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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.

In February 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); CCPS completed Guidelines for Hazard Evaluation Procedures a short time later.

As we enter 2019, we pause to reflect on the progress we’ve made and recommit ourselves to Vision 20/20, the future of process safety.

Key 2018 CCPS milestones have included:

- 14th Global Congress on Process Safety (Orlando, FL)
- 6th CCPS China Conference on Process Safety (Qingdao, China)
- 3rd European Conference on Process Safety and Big Data (Frankfurt, Germany)
- 8th Latin American Congress on Process Safety (Buenos Aires, Argentina)
- 1st Japanese CCPS Symposium hosted by CCPS members residing in Japan, and attended by companies in the Asia-Pacific region
- Regional Technical Steering Committee Meetings in Delhi (India), Paris (France), Singapore, Mumbai (India), Calgary (Canada), Qingdao (China), Buenos Aires (Argentina) and Karachi (Pakistan)
- CCPS Process Safety Beacon celebrated 17 years of continuous publication
- Six CCPS books published, two in the guidelines series and four in the concept series. Additional publications included a guide and a monograph
- Eight new interactive SACHE modules, with newly revised development procedures to streamline workflow, allowing the work scope of individuals to match skills with their background
- Expanded global outreach through training, speaking, and working with partner organizations
- Continued enhancement of Responsible Collaboration globally
- Improvements made to CCPS credentialing examination (CCPSC) program
- Outreach to students and professors via six Students Process Safety Boot Camps and six Faculty Workshops
- Expanded focus on Process Safety Metrics; conducted several global workshops
- A handful of new staff consultants joined CCPS

We continue to honor the memories of those lost in Bhopal by striving for a future where 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 safety measures. Vision 20/20 serves as our road map. Come join the Global Community Committed to Process Safety—be ready for the future by working to create it.
Executive Director’s Message

As we enter 2019, I wanted to pause and reflect on the progress CCPS has made during the past twelve months to expand the message of process safety worldwide. CCPS membership has grown, our global and regional member engagement has continued to progress, a record level of guideline books were published, an expansion of our key initiatives has taken place, and, we have improved our responsible collaboration.

CCPS conducted several successful global and regional conferences in 2018.

The 14th Global Congress in Orlando, FL attracted nearly 900 attendees who came to share process safety best practices from 300 organizations, representing 30 countries.

The 6th Annual China Conference, with over 400 delegates from more than 15 countries, was held in Qingdao in collaboration with the China University of Petroleum/CCPS China Section.

The 8th Latin America Process Safety Conference, in Buenos Aires, Argentina, achieved record setting participation with more than 350 attendees.

The 3rd European Conference on Process Safety and Big Data, in partnership with the European Process Safety Center, held in Frankfurt, Germany, drew over 100 delegates.

A Process Safety Metrics: API-754 implementation workshop was held at two Saudi Arabian locations whereby 120 process safety professionals collaborated to improve their process safety metrics understanding.

CCPS saw continued growth in global membership this year with 21 new members: 7 in North America, and 14 internationally. A few members left CCPS this year, but significantly fewer than in past years. Due to CCPS’ ongoing regional engagement, we have developed a strong pipeline to increase membership in 2019.

The Undergraduate Process Safety Education program is progressing well. We delivered an additional eight new interactive SAChE modules this year, held six faculty workshops hosted by Dow, Chevron, BASF, LyondellBasell, Chemours and one during the AIChE Annual Meeting, which trained 125 educators. Additionally, about 180 students attended six Process Safety Student Boot Camps.

The CCPS Credentialing (CCPSC) program completed eight certification exam cycles since its launch, resulting in about 150 people becoming CCPSC certified.

CCPS’ global Technical Steering Committee conducted two face-to-face meetings in 2018, in Orlando and Houston. Eight regional meetings were held around the world, including in Delhi, Paris, Singapore, Mumbai, Calgary, Qingdao, Buenos Aires and Pakistan connecting nearly 800 members and non-members to important learning and networking opportunities.

CCPS continues to make progress on the “responsible collaboration” initiative which is helping to develop joint industry projects, holding various cooperative conferences and is improving CCPS’ engagement globally.

The CCPS Staff extends its heartfelt thanks to our member companies for all their help, support, collaborative efforts and enthusiastic participation throughout the year. We continue to make significant advances to meet our shared vision of protecting people, property and the environment by bringing the best process safety knowledge and practices to stakeholders around the world. I look forward to a very productive and safe 2019.
Highlights from the Year

2018: Expanding global and regional engagement

Our growing CCPS community

And the list continues to grow, from...

- SINGAPORE
- SAUDI ARABIA
- CANADA
- USA
- INDIA
- GERMANY
- AFRICA
- MALAYSIA
- CHINA
- KUWAIT
- COLOMBIA

CCPS WEBPAGES HAVE RECEIVED OVER 1,000,000 VIEWS IN THE PAST YEAR!

Where our visitors love to visit:
- Safety and Chemical Engineering Education (SACHe) Certificate Program
- Process Safety Beacon Newsletter
- Global Congress on Process Safety and other upcoming meetings
- Articles and worksheets to read and download
- CCPSC: CCPS Process Safety Professional Certification

210+ COUNTRIES HAVE VISITED THE CCPS WEBSITE

Top 10 countries that visited in the past year:
- United States
- India
- United Kingdom
- China
- Canada
- Germany
- Malaysia
- Brazil
- Australia
- Netherlands
Face-to-face meetings

CCPS WELCOMED MORE THAN 2,800 ATTENDEES

HELD OVER 16 CONFERENCES AND MEETINGS

Highlights included:

- The Latin American Conference on Process Safety (LACPS) which had over 350 attendees, while the pre-conference workshop attracted 140 attendees
- The 14th Global Congress on Process Safety that was attended by 900 registrants from 300 companies and 30 countries

Resources to explore

NEARLY 250 GLOBAL USERS HAVE DOWNLOADED THE RAST (RISK ANALYSIS SCREENING TOOL) TOOL SINCE IT BECAME AVAILABLE IN APRIL 2018.

The Process Safety Beacon, continues to be a go-to resource for our members. Top issues included:

- February 2018: Runaway Reactions Caused by Contamination
- March 2018: Reporting and Investigating Near Misses
- April 2018: Maintain a Sense of Vulnerability
- May 2018: Aging Process Facilities and Infrastructure
- June 2018: Work Permits – Understand the Scope of Work

Since 2012, companies have employed Vision 20/20 to create a road map for continuous improvement of their process safety efforts. Vision 20/20 is driven by five industry tenets of committed culture; compliance with standards; intentional competency; vibrant management systems; and enhanced applications of lessons learned. It is further enriched by four global societal themes, including; enhanced stakeholder knowledge; meticulous verification; harmonization of global standards; and responsible collaboration.

- Guidelines for Siting and Layout of Facilities (2nd Ed)
- Dealing with Aging Process Facilities and Infrastructure
- Recognizing and Responding to Normalization of Deviance
- Bow Ties in Risk Management: A Concept Book for Process Safety
- Guidelines for Integrating Process Safety into Engineering Projects

2018-19 CCPS ANNUAL REPORT 5
Resources to Explore

Completed Books Published in 2018

- Guidelines for Siting and Layout of Facilities (2nd Ed)
- Dealing with Aging Process Facilities and Infrastructure
- Recognizing and Responding to Normalization of Deviance
- Bow Ties in Risk Management: A Concept Book for Process Safety
- Guidelines for Integrating Process Safety into Engineering Projects

Upcoming 2019 Book Projects

- Guidelines for Process Safety during Transient Operations
- Process Safety Leadership from Board Room to Front Lines
- Guide to Making Acute Risk Decisions
- Risk Based Process Safety in Pilot Plants and Labs
- Guidelines for Inherently Safer Chemical Processes: A Life Cycle Approach (3rd Ed)
- More Incidents that Define Process Safety
- Guidelines for Investigating Chemical Process Incidents (3rd Ed)

Process Safety Incident Database (PSID)

PSID was relaunched in 2017, with over 800 incidents, and more than 65 member companies participating. To enhance the benefit of the database and to expand the breadth of knowledge in the system, member companies are strongly encouraged to submit at least one incident per year into the database. To ensure company privacy, CCPS removes all identifiable company information from the incidents before adding them into the database.

