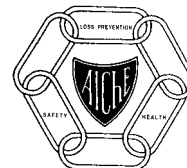


Safety & Health News

AICHE

AMERICAN INSTITUTE OF
CHEMICAL ENGINEERS

SAFETY AND HEALTH
DIVISION
www.shdiv.aiche.org



SUMMER 2005

SAFETY FORUM

TOP MANAGEMENT IS ON BOARD, BUT

The commitment to safety from all levels of management is essential to ensure that all safety aspects receive adequate priority. In practice, conflicts of interest may arise between safety issues and other goals such as production demands and budgets. In these cases, the management attitude will be decisive. In reality, such a conflict of interest is only an apparent one because safety, efficiency, and product quality all depend upon a reliable facility with a low frequency of technical troubles and safety problems.

However, without worker interest in and compliance with safety procedures, proper operating instructions, and use of protective equipment, safety programs will become just paper work. This is true whether the workers are in a laboratory, an operating facility, a warehousing situation, or in a transportation setting. The workers must buy into the program. People need reasons and help to follow rules and instructions. Simply ordering employees to perform a task in a certain way doesn't really work. If the operation involves awkward actions or cumbersome situations, workers may well ignore the proper procedures unless there is seen to be a good specific reason to follow them. And enlightened self-interest is the best reason. Workers have to know that safety rules and procedures exist to protect them. Without employee participation, respect for a safety program is unlikely to occur.

Safety training is obviously a critical factor. But training alone is not the total solution to employee participation. For example, if defeating a safety system results in increased output with resultant credit to the employees, then the training is really related to defeating the system rather than to safety issues. Sometimes the most dedicated workers will defeat the safety requirements when they perceive that the restrictions are getting in the way of doing the work and with the feeling that an accident just won't happen to them. Proper training is always useful to circumvent this viewpoint of the workers. But safety issues arise despite training. Employee buy-in to the program is highly important for success.

Safety professionals understand that employees are in the best position to know about the risks of their job duties. They are indeed one of the best sources of information for ways to improve job safety. Thus, successful safety programs involve teamwork at all levels.

Just as a commitment to safety from all levels of management is essential, a commitment to safety by all employees is as critical. That is the challenge for safety professionals.

Sam West

Safety & Health News is issued quarterly by the Safety and Health Division of the American Institute of Chemical Engineers (AIChE). It is available on the Division web site: www.shdiv.aiche.org. News items of interest to the Division of Chemical Health and Safety (CHAS) of the American Chemical Society (ACS) are included.

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AICHE SAFETY AND HEALTH DIVISION UPDATE

WALTER SILOWKA, CHAIR

Summer is fast approaching, except perhaps in the Northeast where May has now been recorded as the coldest May since 1967. Nevertheless, the Division continues its plethora of activities that will culminate in the Second Global Congress on Process Safety at the Walt Disney World Dolphin Resort in Orlando, FL, April 23-27, 2006, in conjunction with the AIChE Spring National Meeting. Of particular note is the fact that a special 40th Annual Loss Prevention Symposium will be part of this Congress.

The First Global Congress on Process Safety, held in Atlanta, GA, April 10-14, 2005, was a very successful venture providing three process safety options to attend and explore. For the first time, the Annual Loss Prevention Symposium, the Process Plant Safety Symposium, and the Annual CCPS International Conference were held simultaneously at the same venue. All sessions were well attended. Over 1,500 professionals attended the AIChE Spring Meeting, with attendance driven by the Global Congress on Process Safety. The complete proceedings of the AIChE Meeting are now available on a CD-ROM for \$100, plus shipping and handling. This includes 775 technical papers with about 4,300 pages total. To order an individual a copy, visit <http://shop.omnipress.com/aiche-individuals>.

I was very gratified that the Loss Prevention Symposium was dedicated to **Ephraim Scheier**, a good and loyal member who died prematurely.

The Symposium Chairs and Vice-Chairs - Walt Frank, Erdem Ural, Kathy Pearson, and Jim Thompson - should be fully recognized for the organization of the symposiums. The Session Chairs and Vice-Chairs are congratulated for keeping everything organized and moving along for the benefit of the professionals in attendance. Walt Frank deserves additional credit not only for serving as Chair of the Loss Prevention Symposium but also because he served as a key participant in linking the three simultaneous symposiums in such a way that attendees could readily move from one to another as dictated by topic choice.

The Call-for-Papers for each of the three symposiums/conferences scheduled for the Second Global Congress on Process Safety in 2006 appear on pages 9, 10, and 11.

The Safety and Health Division Executive Committee met in Atlanta to review current performance and to discuss future expectations. After a review of the financial condition of the Division, it was decided that a dues increase would NOT be necessary for 2006 since the financial footing seems firm. Instead of a dues increase, we decided really to concentrate on increasing the Division membership. An enlarged Membership Committee was established, and a number of brainstorming ideas were brought forth. The strength of the Division comes from its members. Recruiting new members is not an easy task, particularly in the current environment. In general, communications are rapid, and information is relatively abundant and easily accessible. AIChE and the Division are evolving and under constant changes to meet members needs. I encourage you to become a volunteer member of the Membership Committee by acting individually to recruit new members. Perhaps you can call or send an e-mail to your colleagues, clients, customers, classmates, and friends urging them to join both AIChE and the Division.

The initiative for a Loss Prevention Symposium logo was reviewed. Details of this contest appear on page 8. The deadline for submittal is **October 15, 2005**. The winner will be announced at the Second Global Congress on Process Safety in Orlando in 2006.

