



# SAFETY

NEWS

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## A Publication of the Human Factors & Ergonomics Society Safety Technical Group

### Product Safety Information on the Web: Current Practices and Issues to Consider

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Provision of information by manufacturers over the World Wide Web is still a new and rapidly evolving activity. Statistics show that, in 1993, there were a total of 10,000 registered domain names (.com, .net, and .org) and, by 1996, that number had reached 600,000. As of 1999, the total number of registered domain names was 8.1 million (Network Solutions, 2000). Usage of the Web has also increased at a similar rate. In 1995, there were roughly 44 million world-wide Internet users, and in the year 2000, that number has increased to 349 million (Computer Industry Almanac, 2000). Manufacturers of consumer products are increasingly staking a presence on the Internet and they are doing so for numerous reasons—marketing, e-commerce, interaction with consumers, etc. One facet of these communications that has received relatively little attention is the issue of providing product safety information (e.g., warnings) on the Web.

This article reports on a project aimed at assessing the prevalence and characteristics of product safety information currently available on manufacturer's Web sites as well as our own observations on issues related to providing safety information on the Internet. When considering issues related to product safety information on the Web, it is important to keep in mind various characteristics of the Internet. First, it is a

medium that was not designed, nor has it been widely publicized, as a channel for the kinds of safety information that manufacturers have traditionally provided with their products. Second, it is a medium that provides many different types of information and interactions. While it has similarities to other traditional media, it is not a subset nor is it directly analogous to other forms of communication. Third, the ways in which people use the Internet are evolving, as are the expectations of users. For example, although there are likely to be exceptions for certain products or industries, there has been no generally publicized expectation, recommendation, standard, guideline, etc. suggesting that information on a manufacturer's Web site would replace safety information that has historically been provided in more traditional media.

#### Method

To get some idea of the current state of Web-based presentation of safety information, we conducted a survey of 30 Web sites. We selected ten classes of products and selected one product category from each class (see Table below). For each product category, we identified numerous sites that contained the product of interest and selected three sites from these. The product categories were selected to represent products that (a) had some potential hazard

*(continued on page 2)*

component, (b) were ones for which people might go on-line to find information, and (c) had the potential for some type of product recall activity. This sample is too small and limited to permit much generalization about the “state of the art” with regard to Web-based presentation of safety information. However, these product categories are sufficiently diverse to reveal some interesting findings with regard to how manufacturers currently present safety information on Web sites.

Product Class	Product Category
<i>Major household appliance</i>	<i>Refrigerator</i>
<i>Minor household appliance</i>	<i>Toaster</i>
<i>Personal care product</i>	<i>Hair dryer</i>
<i>Audio/visual equipment</i>	<i>Television</i>
<i>Entertainment accessory</i>	<i>TV stand</i>
<i>Household furniture</i>	<i>Recliner</i>
<i>Household cleaner</i>	<i>Floor cleaner</i>
<i>Outdoor use product</i>	<i>Dual-fuel stove</i>
<i>Power tool</i>	<i>Power drill</i>
<i>Over-the-counter medication</i>	<i>Pain reliever</i>

## Results

Our analysis revealed that few Web sites currently provide safety information in any form and that there is rather large variation among methods for sites that do provide it. Two sites (both for refrigerator manufacturers) provided owner’s manuals (out of 18 products that might be expected to have an owner’s manuals—from the categories refrigerator, toaster, hair dryer, television, dual-fuel stove and power drill). These manuals were available in PDF format for downloading. Two sites, both for pain relievers, provided the actual label information for products (out of six that might be expected to have only label information and no manuals—from the categories floor cleaner and pain reliever). In cases where the manuals or labels were available, safety information was included as part of the overall material that could be accessed. There may be many reasons for providing such information, only one of which is to provide safety information specifically. We do not know the manufacturers’ motivation for providing the manuals or labels, but it is noteworthy that the safety information that would normally accompany these sources of information in hard-copy format did accompany the information as it was presented on the Web.

One of the products that employed hazardous chemicals (dual-fuel stove) provided material safety data sheets (MSDSs) in PDF format. One TV stand manufacturer provided downloadable assembly instructions, while another provided video information that could be downloaded. Neither of these items contained warnings and it is not known whether the documents that would serve as their hard-copy counterparts contained safety information. Four manufacturers provided links to information about product recalls and these links were located on the company’s home page. One recliner manufacturer’s Web site provided a single warning for its product that was included within the warranty information.

Although some sites provided a form of safety information for their products, only a few provided this information (or links to it) on the Web page that housed information for the specific product itself. Much of the safety information was included in FAQs (frequently asked questions) or other support pages that could be linked from the company’s home page (but not from the specific product page). This fact may make sense in light of the fact that the product pages in question contained no information (e.g., marketing information, product specifications, etc.) that would necessitate a warning. In the cases where warning information was present in support pages or FAQs, they generally accompanied statements regarding specific concerns, such as instructions related to product use, care and/or maintenance.

## Discussion

The issue of including safety information on a Web site for a product can be a difficult one to grapple with. Given the nature of most Web sites for consumer products (currently), there is little reason to suggest that presenting safety information is warranted or required. Depending on the purpose of the Web site (or particular page within a site), it is possible that safety information might be recommended. As an initial rule of thumb, manufacturers might consider the purpose of their Web site (or page within a site) and compare the information presented there with other forms of communication that have the same purpose (e.g., advertisements, marketing materials, point-of-purchase information, etc.). The practices employed in one media should generally follow the ones used in another. As an example, the U.S. Food and Drug Administration (FDA) requires that prescription drug advertisements present a “fair balance between information relating to side effects and contraindications and information relating to effectiveness of the drug.” The thrust of the FDA’s position on Internet content is that Web-based information about medical devices and prescription drugs should be similar to other forms of information provided by the manufacturer (e.g.,

print advertisements). The FDA has advised companies to “ask themselves whether the information they seek to post would be permissible on ‘hard copy.’” (cited in Moberg, Wood & Dorfman, 1998).

While “fair balance” is not generally required in communications for consumer products as it is for FDA-regulated items, the principle underlying the FDA’s position can potentially be used as a guide to determine when safety information might be presented on a Web site for consumer products. Specifically, the FDA suggests that safety information (i.e., contraindications, side effects) should be presented on the Web because it is also *required* in a manufacturer’s communications in other media. In determining whether safety information might be provided on a Web site (or a portion of a site), one might evaluate the extent to which the same communication in another medium would normally be accompanied by warnings or other safety communications. If the focus of the manufacturer’s Web site is on marketing, then one might examine marketing information provided in other media (e.g., television, radio, print) to see whether safety information is included there. If it is, then similar types of safety information might be considered for presentation on the Web.