If you’re interested in contributing to this database (PSID), please contact Christa Pennino at chrip@aiche.org.

To register for PSID, please go to http://psidnet.com.

CCPS Glossary

CCPS approved definitions for chemical process safety verbiage.

www.aiche.org/ccps/resources/glossary

Process Safety Incident Evaluation (PSIE)

The Process Safety Incident Evaluation app lets users evaluate a chemical incident against safety indicators.

The PSIE app has three main components: the Process Safety Incident (PSI) Evaluation Questionnaire, the Severity Weighting Questionnaire, and the Chemical and Mixtures Database.


RAST and CHEF

The Risk Analysis Screening Tool (RAST) is a downloadable Excel workbook that is used to help identify hazard scenarios and evaluate process risk. RAST is an excellent tool when performing Process Hazards Analyses (PHAs), managing changes to a process, or evaluating and potentially reducing the risks of a process during its design. The user inputs information about the chemicals, equipment and unit operations, the process conditions, and the facility layout. The RAST software provides potentially hazardous scenario suggestions, uses industry guidelines for event frequency and consequence impact, and estimates the risk based on the company-specific risk criteria. Users are then able to select scenarios for further analysis through a Layer of Protection Analysis (LOPA).

In addition to RAST, the Chemical Hazards Engineering Fundamentals (CHEF) Calculation Aid is available for download. For those interested in understanding the mathematical framework of RAST, CHEF provides the background equations that are used within the tool.


Safe Work Practices (SWP)

The SWP tool is free on the CCPS website. The content is designed to reach, and provide value to, a very broad audience, including operations, maintenance and engineering personnel in the process industries (chemical, petrochemical, electronics, natural gas, and others). It is also intended to appeal to management personnel as they attempt to justify the investment within their organization. This information has been tailored to reach large and small, domestic and international organizations.

Specific notes and potential vulnerabilities are presented, allowing users to personalize safe work practices in order to raise a sense of vulnerability with respect to potential hazards.

CCPS member companies who contribute to the SWP initiative will receive special acknowledgment within the tool.

www.aiche.org/ccps/resources/tools/safe-work-practices

Risk-Based Process Safety (RBPS)

This project aims to create a free and accessible web-based tool for each of the 20 risk-based Process Safety elements.

www.aiche.org/ccps/resources/rbps

CCPS on Knovel

As a CCPS member, your organization is entitled to a 35% discount on the CCPS on Knovel collection. For more information about subscribing to the CCPS collection on Knovel, contact Knovel directly at CCPSonKnovel@elsevier.com.

Knovel (www.knovel.com) offers the largest standalone collection with several titles that contain importable Excel data. Included in the collection are all CCPS Guidelines and Concepts titles including:

- Chemical Process Quantitative Risk Analysis (2nd Ed.)
- Guidelines for Mechanical Integrity Systems
- Guidelines for Initiating Events and Independent Protection Layers in Layer
- Layer of Protection Analysis
- Loss Prevention Symposium (LPS)
- International Conference and Workshop (CCPS)

Evergreen/LOPA Database

The Evergreen/LOPA database is a simplified quantitative tool for analyzing and assessing risk. The tool was originally developed by user organizations during the 1990’s as a streamlined risk assessment tool, using conservative rules and order of magnitude estimates of frequency probability and consequence severity. The resource is free for CCPS members.

www.aiche.org/ccps/resources/tools/lopa

Professional Services Directory

The Professional Services Directory on the CCPS website is a fantastic and free opportunity to feature your company’s services, logo, and website, and it’s only available to CCPS member companies. This online resource and benefit will make CCPS end-user member companies aware of your company as the service provider.

Chemical Reactivity Worksheet

The Chemical Reactivity Worksheet (CRW) is a free software program you can use to find out about the chemical reactivity of thousands of common hazardous chemicals, compatibility of absorbents, and suitability of materials of construction in chemical processes.
Education

AIChE® Academy is the place for process safety training

Find CCPS Courses, Plus Much More

AIChE Academy brings a full array of education and training resources to CCPS member companies and their employees. Find CCPS courses and process safety themed webinars all in one convenient place. You can search by topic, availability of CEUs and PDHs, delivery method, skill level - even location. Start learning today.

Public Sessions, In-Company Training, and eLearning Courses

Embodying CCPS’ practice-leading guidelines, and developed by highly experienced industry professionals, process safety courses from the AIChE Academy are offered both online and in-person. Sign up for single or multiple group seats (onsite or online), Academy has just the training you and your staff need.

CCPS MEMBERS BENEFIT IN TWO WAYS:

**DISCOUNTED FEES:** Employees of CCPS member companies enjoy the low member rate for all CCPS and SAChE courses. And member companies are entitled to discounted rates on group training, both onsite and online. For more information, contact Academy@aiche.org.

**FREE SEATS:** As each new eLearning course is launched, CCPS Member companies are entitled to three free seats. For more information, contact CCPS@aiche.org.

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**eLearning Courses:**

- 20 Elements of Risk Based Process Safety (RBPS)
- Hazard Identification for Operators and Maintenance Workers
- HAZOP Studies
- Layer of Protection Analysis (LOPA)
- Management of Change
- OSHA Process Safety Management Review
- Process Safety Leadership for Front-Line Supervisors
- Process Safety Management for Biodiesel
- Process Safety Management for Bioethanol
- Process Safety Management Overview
- The Importance of Codes and Standards for Process Safety
- What Every New Engineer Needs to Know about Process Safety

Plus more than 20 SAChE modules on all aspects of Process Safety

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**Public Courses**

- Advanced Concepts for Process Hazard Analysis
- Hazard Identification for Operations and Maintenance Workers
- HAZOP Studies and Other PHA Techniques for Process Safety and Risk Management
- Incident Investigation and Root Cause Analysis
- Inherently Safer Design
- Managing Process Safety Risks During Organizational Change
- Overview of Risk Based Process Safety
- Process Safety Boot Camp/Foundations of Process Safety
- Recognizing Catastrophic Incident Warning Signs
- Senior Leaders and Process Safety: The Role and the Responsibility
- The OSHA Regulatory Approach to Process Safety Management

Some eLearning Courses are available in Spanish, Portuguese, and Mandarin. Please visit [www.aiche.org/academy](http://www.aiche.org/academy) for details.
Did you know that industry employers actively pursue chemical engineering graduates with SAChE Certification in Process Safety?

That’s one reason — as part of the AIChE’s Doing a World of Good campaign and in conjunction with the Center for Chemical Process Safety (CCPS) — industry and academia have come together to launch a major global initiative to improve and accelerate process safety education at the early career level.

We’ve updated and redesigned the SAChE (Safety and Chemical Engineering Education) Certificate Program with innovative interactive learning modules and a newly developed curriculum that makes incorporating process safety education easier and more engaging.

**Level One (Basic) Curriculum**

These courses provide young professionals with a foundational knowledge of process safety that will serve as a basis for the rest of the curricula. Courses include *The Importance of Process Safety and Hazard Recognition*.

**Level Two (Intermediate) Curriculum**

Level two elaborates on the concepts learned in level one, provides more technical background, and examines how the concepts are applied to real-world situations. Courses include *Process Safety at a Personal Level, Understanding Hazards and Risk*, and *Toxicological Hazards*.