A second initiative discussed was the need to bring the work of chemical engineering students to the frontier aimed at promoting a greater awareness of the values of Division membership. Other ideas for introducing the Safety and Health Division to students were introduced.

The Executive Committee agreed to making *Safety & Health News* a joint Newsletter with the Division of Chemical Health and Safety of ACS assuming the details can be worked out. Dennis Hendershot will attend the ACS Meeting in Washington this coming August for the purpose of discussions with the Executive Committee of the Division of Chemical Health and Safety.

Here is a reminder that the Annual Safety in Ammonia Plants and Related Facilities is scheduled for **September 26-29, 2005**, at the Fairmont Royal York Hotel in Toronto, Ontario. Of particular note, this will be the 50th Annual Symposium devoted to issues of safety interest in plants to manufacture ammonia, urea, nitric acid, ammonia nitrate, and ammonia.

Finally, I want to emphasize to you that process safety knowledge and networking opportunities are experiences that await you when you get involved in the Division activities. Thank you for your continued support and participation.

Walter Silowka



POWERS WINS WALTON-MILLER AWARD

The Norton H. Walton/Russell L. Miller Award, sponsored by the Safety and Health Division, recognizes an individual's outstanding chemical engineering contributions and achievements in the loss prevention, safety, and health fields. As announced at the AIChE Annual Spring Meeting in Atlanta, **Dr. Gary J. Powers** is the recipient of this prestigious award for 2005. Dr. Powers is especially known for his pioneering research in process risk assessment and process synthesis. His contributions to safety analysis include new methods for rapidly and efficiently generating detailed fault trees for quantitative risk assessment. He has developed and tested strategies to assess process hazards and to diagnose faults using real-time data. Dr. Powers is considered an outstanding educator. He is the author of numerous papers and has written books on process synthesis and risk assessment.

Dr. Powers received his BS degree in chemical engineering from the University of Michigan and his PhD degree from the University of Wisconsin. His career includes industrial positions with Ethyl Corporation and Dow Chemical Company. His academic career includes positions in the Chemical Engineering Departments of MIT and Carnegie Mellon University.

Dr. Powers has developed new theories and models for synthesis and evaluation of high integrity operating procedures. In addition, for chemical process risk and reliability assessments, he has been developing a theory for the verification of real-time control systems through combining chemical engineering process models with software engineering techniques. In particular, he has developed efficient symbolic verification tests for stages in the control system. His work on the formal verification of control systems and operating procedures has also extended his contributions in process safety to systems that involve human operations as well as computer control.

The Safety and Health Division recognizes and appreciates the contributions of Dr. Powers to chemical process safety. He joins a list of distinguished Walton/Miller Award winners:

1987	Walter B. Howard	1994	Gui LeGendre	2002	Daniel A. Crowl
	Eugene S. DeHaven	1998	Robert W. Ormsby	2003	Lawrence G. Britton
1990	Stanley S. Grossel	1999	Richard F. Schwab	2004	Henry L. Febo, Jr.
1991	William J. Bradford	2000	John A. Davenport	2005	Gary J. Powers
1993	Ted A. Ventrone	2001	Joseph F. Louvar		

BILL DOYLE PAPER AWARD TO PETE LODAL

The William H. Doyle Award is presented by the Loss Prevention Committee (Program Area 11a) to the author of the best paper given, considering both technical content and presentation effectiveness. At the 2005 Atlanta Meeting, the Award for the best paper at the 2004 Symposium was announced.

Peter N. Lodal, Senior Technical Fellow at the Eastman Chemical Company Kingsport Operations, was selected for the presentation entitled "Distant Replay: What Can Re-Investigation of a 40-Year Old Incident Tell You?" The paper discussed an updated investigation of an explosion of an aniline manufacturing facility that occurred in 1960. Historical records and modern analytical techniques were used in the investigation. The results provided useful insight into both the technical and cultural safety issues raised, as well as valuable information that can be applied to current processes.

Lodal has been active in affairs of the Safety and Health Division, and is currently in his second year as a Director. ■

50TH ANNUAL SAFETY IN AMMONIA PLANTS SYMPOSIUM

The 50th Annual Safety in Ammonia Plants and Related Facilities Symposium, organized by Program Area 11c (Ammonia Committee), is scheduled for **September 26-29, 2005**, at the Fairmont Royal York Hotel in Toronto, Canada. Presentations cover issues of safety interest in plants that manufacture ammonia, urea, nitric acid, ammonium nitrate, and methanol. Papers include concrete ideas on how to avoid or manage potential plant incidents, how to solve safety issues, and overviews of procedures and products that can be used to ensure safety measures. Special events and international speakers, in recognition of 50 years of success, will be included this year in this popular symposium. Information can be found at www.aiche.org in the Meetings Section.

THE CCPS PAGE CENTER FOR CHEMICAL PROCESS SAFETY

ACTIVE PROJECT UPDATE

There are many projects underway at CCPS. Current active projects, that are relatively new, include: Risk-Based Process Safety Management; Management of Change; CCPS Web-based Knowledge; Pre-Startup Safety Review; Transportation Risk Analysis; Incidents that Define Process Safety; and finally, an update on the CCPS classic *Guidelines for Hazard Evaluation Procedures*. There are also several ongoing projects in various stages of completion.

