# Safety & Health News

AIChE
**AMERICAN INSTITUTE OF CHEMICAL ENGINEERS**

**SAFETY AND HEALTH DIVISION**
**www.shdiv.aiche.org**

**SPRING 2005**


## SAFETY FORUM
## NEW FOR THE NEWSLETTER

Welcome to the biggest *Safety & Health News* to date. Since the Newsletter is no longer printed, and is available in an electronic version only, the cost for additional pages is negligible. This Spring 2005 issue contains 14 pages, up two pages from what has been the "standard" size since Fall 1998. Prior to that date, the Newsletter consisted of 8 pages.

Of more importance than the page count, however, is the content. For the first time, a Chair of the ACS Division of Chemical Health and Safety (CHAS) submitted a report. Russ Phifer, the Chair for 2005, writes on "Mutuality of Interests, Continued..." which appears on page 5, an article that should promote discussion and comment.

For the first time, a Call-for-Papers for CHAS sessions at an ACS National Meeting appears. On page 10, opportunities for presentations of papers at the 230th ACS National Meeting in Washington, August 28-September 1, are indicated, with Kathryn Benedict of Pfizer serving as organizer. A Call-for-Papers at the 40th Annual Loss Prevention Symposium scheduled for the AIChE Spring National Meeting in Orlando, April 23-26, 2006, is on page 11. Authors and presenters thus have a wide range of possible sessions to consider.

Another "first" is the listing on page 14 of the CHAS Officers and key Chairs together with the usual similar listing for the AIChE Safety and Health Division.

With the addition of significant material from CHAS, the question arises as to when *Safety & Health News* should become officially a joint publication. This seems to be an issue for the two Division Executive Committees to determine rather than the editor. The Newsletter certainly is moving in that direction.

The Global Conference on Process Safety is featured with the program listings on pages 7, 8, and 9 for the three major symposiums that are scheduled for the 2005 AIChE Spring Meeting in Atlanta, April 11-13. This is a first for AIChE, bringing together the three popular and valuable symposiums at the same general time and at one location. There are several other activities during this meeting for safety and health professionals including three lunches, a CCPS reception, the Annual Safety and Health Division dinner, a vendor's exhibit, and the Annual Division Executive Committee meeting to which all members are cordially invited. This Global Conference is a "must attend" event and a massive learning experience for everyone concerned with safety issues.

Your comments about the Newsletter are always welcome!


**Sam West**
aswest@worldnet.att.net



*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

A new year is upon us, and there is much to complete, both within the Division and outside of it in your individual work environments. In times of reduced staff and increased work loads, both within your company and within AIChE, I know it is difficult to travel and to commit time and energy to Division activities. I assure you, though, that the effort will be very positive in your professional development.

Actually, one of the great advantages of our relatively large and active Division is the availability of a large body of knowledge and experience in all issues involving safety and health in the chemical process and allied industries. This information can be shared and utilized by Division members. For the relatively experienced engineers, the Division can provide a new perspective or approach to process safety problems. For the newly graduated engineers, the Division can not only aid in problem solving but can also help in making decisions in career development and focus.

The Division has a number of venues and methods to accomplish this sharing. Three symposiums are organized and sponsored:

- Loss Prevention Symposium (Program Area 11a) on an annual basis
- Process Plant Safety Symposium (Program Area 11b) on a biennial basis
- Safety in Ammonia Plants and Related Facilities Symposium (Program Area 11c) on an annual basis.

Each of these program groups is responsible for organizing appropriate symposiums that emphasize technology, latest advances in the field, and methods to assist practicing engineers to do a better job managing safety and health related risks, whether in research, development, design, or plant operations. The papers presented are compiled into Proceedings for each symposium to provide best engineering practices in a readily accessible, permanent reference, available in either electronic or paper format. Of particular note is the availability of the Second Edition of the Loss Prevention Symposium CD-ROM. This set of 2 CD-ROMs includes all of the papers presented at the Loss Prevention Symposiums from 1967 through 2003, as well as the CCPS Annual Conferences and Workshops from 1987 through 2003. The preparation of the CD-ROMs was a joint project of CCPS and the Division.

The 39th Annual Loss Prevention Symposium and the 7th Biennial Process Plant Safety Symposium are scheduled during the AIChE Spring Meeting, April 10-15, 2005, to be held at the Atlanta Hyatt Regency Hotel. These two outstanding symposiums will be combined with the 20th Annual CCPS Conference and Workshop to form the Global Congress on Process Safety, an exciting new concept to bring together process safety professionals from around the world. The programs for these three symposiums are on pages 7, 8, and 9 of this Newsletter.

The 50th Annual Safety in Ammonia Plants and Related Facilities will be held at the Fairmount Royal York Hotel in Toronto, Ontario, on September 26-29. Up-to-date details of all of the AIChE Meetings can be found at **www.aiche.org**.

In addition to organizing and sponsoring symposiums, the Division has regular publications designed to provide safety and health professionals with the necessary current information to make informed decisions regarding process safety issues. Articles from publications come from a number of sources, including industry (oil, chemical, petrochemical, pharmaceutical, and plastics), government, universities, consulting and design companies, equipment manufacturers, and consensus-building organizations. These publications offer a mix of high-level technical content, thought-provoking topics, and best practices in industry. Division members receive *Process Safety Progress*, the quarterly peer-reviewed technical magazine. *Safety & Health News*, the quarterly Newsletter, is available in electronic format on the Division web site: **www.shdiv.aiche.org**.