### Some Issues to Consider

In closing, through this investigation and our on-going work, we have identified a number of issues that manufacturers may wish to consider if safety information is to be presented on the Web:

1. What types of safety information will be available on a product’s Web site (e.g., manuals, product labels, safety updates, recall information, etc.)?
2. If safety information will be provided, what form should it take? For example, should copies of the manuals and/or labeling be provided for downloading directly or should users be able to order them on-line?
3. Where will safety information be located on a Web site (e.g., centrally located or distributed across the site)?
4. In what format will the information be available?  
Will any safety information available on the site be converted to HTML (hypertext markup language) pages or will the coherence and format of this information be preserved by presenting it in other formats (e.g., PDF, word-processor documents)? If non-HTML formats are used, are there concerns about document size (i.e., download times) and compatibility with the user’s operating system?
5. Will historical data be available or only current data?  
Will available safety information exist for current product models or will the information be available for older models as well?

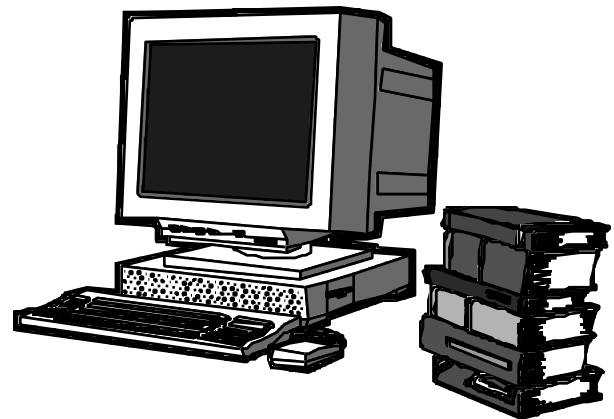
If only current data is available, will caveats be presented regarding the limitations of this information and its applicability (or lack thereof) to older products? Will users have the ability to get historical data by other means (e.g., calling the company, etc.) and will information be provided about how to accomplish this?

6. How frequently will information on the site (and about products) be updated?  
What is the “trigger” that determines when information will be updated on the Web site?
7. To what degree will there be interaction between the user and the manufacturer?  
Will there be any product registration or contact information? Will there be options for updating customers by e-mail or other means?
8. Will users require a password or product serial number to access the information or will it be available to all?
9. To what extent will safety information on the Web be consistent with hard copy materials that a user might receive with the product?

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# The Arnold M. Small Lecture Series: Reflections on Safety

## Who was Arnold Small?

The HFES Safety Technical Group named the lecture series in honor of Arnold Small because of his efforts in creating and fostering the growth of our Safety Technical Group. Arnold was very involved with the entire Society from its earliest days and, even in retirement from the University of Southern California Institute of Safety and Systems Management (where he was Professor Emeritus), he was a member of all the Society's technical groups until his death in December 1992. One of the founders of the Society, he served as its first Vice-President in 1957-1958 and as President in 1959-1960.

Among honors received from the Society, he was the first recipient of the President's Distinguished Service Award in 1985. But for those who knew Arnold, perhaps most memorable was "his decency and humanity—the feeling that he was interested in them, personally" (quoting from the remembrance by his colleague, David Meister published in the HFES Bulletin, March 1993). He was approachable, knowledgeable and helpful. Sharing, with Arnold, his breadth of involvement with HFES (as a member of all technical groups), Jerry Duncan served as the Chair of the Arnold M. Small Lecture series from its inception in 1988 through 1997 when Jake Pauls assumed this duty. Mike Kalsher agreed to serve as Co-Chair in 1999.

## Past Speakers in the Series

1988 David Meister and Alan Swain (Anaheim, CA)

"Human Reliability"

1989 Paul Slovic (Denver, CO)

"Perception of Risk"

1990 Karl Smith (Orlando, FL)

"Hazard Management"

1991 David Thompson (San Francisco, CA)

"Fault Logic Methodology for Analyzing Human/Machine Error"

1992 Donald Norman (Atlanta, GA)

"Where Human Factors Fails: Ergonomics Versus the World of Design and Manufacture"

1993 Scott Geller (Seattle, WA)

"Integrating Human Factors and Applied Behavior Analysis for Occupational Health and Safety"

1994 Thomas Armstrong (Nashville, TN)

"Design of Jobs for Control of Cumulative Trauma Disorders of the Upper Limbs"

1995 David Alexander (San Diego, CA)

"The Economics of Ergonomics"

1996 Jake Pauls (Philadelphia, PA)

"The Pathology of Everyday Things"

1997 Julian Waller (Albuquerque, NM)

"Injury, Medicine, and Ergonomics: An Odyssey"

1998 Patricia Waller (Chicago, IL)

"Societal Human Factors: Broadening the Vision"

1999 Peter Hancock (Houston, TX)

"Custer and the Titanic: Completing the Great Instauration and Elaborating the Science of Safety"

Their lectures have reflected the systems approaches to safety pioneered by Arnold Small and some of the breadth of his interests. Since 1996, Jake Pauls has produced videos of the Lecture which are available for sale, with net proceeds going to the costs of the Lecture such as travel costs for speakers who are not members of HFES. (All speakers receive an honorarium and the gratitude of the Safety Technical Group.) With Arnold Small's last role with HFES being its Historian, it is only fitting that archival records be produced of the Lectures, one of which (by Paul Slovic on "Perception of Risk") was also made available as a monograph; others resulted in contributions to conference proceedings.

Safety Technical Group members are encouraged to participate in supporting the Lecture, first by their attendance and in other ways including suggestions to the Co-Chairs, individual purchase of videos and encouraging their education institutions to purchase complete sets of the videos which are available to such institutions at a considerable saving over costs of individual videos.

Suggestions and assistance with eventually making the videos available on the Internet would also be appreciated. Contact the Co-Chairs Jake Pauls at [bldguse@aol.com](mailto:bldguse@aol.com) or Mike Kalsher at [kalshm@rpi.edu](mailto:kalshm@rpi.edu). (The videos are currently distributed in VHS video cassette format; see details on p. 5).

## 13th Arnold Small Lecture in San Diego, CA

Most important, plan to be at the presentation of the 13th Annual Lecture this year by the father and daughter lawyer team of George and Barbara Peters on Thursday, August 3rd at 1:00 p.m.

Their talk is entitled "New Opportunities: Challenges for Human Factors in the Globalization of Safety, Health and the Environment." The abstract for their discussion follows:

*Many new opportunities for human factors and professional applications have resulted from the internationalization of safety, health, and the environment. This includes the challenges of universal design, the use of predictable injury rates in design and test criteria, the requirements for more detailed risk assessments involving human factors, increased driver distractions and integration of information, the informed purchaser principle, and sociopathy relating to danger. The importance of a biochemical/neurological basis for man-machine operation is discussed and the implications of recent misconduct are described.*

George A. Peters, J.D., P.E., C.S.P., C.P.E., FIOSH, FRSH, is licensed as an attorney, engineer, and psychologist. He is a Fellow of the HFES and received its Jack Kraft Award in 1972. He has authored or co-edited 35 books, has written hundreds of articles that have appeared in legal, engineering, and medical journals, and is a frequent lecturer worldwide.



