Bringing Together the Global Community Committed to Process Safety through Learning, Membership and Collaboration.
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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 safety 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 2021, we pause to reflect on the progress we’ve made, while 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.
The year 2020, by all measures, is sure to go down in history as one of the most difficult years ever. It brought unprecedented tragedy and despair and impacted nearly everyone around the world. Having said that, the year 2020 also drastically shifted many of our paradigms and gave us new ways to operate, engage, and collaborate.

The many stories you shared and that we heard, from families, colleagues, strangers, and healthcare workers are memorable and powerful. And despite so much misfortune, so much good was also done for communities, strangers, and loved ones, including by our member companies. Your organizations generated and donated COVID-19 safeguards; participated in relief efforts with large sums of food and money where needed; many have and continue to participate in the development of clinical trials for vaccines; to name just a significant few.

The year was not typical in terms of member engagement. By mid-March, we ceased all planned face-to-face meetings and we began communicating through virtual formats. CCPS and our member companies managed a very successful year of connections and learning opportunities.

I want to begin by thanking the 24 companies from around the world who joined CCPS as new members this year. CCPS continues to expand its base in all regions and new industries.

And despite the challenges, we worked collectively to gather and disseminate COVID-19 process safety management best practices. We held online roundtables, regional meetings, conferences, panel discussions, project dialogues, specific company outreach, and so much more. The breadth of CCPS’ reach this year spanned nearly 30 events in 7 countries.

To highlight some significant achievements, we expanded CCPS’ body of knowledge, including two COVID-19 related monographs, three guideline books, and developed / expanded two online tools. We held three CCPSC exams, with a four-year total of 248 people who are now CCPSCs, a 10-week free training of RAST/CHEF tools was held with over 200 people per session, the first-ever (virtual) Student Boot Camp in the Latin America Region, and the first-ever virtual meeting in South Africa. The Process Safety Incident Database (PSID) improvement project reached a significant milestone toward modernizing the structure and search functionality.

We progressed our UPSLI effort. Three virtual faculty workshops were held, hosted by BASF, Chemours, and Dow. Five in-person Student Boot Camps were conducted, sponsored by Dow, Ecolab, Eastman, Bayer, and Lubrizol, while the additional 2 were conducted virtually and supported by AdvanSix, FMC, and Celanese. Additionally, SAcHE published six new modules in 2020 and updated 2 modules from the previous year. We are continuing to develop the Early Career Professionals training program. The Beacon going into its 19th year, now supports 41 languages and is still CCPS’ most recognized training tool around the world.

For the first time this year, the Global Congress on Process Safety, the Europe Process Safety & Big Data event, the Middle East Process Safety event, and the Latin America Conference on Process Safety were conducted on an interactive virtual platform.

We revitalized the CCPS Vision 20/20, which created a roadmap to boost CCPS’ relevance and impact, enabling companies at all stages of process safety maturity to move toward process safety excellence. Additionally, CCPS continued to expand its “Responsible Collaboration” efforts around the world.

Thank you for continuing to make CCPS a stronger organization through your dedication and commitment to Process Safety. We collectively achieved a lot in 2020. I am very hopeful that we are nearing the end of this global pandemic, and that we will all be together soon. I wish you all a very safe and healthy 2021.

Shakeel Kadri
CCPS Executive Director & CEO
Highlights from the Year

2020: Expanding global and regional engagement and responsible collaboration

Our growing CCPS community

And the list continues to grow, from...

- SINGAPORE
- SAUDI ARABIA
- CHINA
- CANADA
- USA
- KUWAIT
- INDIA
- AFRICA
- GERMANY
- ARGENTINA
- PERU
- COLOMBIA
- ISRAEL
- JORDAN
- CHILE
- MEXICO
- JAPAN
- THAILAND
- BRAZIL
- KUWAIT
- INDIA
- GERMANY
- ARGENTINA
- PERU
- COLOMBIA
- ISRAEL
- JORDAN
- CHILE
- MEXICO
- JAPAN
- THAILAND
- BRAZIL
- KUWAIT
- INDIA
- GERMANY
- ARGENTINA
- PERU
- COLOMBIA
- ISRAEL
- JORDAN
- CHILE
- MEXICO
- JAPAN
- THAILAND
- BRAZIL
- KUWAIT
- INDIA
- GERMANY
- ARGENTINA
- PERU
- COLOMBIA
- ISRAEL
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- MEXICO
- JAPAN
- THAILAND
- BRAZIL
- KUWAIT
- INDIA
- GERMANY
- ARGENTINA
- PERU
- COLOMBIA
- ISRAEL
- JORDAN
- CHILE
- MEXICO
- JAPAN
- THAILAND
- BRAZIL

Thank you to our CCPS member companies who enabled us to deliver more virtual content than ever before, during the global pandemic.