*Proceedings of the Loss Prevention Symposiums* and *Proceedings of the Safety in Ammonia Plants and Related Facilities Symposiums* are available at the appropriate meetings and later through the AIChE Publications Department. The *Proceedings of the Process Plant Safety Symposiums* are available at the meetings.

Lastly, I want to thank the Past Chair Scott Ostrowksi of ExxonMobil Chemical for his leadership during 2004. I also want to welcome the new Executive Committee members: Ron Willey, who was elected Second Vice-Chair, and David Clark and Jean-Paul Lacoursiere, who were elected Directors for 2005-2007.

This year 2005 promises to be exciting and event-filled. I look forward to your continued participation in Safety and Health Division matters. Thanks - see you in Atlanta.

**Walter Silowka**

## SAFETY AND HEALTH DIVISION ELECTION

In the recently completed Safety and Health Division election for Officers and Directors, **Ron Willey** was elected 2nd Vice-Chair, starting the progression to Chair. **Dave Clark** and **Jean-Paul Lacoursiere** were elected Directors for the 2005-2007 term. **Albert Ness** of Rohm and Haas was reelected Secretary/Treasurer for a one-year term.

**Walt Silowka** of Air Products & Chemicals Company moved to the Chair post, and **Bob Benedetti,** National Fire Protection Association, advanced to 1st Vice-Chair.

**Ron Willey** has considerable experience on the Executive Committee having served as a Director for 2001-2003. He is Professor of Chemical Engineering at Northeastern University. He is an active member of SACHE (Safety and Chemical Engineering Education) and is the author of 10 SACHE products, including a recent case history about chemical transportation. A Fellow of AIChE, he served as Kingfish of the Ichthyologists (Chair of the Boston Section of AIChE). He is a licensed Professional Engineer in Massachusetts, and presently serves on the Board of Registration for Engineers and Surveyors for the Commonwealth.

**David G. Clark** is a Senior Consultant within the DuPont Engineering Process Safety and Fire Protection Group. His principal responsibilities include evaluating explosion hazards, completing quantitative risk assessments, providing guidance on the handling and use of flammable gases and liquids, and presenting internal instructional courses on explosion hazards and consequence analysis. He has published papers on the use of interactive matrices, on a successfully tested novel approach to mitigating vapor cloud explosions using wire mesh, on process vent collection safety, on the use of critical process incident recorders, and on the evolution of the DuPont safety culture and the current status of the company PSM systems. In addition to his technical accomplishments, he has written, illustrated, and published a children's picture book entitled "Won Wynnter." Dave received his BS and MS degrees in chemical engineering from Rensselaer Polytechnic Institute, and is a licensed Professional Engineer in Delaware.

**Jean-Paul Lacoursiere** has 20 years of experience in process safety and loss prevention. He is a member of both AIChE and the Canadian Society for Chemical Engineering (CSChE). He began his career with Union Carbide in Canada. Currently a consultant specializing in process safety, he is also Associate Professor at Sherbrooke University near Montreal. The Canadian Society for Chemical Engineering presented him the Process Safety Management Award for outstanding contributions, leadership, and dedication in the field of process safety and loss management in Canada. He is actively involved with the OECD Working Group on Chemical Accidents. He received a BS degree from Ecole Polytechique. ■

## POWERS IS SPEAKER AT ANNUAL BANQUET

The 2005 Safety and Health Division Annual Banquet will be held on Monday, April 11, during the Global Congress on Process Safety in Atlanta. Reservations can be made when registering for the AIChE Spring Meeting. The scheduled dinner speaker is Dr. Gary J. Powers, widely known for pioneering research in process risk assessment and process synthesis. He received a BS degree from the University of Michigan, and a Doctorate from the University of Wisconsin, both in chemical engineering. His career includes positions with Ethyl Corporation and Dow Chemical Company. His academic career includes positions in the Chemical Engineering Departments of MIT and Carnegie Mellon University. This dinner is always a popular attraction for Division members. ■

## 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) us scheduled for **September 26-29, 2005**, at the Fairmount Royal York Hotel in Toronto, Ontario. Presentations cover issues of safety interest in plants to 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 in this popular symposium. Information can be found at **www.aiche.org**.

The Annual Meeting of the Safety and Health Division Executive Committee will be held on Tuesday, April 12, 2005, in Atlanta, from 5:00 PM to 7:00 PM. All Division members are invited and encouraged to attend.

# CCPS PAGE
# CENTER FOR CHEMICAL PROCESS SAFETY

## IN CELEBRATION OF TWENTY YEARS

The Center for Chemical Process Safety is celebrating its 20th Anniversary during 2005 and has some exciting projects underway. Founded with 17 companies in 1985 as the chemical engineering professional response to the Bhopal accident, CCPS has grown to include more than 75 corporate sponsors and has developed a library of over 100 publications. CCPS has organized 19 successful international conferences, facilitated numerous workshops on industry-relevant topics, and now reaches over 500,000 process plant personnel around the world with the monthly *Process Safety Beacon*. Many outstanding people have been involved with CCPS over the years. Many great and amusing stories have been born. Invitations are extended to everyone with such stories and reminiscences, particularly from the early days of CCPS, to share them by contacting Karen Person at **karep@aiche.org**.