**Level Three (Advanced) Curriculum**

These courses explore process safety topics in more depth and detail, and cover issues of concern in specific industries and areas of specialization. Courses include *Qualitative Methods and Hazard Assessment, Safe Design and Operation & Equipment Hazards, Material Hazards*.
Updates and Impact

Where We Are Today

FUNDRAISING (Millions)

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*As of October 2018

416
UNIVERSITIES PARTICIPATING
IN UNDERGRADUATE PROCESS SAFETY LEARNING INITIATIVE CURRICULUM

24,000
SAFETY CERTIFICATES COMPLETED BY STUDENTS

389
NEW FACULTY MEMBERS EDUCATED ON PROCESS SAFETY

MAJOR CONTRIBUTORS

PARTNERS – $100,000 – $249,999
Albemarle
Archer Daniels Midland Company
Bayer U.S. – Crop Science
Cabot Corporation
Evonik
ExxonMobil Corporation
FMC Corporation
Mitsui & Co. (U.S.A.), Inc.
Olin
PolyOne
Trinseo LLC
WACKER Chemical Co.

SUPPORTERS – $50,000 – $99,999
Air Liquide
Arkema Inc.
Bouchard Transportation
Cargill
Honeywell
Intercontinental Terminal
LANXESS
Novus International, Inc.
Praxair

FRIENDS – $10,000 – $49,999
3M
Accella Performance Materials
AEA Investors LP
Air Products
American Chemistry Council
Arsenal Capital Partners
Asset Management Company
AxaTara (Axalta) Systems
Bank of America
Barclays
BBDO
BDP International
Bechtel
Benesch, Friedlander, Coplan & Aronoff
Biogen
Brook Group
City College of New York
Centerview Partners
Day & Zimmermann
Duff & Phelps
Fluor Corporation
Fragomen, Del Rey, Bernsen & Loewy
Huntman
Jacobs
Jennex & Block
Johnson & Johnson
Kirkland & Ellis LLP
Kraton Corporation
Lubrizol
MANA
Mayer Brown LLP
Morgan Stanley
NOVA Chemicals
OMNOVA Solutions
Pacific Gas & Electric Comp.
Peach State Labs, LLC
Pfizer Inc
Reliance
Shearman & Sterling LLP
SNF Holding Company
Teneo Strategy LLC
UMUS
Whirlpool
JOIN CCPS as a member company and help prevent catastrophic process safety incidents.

Not a CCPS Member Yet? Join CCPS:
www.aiche.org/ccps/community/membership
Email ccps@aiche.org or call 1.646.495.1371

VOLUNTEER for a CCPS project subcommittee. Share your knowledge and help shape industry best practices. There are several ongoing projects that can be found on the CCPS website. Highlight your expertise by contributing to project development or participate as a peer reviewer. Key contributions will be recognized in the books published. This is a chance to be immortalized as an expert in your field.

Your company must be a CCPS member to volunteer for a project. Contact a CCPS staff member or submit the form on the CCPS website (Note: Please log in as a member.)

VOLUNTEER TODAY:
www.aiche.org/ccps/community/projects/accepting-volunteers
www.aiche.org/ccps/communityprojects/accepting-peer-reviewers

EDUCATE your entire workforce by getting involved with the CCPS education curriculum, with face-to-face instructor-led courses including Process Safety Boot Camp (CH 900) / Foundations of Process Safety (CH 910), Incident Investigation (CH901), Recognizing Catastrophic Incident Warning Signs (CH850), and our many eLearning courses on process safety and related topics.

www.aiche.org/ccps/resources/education

SHARE your expertise by participating in the Global Congress on Process Safety (GCPS), Global Summit on Process Safety (GSPS), a CCPS Regional Conference, or a Global or Regional Technical Steering Committee meeting.

CONFERENCES:
www.aiche.org/ccps/resources/conferences
MEETINGS:
www.aiche.org/ccps/resources/conferences/events

MODEL your company as a process safety champion for CCPS publications and tools.
CCPS@aiche.org

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

www.aiche.org/community/sites/committees/young-professionals

As a new member, link with an existing member company to gain valuable knowledge and improve your CCPS experience.

COMMUNICATE the message by forwarding CCPS’ Process Safety Beacon to your colleagues.

Sign up for the CCPS Beacon:
www.aiche.org/ccps/resources/process-safety-beacon

CONNECT with your process safety peers through CCPS LinkedIn.

Join CCPS LinkedIn Group:
www.linkedin.com/groups/105603

PARTICIPATE by getting your company involved in CCPS’ Vision 20/20 Responsible Collaboration activities throughout the year.

Contact Louisa Nara for more information: Louna@aiche.org

CERTIFY your knowledge. The program for obtaining the “CCPS Certified” credential is gaining momentum and recognition around the globe. There are several opportunities per year to take the CCPS certification examination. The assessment process is rigorous and verifies that your knowledge is broad, deep and current. Earning the credential will gain you recognition as one of the elite certified experts in the field of Process Safety.

Learn more about the process: www.aiche.org/ccps/resources/certified-process-safety-professional

ADVERTISE your company’s services, logo and website for FREE at CCPS’ online Professional Services Directory. This opportunity is only available to CCPS member companies. For information on how to get your company listed, please contact Michele Horwitz at michh@aiche.org.

Review current listings at: www.aiche.org/ccps/community/members/directory

Get Your Company Involved
Events and Meetings

CCPS FACULTY WORKSHOPS

Faculty Workshops sponsored by CCPS member companies show chemical engineering faculty how process safety is put into industrial practice and demonstrates the importance of process safety to the design and operation of a chemical plant.

- **2018 LyondellBasell Sponsored CCPS Faculty Workshop**
  January 8-11, 2018 • Houston, TX

- **2018 Dow Sponsored CCPS Faculty Workshop**
  June 11-14, 2018 • Freeport, TX

- **2018 BASF Sponsored CCPS Faculty Workshop**
  July 23-26, 2018 • Wyandotte, MI

- **2018 Chemours Sponsored CCPS Faculty Workshop**
  August 6-9, 2018 • Fayetteville, NC

- **2018 Chevron Sponsored CCPS Faculty Workshop**
  August 26-29, 2018 • Richmond, CA

- **2019 LyondellBasell Sponsored CCPS Faculty Workshop**
  January 6-9, 2019 • Houston, TX

For more information: www.aiche.org/ccps/resources/conferences/events/faculty-workshops
14TH GLOBAL CONGRESS ON PROCESS SAFETY (GCPS)

The 14th Global Congress on Process Safety was held in Orlando, FL, April 22 - 25, 2018. More than 900 attendees from over 300 companies and 30 different countries attended the Congress. This world premier process safety Congress featured 3 luncheons with renowned speakers, 231 technical presentations and 70 poster presentations.

Following the conclusion of the GCPS, a full day CCPS Technical Steering Committee Meeting with more than 160 attendees was held. Topics included a NASA Process Safety Update, a presentation by AIChE President-Elect Kim Ogden on the Impact of Universities withdrawing from ABET, as well as subcommittee, staff, and project updates.

NJDEP MEETING

The New Jersey Department of Environmental Protection (NJDEP) hosted a workshop on extreme weather planning on June 21, 2018. The workshop was attended by 75 attendees from various industries across the state. The attendees had a keen interest in the lessons learned from Hurricanes Sandy and Harvey. CCPS was represented by Dr. Anil Gokhale. Additional panel participants included the CSB, EPA, CITGO, Chemours, AcuTech and Infineum.
3RD ANNUAL CANADIAN TECHNICAL STEERING COMMITTEE MEETING IN CALGARY

The 3rd Annual Regional Canadian Technical Steering Committee Meeting was held in Calgary and hosted by CRNL on September 20, 2018. A record setting 57 people and 23 companies registered for the meeting. Topics included a presentation from Strathcona County on the use of MIACC Guidance for Land-Use Planning and a talk from Canadian National Resources Ltd. on Foam Chambers for the Tank Fire Protection, Technical Performance Standard. The event also included CCPS staff presentations as well as incident sharing.

