An AIChE Technology Alliance



2015 Annual Report Process Safety Excellence

VISI@N20/20

The CCPS Story

JUST AFTER MIDNIGHT ON DECEMBER 3, 1984, water contamination of a tank of methyl isocyanate in Bhopal, India initiated a series of events that led to a catastrophic toxic release, killing more than 3,000 residents and injuring over 100,000.

On February 26th of 1985, industry leaders asked the American Institute of Chemical Engineers (AIChE) to lead a collaborative effort to eliminate catastrophic process incidents. On March 23, 1985, AIChE formed the Center for Chemical Process Safety; CCPS completed Guidelines for Hazard Evaluation Procedures a short time later.

This year, as we mark the 30th anniversary of both Bhopal and CCPS, we pause to reflect on the progress we've made and recommit ourselves to Vision 20/20, the future of process safety.

Key milestones have included:

- Establishing process safety as a management system
- Promoting the essential role of leadership and culture
- Developing the technical underpinnings of process safety in design
- Advancing the best practices in process hazard analysis
- Leading the establishment of global process safety metrics
- Forming the world's largest community of practice, with thousands of deeply connected process safety professionals

We continue to honor the memories of the Bhopal dead by striving for a future in which we can eliminate all process safety incidents. Toward this end, we remain committed to learning from incidents, advancing the practice, and collaborating broadly to implement Vision 20/20, which serves as our roadmap. Come join the Global Community Committed to Process Safety — be ready for the future by helping create it.

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Executive Message

CCPS HAS ENJOYED THE STABILITY OF THIRTEEN AND A HALF YEARS UNDER

A SINGLE EXECUTIVE DIRECTOR. Continuity at the leadership level has been a major factor in helping CCPS continually grow in size, geographic reach, resources offered, and influence, amid ongoing changes in member company volunteers and staff.

CCPS will now manage a key process safety—critical organizational change as we transition Executive Directors.

We know how to do this. CCPS wrote the book *Guidelines for Managing Process Safety Risks During Organizational Changes*. Competencies have been mapped and gaps identified. Plans have been made to close gaps. Senior leadership has approved the change. The change has been communicated. By the time you are reading this, the change has taken place. You, our members and stakeholders, will monitor the change and recommend corrective actions, and we know we can count on you.

Shakeel Kadri will not be the same leader as Scott Berger. No two people can be expected to be. However, both are passionately committed to process safety and to CCPS' overarching mission, goals and signature programs.

You can continue to expect CCPS to be the champion of process safety culture while remaining the loudest voice supporting the broad implementation, communication, and improvement of process safety metrics. CCPS will be uninterrupted in its unifying global approach to managing process safety and to lead process driven industries forward on the road to Process Safety Vision 20/20.

You can continue to expect CCPS to grow in membership, resources, influence, and above all – impact. You can expect CCPS to continue expanding its technical and human resources and making them available to more people in more places in more ways. You can expect CCPS to continue to improve its services to our members and stakeholders. You can expect CCPS to continue to grow its partnerships with organizations with synergistic interests.

And one thing you will see in CCPS that you may not see in other organizational changes: the former incumbent remaining close, to act in a supportive capacity in case unforeseen gaps reveal themselves later.

Finally, on behalf of CCPS, both Shakeel and Scott would like to thank all of you for your committed support and partnership, and are looking for the same as we steer together through achieving our joint vision; when leaders in process safety will value and demonstrate actionable commitment to the Vision 20/20 tenets that prevent, minimize, and mitigate process safety incidents.

Together, we shall realize our Vision! This is our promise to you.

Shakeel Kadri

Selen H.K.h.

Just Serge

Scott Berger



Shakeel Kadri CCPS Executive Director



Scott Berger CCPS Executive Director, Emeritus

Vision 20/20

VISI@N20/20

By the year 2020, leaders in process safety will value and demonstrate actionable commitment to the Vision 20/20 tenets that prevent, minimize, and mitigate process safety incidents. Vision 20/20, developed by the Center for Chemical Process Safety (CCPS) looks into the not-too-distant future to demonstrate what great process safety will look like when it is championed by industry and driven by the Vision's five tenets and global societal themes, (below).