The 20th Annual CCPS International Conference will be held for the first time in conjunction with the 2005 AIChE Spring Meeting and is part of the Global Congress on Process Safety. The program for the conference is on page 7. Luncheons will be held on each of the three days of the conference, and there will be a 20th Anniversary Reception. Further details can be found at **www.aiche.org/ccps/icw**. ■

## CCPS PUBLICATIONS

There have been two important recent developments regarding CCPS publications. First, all active CCPS books have been digitalized on **www.Knovel.com**. This will allow users to have instant access to all CCPS resources. Second, starting in Spring 2005, CCPS books will be published by John Wiley and Sons. Wiley will produce and distribute the 2005 catalog. During the transition, all CCPS books can be ordered as always at **www.aiche.org/pubcat**. ■

## BIOTECH INITIATIVE

CCPS is seeking to start a major new project in what is really a new field in conjunction with the Society of Biological Engineering (SBE), organized and operated by AIChE, to develop guidelines for various aspects of bioprocess safety. This is a great opportunity for biotech companies to become involved with both CCPS and SBE. For more information, contact Scott Berger at **scotb@aiche.org** or June Wispelway at **Junew@aiche.org**. ■

## PROCESS EQUIPMENT RELIABILITY DATABASE

The Process Equipment Reliability Database (PERD) taxonomies are now available for sale and can be ordered at **www.aiche.org/pubcat/seadtl.asp?ACT=S&Title=ON&srchText=taxonomy**. Instrument Loop, Piping Circuit, Plant and Unit Taxonomies are currently available, with more coming soon. The PERD taxonomies provide a fundamentally sound structure to capture data in a consistent format to facilitate analysis of risk, reliability, and productivity. The taxonomies are available at $50 each. The PERD project was initiated to develop statistically valid reliability data from a wide range of process operations for use in quantitative risk analysis (QRA), availability analysis, and predictive maintenance. The work processes and database have been successfully demonstrated. ■

## OBITUARY

Lester H. Wittenberg, a consultant to CCPS starting in 1987 and Manager of CCPS 1994-2000, died February 9, 2005. Prior to his association with CCPS, he had a 33-year career with Stauffer Chemical in various manufacturing and management assignments. He received a chemical engineering degree from Northwestern University and held an MBA from Harvard Business School. He was a member of AIChE and the Safety and Health Division. His great enthusiasm and dedication at CCPS and his long interest in process safety issues will be missed.

# MUTUALITY OF INTERESTS, CONTINUED....
# RUSSELL PHIFER, CHAIR
# ACS DIVISION OF CHEMICAL HEALTH AND SAFETY

I read with interest the Winter 2004/2005 *Safety & Health News*, particularly the Safety Forum column by Sam West. The column points out the many similarities between the AIChE Safety and Health Division and the American Chemical Society Division of Chemical Health and Safety (CHAS), which I am serving this year as Chair. We have indeed been around just about as long, have similar sized memberships, and have certainly struggled with finances. As Sam points out, the only real difference in our focus is that ACS is generally more concerned with laboratory operations and AIChE concentrates more on larger scale plant operations. Our mutuality of interests extends far beyond these differences, however, as safety professionals of all genres struggle with the same general issues - getting workers and employers committed to safe operations, improving safety culture, and safety education. There is clearly much we can learn from each other, as exemplified by the individuals who belong to both organizations.

From my perspective, CHAS needs to expand its focus more into the industrial side. While the scale of laboratory versus plant operations is a wide bridge, chemical safety itself makes no distinction, and clearly OSHA writes and enforces regulations covering both areas. Containers must still be kept closed regardless of size, and chemicals must still be stored with compatibility in mind. Chemical reactions and processes used in the plant are largely based on procedures developed at the laboratory level. The equipment may be significantly different, but a laboratory explosion can take lives as readily as a plant accident. Personnel protection is largely the same, chemical scale has a limited effect on chemical properties, and monitoring equipment is comparable.

Those factors are secondary, though, to the idea of developing and nurturing a safety culture. We all have the responsibility to train our fellow workers, to lead by example, to act as resources for information, and to promote safety in management. If we don't receive the time, resources, and authority to do our jobs effectively, it doesn't matter if we work for the largest corporation or the smallest laboratory - we aren't going to get the job done. Regardless of where we work, the problems we face may require getting advice outside or finding the best written source. One of my oldest and most valued reference books is Willy Hammer's *Occupational Safety Management and Engineering*, a book clearly written for plant engineers. Nonetheless, the principles and many of the details apply equally to the laboratory level. There are chapters on heat and temperature, pressure hazards, accident investigations, first aid, explosions and explosives, radiation, and the hazards of toxic materials, all of which apply in a variety of settings. Each hazard has its own cause and effect. and its own corrective or preventive measure. In other words, the "system" of safety has the same "outline" regardless of scale. We analyze problems and develop solutions that are specific to a process.

I look forward to exploring the ways the two organizations can work together, and to see what we can learn from each other. Success in all ventures is measured largely in small steps, and as we expand our relationship, we can hope for larger successes. Possibilities are limited only by the limits we set ourselves. Perhaps we can consider a joint conference at some point in the future, joint membership discounts, joint publications, and joint continuing education courses as examples. Please join us in considering the possibilities that will help both groups grow and thrive, and to look for similarities instead of differences.

**Russell Phifer**

## COMMITTEE ON CHEMICAL SAFETY WEB SITE

The ACS Committee on Chemical Safety (CCS) provides advice and counsel on the handling of chemicals, and seeks to ensure safe facilities, designs, and operations by calling attention to potential hazards and by stimulating education in safe chemical practices. CCS has developed publications such as *Safety in the Elementary (K-6) Science Classroom* and *Safety Audit/Inspection Manual*. Information about the CCS can be found on the web site **http://chemistry.org/committees/ccs**.

This web site includes on-line publications and resources. Another valuable feature is the indexed list of those "Safety Letters" regarding specific chemical hazards and incidents that have appeared in *Chemical & Engineering News* from 1993 on.

