission job, Dr. Hakkinen worked at Toxicology Excellence for Risk Assessment (TERA) and in the United States and Japan for the Procter & Gamble Company.

He received a BA in biochemistry and molecular biology from the University of California at Santa Barbara and a PhD in comparative toxicology and pharmacology from the University of California at San Francisco and is a past recipient of SRA's Outstanding Service Award.

Hakkinen's new contact information is Pertti J. (Bert) Hakkinen, PhD, Principal, Gradient Corporation; 20 University Road; Cambridge, MA 02138; 617-395-5000; fax 617-395-5001; PHakkinen@gradientcorp.com; www.gradientcorp.com.

SRA-Europe

http://www.sraeurope.org/

Markus Grutsch, SRA-E Information Officer

SRA-E Annual Meeting, Ljubljana, Slovenia Innovation and Technical Progress: Benefit without Risk?

The coming Society for Risk Analysis-Europe (SRA-E) annual meeting will be held in Ljubljana, Slovenia, 11-13 September 2006. As can be seen from the title, this year's conference has a particular focus on industrial risks, innovation, and technical progress. In addition, and as is traditional, the conference will address a broad range of risk topics—ranging from risk assessment to risk management to risk communication. This will be done by providing various platforms for interaction, discussion, and networking among the attendees.

The conference has raised considerable interest. The organizers have been contacted by many colleagues who have expressed an interest in attending the Ljubljana conference. The conference, hence, will not only gather members of SRA-E, but also participants from Eastern Europe, from Belarus and the Ukraine, from Asia, Japan, and Singapore, and from the United States and Mexico. The organizers are delighted that Christopher Frey (SRA president) and Jun Sekizawa (president of SRA-Japan) will be participating in the conference and they will receive a particular welcome. This international perspective will provide many opportunities to reinforce links among SRA chapters around the world.

The interest in the Ljubljana conference is also reflected in the number of submitted abstracts. Altogether there will be almost 100 presentations spanning a range of topics. A full conference program can be found on the conference Web site (http://sra-e-2006.ijs.si).

The organizers have thoughtfully chosen a fabulous and historic place for the social event. The conference dinner will be held on Monday evening (11 September) at the Ljubljana Castle (see photo of the castle courtyard above; for more information visit http://www.festival-lj.si/en/ljubljana_castle/).

SRA-E Attended NATO Advanced Research Workshop

On 9-13 May 2006, a North Atlantic Treaty Organization (NATO) Advanced Research Workshop on "Computational Models of Risk to Infrastructure" was held in Primosten (Croatia).

The event was cosponsored by the Society for Risk Analysis. R. Bubbico (SRA-E president-elect), J. Lambert (SRA), and B. Kontic (SRA-E) were invited as key speakers. Many scientists from different countries based in key scientific and research institutes joined the workshop.

The meeting provided an excellent opportunity to exchange findings and new ideas about fundamental issues related to risk for complex infrastructures and networks. It is intended that the presented papers will be published in a NATO Science Series book.

SRA-E Executive Member Election

Elections to the SRA-E Executive Committee are now being held. Committee members are elected to a three-year term by the members of SRA-E. There will be three vacancies on the committee. In accordance with the SRA-E Charter, six nominees have been put forward for these three vacancies (Alberto Alemanno/European Court of Justice, Ann Enander/Swedish National Defence College, Markus Grutsch/Gsponer Consulting Group International Ltd., Branko Kontic/Jozef Stefan Institute Slovenia, Myriam Merad/INERIS, and Tomas Öberg/Tomas Öberg Konsult AB). The CVs can be viewed on the SRA-E Web site (http://www.sraeurope.org/). We have invited our members to vote for up to three of the nominated candidates. For further information please refer to the SRA-E Secretariat (cozza@stru.polimi.it).

Advertisements

The 1906 San Francisco Earthquake
An Earthquake Engineering Retrospective 100 Years Later

Released on the 100th anniversary of the 1906 San Francisco earthquake, this 340-page special issue of *Earthquake Spectra* is a unique compilation of articles by the country's top earthquake experts.

The keystone paper uses the latest technology to create a scenario for a repeat of the 1906 earthquake. The authors create a fascinating risk assessment/loss estimation of the effects on the current building inventory in the San Francisco region. The remaining 12 papers address issues ranging from structural performance, ground failure, and lifelines to education, emergency management, and public policy.