Five Tenets for Industry

At the heart of Vision 20/20 is adherence to five core principles that will help industry target and drive performance improvement and achieve great process safety performance:

- Committed Culture
- Vibrant Management Systems
- Disciplined Adherence to Standards
- Intentional Competency Development
- Enhanced Application of Lessons Learned

Four Societal Themes

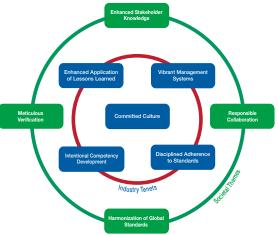
Vision 20/20 is a call to action for all of society, industry, as well as our leaders, our governments, and the public at large — to be fervent about protecting people and property. The Vision 20/20 bridge to that commitment is its four societal themes:

- Enhanced Stakeholder Knowledge
- Responsible Collaboration
- Harmonization of Standards
- Meticulous Verification

To Drive Improvement

As manufacturing and oil/gas production become more complex, the need to drive continuous improvement in process safety — not just for industry, but for all stakeholders — becomes increasingly urgent.

Vision 20/20 harnesses the collective expertise and best practices of CCPS to establish a global framework for great process safety, driven by industry tenets and global societal themes that will achieve:







- Consistent overlap of corporate and plant employees, to ensure enhanced process safety understanding and rigorous adherence to standards and practices
- Persistent knowledge, cultural values, understanding, and implementation strategies, which will be utilized by executives, management, technicians, engineers, students, government, and the public
- A worldwide vision, guided by CCPS a leader in state-of-the-art process safety solutions for managing process safety improvements to fulfill Vision 20/20

See What Industry Leaders Are Saying

What does great process safety look like? CCPS asked top executives to walk us through a typical day in the life of a CEO, a unit manager, and an academic, and then to imagine what that same day would look like if all industries were guided by Vision 20/20 tenets.

On Committed Culture

"To be successful at both sides of safety...requires a workforce that truly believes that all accidents are preventable.... It's got to be in the heads and hearts of people, if you're going to perform well in process safety."

- Stephen Pryor, ExxonMobil Chemical

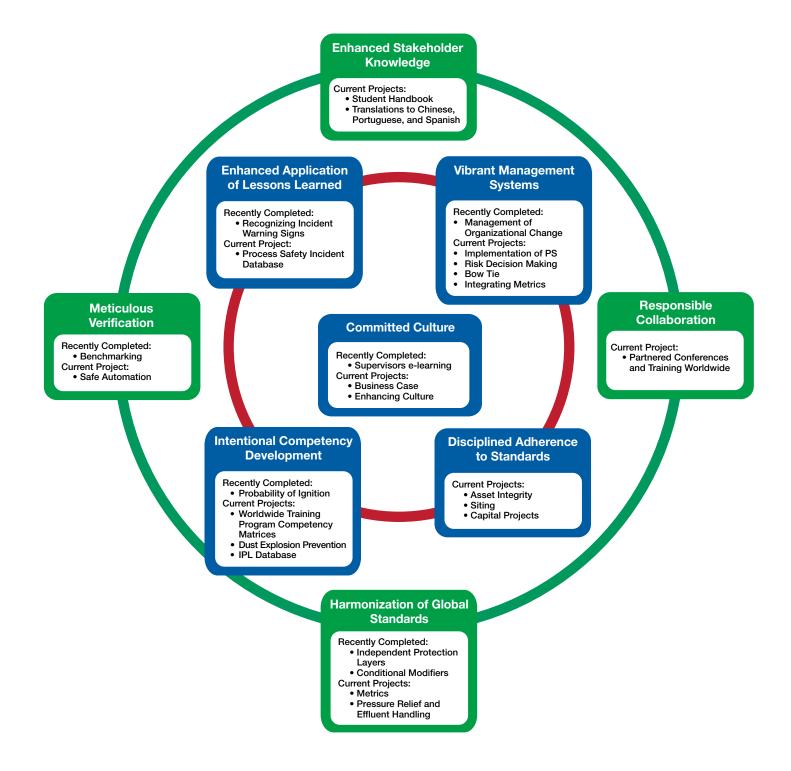
Vision 20/20

On Vibrant Management Systems

"You can't look at this as a regulatory effort, you can't look at it as a cost center. I look ... first of all, to ensure that we are doing the right things for the employees ... the community... the shareholders, and the board. Through the proper implementation of the process safety system, we're providing a discipline to the organization. It's going to ensure that we have a better-run organization ... with better reliability, fewer accidents, fewer environmental problems...there are all kinds of benefits to doing this." — Paul Eisman, Alon USA

Visit www.aiche.org/ccps/about/vision-2020 to read more about the four societal themes and five tenets for industry; to envision a day in industry's not-too-distant future; and to see more of what industry leaders are saying about this important journey of process safety.

CCPS 2015 Projects in Support of Vision 20/20



Get Your Company Involved

VOLUNTEER for a CCPS project subcommittee: get the opportunity to share your knowledge and help shape industry best practices.