PRICE ADVANTAGES - CCPS BENEFITS

Now is a great time for organizations to join CCPS. Organizations can join for half-price for the remainder of 2005. Also, CCPS has recently approved a dues structure to accommodate small to mid-size companies with annual sales under \$2 billion. Resource availability is an often present challenge, particularly for smaller companies. Through CCPS membership, companies can leverage their safety program development and training efforts with other corporate members, both large and small.

As CCPS begins its 21st year, efforts continue to be made to provide solutions to process safety challenges by harnessing the knowledge and expertise of 80+ member organizations. CCPS is expanding its members-only web content, and several new exciting projects have been initiated. With process safety expert resources growing increasingly more difficult to access, participation in CCPS makes more sense than ever. Benefits to CCPS corporate members include:

- Members may participate in the development of guidelines that apply to all areas of process safety. Project participants share their experiences and expertise, learn from each other, and contribute to the overall safety of the industry.
- Members may attend four Technical Steering Committee meetings each year, featuring workshops, special invited speakers, and updates on projects. New project development starts at the Technical Steering Committee meetings.
- Members receive free copies of new CCPS books, and discounts on all other CCPS publications. Members also receive discounts on Process Safety courses based on CCPS materials.
- Members receive free access to the CCPS Internet Community containing reference documents, project information, meeting minutes, and more.
- Members build effective networks of colleagues in other companies who can help each other solve process safety problems.

To discuss CCPS membership or for further information, contact Karen Person at karep@aiiche.org or at 212-591-7319. ■

HENDERSHOT TO JOIN CCPS STAFF

Dennis Hendershot, Safety and Health Division Chair in 1998 and well known to Division members for his many significant process safety activities over the years, is retiring from Rohm and Haas Company at the end of June after 35 years with that organization. He will be joining CCPS as a Staff Consultant on a part-time basis. He will be organizing the 2006 CCPS Conference and also will initiate an update edition of the Concept Book *Inherently Safer Chemical Processes: A Life Cycle Approach* that was published 10 years ago.

Dennis holds chemical engineering degrees from Lehigh (BS) and the University of Pennsylvania (MS). ■

CCPS NOTES

- The 21st CCPS Conference will be held in conjunction with the Second Global Congress on Process Safety scheduled for the AIChE Spring Meeting in Orlando, FL, April 23-27, 2006. A Call-for-Papers appears on page 11.
- The 7th Safety and Chemical Engineering Education (SACHE) faculty workshop is scheduled for September 18-21, 2005, at the Rohm and Haas Company Croydon (PA) location. See page 8 for details.
- CCPS books are now being sold through John Wiley & Sons, publisher. All CCPS books in print may be ordered at www.wiley.com/WileyCDA/. ■

ON THE SAFETY INTERFACE BETWEEN INDUSTRY AND LABS

RUSSELL PHIFER, CHAIR

ACS DIVISION OF CHEMICAL HEALTH AND SAFETY

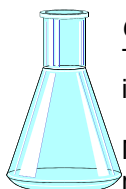
The continuing search for cooperative reference between the AIChE Safety and Health Division and the ACS Division of Chemical Health and Safety (CHAS) lead me to a review of recent articles in *Chemical Health & Safety*, the CHAS bimonthly magazine. I was curious to see just how many of the feature articles might be of interest to AIChE members; it was a pleasant surprise to discover that there are so many of them! For example, the March/April 2005 issue featured an article on recent advances in ammunition coatings (clearly not a laboratory focus) and one on the incorporation of green chemistry in chemical design criterion. Chemical design is clearly both a laboratory research activity and an engineering function. The January/February issue included an article on "Safety of Chlorine Production and Chlorination Processes," which should be must reading for engineers involved with this substance (see article abstract on p.14). There is also an interesting article on building codes in that issue. It would be interesting to see how many ACS CHAS members are also members of the AIChE Safety and Health Division. It is clear that many of the authors appearing in *Chemical Health & Safety* are also chemical engineers or have a strong engineering background.

I'd like to put in a quick plug for the ACS Presidential Symposium entitled "The Future of Chemical Plant Security - Where Will We Be in 2015" scheduled for the Washington National Meeting in late August. Organized by CHAS, excellent speakers have been arranged for this important discussion (see details on page 6). Also, one of our "joint" members, Dennis Hendershot, will present a paper entitled "History of Safety and Loss Prevention in AIChE" at the meeting during the session honoring the 25th Anniversary of CHAS.

It is important not to place safety professionals in a cubbyhole. There are many with varied experiences and backgrounds who feel comfortable in both the laboratory and in the plant. Many skills are called into play every day in the life of a safety professional. It is certainly among the most multi-disciplinary of all of the sciences. As we work together to advance the cause of health and safety, we can certainly learn from each other how to do our jobs better.

Russell Phifer

SOME NOTES ABOUT *CHEMICAL HEALTH & SAFETY*



Chemical Health & Safety, the CHAS bimonthly magazine, is printed and distributed by Elsevier, Inc. The cost of *CH&S* to CHAS members will not increase in 2006. Also, CHAS dues will not increase in 2006. Good news for CHAS members!

There were a number of items about *CH&S* discussed at the CHAS Executive Committee Meeting in San Diego in March 2005. Harry Elston, Editor, indicated that there were three new members on the Board of Editors. Feature articles through mid-2006 have now been selected, and the papers currently in the process of publication have been submitted to Elsevier. There was some discussion about the NIH rule that states if the research is an NIH supported endeavor, the resultant paper must be made available to the public free of charge within 12 months.