## SAFETY NOTES

- The Board of Certified Safety Professionals announced the election of officers and directors for 2005. **Thomas F. Bresnahan**, a consultant in Illinois, was elected President; Larry W. Jones, Manager of Speciality Engineering with Dynetics, Inc. in Huntsville, AL, was elected Vice-President; and **Jeffrey Robinson**, Manager of Facility Support for Westinghouse in South Carolina continues as Secretary-Treasurer. The three new Directors serving three-year terms are **David F. Coble**, President of Coble, Taylor & Jones Safety Associates, **Sam Gualardo** of the Indiana University of Pennsylvania, and **Frank Reilly**, Professor of Business at the University of Notre Dame.

- The Agency for Toxic Substances and Disease Registry (ATSDR) has prepared the "Guidance Manual for the Assessment of Joint Toxic Action of Chemical Mixtures." This is available in electronic form only at: **www.atsdr.cdc.gov/interactionprofiles/ipga.html**.

- OSHA has created a step-by-step online guide to introduce employers and workers in general industry to the compliance assistance resources of the agency. "Quick Start" is available at **www.osha.gov**. It helps to identify many of the major OSHA requirements and guidance materials that may apply to a specific workplace. While not comprehensive, the Guide does provide a basic foundation for information and guidance on workplace safety and health regulations as well as assistance tools that can be tailored to individual worksites.

- Over the past few years, nineteen major fire and explosion incidents at industrial facilities have shown the inadequacies of hazard communications, particularly related to MSDSs. According to the U.S. Chemical Safety Board, these incidents resulted in 12 deaths and 79 injuries. Deficient hazard communications were identified in ten of the incidents, and were identified as the root cause in nine of these ten. Many MSDSs focus on health hazards, providing toxicological and ecotoxicological data, but fail to provide much data or information about fires, explosions, and reactive hazards posed by the hazardous chemicals.

- EPA has established the National Center for Computational Toxicology, based in Research Triangle Park, NC. The center will blend genomics data with computational techniques to study chemical toxicity, with the goal of readily evaluating health risks posed by chemicals.

- The Working Group on Land Use Change and Disease Emergence, an international group of infectious disease and environmental health experts, warns that widespread changes in the global landscape are providing new opportunities for dozens of infectious diseases such as malaria, dengue fever, Lyme disease, yellow fever, influenza, and hemorrhagic fevers. Many current activities, primarily for economic development, have some major adverse health effects. Detailed understanding of the influence of human activities on the spread of pathogens is limited. As one example, studies have shown that in the northeastern United States, forest fragmentation and urban sprawl have contributed significantly to the spread of Lyme disease.

- The Laboratory Science Institute (LSI), a nonprofit international organization for safety in science and education, will provide free speakers to schools, colleges, universities, and other not-for-profit organizations. To request information about (1) becoming an LSI Speakers Bureau presenter, (2) available presentations, and/or (3) scheduling free presentations, contact Shannon Capen at **scapen@labsafety.org** or **508-647-1900**.

- Workers and employers involved in the manufacture, distribution, use, and storage of chemicals will benefit from a new web page entitled "Chemical Reactivity Hazards" appearing at **www.osha.gov**. The page addresses particular standards that apply to the industry, including those from OSHA, EPA, and DOT. Detailed sections are offered that describe hazard recognition and incident investigation reports. Other sections describe hazard evaluation, control of reactivity, prevention of runaways, and training. ■

**Global Congress on Process Safety**
**April 11-13, 2005**
**Hyatt Regency, Atlanta, GA**

# 20th ANNUAL CCPS INTERNATIONAL CONFERENCE
# RISK MANAGEMENT: THE PATH FORWARD

Monday, April 11

7:45 AM to 9:30 AM

Session 141. Joint CCPS/LPS/PPSS Plenary: Opening Remarks and Plenary Papers.
Session 142. Keynote Address.

10:15 AM to 12:15 PM

Session 143. **Risk Management**, Mike Broadribb, BP Americas, Chair.
"Process Safety Indicators"
"Continuously Improving PSM Effectiveness"
"Managing Catastrophic Risk"
"Use of Process Risk Analysis and Systems Assessments"

1:45 PM to 3:15 PM

Session 144. **Critical Asset Protection**, Steve Arendt, ABS Consulting, Chair.
"Risk Analysis Methodology for Critical Asset Protection"
"Process Control Systems in the Chemical Industry"
"CDC's Role in Chemical Weapons Elimination Oversight"

4:00 PM to 5:30 PM

Session 145. **Risk Analysis**, Don Abrahamson, Occidental Chemical, Chair.
"Integrity of Piping Systems"
"Development of a Risk Based Inspection Implementation Manual"
"A National Reactive Chemicals and Flammability Testing Database"

Tuesday, April 12

8:00 AM to 9:30 AM

Session 146. **Better Results with Fewer Resources**, Tim Overton, Dow Chemical, Chair.
"Beyond Compliance - The Future Role of Risk Tools"
"The DOE Emergency Management System and Mitigation of Chemical Accident Risk"
"CCPS Process Safety Next Generation Project: Better Results with Fewer Resources"

10:15 AM to 12:15 PM

Session 147. **Where Have We Been and Where Are We Going**, Jack McCavit, Celanese, Chair.
"Bhopal Accident and Its Effects on Process Safety Worldwide"
"200 Years of PSM at DuPont"
"Nurturing Strong Safety Culture"

1:45 PM to 3:15 PM

Session 148. **Hazard Analysis**, Pete Lodal, Eastman Chemical, Chair.
"The Right People - Key to a Successful Hazard Review"
"The Dow Chemical Company's Reactive Chemicals Resource Center"
"Using the Adiabatic Flame Temperature to Predict the Flammability of Lower Alkanes, Carboxylic Acids, and Acetates"

4:00 PM to 5:00 PM

Session 149. **Risk Mitigation**, Scott Berger, CCPS, Chair.
"Hydrogen Safety Review Panel: Shaping Safety Awareness"
"Hazard Potential Analysis for Freeway Transportation of Toxic Substances"

5:00 PM to 5:45 PM

Session 150. **Process Safety in Iraq: Challenges and Opportunities**.