EDUCATE your colleagues by hosting a Process Safety Boot Camp[®] or foundations of Process Safety training events.

SHARE your expertise by submitting an abstract to the Global Congress on Process Safety (GCPS) or a CCPS Regional Conference.

MENTOR your new employees by bringing them to the Young Professionals program at GCPS.

MODEL your company as a leader in process safety by being a contractor for a CCPS publication.

COMMUNICATE the message by forwarding CCPS' monthly business blast and the Process Safety Beacon to your colleagues.

CONNECT with your process safety peers through CCPS LinkedIn.

JOIN CCPS as a member company and prevent catastrophic process safety incidents.







Important CCPS News and Activities

Completed Book Projects



Visit www.wiley.com/go/ccps to purchase any CCPS publications.

Completed Education Projects

2014 CCPS eLearning Courses Process Safety Leadership for Front-Line Supervisors

CCPS' Process Safety Management for Bioethanol



CCPS' Process Safety Management for Biodiesel







2014 Instructor-Led Training Courses Managing Process Safety Risks During Organizational Change

Recognizing Catastrophic Incident Warning Signs

2014 Events and Meetings

North America

The 10th Global Congress on Process Safety in New Orleans, Louisiana was attended by 1,300 participants from more than 300 companies and more than 40 countries.

The CCPS Technical Steering Committee Meeting was held in New Orleans, Louisiana and had over 120 attendees from more than 90 companies.





South America

The 6th Latin American Conference on Process Safety in Buenos Aires, Argentina was attended by over 500 participants from more than 60 companies and more than 12 countries.

The 1st CCPS Latin American Regional Meeting was held in Buenos Aires, Argentina, September 18, 2014.





2014 Events and Meetings

Europe

The 1st CCPS European Regional Meeting was held in Frankfurt am Main, Germany, March 18, 2014.

The 2nd CCPS European Regional Meeting was held in Utrecht, The Netherlands, Thursday, September 18, 2014.



Asia

The 2nd CCPS China Conference on Process Safety was held in Qingdao, China, August 28–29, 2014, presented by CCPS, The China University of Petroleum, and The China Chemical Safety Association, and had over 200 attendees.

The 8th CCPS Asia Pacific Regional Meeting was held in Chennai, India, September 22, 2014, and was sponsored by Chola MS Risk Services.







The CCPS Global Summit on Process

Safety was held in Mumbai, India on December 15–16, 2014. The summit was sponsored by AcuTech, DuPont and Reliance, and had over 175 attendees.

2014 Events and Meetings

Middle East and North Africa

The 2nd CCPS Middle East Regional Meeting was held in Abu Dhabi, UAE, April 28, 2014, and was sponsored by AcuTech Consulting.





The 3rd CCPS Middle East Regional Meeting was held in Manama, Bahrain, September 18, 2014, and was sponsored by Gulf Petrochemical Industries Co.

Inaugural CCPS Middle East Process Safety Conference May 19 – 21, 2015 Abu Dhabi, UAE

Focusing on operational excellence through effectively managing risk and reliability, this event aims to define, through collective industry experience, the engineering practices and leadership traits that drive industry to a zero harm culture.

For more information, please visit the CCPS MEPSC website at www.mepsc.org or contact us at MEPSC@aiche.org.



2015 Important Dates and Events

Event	Location	Date
TSC Winter Webconference	CCPS Web Conference	2/4/2015, 10:00 am, NY time
2015 AIChE CCPS Asia Pacific Conference on Process Safety	Perth, Australia	2/9–11/2015
CCPS Advisory Board Meeting	New York, NY	3/4/2015
3rd CCPS European Regional Meeting	The Hague, Netherlands	3/18/2015
India Process Safety Symposium	Mumbai, India	4/20/2015
* Hazards Asia Pacific	Kuala Lumpur, Malaysia	4/21–23/2015
11th Global Congress on Process Safety	Austin, TX	4/26–29/2015
CCPS Technical Steering Committee Meeting	Austin, TX	4/30/2015
* Offshore Technology Conference (OTC)	Houston, TX	5/4–7/2015
* Hazards 25	Edinburgh, Scotland	5/13-15/2015
CCPS Middle East Conference on Process Safety	Abu Dhabi, UAE	5/19–21/2015
TSC Summer Webconference	CCPS Web Conference	6/9/2015, 10:00 am, NY time
* ACHEMA Conference 2015	Frankfurt, Germany	6/15–19/2015
7th CCPS Latin America Global Conference	Rio de Janeiro, Brazil	8/24-26/2015
TSC Fall Webconference	CCPS Web Conference	9/17/2015, 10:00 am, NY time
4th CCPS European Regional Meeting	Frankfurt, Germany	9/17/2015
4th CCPS Middle East Regional Meeting	Manama, Bahrain	9/17/2015
9th CCPS Asia-Pacific Regional Meeting	Mumbai, India	9/17/2015
CCPS Latin America Regional Meeting	Rio de Janeiro, Brazil	9/17/2015
European Workshop on Process Safety	Nice, France	9/27-10/01/2015
3rd CCPS China Conference on Process Safety	Hangzhou, China	10/15/2015
* Mary Kay O'Connor Process Safety Center Conference	College Station, TX	10/27-29/2015
2nd Global Summit on Process Safety	Kuala Lumpur, Malaysia	11/3-5/2015
Fall Technical Steering Committee Meeting	Houston, TX	11/18–19/2015