FALL TECHNICAL STEERING COMMITTEE MEETING

The Fall Technical Steering Committee Meeting was held November 7-8, 2018 in Houston, TX. It was attended by 70 CCPS members, who participated in discussions of upcoming project ideas, incident sharing, an interactive workshop from the Human Performances Team, a presentation on The Bhopal Disaster – An Introspective Analysis of Human Factors and Root Causes, and staff updates. This was all followed by an evening reception and dinner.
EUROPE

CCPS EUROPE REGIONAL TECHNICAL STEERING COMMITTEE MEETING

The meeting held on March 29, 2018 in Paris, France, was hosted and sponsored by TOTAL, a CCPS member company, in their French HSE headquarter. Shakeel Kadri, Willi Meier, and Horst Massong met with 22 attendees from 16 European CCPS member companies. The one day program contained both presentations on “Learning from Process Safety Incidents” as well as presentations on additional topics of interest.

ACHEMA

CCPS organized a session on process safety case studies during the ACHEMA 2018 Congress held on June 13, 2018. The session was attended by 60 process safety experts and students. Process safety case studies were presented by European representatives from CCPS member and non-member companies. Presentations were given by Herve Vaudrey (DEKRA), Jan Weckx (Monsanto), Jenny Wang (CCPS staff consultant), Dries Goossens (Siemens) and Paul McCulloch (CGE Risk Management).

Additionally, CCPS and AIChE had a booth at the exhibition, where staff gave an overview of their numerous offers and activities in the field of Process Safety and Chemical Engineering. To learn more about CCPS Europe activities, please visit the CCPS website or contact Willi Meier at meier@dechema.de.

THE 3RD ANNUAL EUROPEAN CONFERENCE ON PROCESS SAFETY AND BIG DATA

CCPS and the European Process Safety Center jointly hosted the European Conference on Process Safety and Big Data at the DEHEMA-House in Frankfurt am Main, Germany, November 14-15, 2018. The conference program consisted of 6 keynote lectures, 2 panel discussions, and 29 presentations. There were 105 attendees at this event, spanning from 70 different companies. The meeting featured Augmenting Process Safety Performance through Big Data and Digitalization.
The 8th Latin American Conference on Process Safety (LACPS) was held in Buenos Aires, Argentina, September 10-13, 2018. Co-organized by ARPEL, this event is part of CCPS’ worldwide effort to prevent major accidents through promoting lifelong learning as well as continual improvement in process safety. The conference had over 350 attendees, with its pre-conference workshop attracting an audience of 140 people. The AIChE Executive Director, June Wispelwey, attended the event and spoke about the AIChE UPSLI program. Additionally, Dr. Kristen Kulinowski, the Interim Executive Authority and Board Member of the CSB, spoke at the conference. The conference’s technical sessions ranged from cybersecurity to risk management. The sessions were conducted in English and Spanish with simultaneous translations.
Process Safety Outreach In Latin America

CCPS activities in Latin America have been expanding at a fast pace with the leadership of our Latin American Regional Manager, Orlando Acosta, and staff consultants Alexandre Glitz in Brazil and Nestor Sposito in Argentina and Colombia. It is evident that process safety is an important part of the conversation happening from the plant site to the board room. CCPS Latin American member companies have been very active and supportive in these activities.

We salute the Latin American companies for their strong support of process safety and their dedication to “doing the right thing”.

REGIONAL MEETINGS

In 2018, 10 CCPS Regional TSC meetings occurred throughout Rio de Janeiro, São Paulo, and Salvador, Bahia. Each meeting was sponsored and hosted by a member company or held at one of our collaborating organizations. Non-member companies were also invited to the incident sharing events. Collective attendance at these meetings was over 350.

WORKSHOPS AND CONFERENCES

Eleven workshops and conferences were held in Brazil with 1,278 participants. These events focused on key process safety themes which included gamification and human factors. To maximize regional opportunities throughout 2018, CCPS collaborated with ANP, IBP, SOMA, SOMAT ABIQUIM, ABM, IBRAM SENAI, UNISAL and the Brazilian Bioenergy Congress.
CCPS INDIA REGIONAL TECHNICAL STEERING COMMITTEE MEETING

The meeting, sponsored by GAIL India, was held on January 23, 2018 and was attended by 45 delegates across leading industries (ONGC, HPCL, BORL, Reliance, Adani Gas, HMEL, Vedanta Cairn, Tata Steel & DNV GL). The meeting focused on process safety challenges in India and attendees shared their views and experiences.

CCPS WORKSHOP ON PROCESS SAFETY METRICS: API-RP-754 IMPLEMENTATION

This public CCPS workshop, held on April 15-16, 2018, was hosted by SABIC with support from other CCPS member companies. The workshop provided hands-on knowledge on measuring process safety metrics as well as using these metrics to help companies improve their process safety performance. Additionally, the workshop reviewed the efforts of what CCPS, API, AFPM, and others have done to develop a system to measure both leading and lagging indicators. The meeting provided a more detailed understanding on the most commonly used metrics tool: API-754.

CCPS ASIA PACIFIC REGIONAL TECHNICAL STEERING COMMITTEE MEETING - SINGAPORE

The meeting sponsored by Petrochemical Corporation of Singapore (PCS) and Singapore Chemical Industry Council (SCIC) was held October 2, 2018 at the Hotel Carlton, Singapore. It was attended by 60 delegates from various companies in the Asia Pacific Region and focused on lessons learned from past incidents related to Process Safety. Speakers from leading companies in the region included PCS, Petronas, Mitsubishi, Air Products, Ecolab, PSRG, DuPont, and Micron Semiconductor, who each shared their knowledge, experience, and case studies related to process safety. CCPS Executive Director, Shakeel Kadri, facilitated the meeting.

A highlight of the meeting included a MoU signing a day earlier on October 1, 2018 at the SCIC office in Singapore, during the 5th Global Summit on Process Safety. The MoU was signed by Shakeel Kadri, CCPS Executive Director, and Terence Koh, SCIC Executive Director. The 2019 GSPS conference will be conducted with SCIC as CCPS’ co-organizers.
CCPS INDIA REGIONAL TECHNICAL STEERING COMMITTEE MEETING

Sponsored by DNV GL, the meeting held on October 4, 2018 at Hotel Lalit in Mumbai, was attended by 45 delegates and focused on lessons learned from past incidents related to process safety. Speakers from leading companies in India and Qatar shared their knowledge, experiences, and case studies related to process safety. Companies included GAIL (India), HME, Reliance Industries, HPCL, BPCL, ONGC-OPaL, Huntsman, and Deccan Chemicals.

Shakeel Kadri, CCPS Executive Director, facilitated the meeting. Hindustan Mittal Energy Ltd. (HMEL), a CCPS member company, donated seven CSB videos translated in Hindi language to CCPS. HMEL is planning to translate and donate more CSB videos into Hindi.

PROCESS SAFETY METRICS: API-RP-754 IMPLEMENTATION WORKSHOP, AL-KHOBAR, SAUDI ARABIA

Shakeel Kadri facilitated a workshop on “Process Safety Metrics: API-RP-754 Implementation” on October 10, 2018 for Saudi Aramco employees. It was attended by 65 delegates. The workshop allocated a segment for “Metrics Sharing by Regional Companies.” SABIC, Saudi Aramco, Air Products, and Saudi-Chevron Phillips each shared their experiences.

1ST PAKISTAN REGIONAL TECHNICAL STEERING COMMITTEE MEETING

The 1st Pakistan Regional TSC Meeting, held on November 22, 2018 at the Hotel Pearl Continental Karachi, was jointly organized by Engro Polymer and Chemicals (EPCL) and CCPS. Over 40 companies and educational institutions attended the event. The meeting was formally kicked off by Shakeel Kadri, who stressed the significance of process safety in the chemical industry all around the world.
The Center for Chemical Process Safety-China Section (CCPS-CS) was founded by the Center for Chemical Process Safety at the American Institute of Chemical Engineers and the Center for Safety and Environmental & Energy Conservation Technology of China University of Petroleum in April 2007.

Missions of CCPS-CS:
- Advancing the state of the art of process safety technology and management practices in China
- Serving as a premier resource for process safety information in China
- Fostering process safety learning in undergraduate engineering education
- Promoting process safety as a key industry value

CCPS CHINA SESSION ORGANIZED BY CCPS-CS AT THE 14TH GLOBAL CONGRESS ON PROCESS SAFETY

6TH CHINA CONFERENCE ON PROCESS SAFETY

The 6th China Conference on Process Safety was organized by the Center for Chemical Process Safety (CCPS), the China University of Petroleum, and the China Chemical Safety Association. The conference occurred September 27-28, 2018 and attracted more than 400 attendees from 15 countries.