Barbara J. Peters, J.D., is an attorney who deals with safety, health, and environmental issues. She is co-editor of a 6-volume automotive engineering book series, a 21-volume series on asbestos diseases, and many journal publications and lectures. She has a particular focus on human factors in accident causation.

With this internationally-known team, this year's Arnold M. Small Lecture in Safety promises to be a most fitting contribution to this most international of conferences in ergonomics.

## Ordering Video Tapes of Past Lectures

For those wishing to purchase one or more of the four videos of prior lectures, the following are available: "Pathology of Everyday Things" by Jake Pauls (1996) distributed with the 18-minute film, "The Stair Event," \$50.00; "Injury Medicine and Ergonomics" by Julian Waller (1997) \$40.00; "Societal Human Factors: Broadening the Vision" by Patricia Waller (1998) \$35.00; and "Custer and the Titanic" by Peter Hancock (1999) \$40.00. All four videos are available to educational institutions for \$105.00, a savings of 36%. Orders should be prepaid (make checks payable to "Jake Pauls"); shipping costs are included in the prices shown.

Order from Jake Pauls, 12507 Winexburg Manor Drive, Suite 201, Silver Spring, MD 20906-3442.

## 13th Annual Arnold M. Small Lecture in Safety

Thursday, August 3, 2000 at 1:00 p.m.

*Sponsored by the Safety Technical Group of HFES*

"New Opportunities: Challenges for Human Factors in the Globalization of Safety, Health and the Environment."

George A. Peters, J.D., P.E., C.S.P., C.P.E., FIOSH, FRSH and Barbara J. Peters, J.D. They are, respectively, Senior Partner and Partner in the consulting and law firm of Peters and Peters, Santa Monica, California. Responsible as co-editors of multi-volume book series on asbestos diseases and on automotive engineering and litigation, they have also lectured in many countries. Their efforts are well known in many professional organizations concerned with ergonomics, safety, engineering, certification, standards, law and other topics important to attendees of the International Ergonomics Association XIVth Triennial Congress and the Human Factors and Ergonomics Society 44th Annual Meeting in San Diego.

## Note from the Chair

Stephen Young

As Chair of the Safety TG, it is my wish to see that professionals in the area of safety gain something useful from their membership. One way to do this is to reflect on what this TG has to offer its members. In large measure, the most salient contribution is the newsletter. This medium is a vehicle for communicating information to our members about what is happening in the area of safety. As such, I applaud the newsletter co-editors, Jean Schiller and Elaine Wisniewski, who have expanded the content of the newsletter to include greater quantity and diversity of material. We hope to expand on this in future issues by soliciting feedback and material from our readership. If you have an article, review, commentary, etc. that you would like to share with members of the Safety TG, feel free to send it to Jean, Elaine or me and we will be happy to work with you on seeing that it is disseminated. We are also working to design the Safety TG web page and continue the expansion of the listserv to better facilitate communication between members of this technical group.

In addition, we hope to reach out to members of other technical groups that might have an interest in safety issues. For the next year, we have decided to send copies of *Safety News* to members of the Transportation, Forensic and Consumer Products Technical Groups who are not currently members of the Safety TG. The purpose of this gesture is to show people in other related technical groups what we might have to offer them.

I look forward to serving you as Chair in the coming year. If you have any questions about the Safety Technical Group or the newsletter, please feel free to contact me using the information on the back page. I am excited about the work that is being done by members of this technical group and hope to expand the role of the TG in providing a forum for everyone in the field of safety. Please keep in touch.

## Join the STG Email Group

The Safety Technical Group (STG) has an email group with 190 members. However, that is just a fraction of the STG which has almost 600 members! In order to join the email group, go to [www.egroups.com/group/safetytg](http://www.egroups.com/group/safetytg) and click on the "subscribe" button. Follow the instructions and you will be added to the list.

## Attend the Business Meeting...and Don't Miss the Social Event!

The Safety and the Forensics Professional TG's will have a joint social event after the Business Meeting in San Diego. The Business Meeting will be Tuesday, August 1st from 4:15pm to 5:45pm. The social event will begin after the meeting. See you there!

## Two Ways to Increase Interest in the STG

The members of the Safety Technical Group (STG) come from diverse backgrounds spanning a variety of areas within the safety profession. We can all learn from each others experiences. Increasing the membership in the STG and distributing *Safety News* can help to facilitate this. Consider doing your part to increase the STG membership by doing one of the following:

### Sponsor a New Member to Join the Safety TG

Do you have a colleague that would be interested in joining the STG? They do not have to join the HFES to be a part of the STG. If you are interested in sponsoring a new member, fill out the form on the back page of this newsletter. It will only cost you \$6 to sponsor a new member!

### Send a Complimentary Copy of *Safety News* to a Colleague

Do you have a colleague that would be interested in receiving a complimentary copy of *Safety News*? There will be no charge to them or to you. There is no obligation for them to join the STG. Just fill out the form on the back of this newsletter.

## Fall Edition of *Safety News*

We need your help in providing the content for the fall newsletter. Submissions could be in many forms, including:

- book reviews
- description of a consultant's work
- description of a human factors/ergonomics/safety laboratory's work
- an article discussing the current issues in a particular area.

We will be accepting submissions at any time. Feel free to discuss the form of submission with us prior to initiating or submitting your work. The next newsletter is slated to go to press in September 2000. So, if you would like your submission to be printed in that issue, we need to hear from you as soon as possible.

# Risk Assessment in the Machine Tool Industry

Bruce W. Main

A subcommittee of the B11 machine tool industry has recently completed work on the technical report ANSI B11 Technical Report #3 Risk Assessment and Reduction—A guideline to estimate, evaluate and reduce risks associated with machine tools (TR3). The report provides a guideline on how to conduct risk assessments for machine tools. The TR3 subcommittee began its work in 1995 when the B11 Safety Standards Committee asked the subcommittee to develop a technical report containing guidelines for applying risk assessment principles to machine tools during the design, installation and use phases. The TR3 subcommittee operates under the auspices of the Association for Manufacturing Technology, the secretariat for the B11 standards. The following is excerpted from the Abstract and Scope of the report:

## Abstract

This technical report is part of the ANSI B11 series of reports and standards pertaining to the design, construction, care and use of machine tools. It is a guideline—not a standard. This report defines a method for conducting a risk assessment and risk reduction for machine tools, provides some guidance in the selection of appropriate protective measures to achieve tolerable risk, and describes the risk assessment and risk reduction responsibilities of both the machine tool supplier and user. This method requires gathering the appropriate information, determining the limits of the machine, identifying tasks and hazards over the life-cycle of the machine using a task-based approach, estimating risk associated with the task-hazard pairs, reducing risk according to a prioritized procedure, and documenting the results. The risk reduction process is not completed until tolerable risk is achieved. Flow charts illustrate the process. Checklists of tasks and hazards are included in the document. This technical report explicitly recognizes that zero risk is not attainable. This guideline is intended for use on all new or modified machines and equipment designs and processes. The user may also utilize it to assist with risk assessment and risk reduction for existing tasks and hazards.