Wednesday, April 13

8:00 AM to 9:30 AM

Session 151. **Inherent Safety**, Karen Person, CCPS, Chair.
"Achieving Effective Alarm System Performance"
"Dynamic Risk Assessment of Inherently Safe Chemical Processes: Accident Precursor Approach"
"Judging Effectiveness of Inherent Safety for Safety and Security of Chemical Facilities"

10:15 AM to 12:15 PM

Session 152. **Risk Management**, Karen Tancredi, DuPont, Chair.
"The Safety Quality Factor: Tuning LOPA in Risk Analysis"
"FERC Consequence Analysis Model for LNG Spillage onto Water"
"Facility Siting Analysis: Results Presented Using a Company's Risk Protocol"
Determining the Societal Risks from COMAH Major Accident Hazard Installations"

1:45 PM to 3:15 PM

Session 153. **Case Histories**, Mike Rogers, Syncrude Canada, Chair.
"Uncertainties in Evaluating Human Response to Toxic Exposure"
"Modelling of a Warehouse Fire: A Case Study"
"Tantalum Powder Dust Explosion Analysis" ■

**Global Congress on Process Safety**
**April 11-13, 2005**
**Hyatt Regency, Atlanta, GA**

# 39TH ANNUAL LOSS PREVENTION SYMPOSIUM

The Global Process Safety Congress includes the 39th Annual Loss Prevention Symposium, organized by the Safety and Health Division Program Area 11a. These popular Loss Prevention Symposiums have been held annually since 1967. The objective of the symposium is to promote safety in the chemical process and allied industries by providing a forum for practitioners from industry, academia, and government to share experiences, technological advances, and new ideas in the loss prevention and process safety fields. The 39th Annual Symposium will consist of the following six sessions.

| Symposium Chair | Symposium Vice-Chair |
|---|---|
| Walter L. Frank | Erdem A. Ural, PhD |
| ABS Consulting | Loss Prevention Sciences & Technologies, Inc. |

Monday, April 11: 10:15 AM to 12:15 PM

Session 87. **INERTING OF REACTORS AND PROCESS EQUIPMENT -**This session addresses the design and installation of inerting systems for equipment and processes containing flammables, combustible dusts, monomers requiring the presence of oxygen to activate an inhibitor, and other applications where an inert atmosphere is needed for process safety.

| Chair | Vice-Chair |
|---|---|
| Raymond A. Freeman, PhD | Joseph R. Natale |
| ABS Consulting | Baker Engg. & Risk Consultants |

Monday, April 11: 1:45 PM to 5:20 PM

**Session 88. CHEMICAL REACTIVITY HAZARDS** - The analysis of chemical reactivity hazards and the prevention and mitigation of uncontrolled chemical reactions are centrally important to the loss prevention community. This session includes new research, tools, and methods that identify, characterize, or offer design and operational guidance related to chemical reactivity hazards. Related issues include controlling intended reactions that yield useful products, runaway reactions, instability, thermal sensitivity, material incompatibility, and uncontrolled reaction consequences.

| Chair | Vice-Chair |
|---|---|
| Robert W. Johnson | Erdem A. Ural |
| Unwin Company | Loss Prevention Sci.& Tech. |

Tuesday, April 12: 8:00 AM to 12:00 Noon

**Session 89. FIRES AND EXPLOSIONS** - Fire and explosion hazard identification, analysis, prevention, and mitigation are important issues in loss prevention. This session provides papers that offer new data, methodologies, technologies, and cost effective solutions that address these hazards.

| Chair | Vice-Chair |
|---|---|
| Erdem A. Ural, PhD | Christopher Hanauska |
| Loss Prevention Sci. & Tech. | Hughes Associates |

Tuesday, April 12: 1:45 PM to 5:20 PM

**Session 90. PROCESS HAZARDS IN THE PHARMACEUTICAL INDUSTRY** - Many processes for the manufacture of pharmaceuticals involve hazardous chemicals and hazardous processes. This session presents papers addressing design methods and operating procedures used in pharmaceutical manufacture such as safe handling of hazardous chemicals, safe procedures for various unit operations and unit processes, design of reaction systems, and methods of avoiding runaway reactions.

| Chair | Vice-Chair |
|---|---|
| Stanley S. Grossel | Larry Floyd |
| Process Safety & Design Inc. | Ciba Speciality Chemicals Corp. |

Wednesday, April 13: 8:00 AM to 12:00 Noon

**Session 91. DUST EXPLOSIONS** - Recent incidents in North Carolina, Indiana, and Kentucky illustrate how catastrophic dust explosions can be. Investigations by the U.S. Chemical Safety Board indicate that many organizations do not adequately understand the hazards of combustible dusts. This session contains papers discussing dust explosion hazards, methods to prevent them or mitigate their effects, and ways of enhancing awareness of dust explosion hazards in all potentially impacted facilities. A recent reference is the CCPS book *Guidelines for Safe Handling of Powders and Bulk Solids* (Publication G-95).

| Chair | Vice-Chair |
|---|---|
| John F. Murphy | Dennis C. Hendershot |
| U.S. Chemical Safety Board | Rohm and Haas Company |