Virtual Events

- 2 Virtual Student Boot Camps
- 3 Virtual Faculty Workshops
- 1st Latin America Region Student Boot Camp
- 4 Virtual Conferences
  - 16th Global Congress on Process Safety
  - 2020 Virtual European Conference on Process Safety and Big Data
  - Latin American Virtual Conference on Process Safety
  - 3rd Middle East Process Safety Virtual Mini-Conference
- Conferences, Regional Meetings, Round Tables and Webinars

Resources to explore

Vision 20/20 Road Mapping

Since 2012, companies have employed Vision 20/20 to guide their continuous improvement process safety efforts. Vision 20/20 is driven by five industry tenets of committed culture; compliance with standards; intentional competency development; 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.

In 2020, CCPS began developing a road map for all size companies to enable them to assess their current process safety maturity level. Using a self-assessment, containing Vision 20/20 and RBPS elements, companies can determine their process safety maturity level (1-4) and identify gaps to address to move up to the next level. With the gaps identified, the road map will provide links to existing CCPS tools and resources to develop or improve their management systems. CCPS anticipates rolling out the road mapping tool with self-assessment in 2021. For questions contact Louisa Nara at louna@aiche.org.

The Process Safety Beacon, translated into 41 languages, continues to be a go-to resource for our members.

New Monographs addressing 'Process Safety best practices during the Global Pandemic' were published in 2020.

CCPS and the Jordanian Engineers Association sign a Memorandum of Understanding (MoU) to provide a knowledge-sharing platform for Jordanian industries, process safety professionals and academia in the country.
Get Your Company Involved

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

NOT A CCPS MEMBER YET?
Join CCPS: aiche.org/ccps
Email ccps@aiche.org or call 1.646.495.1371

VOLUNTEER for a CCPS project subcommittee. Share your knowledge and help enhance 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 recognized 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: aiche.org/ccps/community/projects/accepting-volunteers

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

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: aiche.org/ccps/resources/process-safety-beacon

CONNECT with your process safety peers through CCPS LinkedIn.

Join CCPS LinkedIn Group: 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 to obtain the “CCPS Certified” credential is gaining momentum and recognition around the globe. There are three opportunities per year to take the CCPS certification examination. The assessment process, based on the CCPS Risk Based Process Safety model and technical expertise, 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: aiche.org/ccps/resources/certified-process-safety-professional

EDUCATE your workforce by getting involved with the CCPS education curriculum, with face-to-face and virtual 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.
aiche.org/academy

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, MEETING & EVENTS:
aiche.org/ccps/conferences-events

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

PUBLICATIONS:
aiche.org/ccps/publications

TOOLS:
aiche.org/ccps/tools

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: aiche.org/ccps/community/members/directory

Get Your Company Involved
Resources to Explore

Books Published in 2020

→ Guidelines for Process Safety During the Transient Operating Mode
→ Driving Continuous Process Safety Improvements from Investigated Incidents
→ Process Safety in Upstream Oil and Gas

Ongoing 2021-22 Projects

→ Guidelines for Process Safety in Pilot Plants & Laboratories
→ Introduction to Process Safety for Undergraduate Education, 2nd Ed.
→ Interactive Online Training Using Bow Ties
→ Guidelines for Chemical Reactivity Evaluation
→ Book of Beacons
→ Human Factors for Process Plants Operations - A Handbook
→ Guidelines for PHA Revalidation & Update, 2nd Ed.
→ Guidelines for Managing Abnormal Situations
→ Guidelines for Process Knowledge Management
→ Guidelines for Managing Cyber Security – a Risk Based Approach

Process Safety Beacon

Produced by CCPS, the Process Safety Beacon is a resource aimed at delivering process safety messages to plant operators and other manufacturing personnel. The monthly one-pager, often used as a training tool, covers a breadth of process safety topics. Each issue discusses a real-life accident, and describes the lessons learned and practical means to prevent a similar accident in your plant. With an estimated distribution of a million readers, and published in 41 languages, the Beacon is CCPS’ most widely read publication.

aiche.org/ccps/process-safety-beacon

Process Safety Monographs

→ Assessment of and Planning for Natural Hazards
→ Risk Based Process Safety During Disruptive Times
→ Reflections from Global Process Safety Leaders During and Following Pandemics

aiche.org/ccps/publications/process-safety-monographs

Process Safety Incident Database (PSID)

The CCPS Process Safety Incident Database (PSID), is a lessons learned tool, available to most member companies. It contains over 830 incident details. Currently, over 500 users from about 100 CCPS member companies have access to PSID. To register, please go to http://www3.aiche.org/PSID/Home.aspx

Building on the valuable benefit of this database, a subcommittee of volunteers from member companies has completed an exercise to revise the functional specifications of PSID to include new, modern terms and categories. The updated platform will be fully configurable, easy to maintain, faster, reliable and more efficient, thus enhancing user experience from data entry to reporting analytics and search functionality. Key content enhancements will include simplified incident types (fires, explosions, toxic releases, near misses) as well as lessons learned, root causes, emergency response, and references to key RBPS elements. Ongoing subcommittee efforts will focus on driving continuous improvements and increasing the number of incidents that are added to the database.