*Visit our booth and hear our presentations at these conferences.

Dates are tentative. Visit www.ccpsonline.org for the most up-to-date information.

CCPS 2015 Meetings, Destinations and

NORTH AMERICA

New York, NY CCPS Advisory Board 3/4/2015

Austin, TX 11th Global Congress on Process Safety 4/26–29/2015

Austin, TX CCPS Technical Steering Committee 4/30/2015

Houston, TX Offshore Technology Conference (OTC)* 5/4–7/2015

College Station, TX Mary Kay O'Connor* Process Safety Center Conference 10/27–29/2015

Houston, TX Fall Technical Steering Committee Meeting 11/18–19/2015

EUROPE

The Hague, Netherlands 3rd CCPS European Regional Meeting 3/18/2015

Edinburgh, Scotland Hazards 25* 5/13–15/2015

Frankfurt, Germany ACHEMA Conference 2015* 6/15–19/2015

Frankfurt, Germany 4th European Regional Meeting 9/17/2015

Nice, France / European Workshop on Process Safety 9/27–10/01/2015

MIDDLE EAST

Abu Dhabi, UAE CCPS Middle East Conference on Process Safety 5/19–21/2015

Manama, Bahrain 4th CCPS Middle East Regional Meeting 9/17/2015

SOUTH AMERICA

Rio de Janeiro, Brazil 7th CCPS Latin America Global Conference 8/24–26/2015

Rio de Janeiro, Brazil CCPS Latin America Regional Meeting 9/17/2015 * Visit our booth and hear our presentations at these conferences. Dates are tentative. Visit www.ccpsonline.org for the most up-to-date information.

Global Offices

ASIA

Kuala Lumpur, Malaysia Hazards Asia Pacific* 4/21–23/2015

Hangzhou, China 3rd CCPS China Conference on Process Safety 10/15/2015

Kuala Lumpur, Malaysia 2nd Global Summit on Process Safety 11/3–5/2015

INDIA

Mumbai, India India Process Safety Symposium 4/20/2015

Mumbai, India 9th CCPS Asia-Pacific Regional Meeting 9/17/2015

AUSTRALIA

Perth, Australia 2015 AIChE CCPS Asia Pacific Conference on Process Safety 2/9–11/2015

Global Webconferences

TSC Winter Webconference 2/4/2015

TSC Summer Webconference 6/9/2015

TSC Fall Webconference 9/17/2015

CCPS OFFICES

- New York, NY, U.S.
- Frankfurt, Germany
- Houston, TX, U.S.
- Mumbai, India
- Qingdao, China
- Singapore

CCPS Activities Management

Activities are developed, monitored and directed by:

- Technical Steering Committee
- Managing Board
- Advisory Board
- Planning and Operations Committee

Additionally, members of the Technical Steering Committee and other member company representatives serve on subcommittees that oversee CCPS projects. The Managing Board has fiduciary responsibility for CCPS' operations. The Advisory Board has strategic responsibility for CCPS. Board members review CCPS' mission and strategies and recommend new initiatives. The Planning and Operations Committee has responsibility for evaluating opportunities and gaps in CCPS programs relative to its strategy, and for generating potential initiatives to address them.

Technical Steering Committee (TSC)

The Technical Steering Committee (TSC) is the main body of CCPS, with one representative from each CCPS member company. The key functions of the TSC are to assist the CCPS Executive Director to:

- Develop an overall multi-year program for CCPS;
- Define the priorities for project selection;
- · Select specific projects for CCPS;
- Define and review the scope for these specific projects;
- Suggest membership for the Project Subcommittees; and
- Review the status of project programs and the budget performance.