A proposal to change the name of *Chemical Health & Safety* to the *Journal of Chemical Health & Safety* was tabled until the Washington, DC, meeting in late August.

The Executive Committee approved a motion that the term limits for members of the Board of Editors be abolished and that members should serve at the pleasure of the Editor. The continuity of business in the event of the absence of the Editor was discussed and a proposed *CH&S* Editor position description was presented. A revised text will be available for review at the Washington, DC, meeting in late August. ■

LABORATORY OVERCROWDING

The Laboratory Safety Institute (LSI), based in Natick, MA, has been studying the problem of overcrowded school science laboratories for some 28 years. In 1991, LSI published a report on the subject entitled "There's No Safety in Numbers" written by Marilyn Steele. Recent data show that there has not been much improvement in the situation. As the student/teacher ratio increases, the frequency and the severity of laboratory accidents increase. The NFPA Life Safety Code 101 recommends one occupant per 50 square feet (net) for school shops, vocational areas, and science laboratories.

**AMERICAN CHEMICAL SOCIETY 230th NATIONAL MEETING
AUGUST 28- SEPTEMBER 1, 2005, WASHINGTON, DC
SPECIAL PRESIDENTIAL SYMPOSIUM
"The Future of Chemical Plant Security - Where Will We Be in 2015?"**

The Division of Chemical Health and Safety (CHAS) of the ACS has organized a major symposium to address anticipated changes in chemical plant security that may be implemented over the next ten years. The Symposium is scheduled for Monday, **August 29**, during the ACS National Meeting in Washington. Security expectations for all industry, especially the chemical processing industry, have been raised markedly during the last three years. Government, the public, and ACS members expect industries that manufacture or use chemicals to work towards eliminating the potential for and impact of terrorist attacks. This symposium will explore current threats and those that might be anticipated over the next ten years. It will examine current and possible future mechanisms that industry will use to enhance security and reduce the threat levels by changes in design, process chemistry, and site protection technology. Speakers will also share their thoughts on changes needed in the chemistry and engineering curriculums at both the undergraduate and graduate level to prepare chemists and engineers to incorporate security thinking and to meet the challenges of the emerging threats. The Symposium organizers are Neal Langerman (neal@chemical-safety.com) and Dennis Hendershot (dchendershot@member.aiche.org). The scheduled speakers (which include representatives from industry, government, and academia) and topics follow:

1. "Security and the Chemical Sector; The Commitment Continues," Dorothy Kellogg, American Chemical Council
2. "CSB Experience with Emergency Preparedness Issues," Carolyn W. Merritt, U.S. Chemical Safety Board
3. "The Role and Limitations of Inherent Safer Approaches in Securing the Chemical Industry," Scott Berger, Center for Chemical Process Safety (AIChE)
4. "A Snapshot of Value Chain Security for the Global Chemical Industry in 2015," William R. Koch and Lawrence J. Piotti, Air Products and Chemicals, Inc.
5. "The National Picture: Chemical Threats and Science and Technology Countermeasures," Charles E. McQueary, Department of Homeland Security
6. "Chemical Plant Security - The Next Ten Years," Greg Keeports, Rohm and Haas Company
7. "Managing the Security Agenda: A UK Chemical Industry Perspective," Stephen Elliott, Chemical Industries Association
8. "The Role of Higher Education in Chemical Plant Security," Steven Oberg, University of Nevada - Reno
9. "Legislative Initiatives of Chemical Facility Security," Dana A. Shea, Congressional Research Service

Following this symposium, ACS and CHAS are hosting a social hour to provide the audience with an opportunity to interact with the speakers.

In addition to the Presidential Event, CHAS has planned the following sessions at the ACS Meeting in Washington:

2005 CHAS Awards Symposium

Chemical Safety Past and Future, 1900 to 2015

Teaching Safety (cosponsored by the Division of Chemical Education)

RCRA and Laboratories

Chemical Safety for Small Businesses (cosponsored by the Division of Small Business)

Details about the overall meeting program and schedules, hotel and travel information, and registration information can be found at the ACS website (www.chemistry.org) under the National Meetings section. Registration starts **July 5, 2005**. ■