## Scope

TR3 provides the procedures and methods to assess the risks associated with the design, construction, care and use of machine tools as included in the B11 machine tool safety standard series. It serves as a guideline for suppliers and users of machine tools, providing a framework and procedure to identify tasks and hazards and to estimate, evaluate, reduce, and document the risks associated with these hazards under the various conditions of use of that machine or system.

One of the significant advances made in the TR3 effort is the recognition that both the supplier of the machine and the user of the machine have risk assessment and risk reduction responsibilities. The European approach of EN1050 does not make this distinction and therefore places the responsibility for risk assessment strictly with the machine supplier. In the U.S. machine tool industry, cooperative efforts of suppliers and users are necessary to attain the goal of tolerable risk through risk assessment and risk reduction (see Figure 1). Refer to TR3 for greater detail.

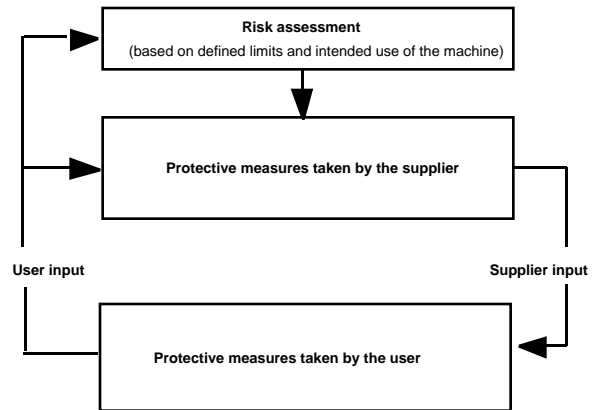


Figure 1: Relationship between supplier and user  
(Based on ANSI/B11 Technical Report #3)

Suppliers (most often manufacturers) typically reduce risks through design techniques, safeguards and information for use following the hazard hierarchy of design, guard, warn, train and personal protective equipment. Users (most often employers) typically reduce risk further with additional safeguards, organizational measures, training, and personal protective equipment. According to TR3, when the user designs, constructs, modifies or reconstructs the machine, the user is considered to be the supplier and assumes the risk assessment responsibilities of the supplier.

## Report Release—Status Update

TR3 has been completed. The drafting sub-committee has refined the process in discussions over several years. The process has been field tested and passed final review. The report is expected to be released sometime in 2000 but release date is uncertain. However, additional information about TR3 and several other current risk assessment activities is available in a technical report: Risk Assessment Benchmarks 2000: getting started, making progress, available at [www.designsafe.com](http://www.designsafe.com).

*Bruce Main, P.E., CSP, is president of design safety engineering in Ann Arbor, Michigan. He serves on the Advisory Committee for the Institute for Safety Through Design and on the subcommittee writing ANSI B11 TR3. Contact the author at 888.628.8788.*

# The Unrecognized Hazards of Unpasteurized Juice

Alan C. Buck

Late one evening in August 1998, a woman began preparing the lunch she would take to work. In her refrigerator was a half-gallon bottle of some kind of natural juice, and she decided to empty juice from the larger container to a smaller clear plastic methacrylate bottle so she could take it in her lunch. At lunchtime, while shaking the methacrylate bottle, it exploded and a shard of the methacrylate neatly amputated the woman's thumb.

The woman hired an attorney to sue the juice manufacturer, asking for medical expenses and lost wages. The thumb was successfully reattached with little loss of dexterity and no persistent pain.

The attorney in turn hired me to investigate the case and serve as an expert witness. The case required knowledge of food processing and safety as well as the chemistry of fermentation.

## Facts of the Case

The "all natural juice" sold only in PET plastic bottles carried only the warning of "keep refrigerated." Shelf-life, as printed on the bottle, was 13 or 14 days after processing and bottling in a California plant. The injured woman's bottle of juice was kept refrigerated and was within the shelf-life date, but she had allowed the juice to equilibrate to ambient temperatures of about 85-87°F.

Documents uncovered during discovery, coupled with depositions taken from the juice manufacturer's quality control manager, established certain facts:

- The juice was not pasteurized, sterilized or even homogenized.

- The juice contained several types of fruit and vegetable pulps plus several natural juices from various sources.
- Except for the banana, the component juices and pulps were often several weeks old, having been warehoused in freezers or chilled storage rooms until ready to be blended into the final product; banana pulp was several months old.
- The juice components were delivered in refrigerated trucks to the manufacturer's processing plant, but temperature records of the components during mixing and bottling were glaringly absent.
- The bill of sale from each vendor of the juice components announced "assured quality," but often the analyses reports that substantiated this quality were not received by the juice manufacturer until several days or even several weeks after the juice had been bottled and sold.

Natural fruit juices are often linked directly to outbreaks of listeria, salmonella or E. coli related food poisoning. The need for a massive recall of the contaminated product is understandable when one considers that microbial culture test results are not available until several days after the juice is sold.

In this case, there were test data indicating counts of molds, fungi and several infectious bacteria, all within FDA-approved limits for microbial contamination. Some of these test data were completed before the juice components were frozen—several months

before the components were processed into the finished juice.

None of the analytical test data identified the strains of yeast or fungi in the juice components. During deposition, it was stated "these are naturally occurring yeast strains that are found on grapes, apples, etc." These "wild yeasts" were never identified or characterized by the suppliers or the natural juice processor.

**"Natural fruit juices are often linked directly to outbreaks of listeria, salmonella or E. coli related food poisoning."**

The quality control staff at the juice manufacturer seemed unaware of or indifferent to the fact that different strains of yeast may produce gases (CO<sub>2</sub>, CH<sub>3</sub>) and/or alcohols (ethanol, polyols, etc.). They may reduce or oxidize certain vitamins, sugars or tannins, and most of these wild yeasts will definitely reproduce at even modest temperatures (>45°F).

The natural juice contained a vitamin and mineral supplement but contained no preservatives, fungal growth retardants or anti-amylase enzymes. All the naturally occurring sugars in the juice components were metabolically available to the yeasts and fungal spores in the juice.

## Evidence of Fermentation

The juice components must have started to ferment as soon as the temperatures of the mixture exceeded 45°F. Certainly, when the woman decanted

the juice from the refrigerated bottle into her smaller lunch bottle, she initiated one or more fermentation processes that accelerated as the juice equilibrated to 85-87°F ambient temperature. The CO<sub>2</sub> gas generated by the fermenting juices and pulps was poorly dissolved in the unhomogenized liquids at 85°F. When the woman shook the bottle, the gas pressure was sufficient to rupture the methacrylate plastic.