Regional Subcommittees of the CCPS Technical Steering Committee:

Asia Pacific • Latin America • Europe (provisional) • Middle East (provisional)

The CCPS Technical Steering Committee meets face-to-face two times a year and by webconference throughout the year.

CCPS Managing Board

Chair – June Wispelwey, AIChE Executive Director Shakeel Kadri, CCPS Executive Director Cheryl Teich, AIChE President Gregory Stephanopoulos, AIChE President Elect Otis Shelton, AIChE Past President Dennis Griffith, AIChE Treasurer Christine Seymour, AIChE Secretary Thomas Degnan, AIChE Director Dan Lambert, AIChE Director Alan Nelson, AIChE Director

Advisory Board

Shakeel Kadri, CCPS, Chair Per Bagge Angelo, Maersk Oil Bob Bahr, ExxonMobil Chemical Company Sulo Belawan, Petronas Steve Burton, Total Karen Carter, Honeywell, Inc. Ana Davis, Syngenta Crop Protection, Inc. Paul Dean, The Dow Chemical Company Ray Giovanetti, Occidental Chemical Corporation Warren Greenfield, Ashland Inc. Linda Hicks, Vertellus Specialties, Inc. Jeanne Johns, BP Robert Kelley, Formosa Plastics Corporation Matthew C. Koenings , DuPont Company Craig Matthiessen, US EPA/OEM Anne O'Neal, Chevron Energy Technology Company Joe Pietrantonio, Air Products and Chemicals, Inc. Paul Shelton, Monsanto Company Michael Snyder, Dow Corning Prasad Tipnis, Reliance Industries, Ltd. Akio Ueda, Mitsubishi Chemical Corporation June Wispelwey, AIChE John Wnek, Evonik Linda Zabel, 3M Company

Project Planning and Operations Committee

Pete Lodal, Eastman Chemical Company, Chair Kathy Anderson, Vertellus Specialties, Inc. Tony Downes, Honeywell, Inc. Jeff Fox, Dow Corning Corporation Eric Freiburger, Praxair, Inc. Cheryl Grounds, BP Shakeel Kadri, CCPS Neil Maxson, Bayer MaterialScience Jack McCavit, CCPS Emeritus Louisa A. Nara, CCPS Américo Diniz Carvalho Neto, Braskem Cathy Pincus, ExxonMobil Chemical Company Jatin Shah, BakerRisk Kenan Stevick, The Dow Chemical Company Karen Tancredi, Chevron Scott Wallace, Olin Corporation

Guideline for Barrier Risk Management (Bow Tie Analysis)

Umesh Dhake, CCPS Darrin J. Miletello, LyondellBasel Robin M. Pitblado, DNV Keith Serre, Nexen, Inc. Mr. T. V. Venkateswaran, Reliance Industries, Ltd.

Guidelines for Mechanical Integrity

Eric Freiburger, Praxair, Inc. Chair Michael Broadribb, BakerRisk, Vice Chair John Murphy, CCPS Staff Consultant David Benjamin, Arkema Kevin Blackwell, Honeywell, Inc. Tom Cerwinske, BP Albert Cilluffa, Monsanto Company Russ Davis, Mistras Group, Inc. Jonas Duarte, Chemtura Michael Hazzan, AcuTech Consulting Group Matthew Hedlund, Eastman Chemical Company Georges Melhem, IoMosaic Corporation Randy Montgomery, ABS Group, Inc. Alastair Painter, DNV Bhadresh Prajapati, Monsanto Company M. S. Prasad, Tata Chemicals, Ltd. Tom Sandbrook, DuPont Company Jeffrey Stawicki, The Lubrizol Corporation John Traynor, Evonik Nico Versloot, TNO Thomas Wash, 3M Company

Vision 20/20

Cheryl Grounds, BP Chair Jack McCavit, CCPS Staff Consultant Joe Allaben, Koch Industries, Inc. Steve Arendt, ABS Group, Inc. Todd Aukerman, LANXESS Corporation Scott Berger, CCPS Michael P. Broadribb, BakerRisk Jeff Fox, Dow Corning Corporation Walt Frank, CCPS Emeritus Dave Jones, Chevron Pete Lodal, Eastman Chemical Company Louisa A. Nara, CCPS Samantha Scruggs, BP Karen Tancredi, Chevron

Business Case for Process Safety and Sustainability

Américo Diniz Carvalho Neto, Braskem, Chair Jim Connor, CCPS Staff Consultant David Cummings, DuPont Company Dan Miller, BASF Ramesh Solanki, Reliance Industries Karen Tancredi, Chevron Michael Washington, BASF John Wincek, Croda