**SAFETY NOTES**

- Approximately 14,000 employers received a letter in March 2005 from Acting OSHA Administrator Jonathan Snare alerting them that their injury and illness rates are above average, and that the agency can offer assistance to help fix safety and health hazards. The notifications were based on data reported by approximately 80,000 employers surveyed by OSHA, collecting injury and illness information. Snare said the notification process is meant to raise awareness among employers and to aid them in their efforts to "address the hazards and reduce occupational injuries and illnesses."
- The past two decades have produced dramatic technological advances in molecular biology and computer science. During this period, scientists have increasingly identified critical cellular and molecular mechanisms that lead to adverse responses to various toxicants. The National Toxicology Program (NTP), headquartered at the National Institute of Environmental Health Sciences (NIEHS), recognizes that over the next decade, the expanding knowledge of the physiological, biochemical, and molecular basis of disease will lead to improvements in predicting toxicological impact of chemical and biochemical exposures. The NTP vision for the 21st Century is to support the evolution of toxicology from a predominantly observational science at the level of disease-specific models to a predominantly predictive science focused on a broad inclusion of target-specific, mechanism-based, biological observations.
- Data show that dust collection systems such as dust collectors, filters, and bag houses, are involved in a substantial number of dust explosions across all industry, including pharmaceutical, food processing, metal, chemical, and plastics. Dust collection systems inherently are likely to have a flammable atmosphere, and the use of reverse jet or pulse jet units to dislodge powder will increase the frequency of generating clouds of dust within the units. A significant additional hazard is that the powder within the collection system is generally the finest and driest of any other powder throughout the process. This can result in potentially increasing the ignition sensitivity and explosion severity if any sufficiently energetic ignition source becomes available. Thus, the operational characteristics of dust collection units must be particularly scrutinized during any hazard evaluation procedure.
- A new publication is available through the OSHA website designed to assist small business owners in not only meeting occupational safety and health requirements, but also to educate them on establishing safety and health programs. The publication, entitled *Small Business Handbook* includes topics such as "A Four-Point Workplace Program"; "Starting a Safety and Health Management System"; self-inspection checklists on a varied group of issues within general industry; and a wealth of resources to aid the small business employer. The OSHA site is www.osha.gov.
- According to a survey of union workers at 125 U.S. companies that make or use large quantities of hazardous chemicals, many of the security measures taken since September 11, 2001, are inadequate to protect the company, its workers, and the community from terrorist activities. The Paper, Allied-Industrial, Chemical, & Energy Workers International Union (PACE) surveyed union leadership at 189 industrial sites. Most were chemical plants and refineries. PACE officials note limitations in the report because it is based on perceptions rather than through independent assessments. The survey finds that workers at more than half of the plants believe they face a high or medium likelihood of a catastrophic event due to a terrorist attack. Most plants have focused mostly on guards and plant security rather than on making processes inherently safer or in reducing the quantities of hazardous materials in storage.
- OSHA announced on April 22 that its standard regulating ethylene oxide is effective and will remain in place. The review of the standard is part of the Regulatory Flexibility Act that requires agencies to review standards periodically to determine whether they should be changed, rescinded, or amended. Ethylene oxide is used primarily as a chemical intermediate and as a sterilant in hospital and for medical devices.
- BP has issued a version of their internal report on the Texas City explosion at www.bpresponse.org. ■

INTERNATIONAL COMPETITION TO DESIGN A NEW LOGO FOR THE LOSS PREVENTION SYMPOSIUMS

The AIChE Safety and Health Division Program Area 11a Committee, which organizes the annual Loss Prevention Symposia, is pleased to announce an international competition for the creation of a new logo in time for the 40th Annual LPS to be held in 2006 in conjunction with the AIChE Spring National Meeting as part of the Second Global Congress on Process Safety. The Call-for-Papers appears on page 9. Both AIChE and the Safety and Health Division are professional organizations that do not pursue any profit goals. The objective of the Loss Prevention Symposia is to promote safety in the chemical process and allied industries by providing forums for practitioners from industry, academia, and government to share experiences, technological advances, and new ideas in the prevention of industrial accidents that involve fires, explosions, runaway reactions, and hazardous material releases.

An invitation is extended to all parties to submit a design or designs of a new logo for consideration. This is an open competition to be judged by the Program Area 11a Committee members. The Committee reserves the right to select one or more or none of the entries.

In order to allow full creative and artistic flexibility, no form requirements are imposed. However, the Committee desires the proposed logo designs to meet the following criteria:

- easily identifiable as the LPS logo,
- relates to the LPS objective stated above,
- scalable, and
- simple and not too detailed, so it can be displayed in low resolution.

All entrants must certify that any art work and images used are the original work of the entrant, and are unencumbered by any third-party copyrights or trademarks. The entrant, by submitting an entry, agrees to grant the AIChE, the Safety and Health Division, and the Program Area 11a Committee a non-exclusive, royalty-free license to use the logo entry for purposes of the contest. The entrant also agrees to grant the AIChE, the Safety and Health Division, and the Program Area 11a Committee an exclusive, royalty-free license to use the logo if it is chosen as the winner.

The Committee will pay US\$100.00 for the winning entry as the sole consideration for acquiring all the rights to use this logo exclusively. The new logo and its designer will be featured in the Proceedings of the 40th Loss Prevention Symposium. The successful logo will also enjoy wide exposure through selected LPS Committee communication channels, including symposium announcements, Proceedings, compact discs, web sites, and archival publications.

All entries must be submitted prior to **October 15, 2005**, by e-mail to logo@lpsti.com. You may use this e-mail address to ask any questions regarding the contest.

Anyone and everyone can enter the competition. International participation and student participation are encouraged. If possible, the entry should be submitted in an editable image file format such as PSD or MIC.

This invitation and offer is void where prohibited by law. ■

SACHE WORKSHOP - TEACHING THE TEACHERS

The 7th Safety and Chemical Engineering Education (SACHE) faculty workshop is scheduled for September 18-21, 2005, at the Rohm and Haas Company Croydon (PA) location. SACHE is organized by a Project Committee of CCPS. The Workshop is open to all faculty members whose departments are present members of SACHE. The focus this year will be chemical reactivity, dust explosions, and accident investigation. Tours to Chilworth Technology, Inc., and to the Rohm and Haas Bristol Polymers Plant are scheduled. All expenses are covered with the exception of round trip travel from your department to the Workshop hotel. Participation by faculty who have under 10 years teaching experience is particularly encouraged.

If you are not a chemical engineering faculty member, you can pass this information on to faculty members at your alma mater or in your Local Section to promote attendance. Process safety is indeed an important component of the education of the next generation of chemical engineers, and these Workshops have been endorsed enthusiastically by attendees in the past.

For further information, contact Ron Willey at r.willey@neu.edu.