During the first day of the conference, renowned worldwide process safety experts presented 14 keynote presentations, embracing the conference theme of "Process Safety Around the World." On day two, four simultaneous sessions were combined with 56 presentations.
Events and Meetings

delivered by process safety experts from industry, academia, and government. Conference presentation topics included LOPA & SIS, Risk Analysis & Management, Mechanical Integrity, and Best Practices, among others.

4th CCPS China Region Technical Steering Committee Face-to-Face Meeting

12 representatives from 8 CCPS member companies attended this meeting to discuss and share their company’s process safety challenges and opportunities.
2019 Meetings, Destinations and Global Offices

NORTH AMERICA

NEW YORK, NY

- CCPS Advisory Board Dinner
  March 13, 2019
- CCPS Advisory Board Meeting
  March 14, 2019

NEW ORLEANS, LA

- 15th Global Congress on Process Safety
  March 31-April 3, 2019
- CCPS Technical Steering Committee Networking Dinner
  April 3, 2019
- CCPS Technical Steering Committee Meeting
  April 4, 2019

HOUSTON, TX

- Offshore Technology Conference
  May 6-9, 2019

CALGARY, CANADA

- 4th Annual Canadian Regional Technical Steering Committee Meeting
  September 12, 2019

HOUSTON, TX

- Fall Technical Steering Committee Meeting
  November 6-7, 2019

SOUTH AMERICA

SAO PAULO, BRAZIL

- Regional Technical Steering Committee Meeting
  Meeting date to be announced in 2019

COLOMBIA

- Regional Technical Steering Committee Meeting
  Meeting date to be announced in 2019

CCPS Regional Meetings will also be held in Peru, Argentina, Bolivia and Chile.
AsiA-PacifiC RegiOnal TeChniCal Steering ComMittee MeetiNg
Meeting date to be announced in 2019

CHInA

7th CCps ChiNa ConferenCe on Process Safety
End of September 2019

CCps ChiNa ReGional TeChniCal Steering ComMittee Face to Face MeetiNg
End of September 2019

siNgApORE

6th CCps GloBAl SumMiT on Process Safety
October 22-23, 2019

eUroPе

FraNKfurt AM MAiN, GERMANY

4th Europe Regional Technical Steering Committee Meeting
Hosted by Covestro
March 6-7, 2019

LeVERKUSEN, GERMANY

4th Europe Process Safety and Big Data Conference
October 1-2, 2019

siNgApORE / thAiLAnd / mALAYSiA / JAPAn

Asia-Pacific Regional Technical Steering Committee Meeting
Meeting date to be announced in 2019

CCPs OFFICEs

- New York, NY
- Frankfurt, Germany
- Houston, TX
- Mumbai, India
- Qingdao, China

GloBAl TeChniCal SteerinG ComMittee WEB ConFeNCeS

February 6, 2019
June 12, 2019
September 18, 2019

Look for upcoming events on our website. www.ccps.org

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

**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 Global Technical Director in:

- Developing an overall multi-year program for CCPS
- Defining the priorities for project selection
- Selecting specific projects for CCPS
- Defining and reviewing the scope for these specific projects
- Suggesting membership for the Project Subcommittees
- Reviewing the status of project programs.

The CCPS Technical Steering Committee meets face to face two times a year and by web conference three times a year.

**CCPS ACTIVITIES MANAGEMENT**

Activities are monitored and directed by the

- Managing Board
- Advisory Board
- Project Planning Committee
- Technical Steering Committee

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

**2019 CCPS MANAGING BOARD**

June Wispelwey  
AIChE Executive Director (Chair)

Shakeel Kadri  
CCPS Executive Director

Kim Ogden  
AIChE President

Christine Seymour  
AIChE Past President

Monty Alger  
AIChE President-Elect

Joseph Smith  
AIChE Secretary

Rose Wesson  
AIChE Treasurer

Billy Bardin  
AIChE Director

Ana Davis  
AIChE Director

Lori McDowell  
AIChE Director

Rick Cain  
AIChE, Chief Financial Officer

Sincere gratitude to the outgoing 2018 Managing Board

Bond Calloway  
AIChE Past President

Freeman Self  
AIChE Secretary

Tim Odi  
AIChE Director
**ADVISORY BOARD**

Shakeel Kadri  
CCPS (Chair)

Khaled Saleh S. Al-Khurboush  
SABIC

Bob Bahr  
ExxonMobil

Sulo Belawan  
Petronas

Delia Contreras  
Ecolab

Al Cusson, IV  
Air Liquide

Ana Davis  
Syngenta Corporation

Rob DiValerio  
BP

Derek A. Fairclough  
BASF

Abdullah A. Ghamdi  
Saudi Aramco

Dave Greganti  
DOW

Cheryl Kennedy  
DuPont Company

Karen Koster  
Honeywell

David A. Lewis  
Occidental Chemical Corporation

Perry Logan  
3M

Yoshizumi Masahiro  
Mitsubishi Corporation

Anne O’Neal  
Chevron

Cari Parker  
Eastman Chemical

Keith Silverman  
Ashland

Debra Small  
Bayer

Mike Snyder  
DEKRA Insight

Prasad Tipnis  
Reliance Industries, Ltd.

June Wispelwey  
AIChE

John Wnek  
Evonik Corporation

Sincere gratitude to the outgoing 2018 Advisory Board Members

Richard Boocock  
Air Products

Robin Higgs  
3M

Matthew Koenings  
DuPont

Edward Mills  
Honeywell

Akio Ueda  
Mitsubishi Chemicals

**PROJECT PLANNING COMMITTEE**

Pete Lodal  
Eastman Chemical Company (Chair)

Chris Aiken  
Cargill

Todd Aukerman  
LanXess Corporation

Tony Downes  
Honeywell, Inc.

Jerry Forest  
Celanese Chemicals

Eric Freiburger  
Praxair, Inc.

Fred Henselwood  
NOVA Chemicals

Shakeel Kadri  
CCPS

Jack McCavit  
Emeritus

Louisa A. Nara  
CCPS

Cathy Pincus  
ExxonMobil

Ken Tague  
ADM

Karen Tancredi  
Chevron Corporation

Jatin Shah  
BakerRisk

Scott Wallace  
Olin Corporation

John Wincek  
Dekra Insight
PROJECTS AND VOLUNTEERS

PROJECT 233: KEY PERFORMANCE INDICATORS FOR RISK-BASED PROCESS SAFETY
Eric Freiburger, Chair
Praxair, Inc.
Daniel Silva
CCPS Staff Consultant
Elroy Christie
SABIC
Sorin Dan
NOVA Chemicals
Sean Dee
Exponent, Inc.
Nancy Faulk
Siemens Energy
Jeffrey L. Fox
Emeritus
Wayne Garland
Eastman Chemical Company
Andrew Goddard
Arkema, Inc.
Mahendran Gurusamy
Orpic
Carl Harrison
Formosa Plastics Corporation
Rukyah Hennessey
CCPS
Michell LaFond
The Dow Chemical Company
Mikelle C. Moore
Buckman North America
Louisa A. Nara
CCPS
Jody Olsen
Howat Risk
Mark Paradies
System Improvements
Cesar Puma
Pluspetrol
Scott Wallace
Olin Corporation
Dan Wilczynski
Marathon Petroleum Company
Elliot Wolf
The Chemours Company

PROJECT 244: PROCESS SAFETY - VISION 20/20
Anne O’Neal, Chair
Chevron Corporation
Rukyah Hennessey
CCPS Project Manager
Todd Aukenman
LanXess Corporation
Jeffrey L. Fox
Emeritus
Cheryl Grounds
Emeritus
Peter N. Lodal
Eastman Chemical Company
Jack McCavit
Emeritus
Louisa A. Nara
CCPS
Ellen Ross
Chevron Corporation