Facility Layout & Siting, 2nd Edition

Martin Timm, Praxair, Chair Donald J. Connolley, BP, Vice Chair Charles Cowley, CCPS Staff Consultant Susan E. Bayley, Linde Process Plants, Inc. Chris Buchwald, ExxonMobil Bruce Bullough, Corden Pharma Colorado, Inc. Andrew R. Carpenter, Exponent, Inc. Andy Crerand, Shell Downstream Manufacturing Christopher P. Devlin, Celanese Chemicals Randy Hawkins, AON Energy Risk Engineering David D. Herrmann, DuPont Company David Hill, Occidental Chemical Corporation Casey Johnson, Bayer MaterialScience Jayant Kulkarni, AON Energy Risk Engineering Bill Lindberg, Air Liquide Large Industries US Reid McPhail, Canadian Natural Resources Timothy Murphy, Arkema Pamela M. Nelson, Cytec Industries Eric Peterson, MMI Engineering Ruifeng Qi, Huntsman Corporation Mark Saunders, Koch Industries, Inc. Adrian L. Sepeda, CCPS Emeritus Florine Vincik, BASF

Tools for Making Acute Risk Decisions

Fred Henselwood, NOVA Chemicals Corporation, Co-Chair
Jeffrey Stawicki, The Lubrizol Company Co-Chair
David Belonger, CCPS Staff Consultant
Seshu Dharmavaram, DuPont Company
Mhairi Glover, Woodside
Marc Guindon, Suncor Energy
Humbert Howard, Linde Process Plants, Inc.
Derek Miller, Air Products and Chemicals, Inc.
David Moore, AcuTech Consulting Group Guilherme Da Silva Telles Naegeli, Petrobras Russell Ogle, Exponent, Inc. Eric Peterson, MMI Engineering Robin Pitblado, DNV Jatin Shah, BakerRisk Kenneth Tague, Archer Daniels Midland Martin Timm, Praxair, Inc. John Traynor, Evonik Florine Vincik, BASF

Preventing Normalization of Deviation

Jennifer Mize, Eastman Chemical Company Chair Daniel Sliva, CCPS Staff Consultant Michelle L. Brown, FMC Global Neil L. Maxson, Bayer MaterialScience Manuel Rodriguez, FMC Global Adrian Sepeda, CCPS Emeritus Elliot M. Wolf, Syngenta Crop Protection

Essential Practices for Developing, Strengthening and Implementing Process Safety Culture

Shakeel Kadri, CCPS, Co-chair Eric Freiburger, Praxair, Inc., Co-Chair Robert Rosen, CCPS Staff Consultant Steve Arendt, ABS Group, Inc. Steve Beckel, Potash Corp. Henry Brinker, Monsanto Gretel Damico, Pluspetrol Michael Dossey, Contra Costa Health Services Walter Frank, CCPS Emeritus David Guss, Nexen, Inc. Dennis Hendershot, CCPS Emeritus Louis Higgins, Solvay David Jones, Chevron Corporation Steven Marwitz, Formosa Plastics Jack L. McCavit, CCPS Emeritus Dan Miller, BASF Gilsa Monteiro, Petrobras Vishal Patel, Reliance Industries, Ltd. Richard Piette, Suncor Energy Randy Sawyer, Contra Costa Health Services

Process Safety in Capital Projects

Eric Freiburger, Praxair, Chair David Belonger, CCPS Staff Consultant Ignacio José Alonso, Equión Energia Susan Bayley, Linde Process Plants, Inc. John Brennan, BASF Phil Bridger, Nexen, Inc. Donnie Carter, BP Jessica Chen, Burns & McDonnell Sean Classen, Shell Downstream Manufacturing Robert Dayton, Chevron S. Ganeshan, CCPS Andrew Goddard, Arkema Robert Wasileski, NOVA Chemicals Corporation Kevin Watson, Chevron

Translation of CCPS Books into Spanish

Clara Arbelaez, Ecopetrol, Chair Nestor Sposito, CCPS Consultant Ignacio Alonso, Equión Energia Oscar Barajas, Ecopetrol Gustavo Correa, YPF Mary Corsaro, Pluspetrol Jordi Costa, Celances Roberto Fernandez, DASIS Corp. Rodrigo Fuentes, Syngenta Crop Protection Hugo Hernandez, Celanese Federico Hosenen, Cargill Manuel Macias, CEPSA Marcela Recman, Equión Energia Laura Turci, Ashland, Inc. Pablo Zunana, Pan American Energy