Second Global Congress on Process Safety
CALL-FOR-PAPERS
SPECIAL 40TH ANNUAL LOSS PREVENTION SYMPOSIUM
APRIL 23-26, 2006, ORLANDO, FL



The Loss Prevention Symposium, organized by the AIChE Safety and Health Division Area 11a, has been held annually since 1967. To present a paper, please contact the appropriate session Chair, and submit a short abstract of 200-300 words by July 7, 2005. Include the names, addresses, phone numbers, and affiliations of the authors with the abstract. Session Chairs will select the papers to be presented and will notify the authors by August 7, 2005. The scheduled sessions are as follows.

Symposium Chair
 Erdem A. Ural, PhD
 Loss Prevention Science & Technologies, Inc.
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781-344-7656
 erdem.ural@lpsti.com

Symposium Vice-Chair
 Christopher Hanauska
 Hughes Associates, Inc.
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 Baltimore, MD 21227-1652
410-737-8677, Ext. 242
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Chair
 Stanley S. Grossel
 Process Safety & Design Inc.
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 Clifton, NJ 07012-2017
973-779-8579
 psadi28@aol.com

Vice-Chair
 Daniel A. Crowl
 Michigan Technological University
 Dept. of Chemical Engineering
 Houghton, MI 49931
906-487-3221
 crowl@mtu.edu

1. LOSS PREVENTION: PAST, PRESENT, AND FUTURE. An invited paper will introduce this session by highlighting the 40-year history of the Loss Prevention Symposiums and by addressing how this forum has remained in the forefront of ever-changing process safety and loss prevention technologies and practices. Papers defining the "state of the art" and illuminating where this "art" must go in the future are solicited. Papers are encouraged that discuss the long-term consequences of industrial accidents, with special emphasis on continued corporate vitality and financial health, on corporate loss prevention programs, and on ever-changing regulations.

Chair
 David G. Clark
 DuPont Company
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302-774-8044
 david.g.clark@usa.dupont.com

Vice-Chair
 Walter L. Frank
 ABS Consulting
 5301 Limestone Road, Suite 210
 Wilmington, DE 19808
302-239-0496
 wfrank@absconsulting.com

2. FIRE, EXPLOSION, AND REACTIVE HAZARDS. The analysis, prevention, and mitigation of fire, explosion, and reactivity hazards continues to be important in the Loss Prevention community. This session invites papers that identify, characterize, or offer appropriate design guidance.

Chair
 Peter N. Lodol
 Eastman Chemical Company
 P. O. Box 511, B-18
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423-229-2675
 pnlodol@eastman.com

Vice-Chair
 Jean Paul LaCoursiere
 Universite de Sherbrooke
 35 Rue Lemoyne
 Repentigny, QC J6A 3L4
450-581-2315
 jpla@sympatico.ca

3. HAZARD ASPECTS OF COMBUSTION EQUIPMENT. This session will focus on hazard aspects of various types of combustion equipment such as fired heaters, flares, thermal oxidizers, steam boilers, waste heat boilers, and paper plant recovery boilers. Papers may be submitted on the following topics: process design for safe operation, equipment specifications for improved safety, control systems and instrumentation for improved operational safety, operating procedures and practices for safe operation, and case histories of combustion equipment failures and accidents.

4. HAZARDS & RISKS ASSOCIATED WITH ALTERNATE ENERGY SYSTEMS. The commercialization of alternative energy systems is becoming increasingly important to the Loss Prevention community. New hazards and risks are being introduced that must be addressed. Renewable energy sources, fuel cells, liquified natural gas, hydrogen, and nuclear energy are technologies that will compete with traditional sources. This session invites papers that deal with research, tools, and methods to identify and manage risks associated with these new systems.

Chair
 Brian R. Dunbobbin
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610-481-6736
 dunbobbr@apci.com

Vice-Chair
 Cheryl A. Grounds
 Baker Engineering & Risk
 Cons.
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727-771-7853
 cgrounds@BakerRisk.com

5. MECHANICAL INTEGRITY. Mechanical integrity is a key requirement for harnessing the tremendous hazard potential created by industrial operations dealing with toxic materials or large quantities of chemical, thermal, mechanical, and electrical energy. MI failure is often the initiating event that leads to major fires or explosions. This session invites papers on all aspects of mechanical integrity including design, reliability, and maintenance.

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Vice-Chair
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6. CASE HISTORIES AND LESSONS LEARNED. Papers dealing with incidents, near misses, and the lessons learned are invited to provide valuable learning experiences.

Chair
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Second Global Congress on Process Safety
CALL-FOR-PAPERS
8TH PROCESS PLANT SAFETY SYMPOSIUM
APRIL 23-26, 2006, ORLANDO, FL



The Process Plant Safety Symposium (PPSS), originally organized as a stand-alone conference by the AIChE South Texas Local Section, is now part of the AIChE Safety and Health Division programming effort. The Program Area 11b Committee is responsible for the program development. Through 2005, the PPSS was held on a biennial basis which made it part of the First Global Congress on Process Safety. The very positive response of the attendees at this Global Congress led to the idea of having a choice of three simultaneous process safety related sessions led to the decision to move the PPSS to an annual basis, and thus to the development of the Second Global Congress on Process Safety scheduled for 2006.