PROJECT 248: GUIDE TO MAKING ACUTE RISK DECISIONS
Fred Henselwood, Co-Chair
NOVA Chemicals
Jeffrey C. Stawicki, Co-Chair
The Lubrizol Corporation
Dave Belonger
CCPS Staff Consultant
Christopher S. Buehler
Exponent, Inc.
Seshu Dharmavaram
DuPont
Elizabeth Lutostansky
Air Products & Chemicals, Inc.
Albert Ness
Emeritus
Robin M. Pitblado
DNV GL
Jatin Shah
BakerRisk
Martin Timm
Praxair, Inc.
John H. Traynor
Evonik Corporation
Florine Vincik
Syngenta

PROJECT 250: GUIDELINE FOR INTEGRATING PROCESS SAFETY IN ENGINEERING PROJECTS
Eric Freiburger, Chair
Praxair, Inc.
Dave Belonger
CCPS Staff Consultant
Ignacio Alonso
Consejo de Seguridad de Procesos
Christopher S. Buehler
Exponent, Inc.
Robert Dayton
Chevron Corporation
Jonas Duarte
Chemtura
Dr. S. Ganeshan
Adjunct Professor of Chemical Engineering, Bombay
Andrew Goddard
Arkema, Inc.
Emmanuelle Hagey
NOVA Chemicals
Kevin D. Watson
Chevron Corporation

PROJECT 255: EVERGREEN LOPA/IPL DATABASE
John F. Murphy
CCPS Staff Consultant
J. Wayne Chastain
Eastman Chemical Company
Jing Chen
CCPS
Art Dowell
Process Improvement Institute, Inc.
Christopher Illies
Evonik Corporation
Kimberly Mullins
Occidental Chemical Corporation
Kathy Shell
aeSolutions
Angela Summers
SIS-Tech Solutions
Scott Wallace  
Olin Corporation  
Ted Wallace  
Shell  

PROJECT 270: PROCESS SAFETY IN UPSTREAM: OIL AND GAS  
Jean Bruney, Chair  
Chevron Corporation  
Eric Freiburger, Co-Chair  
Praxair, Inc.  
Cheryl Grounds  
CCPS Staff Consultant  
Amar Ahluwalia  
DNV GL  
Steve Arendt  
ABS Consulting Group  
Michael Broadribb  
BakerRisk  
Christopher S. Buehler  
Exponent, Inc.  
San Burnett  
BHP Billiton  
Anil Gokhale  
CCPS  
Kevin He  
Shell Downstream Manufacturing  
David R. Mohler  
Honeywell  
Jason W. Nicholls  
XTO Energy  
Tony Poulassichidis  
Anadarko  
Ha Chi Quan  
Binh Son Refining and Petrochemicals Co., Ltd.  
Brad Smolen  
BP  
Kevin D. Watson  
Chevron Corporation  
Robert J. Weber  
PSRG, Inc.  
Tracy Whipple  
BP  

PROJECT 270 MEMBERS FROM THE SPE  
Charlie Williams, Co-Chair  
Center for Offshore Safety  
John Crump  
Consultant  
John Gidley  
Atwood Oceanics, Retired  
James F. Langer  
PetroSkills  
Steven Merritt  
Stone Cliff Consulting  
Hisham Saadawi  
Ringstone Petroleum Consultants  
Terrance Sookdeo  
Baker Hughes, Inc.  
Ian Sutton  
Consultant  
Jason Wilson  
Transocean Ltd.  

PROJECT 275: PROCESS SAFETY DURING TRANSIENT OPERATIONS (START-UP/SHUTDOWN)  
Theresa Broussard, Chair  
Chevron Corporation  
Daniel Sliva  
CCPS Staff Consultant  
Donald Connolley  
AcuTech  
Eddie Dalton  
BASF  
Reyyan Koc Karabocek  
ExxonMobil  
Mikelle C. Moore  
Buckman North America  
Pamela Nelson  
Solvay USA, Inc.  
Jitesh Patel  
New Jersey DEP  
Dan Wilczynski  
Marathon Petroleum Company  

PROJECT 276: GUIDELINES/ESSENTIALS OF SAFE WORK PRACTICES  
David Lewis, Chair  
Occidental Chemical Corporation  
Dave Belonger  
CCPS Staff Consultant  
Katherine M. Anderson  
ioMosaic Corporation  
Steve Arendt  
ABS Consulting Group  
Vivek Bichave  
Reliance Industries, Ltd.  
Anil Gokhake  
CCPS  
Simon Jones  
Petrotechnics  
Dan Miller  
Emeritus  
Sian Elisabeth Miller  
Newcrest Mining Limited  
Jitesh Patel  
New Jersey DEP  

PROJECT 277: GUIDELINES FOR INHERENTLY SAFER CHEMICAL PROCESSES: A LIFE CYCLE APPROACH, 3RD ED.  
John Wincek, Chair  
Dekra Insight  
Daniel Sliva  
CCPS Staff Consultant  
Steve Arendt  
ABS Consulting Group  
Prashanti Bhupathi  
Reliance Industries, Ltd.  
Wayne Chastain  
Eastman Chemical Company  
Oliva Cheng  
Chevron Corporation  
Robert Coover  
Praxair, Inc.  
Emmanuelle Hagey  
NOVA Chemicals  
Scott Haney  
Marathon Petroleum Company  
Reyyan Koc Karabocek  
ExxonMobil
Nicole Loontjens  
Americas Styrenics

Dan Miller  
Emeritus

Dave Moore  
AcuTech

Jitesh Patel  
New Jersey DEP

Katherine Prem  
Arkema, Inc.

Sabrina Putruele  
Pluspetrol

Morgan Reed  
Exponent, Inc.

Randy Sawyer  
Contra Costa Health Services

Scott Wallace  
Olin Corporation

David Prior  
Honeywell

Bhavesh P. Shukla  
Michelman, Inc.

Tracy Whipple  
BP

PROJECT 278: RISK BASED PROCESS SAFETY WEB APPLICATION TOOL

Tony M. Downes, Co-Chair  
Honeywell

Karen Tancredi, Co-Chair  
Chevron Corporation

Jing Chen  
CCPS Project Manager

Rukyah Hennessey  
CCPS

PROJECT 279: MORE INCIDENTS THAT DEFINE PROCESS SAFETY

Cheryl Grounds  
CCPS Staff Consultant

Albert Ness  
CCPS Staff Consultant

Rajender Dahiya  
AIG

Sean Dee  
Exponent, Inc.

Jerry Forest  
Celanese Chemicals

Melissa Holliday  
The Dow Chemical Company

Derek Miller  
Air Products & Chemicals, Inc.

Rhian Drath Morgan  
BP

Louisa A. Nara  
CCPS

Christa Pennino  
CCPS

Meg Reese  
Occidental Chemical Corporation

Alfred Seet  
Shell

Craig Skinner  
BP

Scott Wallace  
Olin Corporation

PROJECT 281 MEMBERS FROM THE ENERGY INSTITUTE

Stuart King, Co-Chair  
Energy Institute

Lee Alford  
Energy Institute

Rob Saunders  
Shell

PROJECT 282: GUIDELINES FOR INVESTIGATING CHEMICAL PROCESS INCIDENTS, 3RD ED.

Jerry Forest, Chair  
Celanese Chemicals

Daniel Sliva  
CCPS Staff Consultant

Michael Broadribb  
BakerRisk

Laurie Brown  
Eastman Chemical Company

Chonai Cheung  
Contra Costa Health Services

Eddie Dalton  
BASF

Carolina Del Din  
PSRG, Inc.

Scott Guinn  
Chevron Corporation

Christopher Headen  
Georgia Pacific

Lee Vanden Heuvel  
ABS Consulting Group

Kathleen Kas  
The Dow Chemical Company
Mark Paradies  
System Improvements, Inc.

Nestor Paraliticci  
Marathon Petroleum Company

Muddassir Penkar  
Evonik Corporation

Morgan Reed  
Exponent, Inc.