Wednesday, April 13: 1:45 PM to 3:15 PM

**Session 92. CASE HISTORIES AND LESSONS LEARNED** - Reviews of process safety incidents and near misses provide valuable learning opportunities. Papers dealing with incidents, near misses, and the lessons learned are presented. These sessions have been held annually over the years, and have been highly popular and well attended

| Chair | Vice-Chair |
|---|---|
| Henry L. Febo | David G. Clark |
| FM Global | DuPont Company |

Wednesday, April 12: 4:00 PM to 6:00 PM

**Session 154. CASE HISTORIES** - This concluding session is jointly sponsored by LPS, CCPS, and PPSS. Walt Frank, ABS Consulting and LPS Chair, will chair this session. Kathy Pearson, Rohm and Haas Company and PPSS Chair, will provide closing remarks for the Global Congress on Process Safety. ■

The Global Congress on Process Safety presents a rare opportunity for process engineers to obtain significant knowledge about the advances in process safety technology as well as to network with international experts in the field at three scheduled lunches and at other events. Be sure to attend - **April 11-13, 2005**.

**Global Congress on Process Safety**

**April 11-13, 2005**

**Hyatt Regency, Atlanta, GA**

# 7TH BIENNIAL PROCESS PLANT SAFETY SYMPOSIUM

The Global Congress on Process Safety includes the 7th Biennial Process Safety Symposium. The South Texas Section of AIChE and Program Area 11b of the AIChE Safety and Health Division will sponsor the 7th Biennial Process Plant Safety Symposium (PPSS) at the AIChE Spring National Meeting in Atlanta. Objectives of the PPSS include providing new technical information on the identification, prevention, and mitigation of process hazards, the prevention or mitigation of damage to and resultant loss of production facilities, and protection of public health and welfare due to the hazard potential of chemicals and processes. The PPSS was originally established and organized locally by the South Texas Section of AIChE but is now organized as Program Area 11b under the Safety and Health Division. The first PPSS was held in the Spring of 1992.

Scheduled sessions follow.

| Symposium Chair | Symposium Co-Chair |
|---|---|
| Katherine Pearson | James R. Thompson |
| Rohm and Haas Company | INVISTA |

Monday, April 11: 10:15 AM to 12:10PM; 1:45 PM to 2:15 PM

**Sessions 93 and 94. HUMAN FACTORS ENGINEERING AND ERGONOMIC ENGINEERING -** Human factors and poor ergonomics are often identified as incident root causes. This session includes papers demonstrating the application of human factors or ergonomic engineering methods to minimize operator, maintenance, or management error. Included are innovative solutions to ergonomic problems, the design of man-machine interfaces, and methods to reduce fatigue.

| Chair | Co-Chair |
|---|---|
| Don Lorenzo | Lawrence Schulze |
| ABS Consulting | University of Houston |

Monday, April 11: 2:15 PM to 5:10 PM

**Session 95. IMPROVING SAFETY CULTURE -** Presentations are included demonstrating approaches to reducing incidents through management processes such as operational discipline, behavior sampling, operator training, operating procedures, and interactive task management systems.

| Chair | Co-Chair |
|---|---|
| Dr. M. Sam Mannan | Dr. William J. Rogers |
| Mary Kay O'Connor | Mary Kay O'Connor |
| Process Safety Center | Process Safety Center |

Tuesday, April 12: 8:00 AM to 12:15 PM

**Session 96. RISK ASSESSMENT -** Risk assessment is key to evaluating and improving the safety and business risk of process systems. Papers are included demonstrating the application of both qualitative and quantitative risk assessment techniques such as HAZOP, Layer of Protection Analysis (LOPA), and QRA.

| Chair | Co-Chair |
|---|---|
| Phil Myers | Michael Livingston |
| Advantage Risk Solutions Inc | WS Atkins |

Tuesday, April 12: 1:45 PM to 5:20 PM

**Session 97. INCIDENT INVESTIGATIONS AND METHODS OF INTERPRETING EVIDENCE -** Accurate interpretation of physical evidence is critical to effective accident investigations. This session has papers demonstrating how to protect, preserve, collect, store, interpret, and document physical and electronic information.

| Chair | Co-Chair |
|---|---|
| Lisa M. Morrison | Don Connolley |
| PPG Industries Inc. | Akzo Nobel Chemicals |

Wednesday, April 13: 8:00 AM to 11:45 AM

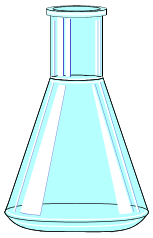
**Session 98. INHERENTLY SAFER PROCESS DESIGN AND OPERATIONS** This session presents papers demonstrating the use of inherently safer process design methods to reduce the risk of process operations. Included are lower pressure/lower temperature processing, less hazardous chemical use, and equipment made to withstand process extremes.

| Chair | Co-Chair |
|---|---|
| Jack Chosnek | Vic Edwards |
| KnowledgeOne | Aker Kvaerner ■ |

The Global Congress on Process Safety will include a luncheon on each of the three days, a reception on Sunday, Monday, and Tuesday evenings, and a vendor display area. There will be mid-AM and mid-PM coffee breaks each of the three days. The AIChE Spring Meeting registration fee will provide admission to all technical conferences. Lunches and receptions will be ticketed events. A joint LPS/PPSS/CCPS session will kick off the Congress on Monday morning with plenary papers and the keynote address. A joint session on "Case Histories" will conclude the Congress on Wednesday afternoon.

The Annual Safety and Health Division dinner is scheduled for Monday evening. The Annual Division Executive Committee Meeting is scheduled for late Tuesday afternoon.