Process Safety in Pilot Plants and Laboratories

Kathy Anderson, Vertellus Specialties, Inc., Co-Chair Monica Stiglich, 3M Company, Co-Chair Jerry Jones, CCPS Staff Consultant Bruce Bullough, Corden Pharma Colorado Inc. David Caspary, Michigan Technological University Michael Cleary, DuPont Company Mark Delong, SABIC Russell Dunn, Vanderbilt University Khateeta Emerson, Merck & Company, Inc. William Flemming, Bristol-Myers Squibb Carol Garland, Eastman Chemical Company Jeff Grant, Albemarle Michael Grossman, Buckman North America Bill Hargest, PPG Industries, Inc. Jeffery Hedges, Chevron Energy Technology Company Randy Keller, The Dow Chemical Company Vinayak Marathe, Reliance Industries, Ltd. Kabier Moideenkutty, Takreer Paul McAllister, Shell Downstream Manufacturing Andrew Ministe, DOE Pacific Northwest National Lab Richard Palluzi, ExxonMobil Christian Rauchegger, Linde Process Plants Inc. Sebastien Righini, Solvay Atanas Serbezov, Rose-Hulman Institute Amy Theis, Fauske & Associates, LLC Ron Willey, Northeastern University Joel Young, BASF

Translation of CCPS Books/Tools into Mandarin

Byron Sun, CCPS Staff Consultant Catherine Chen, SABIC Jing Chen, CCPS Michael Ding, Celanese Chemicals Anka Ge, SECCO Ming Han, LANXESS Corporation Hans Han, Huntsman Corporation Kevin Li, Eastman Chemical Company Lynn Lin, Dow Corning Jerry Lu, DuPont Company Halleck Pan, Axalta Coating Systems Ivy Shang, Eli Lilly and Company Helen Song, Lubrizol Tarcy Song, Praxair, Inc. Yuejun Sun, Praxair, Inc. Gujun Wan, SINOPEC Allan Wang, Honeywell, Inc. Gee-Fore Wong, Huntsman Corporation Mike Xie, Arkema James Yang, DuPont Company Xiaoming Zeng, Air Products & Chemicals, Inc. Hong Zhang, BP China Johnson Zhao, Air Liquide Large Industries US Bill Zhou, Arkema

Translation of CCPS Books into Portuguese

Américo Diniz Carvalho Neto, Braskem, Chair Nestor Sposito, CCPS Staff Consultant Elaine Costa, Monsanto Eduardo Francisco, DuPont Gilsa Monteiro, Petrobras Luis Oliverira, DNV Antonio Ribeiro, Bayer CropScience

CCPS Staff





Louisa Nara,

Technical Director

Shakeel Kadri,

Executive Director





Dr. S. Ganeshan (Gunny), Asia Pacific Program Director





Orlando Acosta,

Regional Manager

Latin American



Horst Massong, European Regional Manager



Lamese Bader, Membership & Communications Associate



Shami Nayak, Asia-Pacific Associate



Jing Chen, Engineering Specialist



Albert I. Ness, Technical Staff Writer



Umesh Dhake, Asia Pacific Regional Manager

CCPS Staff & Staff Consultants

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Anne Schaeffer, Director of Education	Don Abrahamson		Brian Kelly
	Dave Belonger		Jack McCavit
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Jeffrey Perez, Training Coordinator	Charles Cowley		Bob Rosen
Suman Patil,	Walt Frank		Adrian L. Sepeda
Product Manager for eLearning	Dennis Hendershot		Daniel E. Sliva
Ashley Smith, Training Coordinator	John Herber		Nestor Sposito
	Jerry L. Jones		Byron Sun

A special thank you to Scott Berger

In 2001, after a 23-year career that included leadership positions with Owens Corning and Rohm and Haas, Scott Berger joined CCPS. He was named Executive Director in July 2002.

In the years since Scott joined, CCPS has grown from 62 member companies to more than 165 and established itself as the leading process safety organization in the chemical, energy and pharmaceutical industries worldwide. During this period the CCPS Guidelines series was expanded and continues to reshape engineering practice.

In 2005 Scott spearheaded the creation of the Global Congress on Process Safety which combined several AIChE process safety efforts. In a decade its attendance has grown more than three-fold and it has spawned regional process safety conferences in Latin America and Asia.

AIChE Executive Director June Wispelwey said, "Scott's many contributions, his dedication and expertise will be sorely missed. Scott has been the driving force behind one of the profession's signature accomplishments—a dramatic improvement in process safety knowledge and performance. We are grateful for Scott's astute direction and deep commitment."