Meg Reese  
OxyChem

Marc Rothschild  
DuPont

Joy Shah  
Reliance Industries, Ltd.

Robert Stankovich  
Eli Lilly & Company

Terry Waldrop  
AIG

Scott Wallace  
Olin Corporation

Della Wong  
Canadian Natural Resources Ltd.

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**PROJECT 283: GUIDELINES FOR THE REVALIDATION OF PHAS, 2nd ED**

Laura Turci, Chair  
Ashland

Warren Greenfield  
CCPS Staff Consultant

Mohammed Baig  
Bayer Corporation

Cecil Clements  
The Chemours Company

Michael Hazzan  
AcuTech

Manuel Herce  
DuPont

Alok Khandelwal  
Shell

Wajih Naeem  
Husky Energy

Lisa Parker  
Braskem

Jordi Costa Sala  
Celanese Chemicals

Martin Timm  
Praxair, Inc.

---

**PROJECT 285: PROCESS SAFETY: LEADERSHIP FROM THE BOARDROOM TO THE FRONTLINES**

John Wincek, Chair  
Dekra Insight

Bernard Groce, Co-Chair  
Calumet Specialty Products Partners L.P.

Daniel Sliva  
CCPS Staff Consultant

Don Abrahamson  
Emeritus

Steve Arendt  
ABS Consulting Group

Vivek Bichave  
Reliance Industries, Ltd.

Theresa Broussard  
Chevron Corporation

David Cummings  
DuPont

Umesh Dhake  
CCPS

Edward Dyke  
Merck & Co., Inc.

Marc Guindon  
Suncor Energy

Kevin He  
Shell Downstream Manufacturing

Fred Henselwood  
NOVA Chemicals

Dave Hurban  
American Electric Power

Reyyan Koc Karaboce  
ExxonMobil

Hope Luebeck  
The Chemours Company

Georges Melham  
ioMosaic Corporation

Matt Pfeifer  
Ashland

Dan Miller  
Emeritus

Mikelle C. Moore  
Buckman North America

Louisa A. Nara  
CCPS

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**PROJECT 289: GOLDEN RULES OF PROCESS SAFETY FOR SPECIFIC TECHNOLOGIES**

Chris Devlin, Chair  
Celanese Chemicals

Warren Greenfield  
CCPS Staff Consultant

Walt Frank  
Emeritus

David Greganti  
The Dow Chemical Company

Mark Hazzan  
AcuTech

Louisa A. Nara  
CCPS

Cathy Pincus  
ExxonMobil

Jatin Shah  
BakerRisk

Scott Wallace  
Olin Corporation
PROJECT 292: LESSONS LEARNED YEARS LATER

Daniel Sliva
CCPS Staff Consultant

Steve Arendt
ABS Consulting Group

Elena Blardony Arranz
Repsol

Theresa Broussard
Chevron Corporation

Donald Connolley
AcuTech

Carl Harrison
Formosa Plastics Corporation

Dan Miller
Emeritus

Richard Pawulski
Air Liquide

Katherine Prem
Covestro LLC

Eliot Wolf
The Chemours Company

PROGRAMS AND VOLUNTEERS

The following programs are ongoing. Instead of a predetermined end target, they are set up to produce valuable Process Safety tools, guidelines etc., on a periodic basis.

PROJECT 152: PROCESS SAFETY BEACON

Georges Melhem - Sponsor
ioMosaic Corporation

David Moore - Sponsor
Acutech

Mike Snyder - Sponsor
DEKRA Insight

John W. Herber, Co-Chair
Emeritus

Rüdiger Lenz, Co-Chair
Celanese Corporation

Dennis Hendershot
CCPS Staff Consultant

Albert Ness
CCPS Staff Consultant

Jing Chen
CCPS Project Manager

Don Abrahamson
Emeritus

Katherine M. Anderson
ioMosaic Corporation

Christopher Devlin
Celanese Corporation

Seshu Dharmavaram
DuPont

Tony M. Downes
Honeywell

Jeffrey L. Fox
Emeritus

Thomas Guest
Nexen, Inc.

Kathleen Kas
The Dow Chemical Company

Dave Krabacher
BASF

Antonio Lauzana
Petrobras, Retired

Larry LeMesurier
Syncrude Canada

Marc Levin
Washington State University

Jack McCavit
Emeritus

Louisa A. Nara
CCPS

William M. Olsen
Merck & Company, Inc.

Yasser A. Rahim
Gulf Petrochemicals Industries Company

Roy Sanders
PPG, Retired

Nicholas P. Sands
DuPont

Jatin Shah
BakerRisk

John C. Stoney
BP

Tom Spicer
University of Arkansas

Anthony A. Thomson
Monsanto Company, Retired

John C. Wincek
DEKRA Insight

Jan Windhorst
Emeritus

Kathy Anderson
ioMosaic Corporation, Co-Chair

Jerry Jones
CCPS Staff Consultant

Bruce Bullough
Pfizer Inc.

Jeffrey Poisel
Dow Corning

Jeff Grant
Albermarle Corporation

Randy Keller
The Dow Chemical Company

Andrew Minister
DOE - Pacific Northwest National Laboratory, Retired

Richard Palluzi
ExxonMobil, Retired

PROJECT 251: PROCESS SAFETY IN PILOT PLANTS AND LABORATORIES

Kathy Anderson
ioMosaic Corporation, Co-Chair

Jerry Jones
CCPS Staff Consultant

Bruce Bullough
Pfizer Inc.

Jeffrey Poisel
Dow Corning

Jeff Grant
Albermarle Corporation

Randy Keller
The Dow Chemical Company

Andrew Minister
DOE - Pacific Northwest National Laboratory, Retired

Richard Palluzi
ExxonMobil, Retired

PROJECT 257: TRANSLATION OF CCPS BOOKS/TOOLS INTO CHINESE

Byron Sun
CCPS Staff Consultant

Jing Chen
CCPS

Xiang Guo
Shanghai Johnson & Johnson Pharmaceutical Co., Ltd

Su Hu
Sinopec Yangzi Petrochemical Company Ltd
Yifei Meng  
China University of Petroleum (East China)

Jing Li  
Arlanxeo High Performance Elastomers (Changzhou Co., Ltd)

Ning Li  
China National Chemical Corporation Zhenghe Group Co., Ltd

Ning Liu  
Shanghai Aviation Industrial (Group) Co., Ltd

Penghui Lu  
The Dow Chemical Company

Yi Liu  
China University of Petroleum (East China)

Louisa A. Nara  
CCPS

Souwei Wang  
Shandong Huatai Interox Chemical Co., Ltd

Yangli Zhang  
Fujian Fuhaichuang Petrochemical Co., Ltd

Yichen Zhang  
Fuyuan Industrial & Commercial Development Co., Ltd (Gulei Branch)

Xiaoming Zeng  
DEKRA Insight (Shanghai)

Ronald Ivan Tello David  
Pluspetrol

Federico Hosenen  
Cargill

Rodolfo Edgardo Kramer  
YPF

Luis Andres Landa  
YPF

Juan Manuel Martinez  
YPF

Matias Massello  
Process Improvement Institute, Inc.