The three Chairs responsible for this extensive technical program are:
for CCPS - Shakeel Kadri, Air Products & Chemicals, Inc.
for LPS - Walt Frank, ABS Consulting
for PPSS - Kathy Pearson, Rohm and Haas.



# CALL-FOR-PAPERS
# 230TH ACS NATIONAL MEETING
# 25TH ANNIVERSARY OF CHAS
# WASHINGTON, DC
# AUGUST 28 TO SEPTEMBER 1, 2005

Papers are solicited for the following four sessions sponsored by the Division of Chemical Health and Safety at the 230th ACS National Meeting in Washington, DC. The 25th anniversary of the Division will be recognized during the meeting.

Chemical Safety Past and Future, 1900 to 2015

Teaching Safety (cosponsored with the Division of Chemical Education)

RCRA and Laboratories

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

In addition to the above four sessions, there will be the following two sessions sponsored by CHAS with invited speakers:

2005 CHAS Awards Symposium

Presidential Event - Chemical Plant Security (cosponsored with AIChE)

Online submissions will open April 1, 2005. Online and hard copy submissions end **May 1, 2005**. Abstracts should be submitted to **http://oasys.acs.org**. For further information, contact the CHAS Fall Meeting organizer: Kathryn Benedict, Pfizer Global R&D, 2800 Plymouth Road, Ann Arbor, MI 48105, **Kathryn.Benedict@pfizer.com** or **734-622-7516**. ■

## CHAS COLLEGE AND UNIVERSITY HEALTH AND SAFETY AWARD

CHAS presents an annual award to a college or university whose safety program demonstrates excellence and growth. The award is given to recognize the most comprehensive laboratory safety program in higher education (encompassing undergraduate study only). The award consists of a plaque and a $1,000 prize for expenses so that at least one representative of the recipient can be present at an award symposium at the Fall ACS National Meeting. There are ten criteria used for judging. The National Institute of Occupational Safety and Health (NIOSH) has awarded a grant of $1,000 to assist with the 2005 award.

Nomination may be made by a local ACS section or nearby industry which has on its staff an ACS member with expertise in laboratory safety. The ten categories for judging include:

- Institutional safety policy
- Chemical hygiene plans for instructional laboratories
- Evidence of incorporation of safety concepts and sources of information into the curriculum
- Chemical waste guidelines, documents, and statistics
- Storage: written policies and description of procedures
- Prep room: chemical hygiene plan, general policy, and procedures
- Waste minimization: policy, practice, incorporation into curriculum
- Faculty development: seminars, workshops, production of video tapes, and similar
- Laboratories and chemical use areas: ventilation, housekeeping, supervision, security, emergency equipment, personal protective equipment

The recipient of the 2004 Award, which was also supported by a $1,000 NIOSH grant, was the University of Massachusetts Chemistry Department in Boston. The 2005 Award winner will be announced at the ACS Fall Meeting in Washington. ■

# 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 | Symposium Vice-Chair |
|---|---|
| Erdem A. Ural, PhD | Christopher Hanauska |
| Loss Prevention Science & Technologies, Inc. | Hughes Associates, Inc. |
| 659 Pearl Street | 3610 Commerce Drive |
| Stoughton, MA 02072 | Suite 817 |
| **781-344-7656** | Baltimore, MD 21227-1652 |
| erdem.ural@lpsti.com | **410-737-8677, Ext. 242** |
| | chanauska@haifire.com |

**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 | Vice-Chair |
|---|---|
| David G. Clark | Walter L. Frank |
| DuPont Company | ABS Consulting |
| 31 Bass Court | 5301 Limestone Road, Suite 210 |
| Newark, DE 19713 | Wilmington, DE 19808 |
| **302-774-8044** | **302-239-0496** |
| david.g.clark@usa.dupont.com | 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 | Vice-Chair |
|---|---|
| Peter N. Lodal | Jean Paul LaCoursiere |
| Eastman Chemical Company | Universite de Sherbrooke |
| P. O. Box 511, B-18 | 35 Rue Lemoyne |
| Kingsport, TN 37662 | Repentigny, QC J6A 3L4 |
| **423-229-2675** | **450-581-2315** |
| pnlodal@eastman.com | 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.

| Chair | Vice-Chair |
|---|---|
| Stanley S. Grossel | Daniel A. Crowl |
| Process Safety & Design Inc. | Michigan Technological University |
| 41 Sussex Road | Dept. of Chemical Engineering |
| Clifton, NJ 07012-2017 | Houghton, MI 49931 |
| **973-779-8579** | **906-487-3221** |
| psadi28@aol.com | crowl@mtu.edu |

**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 | Vice-Chair |
|---|---|
| Brian R. Dunbobbin | Cheryl A. Grounds |
| Air Products & Chem. Inc. | Baker Engineering & Risk Cons. |
| 7201 Hamilton Boulevard | 3330 Oakwell Court, Suite 100 |
| Allentown, PA 18195-1501 | San Antonio, TX 78218 |
| **610-481-6736** | **727-771-7853** |
| dunbobbr@apci.com | 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.

| Chair | Vice-Chair |
|---|---|
| Christopher Hanauska | Henry L. Febo |
| Hughes Associates, Inc. | FM Global |
| 3610 Commerce Drive | 1151 Boston-Providence Tpke. |
| Baltimore, MD 21227-1652 | Norwood, MA 02062 |
| **410-737-8677, Ext. 242** | **781-984-7433** |
| chanauska@haifire.com | henry.febo@fmglobal.com |

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

| Chair | Vice-Chair |
|---|---|
| John F. Murphy | Robert P. Benedetti |
| U.S. Chemical Safety Board | NFPA International |
| 2175 K Street, NW, Suite 400 | One Batterymarch Park |
| Washington, DC 20037-1809 | Quincy, MA 02269-9101 |
| **202-261-7600** | **617-984-7433** |
| john.murphy@csb.gov | bbenedetti@nfpa.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 Symposiums, 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. The Call-for-Papers appears on page 11. Both AIChE and the Safety and Health Division are professional organizations that do not pursue any profit goals. The objective of the Loss Prevention Symposiums 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,
- simple and not too detailed, so it can be displayed in low resolution.