Testing completed on several samples of the juice showed that even when kept refrigerated (45-48°F), many juice samples showed ample evidence of fermentation before the shelf life had lapsed. Distention of the half-gallon PET bottle, gas bubbles visibly suspended in the liquid and sediments, and the aroma of ketone were evident in samples only 10 days old.

No alcohol tests were completed, but CO<sub>2</sub> production is often accompanied by ethanol production when wild yeasts ferment fruit sugars. (Vintners rely on this fermentation to create the alcohol in wines.)

Although many consumers are aware of the epidemics of bacterial food poisoning caused by unpasteurized fruit juices, few are aware of the dangers of the fermentation products that develop in such juices. Consider just a few of the possible consequences of such fermentation:

- The CO<sub>2</sub> gas explodes a bottle of juice inside a lunch, the plant is evacuated and the bomb-squad may never delineate the cause of the explosion.
- The fermented juice contains just enough ethanol to prompt an epileptic seizure in a recovering alcoholic taking the drug Ant-abuse.
- After equilibrating to crib temperature, the fermenting juice

blows the nipple off a baby bottle, choking the baby.

- A bottle of juice in the trunk of the car heats up on the way home from the grocery store. The resulting explosion causes an automobile accident.
- The juice explodes on the kitchen counter and your new ceiling is festooned with banana pulp—at a minimum.

**“Although many consumers are aware of the epidemics of bacterial food poisoning caused by unpasteurized fruit juices, few are aware of the dangers of the fermentation products that develop in such juices.”**

The basic error occurs when the juice is sold prior to review of the quantitative results that determine both the counts and the types of bacteria and fungi in the components. The juice manufacturer has come to rely on the integrity of his suppliers and the fact that retailers will always keep the product refrigerated. In fact, the manufacturer offers full credit on the return of any “swollen or distended bottles.” This is a tacit admission that the juice does ferment even at lower temperatures.

If the wild yeasts could be counted and identified, the manufacturer could predict the metabolic rates and the metabolic products that might contaminate the juice in two days, six days or 12 days. Both bacterial and fungal counts and identification would necessitate that the juice be withheld from the market for two to three days until these

microbial analyses were completed. Quality control/quality assurance is sacrificed to the schedules of mass production and limited storage space.

## Legal Outcomes

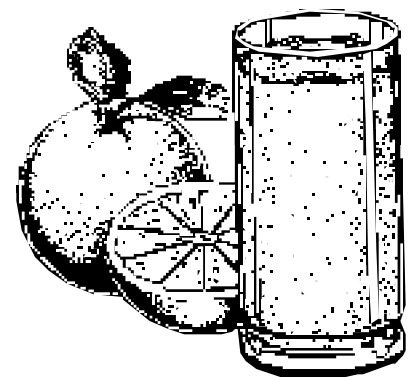
This case was settled out of court. The injured woman received full compensation for medical and legal expenses in addition to lost wages. There were no punitive damages nor any “pain and suffering” awards. Since the juice manufacturer got off so cheaply, there is little impetus to change the way they do business. I expect to see other tort cases involving “natural juices” that have fermented to produce explosive, unpalatable and toxic products.

Several juice manufacturers have converted to pasteurization and homogenization of all their juice products, but only after serious outbreaks of bacterial infections (salmonella, listeria) have prompted class-action lawsuits. It seems as if only a costly lawsuit or regulatory scrutiny will prompt the needed changes.

*Alan C. Buck is president of Environmental Forensics, a consulting company in Orange County, California. He acts as case consultant and expert witness in a variety of toxic torts.*

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# Report Falls Short in Assessment of “Supreme Court of Aviation Safety”

*Editor's Note: The RAND Corporation did an in-depth study of the NTSB, which was released last December and still available readily at [www.ntsb.gov](http://www.ntsb.gov). C.O. Miller chose to write a 25 page commentary on RAND's work which adds numerous issues to what RAND discussed. Miller's paper is entitled, "Preliminary Commentary on the RAND Corporation Study: 'Safety in the Skies—Personnel and Parties in NTSB Aviation Accident Investigations'", (March 27, 2000.) It can be obtained at: [www.aviationtoday.com](http://www.aviationtoday.com) (click on "Special Reports" and scroll to document title). Miller was Director of the Bureau of Aviation Safety of the NTSB from 1968 to 1974. He was awarded "Fellow" status in the Human Factors Society in 1978.*

*David Evans, Managing Editor of the Air Safety Week newsletter, published a precis, below, of Miller's article. This precis was reprinted with permission of Phillips Business Information, Inc., Air Safety Week, April 24, 2000, Vol. 14, No. 17.*

As an agenda for modernization, the first independent review of the organization and practices of the National Transportation Safety Board (NTSB) falls short, according to a veteran accident investigator.

Many basic issues were not addressed by the December 1999 RAND Corp. report of the Safety Board, argues C.O. Miller, a veteran accident investigator, NTSB alumnus, and "Fellow" of numerous aviation and safety related organizations (see *Air Safety Week*, Dec. 13, 1999, p. 10).

Sometimes referred to as the "Supreme Court of Aviation Safety," Miller described the Safety Board as "a good organization; at times, a great one." But any organization can profit from an outside look, and Miller lauds Chairman Jim Hall for commissioning RAND to take a hard look at his organization.

Reduced to a one-word question, Miller believes the RAND report presents a major challenge: "Modernization?" The short answer is, "yes," but in what way? Miller completed a 25-page commentary on the RAND effort, which he has provided to Hall and to the RAND authors (see box at right). He found much to applaud in a report he believes represents "a significant milestone in the saga of the NTSB." But many topics could have been pushed further. For example, if RAND found the Board "insular," Miller believes budget and time constraints may have more to do with the Board's limited participation in professional technical committees and seminars. If the Board is to rely more on outside experts, as RAND recommended, Miller asked, "How do you integrate a \$200 per hour consultant with a civil servant in the GS 13-15 range?"

Regarding RAND's assertion that investigations are growing more complex, Miller claims RAND "forgot two things." First, "complexity" may stem from non-safety activities, corollary to the "technical" aspects of accident investigation, such as feeding the media, coping with grandstanding politicians, and handling family matters. The primary mission remains accident investigation.

Second, investigators today have new tools: modern hazards analysis techniques, sneak circuit analysis, advanced modeling and simulation, etc. Add improved flight data recorders and real-time data link and Miller argues that "the complexity factor becomes moot."

## Remarks on Reform

*"Like a bikini bathing suit, what the (RAND) report reveals is indeed interesting and meaningful; however, what it fails to disclose is vital!" -- C.O. Miller*

### On the organization of investigations

"A specific investigation segment, absent at the NTSB and not addressed by RAND, is the need for 'accident prevention program management' investigation (nee 'safety program management')... in recent years, such programs have become requirements for airlines. Does it not follow that this should become a defined area of inquiry in most cases? The programs are supposed to be a major factor in prevention—and they really are—thus, if an accident does occur, where did the program break down? What else could have been done from a program viewpoint?"