The issue includes a 16-page section of color figures from five of the 13 articles. William T. Holmes and Robert Reitherman are the editors.

To purchase the report for $35 online at http://www.eeri.org/cds_publications/catalog/, click "New Products" or contact by phone: 510/451-0905, email: eeri@eeri.org, or mail: Earthquake Engineering Research Institute, 499 14th St., Suite 320, Oakland, CA 94612.

Scientist Position

ChemRisk is a consulting firm providing state-of-the-art toxicology, industrial hygiene, epidemiology, and risk assessment services to organizations that confront public health, occupational health, and environmental challenges. ChemRisk is seeking applicants with training in toxicology, pharmacology, the environmental sciences, risk assessment, biomedical engineering, industrial hygiene, medicine, or health physics.

This position requires a bachelor's degree in environmental or toxicological sciences. Candidates with a PhD or master's degree are preferred. Candidates with a background in consulting are especially desired. Positions are available in the offices in San Francisco, California; Boulder, Colorado; Houston, Texas; and Pittsburgh, Pennsylvania.

Please send résumés to ChemRisk, 25 Jessie Street, Suite 1800, San Francisco, CA 94105, or email: hr@chemrisk.com, phone: 415-896-2400, fax: 415-896-2444, www.chemrisk.com.

RISK *newsletter* and SRA Web Site Advertising Policy

Books, software, courses, and events may be advertised in the Society for Risk Analysis (SRA) RISK *newsletter* or on the SRA Web site at a cost of $250 for up to 150 words. There is a charge of $100 for each additional 50 words.

Ads may be placed both in the RISK *newsletter* and on the Web site for $375 for 150 words and $100 for each additional 50 words.

Employment opportunity ads (up to 200 words) are placed free of charge in the RISK *newsletter* and on the SRA Web site. Members of SRA may place, at no charge, an advertisement seeking employment for themselves as a benefit of SRA membership.

Camera-ready ads (greyscale) for the RISK *newsletter* are accepted at a cost of $250 for a 3.25-inch-wide by 3-inch-high box. The height of a camera-ready ad may be increased beyond 3 inches at a cost of $100 per inch.

The RISK *newsletter* is published four times a year. Submit advertisements to the Managing Editor, with billing instructions, by 30 December for the First Quarter issue (published early February), 30 March for the Second Quarter issue (early May), 30 June for the Third Quarter issue (early August), and 30 September for the Fourth Quarter issue (early November). Send to Mary Walchuk, Managing Editor, RISK *newsletter*, 115 Westwood Dr., Mankato, MN 56001; phone: 507-625-6142; fax: 507-625-1792; email: mwalchuk@hickorytech.net.

RISK *newsletter* is published by the Society for Risk Analysis

SOCIETY FOR RISK ANALYSIS
1313 Dolley Madison Blvd., Suite 402
McLean, VA 22101

Deadline for RISK *newsletter* Submissions

Information to be included in the **Fourth Quarter 2006** SRA RISK *newsletter*, to be mailed early November, should be sent to Mary Walchuk, RISK *newsletter* Managing Editor (115 Westwood Dr., Mankato, MN 56001; phone: 507-625-6142; fax: 507-625-1792; email: mwalchuk@hickorytech.net) no later than **20 September 2006**.

The Society for Risk Analysis (SRA) is an interdisciplinary professional society devoted to risk assessment, risk management, and risk communication.

SRA was founded in 1981 by a group of individuals representing many different disciplines who recognized the need for an interdisciplinary society, with international scope, to address emerging issues in risk analysis, management, and policy. Through its meetings and publications, it fosters a dialogue on health, ecological, and engineering risks and natural hazards, and their socioeconomic dimensions. SRA is committed to research and education in risk-related fields and to the recruitment of students into those fields. It is governed by bylaws and is directed by a 15-member elected Council.

The Society has helped develop the field of risk analysis and has improved its credibility and viability as well.

Members of SRA include professionals from a wide range of institutions, including federal, state, and local governments, small and large industries, private and public academic institutions, not-for-profit organizations, law firms, and consulting groups. Those professionals include statisticians, engineers, safety officers, policy analysts, economists, lawyers, environmental and occupational health scientists, natural and physical scientists, environmental scientists, public administrators, and social, behavioral, and decision scientists.

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