Marcela Recaman Montoya  
Ecopetrol S. A. ING

Christian Mulcahy  
Pluspetrol

Louisa A. Nara  
CCPS

Paul Enzon Rodriguez Paucar  
Pluspetrol

Martin Jose Rebollo  
YPF

Carlos Facundo Rodriguez  
Pluspetrol

Federico Rybner  
Pluspetrol

Jordi Costa Sala  
Celanese Chemicals

Heber Varela  
Pluspetrol

Sergio Leandro Vilches  
Pluspetrol

Lucy Helena  
Braskem

Luciana Láconis  
The Dow Chemical Company

Sergio Machado da Silva  
Petrobras

Eduardo Meinking  
DuPont

Louisa A. Nara  
CCPS

Luiz Maia Neto  
Petrobras

Paula Onishi  
BASF

Gustavo Peron  
Cargill

PROJECT 260: TRANSLATION OF CCPS BOOKS INTO SPANISH

Laura Turci, Chair
Ashland

Nestor Spósito  
CCPS Staff Consultant

Nehuen Sebastian Angileri  
YPF

Christian Prieto Barragan  
Pluspetrol

Juan Manuel Fernandez Becerra  
YPF

Ricardo Ceskiavikus  
YPF

Gustavo Jose Correa  
YPF

Gretel D’Amico  
Pluspetrol

PROJECT 261: TRANSLATION OF CCPS BOOKS INTO PORTUGUESE

Americo Diniz Carvalho Neto, Chair
Emeritus

Nestor Spósito  
CCPS Staff Consultant

Carlos Cazarotto  
BP

Isadora Ferreira  
Clariant

Eduardo Maio Francisco  
DuPont

Talita Guimarães  
DuPont

PROJECT 280: DOW RISK ANALYSIS SCREENING TOOL (RAST)

David Hurban, Chair
American Electric Power

Ken First  
CCPS Staff Consultant

Albert Ness  
CCPS Staff Consultant

Jesse Diaz  
Arkema, Inc.

Michell LaFond  
The Dow Chemical Company

Thomas Mueller  
BASF Corporation

Theo Reindorp  
EPSC

Duncan Rose  
The Dow Chemical Company

Marc Rothschild  
Corteva

Hans Schwarz  
BASF

Kenan Stevick  
Emeritus

Bruce Va黄昏hen  
CCPS

Scott Wallace  
Olin Corporation
CCPS Consultants and Instructors

Don Abrahamson  Scott Berger  Dennis Bernhard  Dave Belenger  Jack Chosnek  Jim Conner
Charles Cowley  Steve Eason  James K. Farr  Ken First  Walt Frank  Alexandre Glitz
Warren Greenfield  Cheryl Grounds  Dennis Hendershot  John Herber  David Hill  Greg Hounsell
Jerry L. Jones  B. Karthikeyan  Kelly Keim  Brian Kelly  Ellen Lenz  Jack McCavit
Dan Miller  John Murphy  Albert Ness  Frank Renshaw  Bob Rosen  Adrian L. Sepeda
Daniel E. Sliva  Nestor Spósito  Byron Sun  Jenny Wang
2019 Worldwide CCPS Members

3M Company
ABIQUIM - Associação Brasileira da Indústria Química
ABS Group
AC&S Inc
AcuTech Consulting Group
AdvanSix
aeSolutions
AIG
Air Liquide Americas
Air Products and Chemicals Inc
Albemarle Corporation
Ambatovy
American Electric Power
American Refining Group, Inc
Americas Styrenics
Amena
Anadarko Petroleum Corp
Anchor Daniels Midland
Arkema Inc
Arkema
ARPEL
Ascend Performance Materials
Ash Stevens
Ashland
Baker Hughes, Inc.
BakerRisk
BASF Corporation
Bayer Corporation
Berkeley Hathaway Specialty Insurance
Bharat Oman Refineries Ltd.
BHP Billiton Petroleum
Binh Son Refining and Petrochemical Co., Ltd (BSR)
Boulder Scientific Company
BP Corp North America
Braskem
Buckeye Partners, LP
Buckman North America
Bums and McDonnell
Calumet Montana Refining, LLC
Calumet Specialty Products Partners, L.P.
CAMBREX
Canadian Natural Resources, Ltd.
Cargill
Celanese Chemicals
CF Industries Inc
Cheniere
Chevron Corporation
Chevron Phillips Chemical Company LP
Chilworth, A DEKRA Insight Company
China Chemical Safety Association
Cholamandalam MS Risk Services
Contek Solutions LLC
Contra Costa Health Services
Coogee Chemicals Pty Ltd
Cosmo Oil Co Ltd
Covestro LLC
CPKelco
Cristal
Croda
DASIS Corp
Decan Fine Chemicals (I) Pvt. Ltd.
Dexco Polymers LP
Dixie Chemical Company
DNV GL
DuPont
Eastman Chemical Company
Ecolab
Ecopetroil
Elanco Animal Health
Eli Lilly and Company
Emerson Automation Solutions
Engro Fertilizer Limited
Engro Polymer and Chemical Ltd MS
Engro Powergen
essenscia
Evonik Corporation
Exida
Exponent Inc
ExxonMobil Chemical Co
Fauske and Associates LLC
Fluor Corporation
FM Global
FMC Corporation
Formosa Plastics Corporation
Future Fuel Chemical Company
GAIL (India) Limited
Gateway Consulting Group, Inc.
Gulf Petrochemical Industries Co
Hengyuan Refining Company Behad
Honeywell
HOWAT RISK
HPCL-MITTAL ENERGY LTD
Hunt LNG
Husky Energy
Idemitsu Kosan Co. Ltd
Industry Risk Control, Ltd
Ingevity Corp.
Intel Corporation
Inter Pipeline
Iomosaic Corporation
IRESC Inc
Jensen Hughes
Johnson and Johnson
JXTG Nippon Oil and Energy Corporation
KBR Energy and Chemicals
King Industries Inc.
Koch Industries
Kraton Corporation
Kuraray America Inc
Kuwait Oil Company
L&T Hydrocarbon Engineering Limited
LanXess
Linde Gas
Lloyd's Register Group, Ltd.
LORD Corporation
Lummus Technology, McDermott
LyondellBasell
Maersk Oil
Mallinckrodt
Map Ta Phut Tank Terminal
Marathon Petroleum Company
Massy Energy Engineered Solutions
Merck & Co., Inc.
Michelman, Inc.
Mistras Group, Inc
Mitsubishi Chemical Corporation
Monsanto Company
National Grid
New Jersey Dept of Environmental Protection
Newcrest Mining Limited
Nexen Inc.
Nghi Son Refinery and Petrochemical LLC
NOVA Chemicals Corporation
Nuclear Fuel Services
Nutrien
Occidental Chemical Corporation
Oil Industry Safety Directorate
Olin Corporation
Optima Chemical Group, LLC
Orchid Chemical & Pharmaceuticals Limited
Orpic
Pan American Energy LLC
Parkland Refining (BC) Ltd.
Petrobras
Petrochemical Corporation of Trinidad and Tobago Ltd
Petronas
Petrotechincs USA, Ltd.
PETOBRIN
Phillips 66
Phoenix Park Gas Processors Ltd
Pluspetrol S.A.
Point Lisas Nitrogen Limited
Potash Corp
PPG
Praxair, Inc.
Process Improvement Institute, Inc.
Procter & Gamble
Promigas
PSRG Inc.
PTT Energy Solutions Company Limited
Reliance Industries Ltd
REPSOL
Rhodes Technologies
SABIC
Sadara Chemical Co
Sahara Petrochemicals Company
Sajjan India Limited
Saudi Aramco Oil Company
Saudi International Petrochemical Co.
Scientific Protein Labs
Shanghai SECCO Petrochemical Co., Ltd.
Shell
Shenyang Research Institute of Chemical Industry Co., Ltd.
Sherwin-Williams Company
SI Group
Siemens Energy Inc
SINOPEC
SIS-Tech Solutions
Solvay USA Inc.
Southern Company Services, Inc
Starr Technical Risks Agency Inc
State of California - PSM
Strem Chemicals Inc
Syncrude
Syngenta
System Improvements, Inc
Teijin Aramid B.V.
Tellurian
The Bahrain Petroleum Company (BAPCO)
The Chemours Company
The Dow Chemical Company
The Lubrizol Corporation
The Mosaic Company
The National Gas Company of Trinidad and Tobago Ltd
Total
TPC
TransCanada
Trinseo
United Natural Foods, Inc.
Unwin Company
US EPA / OEM
Venator Corporation
Vertellus Specialties Inc
W. R. Grace and Company
Wanhua Chemical Group Co., Ltd.
Westarers Chemicals Energy and Fertilisers
World Steel Association
Yara Trinidad Ltd
YPF - Yacimientos Petrolíferos Fiscales

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