To present a paper, contact Jim Thompson (Chair) or Phil Myers (Co-Chair), or the persons listed below as the contact for the particular session of interest. A typed abstract of 150-200 words should be submitted by **September 2, 2005**. Session Chairs will select papers to be presented and will contact authors. Authors of selected papers will need to complete the Proposal-to-Present (PTP) form on the AIChE web site by November 1, 2005 (www.aiche.org). Final manuscripts for publication in the Symposium Proceedings are due to the Session Chairs by February 28, 2006.

The scheduled sessions are as follows:

Symposium Chair

Jim Thompson

INVISTA

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james.r.thompson@vista.com

Symposium Co-Chair

Phil Meyers

Advantage Risk Solutions Inc 361-

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1. LOSS PREVENTION: PAST, PRESENT, AND FUTURE.

(Joint Session with the Loss Prevention Symposium; see page 9)

2. IMPROVING SAFETY CULTURE.

A strong safety culture is of critical importance to the development and maintenance of a superlative safety program. Papers are invited for this session that demonstrate approaches to reducing incidents through management processes such as Operational Discipline, Behavior Sampling, Operator Training, effective operating procedures, interactive management systems, and similar procedures.

Chair

Dr. M. Sam Mannan

Mary Kay O'Connor

Process Safety Center

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Co-Chair

(pending)

3. RISK ASSESSMENT.

Risk assessment is key to evaluating and improving the safety and business risk of process systems. This session will include papers demonstrating the application of both qualitative and quantitative risk assessment techniques (such as HAZOP, Layer of Protection Analysis, Fault Tree, and Quantitative Risk Assessment) as well as Risk Screening Techniques.

Chair

Albert Ness

Rohm and Haas Co.

215-785-7567

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Co-Chair

Chris Richardson

ExxonMobil Development Co.

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4. SAFETY INSTRUMENTED SYSTEMS AND SAFETY CRITICAL DEVICES.

The proper application of Safety Instrumented Systems (SIS) is obviously important in process plants. However, non-SIS Safety Critical Systems (e.g., Safety Critical Devices) also play an important role. This session invites papers in the areas of (1) Safety Instrumented Systems such as SIS design, application of LOPA to SIS, probability calculations, and (2) Safety Critical Devices (SCD) such as opportunities to apply SCD instead of SIS, management of SCD, and application of LOPA to SCD.

Chair

Harry West

Mary Kay O'Connor

Process Safety Center

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Co-Chair

Angela Summers

SIS-Tech Systems

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5. FACILITY SITING ISSUES.

Facility siting remains important to Process Safety, and has many aspects. Papers are invited for this session on novel approaches and applications to facility siting, and on important ancillary issues such as controlling the location of temporary buildings/trailers, controlling access of non-essential personnel to process areas during startup/shutdown/emergency operations, and best practices for fire protection systems, such as for testing, maintenance, and reliability.

Chair

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Co-Chair

Michael Livingston

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6. CASE HISTORIES AND LESSONS LEARNED

(Joint Session with the Loss Prevention Symposium; see page 9)



Second Global Congress on Process Safety
CALL-FOR-PAPERS
21ST ANNUAL CCPS INTERNATIONAL CONFERENCE
APRIL 23-27, 2006
WALT DISNEY WORLD DOLPHIN RESORT, ORLANDO, FL
"PROCESS SAFETY CHALLENGES IN A GLOBAL ECONOMY"



Twenty years ago, when the Center for Chemical Process Safety was founded, the process industry was considered as being global in nature. Looking back from today, that was an understatement! The chemical process industry today participates in the continuing growth of the globalization of the world economy in response to many factors such as changes in raw material availability and costs, off-shoring of production and services, worldwide customers, and increasing technical capabilities of emerging economies. This globalization creates many significant issues in process safety. The 21st Annual CCPS Conference will focus on understanding and managing process safety in this global concept. With this 21st Annual Conference, CCPS joins with the AIChE Safety and Health Division in organizing the Second Global Congress on Process Safety

Proposed Session Titles and Topics for the 21st CCPS Annual Conference Include:

- When and how to say "NO" (or "YES"):
 - The use of tools such as cost-benefit analysis, decision analysis, multi-attribute utility analysis, and other decision making tools to prioritize hazard mitigation options.
- Transportation Safety:
 - Process safety issues with global transportation of hazardous materials.
 - Understanding and dealing with different regulations.
 - Multimodal shipments.
 - Import and export terminals.
 - Global transport of time sensitive and temperature sensitive cargos.
- International trends in Process Safety regulations, enforcement, cultural differences, and practices:
 - China and other areas of the Pacific Rim.
 - India and the Middle East.
 - Europe.
 - Latin America.
- Synergies between Process Safety and Security.
- Process Safety of liquified natural gas (LNG) production, transportation, and distribution.
- Process Safety issues in global contract manufacturing and in joint ventures.
- Human factors considerations for Process Safety in a global economy:
 - Communication of technology and hazard information.
 - Creating a good safety culture in developing countries.
 - Tips and techniques for conducting a multi-lingual, multi-cultural Process Hazard Analysis.
- Global implications and practices of inherently safer technology (IST):
 - Incorporating IST considerations into an existing Process Safety management system.
 - Protocols for identifying IST opportunities in existing facilities.
 - Techniques for understanding IST opportunities early in process and product development.
 - Understanding IST conflicts, and avoiding unintended consequences of changing technology.
 - Is IST more important in developing countries?

For more information, visit www.aiche.org/ccps/icw, or call Karen Person at **212-591-7319**, or e-mail to karep@aiiche.org.