### On the party system

"Unfortunately, RAND did not address at all the basic issue that... exists now; namely, the acceptance of only the FAA and manufacturers as parties to virtually all G.A. (general aviation) investigations (by law for the FAA). This had led to gross unfairness to pilots, aircraft owners and victim family members among others, let alone meaningless or skewed available accident prevention information."

### On hiring practices

"The (U.S.) Civil Service placement system has yet to recognize the existence of a safety profession beyond that of a hard hat and steel toed shoes concept. A research background Ph.D. in some non-technical field will be given more credit than getting hands (and everything else) dirty in field investigations... This is a national disgrace and certainly is not limited to the NTSB."

*Source: Preliminary Commentary on the RAND Corp. Study, March 27, by C.O. Miller. For the full text of Mr. Miller's critique, see [www.aviationtoday.com](http://www.aviationtoday.com).*

# Schedule for Safety Technical Group Sessions at HFES/IEA 2000 Meeting

Below is the schedule for the Safety Technical Group Sessions for the HFES/IEA 2000 meeting in San Diego, California, divided by Lectures, Symposia, Panels, and Posters:

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## Lectures

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### Monday 1:00pm - 2:15pm

#### Design of Warnings

Hitt	Reported Behavior to Hurricane Warnings: Examining the Importance of Warning Content
Shaver	Effects of Warning Signs and Symbol Explicitness on Behavioral Compliance
Young	Predictors of Pictorial Symbol Comprehension
Deppa	Methodology for Performing Applied Research to Improve Existing Product Warning (Soda Bottle)
Martin	Effectiveness of Warnings With and Without Explicit Hazard and Consequence Information

### Monday 2:45pm - 4:00pm

#### Case Studies in Safety

McMullin	Development, Validation, and Limitations of an Expert System for Safety and Health Concerns in Technology Development
Garrigou	Risks Related to Asbestos Removal Activities: Analysis of Two Case Studies
Sorock	A Case-Crossover Study of Occupational Traumatic
Schmager	Integration of Human Factors and Hazard Analysis
Karsh	A Case-Control Study of Medication Use and Acute Occupational Injury

### Tuesday 8:30am - 9:45 am

#### Safety Culture and Management Issues

Ek	Safety Culture and Human-Machine Interaction Onboard Ships
Dyhrberg	Safety Culture as an Approach in Accident Prevention
Flin	Benchmarking Human and Organizational Factors in Safety for the Offshore Oil Industry
Resnick	A Model to Predict Risk Perception and Compliance with Safety Rules
Lauritsen	Safety Culture in Workplace

### Tuesday 2:45pm - 4:00pm

#### Safety and Risk Analysis

Shappell	Is the Proficiency Eroding Among U.S. Naval Aircrews? A Quantitative Analysis Using the Human Factors Analysis and Classification System
Schaefer	Custom Made Load Limits Shaped by Age, Gender, and Stature Distributions--A New ISO Approach
Schoebel	Event Space Analysis - A Supporting Tool for the Incident Analysis in High Hazard, Low Risk Industries
Krystyna	Databases with Hazardous Situations in Woodworking Machinery
Torres	Pediatric Biomechanics as an Aid to Risk Analysis

### Wednesday 10:15am-11:30am

#### Transportation Safety

Itoh	Eye-Movement Analysis of Track Monitoring Patterns of Night Train Operators: Effects of Geographic Knowledge and Fatigue
Mortimer	Physical and Psychological Impairments of Pilots as Factors in U.S. Aviation Crashes
Thom	Evaluating the Positional Stability of Motorcycle Helmets
Reinach	An Exploratory Analysis and Comparison of Railroad Employee Injuries on Rights-of-Way and in Yards
Willshire	NASA Langley Crew Systems Contributions to Aviation Safety Technology

### Wednesday 1:00pm - 2:15pm

#### Safety Monitoring and Reporting

Ringstad	A Comparative Study of Accident and Near Miss Reporting Systems in the German Nuclear Industry and the Norwegian Offshore Industry
McCallum	Communications Problems in Marine Casualties: A Research Study to Develop and Evaluate Investigation, Reporting & Analysis Procedures
Sikio	Meat-ELMERI—Monitoring Safety and Food Hygiene in the Meat Industry
Holmstroem	Development of an Incident Investigation Process
Szameitat	Dysfunctional Incident Reporting: How to Increase Learning From Experience w/ Collaborative IT Environments

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## Lectures (continued)

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Thursday 1:00pm

### Arnold M. Small Lecture

*"New Opportunities: Challenges for Human Factors in the Globalization of Safety, Health, and the Environment."*

#### Lecturers

George A. Peters and Barbara J. Peters

Friday 10:15am-11:30am

### Industry Specific Safety Analysis

Stool	Physical Modeling of the Human Factors of Thermal Injuries
Froehner	Noise Impact in Powered Respirators
Laitinen	Factors Associated with Good Safety Records and Safe Work Environment in Metal Industry
Arezes	Hearing Protection Devices: Issues on Selection
Proulx	A Field Study on Photoluminescent Signage Used to Guide Building Occupants to Exit in Complete Darkness

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## Symposia

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Tuesday 1:00pm - 2:15pm

*"New Developments and Challenges in Risk Management"*

#### Speakers

Bernhard Zimolong, Ruhr University

Anne Seppala, Finnish Institute of Occupational Health

Anthony Veltri, Oregon State University

Gudela Grote, Swiss Federal Institute of Technology

R.M. Trimpop, University of Jena

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## Panel

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Wednesday 8:30am - 9:45am

*"Has Safety Research Made a Difference?  
Reflections on the Past and Visions of the Future"*

#### Speakers

Shelley Deppa, Safety Behavior Analysis, Inc.