2015 Worldwide CCPS Members





3M Company ABB ABS Group, Inc. AcuTech Consulting Group ADGAS **AE Solutions** Agrium Wholesale Air Liquide Large Industries US - ALLIUS Air Products and Chemicals, Inc. AkzoNobel Chemicals, Inc. Albemarle Ambatovy AMEC Foster Wheeler Americas Styrenics Amgen **AON Energy Risk Engineering** Archer Daniels Midland Arkema Ascend Materials Ashland, Inc. Axalta Coating Systems Baker Hughes, Inc. BakerRisk BASE **Bayer Business and Technology Services** Bayer CropScience **Bayer MaterialScience** Binh Son Refining **Boulder Scientific Company** BP Braskem Bristol-Myers Squibb Company Buckman North America **Burns & McDonnell** Calumet Montana Refining CAMBREX Canadian Natural Resources, Ltd. Cairn Energy India, Ltd. Cargill **Celanese Chemicals** CEPSA **CF** Industries Chartis Chemtrade Logistics, Inc. Chemtura Chennai Petroleum Corporation, Ltd. Chevron Energy Technology Company ChevronPhillips Chemical Company Chilworth Global Cholamandalam MS Risk Services, Inc. CNOOC ConocoPhillips Contra Costa County Health Services Coogee Chemicals Pty, Ltd. Corden Pharma Colorado, Inc. Covidien Croda CSRP **CYTEC Industries** DASIS Corp. DMITRE

DNV Dow Corning Dr. Reddy's Laboratories, Ltd. **DuPont Company** Eastman Chemical Company ECOLAB Ecopetrol Eli Lilly and Company **Emerson Process Management** Engro Fertilizer, Ltd. Engro Polymers and Chemicals, Ltd. Equión Energia Essenscia Brussels Evonik Fxida Exponent, Inc. ExxonMobil Chemical Company Fauske & Associates, LLC **Fluor Enterprises** FM Global Research FMC Corporation Formosa Plastics Corporation Gateway Consulting Group, Inc. **Gulf Petrochemical Industries Corporation** Hess Honeywell, Inc. HowatRisk Huntsman Corporation Husky Energy Idemitse ioMosaic Corporation KBR Energy and Chemicals Koch Industries, Inc. Kraton Polymers Larsen & Toubro, Ltd. LANXESS Corporation Lanzhou Petrochemical Research Institute Linde Gas Linde Process Plants. Inc. LORD Corporation Lubrizol Lummus Technology, a CB&I Co. LyondellBasell Maersk Oil Mallinckrodt Map Ta Phut Tank Terminal Marathon Petroleum Company MeadWestvaco Merck & Company, Inc. **Methanex** Corporation Mistras Group, Inc. Mitsubishi Chemical Corporation **MMI Engineering** Monsanto Company Mylan Laboratories, Ltd. National Grid New Jersey DEP New Market Nexen, Inc. **NOVA Chemicals Corporation Occidental Chemical Corporation**

Oil Industry Safety Directorate **Olin Corporation** Optima Chemical Group, LLC Orchid Chemicals & Pharmaceuticals, Ltd. Pacific Gas and Electric Company Pan American Energy, LLC Petrobras Petrochemical Corp. of Singapore, Ltd. Petronas Petrotechnics USA, Ltd. Phillips 66 Pluspetrol S.A. Potash Corporation PPG Industries, Inc. Praxair. Inc. Primatech, Inc. Process Improvement Institute, Inc. Procter and Gamble PSRG, Inc. **REC Silicon** Redguard Reliance Industries, Ltd. REPSOL **Rhodes Technologies** Rio Tinto SABIC Sadara Chemical Company Sage Environmental, Inc. Santos, Ltd. Scientific Protein Laboratories Shanghai SECCO Petrochemical Co., Ltd. Shell Downstream Manufacturing Siemens Energy, Inc. SINOPEC SIS-TECH Solutions Solvav USA .Inc. Spectra Energy SRF. Ltd. Starr Technical Risks Agency, Inc. Suncor Energy Syncrude Canada, Ltd. Syngenta Crop Protection, Inc. Systems Improvements, Inc. Talisman Energy Tata Chemicals, Ltd. Tesoro Companies, Inc. The Dow Chemical Company The Lubrizol Corporation TNO Total Toyo Engineering India, Ltd. TPC TransCanada US EPA/OEM Valspar Corporation Vertellus Specialties, Inc. Wesfarmers Chemicals, Energy & Fertilisers Woodside Energy, Ltd. WorleyParsons **YPF - Yacimientos Petroliferos Fiscales**

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