ABSTRACTS MUST BE RECEIVED NO LATER THAN **SEPTEMBER 2, 2005**. Early submittal of abstracts is encouraged. To submit an abstract, send by e-mail to ccpsicw@aiiche.org. ■

SCENES FROM THE 2005 AIChE ATLANTA MEETING, APRIL 11-13

Loss Prevention Symposium Chair Walt Frank



Incoming Program Area 11a Chair Bob Johnson (right, Unwin Corporation) presents Bill Doyle Award for the best paper at the 2004 Loss Prevention Symposium to Pete Lodol (Eastman Chemical)



Process Plant Symposium Chair Kathy Pearson (Rohm and Haas)



Division First Vice-Chair Bob Benedetti presents the Walton-Miller Award to Gary Powers



CCPS Conference Chair Shakeel Kadri



Seven Walton-Miller Award recipients were present at the Annual Safety and Health Division dinner. From left: Joe Louvar, Dan Crowl, Stan Grossel, Gary Powers, Henry Febo, Dick Schwab and Bob Ormsby

MORE SCENES FROM THE 2005 AIChE ATLANTA MEETING, APRIL 11-13



Former CCPS Director Bob Perry and Current Director Scott Berger at a reception celebrating the 20th Anniversary of CCPS



Division Chair Walt Silowka looks on while Division Director Dave Clark reads a letter to the attendees at the Annual Safety and Health Division dinner thanking Trevor Kletz for his many years of service to AIChE and to the industry



Tom Carmody, the first Director of CCPS, came to Atlanta for the 20th Anniversary of CCPS



Dennis Hendershot, photographer for these pictures, has this picture taken by Erdem Ural



Process Safety Progress co-editors Joe Louvar and Dan Crowl



John Murphy,
Outgoing Program
Area 11a Chair



Al Ness, Division
Secretary-Treasurer



PAPERS PAPERS PAPERS

"A Theory on the Discharge Coefficient for Safety Relief Valves," J.C.Leung, *J.Loss Prev.Process Ind.* **17**, No.4, 301-313 (July 2004).

Comparing the flow through an SRV to that through an orifice, a simple theory is proposed to relate the discharge coefficient in two-phase compressible flow to the valve in liquid incompressible flow. This approach made use of the author's omega method applicable for both flashing discharge and non-flashing discharge. The two-phase discharge coefficient is shown to be a smooth function of the omega parameter. For non-flashing two-phase discharge, the discharge coefficient is shown to lie between the liquid coefficient and the gas coefficient. For flashing two-phase discharge, the discharge coefficient is higher than the gas coefficient.

"Use of Reaction Calorimetry in Thermal Risk Assessment Studies and Safe Design of Batch Reactions That Can Lead to a Runaway: Application on Hydrogen Peroxide," M.Papadaki, *Topics in Catalysis* **29**, Nos.3-4, 207-213 (June 2004).

Reaction calorimetry measurements have been performed and used for the calculation of the heat of reaction, the thermal mass of the reactor, and for the development of a global model for the homogeneous catalytic decomposition of hydrogen peroxide, which is a commonly encountered unwanted reaction in numerous oxidation processes. The use of this model targets the assessment of the thermal risk associated with the runaway behavior of this reaction at industrial conditions.

"Steps to a Best-in-Class Safety Record," B.Stuart, *Chem.Eng.* **112**, No.4, 63-68 (April 2005).

The eight steps to a safer process plant operation are: (1) Project Safety Assessment; (2) Data gathering and scope definition; (3) Defining the Safety Action Plan; (4) Management sign-off; (5) Kick-off and training; (6) Project execution; (7) Reward and recognition; and (8) Project review and close-out, with lessons learned. The paper discusses these eight steps in detail.

"Safety of Chlorine Production and Chlorination Processes," J-L.Gustin, *Chem.Health & Safety* **12**, No.1, 5-16 (January/February 2005).

Most chlorine is manufactured by electrolysis of sodium chloride solutions, although there are some additional commercial processes. Chlorination reactions are part of various processes in the chemical industry to manufacture heavy chemicals, speciality chemicals, pesticides, pharmaceuticals, and other key products. The hazards of chlorine production and chlorination processes involve gas phase explosive hazard explosions, i.e., self-ignition, deflagration, and detonation in the gas phase, and runaway reactions and thermal explosions, deflagration, and detonation in the condensed phase. This paper presents a collection of experiences and experimental data.

"Upgrading an Alkoxylation Facility: The Value of Calorimetric Studies," R.L.Rogers and K.Hermann, *Process Safety and Environmental Protection* **82**, No.1, 12-17 (2004).

This paper describes the approach taken during an upgrading of an alkoxylation facility which resulted in the removal of the reactor rupture discs, thus avoiding the need to install dump tanks. Inherently safe operating conditions, now ensured by a high integrity process control system, were determined by extensive calorimetric studies to measure the heats of reaction and degree of accumulation during the process. The experimental methods used to characterize both the highly exothermic process reaction as well as the runaway reactions are described. The evaluation of the results and justification for the decisions made are described.

"Addressing Safety Requirements Through Management Walkarounds," M.E.Cournoyer and M.M.Maestas, *Chem.Health & Safety* **11**, No.6, 12-16 (November/December 2004).

In the chemical industry, being burdened with ensuring that safety requirements are being met can quickly turn into an exercise in complexity. Management walkarounds are performance-based evaluations of work activities and are used to gauge conformance to safety performance expectations. This paper outlines how management walkarounds can be used as proof that everything possible is being done to meet appropriate safety requirements and standards. Case studies of this approach are presented. ■

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