Rudolph Mortimer, University of Illinois, Urbana Champaign

Brenda Greene and Dave DeJoy, University of Georgia

Hongwei Hsaio, NIOSH

Curt Braun, University of Idaho

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## Posters

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Barraso	Evaluation of Occupational Exposure to Noise in Portuguese Industrial Companies
Chen	Perceived Hazardousness of Warning Messages
Dahlke	Multimedia Training Systems for Education and Industry
Elke	Evaluation of an Integrated Health and Safety Management System
Goda	An Analysis of Human Factor Issues in a Criticality Accident at a Uranium Processing Plant
Goebel	Equipment to Improve Man-Duties-Animal Interaction in the Equine's Handlers Work
Jungwirth	Risk Assessment in a General Hospital in Accordance with the Austrian Occupational Safety and Health Act
Kaukiainen	The Measures of Occupational Health Care to Affect Health Promotion in Construction
Krystyna	Simulation of Hazardous Situations in Woodworking
Matsuda	Effects of Gender, Age and Experience on Bicycle Riding Behavior
Mattos	Lead Exposure Assessment in Industries of Lead Components of Small Enterprises: Study of Cases
Pauls	Problems and Prospects of the International Code Council's Model Requirements for Building Design for Injury Prevention Within the USA and Elsewhere
Rhodenizer	An Analysis of Critical Incident Reports from a 911 Center

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## Posters (continued)

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Seppala	Management of Collaboration and Safety in Connection of Organizational Change: A Case from the Finnish Process Industry
Shin	How Do Human Beings Behave Under the Suddenly Hazardous Situation: Characteristics of Stepping-Out Behavior
Sinisammal	Occupational Accidents Related to Stairs, Stepladders and Working Platforms: A Follow Up Study
Spelten	Risk Assessment and a Method for Risk Reduction with Standard Case Studies
Steiner	Human Factors Design and Evaluation of a Close Proximity Warning Device
Vidal	Conceptual Modeling of Intelligent Databases for Safety Applications in Offshore Industry

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## 1999 Safety Technical Group Business Meeting Minutes

On September 29, 1999, the Safety Technical Group held its business meeting at the 43rd HFES Annual Meeting in Houston, Texas. Below are the minutes from this meeting:

### Welcome

Chair Michael Kalsher called the meeting to order at 4:33p.m. and distributed the agenda. Eighteen persons were in attendance.

### Approval of Minutes

The meeting minutes from the 1998 Annual TG business meeting were distributed. The motion to accept the meeting minutes was unanimously approved.

### Arnold Small Lecture Series Update

*New co-chair position.* Jake Pauls provided an update on the Arnold Small Lecture Series. Being overwhelmed by the duties of the job as chair of the series, Pauls motioned to have Mike Kalsher assist and serve as co-chair. The motion was unanimously approved.

*Next year's lecture candidates.* This year's lecture (given by Peter Hancock) was considered successful. Pauls would like to see a balance of lecturers from inside and outside of the Society. He is

currently considering several candidates. The motion to go forward with pursuing the candidates was unanimously passed.

*Video sales.* The videos for past lectures have been selling well, approximately one every 2 weeks. (Note: A portion goes directly to the Safety TG for travel support for non-member speakers.) Approximately \$1000 of gross income has been realized, from which overhead costs (of new equipment) must be parsed out. A good income from this year's lecture is expected.

*Travel support and honorarium.* Two motions were made and discussed related to the travel support and honorarium for the lecture series. (A discussion of where such a motion should be voted on took place. It was decided to vote on the motions here; Kalsher would then check the by-laws to see if the motions had to be approved by the entire TG. If that were the case, ballots would then be sent to the entire TG via mail.)

(a) A motion to increase the honorarium to \$1000 (from \$400) was approved, all voted in favor, with the exception of one abstention.

(b) A motion to increase the travel to an amount up to \$1500 was made. After being seconded, the motion was amended to specify the travel expense allotment at the equivalent of full coach fare and one night's lodging. This motion was approved with 15 votes for, 2 opposed and no abstentions.

*Future plans/miscellaneous.* Pauls hopes to step down from the lecture series chair position in a year or so. However, he voiced some possible long-range goals for the TG to eventually archive the lecture series on Internet2, as it will be a testimony about the state of the art of safety in years to come.

Pauls also mentioned that the Society was utilizing Safety TG equipment to record interviews with key human factors professionals, including Alphonse Chapanis and Earl Wiener.

A new member of the TG raised a concern over the lecture being noted as "special invitation" in the program. This notation was confusing, as it was not clear that the lecture was open to all conference attendees.

### Committee Reports

*Program Chair 1999 Annual Meeting.* Steve Young gave the program chair report for this year's meeting. There were a small number of submissions, most likely due to the HFES/IEA 2000 meeting and its early submission date. For the 1999 meeting, there were 12 open slots, and 13 submissions. Twelve out of the 13 papers were accepted.

*Student paper award.* Young also discussed the student paper award. Criteria for the award were distributed. The winners of the 1998 and 1999 awards were announced, as follows:

- Steven Belz received the 1998 award for a paper co-authored with Gary Robinson and John Casali (as chosen out of 4 candidate papers)
- Julie Bzostek received the 1999 award for a paper co-authored with Michael Wolgalter (as chosen out of 2 candidate papers)

The rules for the student paper award will be posted on the Listserve.

*Secretary-Treasurer.* Kalsher gave the secretary-treasurer's report in Ellen Haas' absence. The current membership is 580 persons, and the current balance is \$11,105.87.

Ideas for membership recruitment included a membership card (available to give as a gift) and a speaker to attend the new member reception at the annual meeting. The membership card proposal was motioned and approved unanimously.

*Program Co-Chair 2000 Annual Meeting.* Marc Resnick provided the program chair report for the 2000 meeting. For the HFES/IEA 2000 conference, there were 66 submissions (of all types – paper, poster, symposia, etc.). Available to fill is 8 sessions, plus the Arnold Small Lecture and multi-session symposia. Letters regarding acceptance will be distributed next week. Resnick called for volunteers to chair the sessions.

*Newsletter Co-Editors.* Marc Resnick gave a report regarding the newsletter. Two newsletters have been sent so far this year, each in the 8-10 page range. Resnick made a call for submissions.

## Election Update

Kalsher provided an election update. Nominations provided to Kalsher before the annual meeting were presented; no other nominations were presented at the TG meeting. Marc Resnick will send out a special ballot to the entire TG for voting.

## Council of Technical Groups (COTG) Requests/Updates

*COTG taxonomy.* The Society has asked each TG to provide a taxonomy relevant to their TG. After taking suggestions, Marc Resnick will compile a first draft for distribution to the TG for further revision.

*Web site.* The Society is offering web site storage space to each TG. It is up to each TG to determine how the Society-provided page will interface with the TG web site.

*Seminal articles.* The Society has asked each TG to compile a list of seminal articles for their area.

*TG brochure.* Volunteers were sought to update the Safety TG brochure.

*NIOSH student design competition.* NIOSH is organizing a student design competition and has asked the TG if they are interested in contributing to the competition in some way. A motion to pursue this issue and gather more information was unanimously approved.

*Minimum membership levels for TGs.* A motion to lower the minimum membership levels for TGs has been approved by the

*COTG.* Discussion of this issue was held, including issues of society fractionation and the fostering of smaller TGs.

*Foreign student support for HFES/IEA 2000.* After discussion of this topic, it was agreed that Kalsher would take a proposal to the COTG in which the Safety TG would provide support for foreign student travel, if the COTG would match it.

*Interaction with other TGs.* The concept of encouraging interaction with other TGs was discussed—specifically the possibility of having a social function with a related TG or TGs at the next annual meeting. Kalsher will pursue this possibility further with other TGs.