All entrants must certify that any artwork 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. ■

## MODERN SOCIETY

1. You have a list of 15 phone numbers to reach your family of 3.
2. You accidentally enter one of your PINs on your microwave.
3. You haven't played solitaire with real cards in years.
4. You e-mail your associate who works at the desk next to you.
5. Your reason for not staying in touch with your friends is that they do not have an e-mail address.
6. When you go home after a long day at work, you still answer the phone in a business-like manner.
8. When you make phone calls from home, you automatically dial "9" to get an outside line.
9. You've sat at the same desk for four years and have worked for three different companies.
10. You learn you have been laid off on the 11 o'clock news.
11. Contractors outnumber permanent staff and are more likely to get long-service awards.
12. You have read this entire list, and kept agreeing and smiling.
13. You got this e-mail from a friend who never talks to you anymore, except to send items over the net.
14. You were too busy to notice that there was no No. 7.
15. You actually scrolled back to check that there wasn't a No. 7.

## PAPERS PAPERS PAPERS

**"Application of Screening Tools in the Prevention of Reactive Chemical Incidents,"** C.Wei, .J.Roers, and M.S.Mannan, *J.Loss Prev.Process Ind.* **17**, No.4, 261-269 (July 2004).

This paper analyses 167 reactive chemical incidents reported in a study conducted by the U.S. Chemical Safety Board (USB). This analysis concludes that most of the information to identify and assess hazards in order to prevent accidents already existed in the literature. In this paper, a few simple and easy approaches to access the needed hazard information are discussed. Using the described screening tools, reactive hazards can be easily identified. These tools will be especially helpful for small or medium-sized companies who do not have extensive capabilities or resources for experimental testing.

**"Identifying Criteria to Classify Chemical Mixtures as 'Highly Hazardous' Due to Chemical Reactivity,"** D.Crowl and T.I.Elwell, *J.Loss Prev.Process Ind.* **17**, No.4, 279-289 (July 2004).

The authors report using 13 sets of calorimeter data to evaluate a number of common criteria to characterize chemical reaction hazards. The purpose is to determine whether or not a criterion or set of criteria can be used to trigger PSM or RMP requirements for reactive chemicals. Such a criteria must be cost-effective, easy to use, and, ideally, should not rely on additional experimental testing. Based on a very limited set of calorimeter data, the conclusion is that no simple criterion is likely to be adequate for screening all classes of reactive chemicals. The results of the study are mixed. It might be possible to establish a screening method based on several of the criteria discussed in the paper, but an analysis with a much larger set of chemicals is needed prior to establishing a final screening method.

**"Flashpoints are Affected by Process Pressure,"** D.Kong, *Chem.Eng.* **111**, No.13, 50-53 (December 2004).

Flashpoint data for many liquids are available in handbooks and on MSDSs expressed as a constant. The flashpoint of a liquid can vary significantly, however, with pressure. Two case histories are reviewed in this paper. To prevent unexpected consequences as described, the influence of pressure on the flashpoint should be added to the process safety review checklist, and the flashpoint of the liquid under actual anticipated process pressures should be determined by adequate testing methods.

**"Management of Time Sensitive Chemicals I: Misconceptions Leading to Incidents,"** J.Bailey, D.Blair, L.Boada-Clista, D.Marsick, D.Quigley, F.Simmons, and H.Whyte, *Chem.Health & Safety* **11**, No.5, 14-17 (September/October 2004). **"Management of Time Sensitive Chemicals II: Their Identification, Chemistry, and Management,"** J.Bailey, D.Blair, L.Boada-Clista, D.Marsick, D.Quigley, F.Simmons, and H.Whyte, *Chem. Health & Safety* **11**, No.6, 17-24 (November/December 2004).

Time-sensitive materials continue to be stored for such a long period that additional hazards are created. Workers many times do not realize that these materials have additional risks present. The chemistry and time management of time-sensitive materials is not well understood. Safe disposal techniques are not always well known. What is required is a better understanding of the chemistry behind time-sensitive chemicals and the development of an effective management program to control them. The chemistry of typical time-sensitive materials is presented, including an extensive list of peroxide forming substances.

**"Minimizing the Impact of Accidental Chemical Releases,"** P.H.Haroz, *Chem.Eng.* **111**, No.13, 57-59 (December 2004).

Dispersion modeling to predict plume behavior is key to contingency planning in advance of any incident. Advance planning and a good working knowledge of the tools that can help plant personnel to make quick and accurate assessments in the event of an actual incident are both critical. The use of plume dispersion modeling can aid in the contingency planning. Underlying models are described.

**"Remember Hand Protection,"** L.B.Randall, *Chem.Eng.Prog.* **101**, No.1, 41-43 (January 2005).

Setting up a hand-protection program involves understanding the hazards, choosing the appropriate glove, training personnel on glove use, and ensuring that employees always use their gloves properly.

**"Choosing the Right Chemical-Resistant Glove,"** J.Copeland, *Chem.Eng.Prog.* **101**, No.1, 44-46 (January 2005). ■

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