## Web Sites Related to Safety

### NSC Launches New Web Site

The National Safety Council has created a new web site that combines the council's internal databases with other online resources for OEH&S professionals. The new "Crossroads" site provides searchable information in injury statistics, hazardous chemical profiles, safety data sheets, topical articles and expert Q&A. A special section of the site provides features for users of CAMEO and ALOHA chemical emergency planning software. The web site is located at [www.crossroads.nsc.org](http://www.crossroads.nsc.org).

### Construction Safety Web Site to Launch in August 2000

Through a grant from the National Institute for Occupational Safety and Health (NIOSH), the Center to Protect Workers' Rights (CPWR) is developing an electronic library of construction safety and health (eLCOSH). Scheduled to launch in August 2000, the web site will feature a wide range of downloadable materials—such as pocket cards, how-to manuals, research reports, training manuals and materials and regulations—designed to improve safety in the construction industry. To learn more about the web site, contact CPWR at [cpwr@cpwr.com](mailto:cpwr@cpwr.com) or call (202) 962-8490.

### Safety Alerts Web Site

SafetyAlerts is a source for monitoring product safety recalls on the Internet. Its news reaches over 1.3 million people per month via various syndications, the SafetyAlerts web site and a newsletter. For more information regarding SafetyAlerts, go to the web site at [www.safetyalerts.com](http://www.safetyalerts.com).



# CONFERENCES



## June 25-28, 2000—American Society of Safety Engineers, S2K: Safety 2000

The American Society of Safety Engineers is hosting its Professional Development Conference and Exposition in Orlando, Florida. ASSE's Professional Development Conference and Exposition has expanded, again, with more sessions, more in-depth coverage of current topics and even more CEU's and CM points than last year! The exposition allows spouses for free! Call 847-699-2929 for more details or visit ASSE's web site at <http://www.asse.org>. For exhibitor information, call Hall-Erickson at 800-752-6312. Don't delay!

## August 1, 2000—International Conference on Computer-Aided Ergonomics and Safety

The International Conference on Computer-Aided Ergonomics and Safety will take place in Maui, Hawaii on August 1, 2000. For more information contact Dr. Waldemar Krawowski at [krawowski@louisville.edu](mailto:krawowski@louisville.edu).

## August 27-30, 2000-HAAMAHA 2000

The 7th International Conference on Human Aspects of Advanced Manufacturing: Agility and Hybrid Automation (HAAMAHA) will take place August 27-30, 2000 at the Jagiellonian University in Krakow, Poland. The Conference will cover a broad range of design and engineering issues, and applied topics related to human factors and ergonomics, relevant to the integration of people, technology and organization in manufacturing environments. For more information contact Dr. Waldemar Krawowski at [krawowski@louisville.edu](mailto:krawowski@louisville.edu) or see [www.ergonet.net/haamaha2000.html](http://www.ergonet.net/haamaha2000.html).

## August 28-31, 2000-National VPPPA Conference

The 16th Annual National Voluntary Protection Programs Participants' Association (VPPPA) conference will take place August 28-31, 2000 at the Washington State Convention and Trade Headquarters in Seattle, Washington. For more information contact the VPPPA at (703) 761-1146 or see [www.vpppa.org](http://www.vpppa.org).

## September 11-16, 2000—International System Safety Conference

The 18th International System Safety Conference, hosted by the System Safety Society, is scheduled to run September 11-16, 2000 in Fort Worth, Texas. Entitled, "System Safety: On the Frontier of Technology," the conference is an international forum for the technical presentation and discussion of system safety engineering and management issues. The week-long event features technical sessions, tutorials, workshops, special events and product and services exhibitors. Topics will include safety research, facility safety, simulator safety, human factors and risk management. Tutorials will cover software safety, technical writing and accident investigation, while panel discussions will focus on safety standards, Y2K, product liability and European standards. For additional information or to register, contact Myron Krueger, ISSC Conference Chair, at (817) 763-3306; fax (817) 762-6584; email [myron.d.krueger@lmco.com](mailto:myron.d.krueger@lmco.com).

## October 17-20, 2000—International Occupational Ergonomics and Safety Conference

The 15th Annual International Occupational Ergonomics and Safety Conference will take place October 17-20, 2000 in Portland, Oregon. This conference is devoted to the practice, theory and design of ergonomics, health and safety in the occupational and non-occupational environments. For more information, <http://www.ISOES.org>.

## October 17-19, 2000—National Occupational Injury Research Symposium

The National Institute Occupational Safety and Health (NIOSH), in association with its public and private sector partners, will host the 2nd National Occupational Injury Research Symposium (NOIRS) on October 17-19, 2000 in Pittsburgh, Pennsylvania. For more information visit, <http://www.cdc.gov/niosh/noirs2000.html>.

## October 19-21, 2000—First National Conference on Injury Prevention and Control

The First National Conference on Injury Prevention and Control will be held in Kananaskis, Alberta, Canada, October 19-21, 2000. This event will be preparation for Canada to welcome the injury world to Montreal in May 2002 for the 6th World Conference on Injury Prevention and Control. Two western Canadian centres are hosting the national conference—the British Columbia Injury Research and Prevention Unit and the Alberta Centre for Injury Control and Research. Themes will be road safety; occupational safety; intentional injuries; home, sport, and leisure safety; and post-injury control. For further information, <http://www.med.ualberta.ca/acirc> or <http://www.bcriwh.bc.ca/bcirpu>.

## January 7-11, 2001—Transportation Research Board Annual Meeting

The 77th Annual Meeting of the Transportation Research Board will take place January 7-11, 2001 in Washington, D.C. There will be approximately 8,000 participants at the Annual Meeting, and it will cover every aspect of transportation research. The TRB welcomes all research papers on any aspect or mode of transportation safety. The deadline for paper submission is August 1, 2000. Paper submission information is on the TRB website, <http://national-academies.org/trb>. For further information contact Dr. Richard Pain, [rpain@nas.edu](mailto:rpain@nas.edu).

# Volume XXVIII, Number 1

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# Safety News

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## Join the STG!

## Sponsor a Member!

## Send a Complimentary Newsletter!

Please indicate which you would like to do and follow the instructions:

**Become a Member of STG.** Membership in the Safety Technical Group is open to all and does not require membership in the Human Factors & Ergonomics Society. Dues are \$6.00 annually and include a subscription to *Safety News*. Fill out the form below with your information and mail it (with your check made out to the Human Factors & Ergonomics Society) to the Human Factors & Ergonomics Society, P.O. Box 1369, Santa Monica, CA 90406-1369.

**Sponsor a Member.** If you are sponsoring a member for the STG, you are responsible for only paying their \$6.00 dues for the STG—not their general membership in the HFES. They will not become members of the HFES through your sponsorship. To sponsor a member for the STG, fill out the form with their information and mail it (with your check made out to the Human Factors & Ergonomics Society) to the Human Factors & Ergonomics Society, P.O. Box 1369, Santa Monica, CA 90406-1369.

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