PSID is an excellent platform for ‘Member Sharing’ and provides anonymity to those who wish to share incident data. Member companies who wish to enhance the breadth of knowledge in PSID, can contact ccps_psid@aiche.org
CCPS Glossary

This glossary is used globally with the purpose of defining process safety terms. The term's definitions have been reviewed and approved by participants from CCPS Member companies. One of the glossary's goals is to help process safety professionals establish a common and consistent framework from which to ‘talk process safety,’ whether these discussions are held within a company or held with others across different cultures and languages.

aiche.org/ccps/resources/glossary

Process Safety Incident Evaluation (PSIE) App

The Process Safety Incident Evaluation app lets users evaluate a chemical incident against leading and lagging indicators.

PSIE has three main components: The Incident Evaluation Questionnaire, the Severity Weighting Questionnaire, and the Chemical and Mixtures Database.


RAST and CHEF

Donated to CCPS by Dow Chemical, the Risk Analysis Screenings Tool (RAST) has been made available worldwide to help industry and academia better understand what is needed to make risk based decisions.

The Risk Analysis Screening Tool (RAST) is an Excel-based software that is used to help validate hazard scenarios and evaluate process risks. RAST is an excellent tool for assisting Process Hazards Analysis (PHA) teams, managing the risks associated with 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 validates potentially hazardous scenarios, uses industry guidelines for event frequency and consequence impact, and estimates the risk based on the company-specific risk criteria. Users can select scenarios for further assessment through a Layer of Protection Analysis (LOPA). The RAST software was upgraded and reissued on May 8, 2020.

Chemical Hazards Engineering Fundamentals (CHEF) is a Calculation Aid for those interested in understanding the engineering and mathematical framework of RAST. CHEF provides the background equations that are used.

Tools, user’s manuals, and case studies are on the CCPS website: aiche.org/ccps/resources/tools/risk-analysis-screening-tool-rast-and-chemical-hazard-engineering-fundamentals-chef

CHEF, also developed and donated by Dow Chemical provides the background behind the RAST tool.

Safe Work Practices (SWP)

Various SWPs are documented 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, oil & gas, LNG, 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 global organizations.

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

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

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

Risk Based Process Safety (RBPS) Resources

The CCPS RBPS approach has been used to help improve process safety performance for more than a decade. It is based on four pillars: Commitment to Process Safety, Understand Hazard and Risk, Manage Risks, and Learn from Experience. In addition to the CCPS Guidelines (aiche.org/resources/publications/books/guidelines-risk-based-process-safety), there are many resources, such as webinars and book summaries, that can be used to help companies implement these pillars and their associated elements.

aiche.org/ccps/resources/rbps
Resources to Explore

CCPS on Knovel

As a CCPS member, your organization is entitled to a 35% discount on the CCPS collection on Knovel. 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. All CCPS Guidelines & Concept series titles such as those below are included. New titles are added as they are published.

→ Driving Continuous Process Safety Improvements from Investigated Incidents
→ Guidelines for Process Safety During the Transient Operating Mode
→ Process Safety in Upstream Oil and Gas
→ Bow Ties in Risk Management: A Concept Book for Process Safety
→ Loss Prevention Symposium (LPS)
→ International Conference and Workshop Proceedings (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 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.

aiche.org/ccps/resources/tools/lopa

Professional Services Directory

The Professional Services is a resource for manufacturing companies. All service providers listed are member companies specializing in process safety services.

aiche.org/ccps/community/members/directory

Chemical Reactivity Worksheet 4.0.3

The Chemical Reactivity Worksheet (CRW 4.0.3) is a free software program you can use to find the chemical reactivity of thousands of common hazardous chemicals, the compatibility of absorbents, and the suitability of materials in the construction of chemical processes. The most recent update (version 4.0.3) was released on July 1, 2019. The update includes a mixture cloning function, mixture migration utility and is compatible with the latest PC and Mac operating systems.

aiche.org/ccps/resources/crw-overview
Student Boot Camps

Student Boot Camps, sponsored by CCPS member companies, provide an introduction to engineering students about how leading companies across a variety of chemical process industry (CPI) sectors manage process safety to prevent catastrophic accidents involving toxic, highly reactive, and flammable materials. These events are part of the Undergraduate Process Safety Learning Initiative (UPLSI), a core priority of the AIChE Foundation’s Doing a World of Good campaign.

Prior to March 2020, CCPS organized five in-person boot camps. Additionally, CCPS held the two virtual boot camps in October, to circumvent COVID-19.

In response to the increasing demand for the virtual boot camp, the course is now presented live online by CCPS consultants. It includes more interactive engagement and live polling. The virtual course also contains improved slide content, format, and references to enhance the virtual learning experience.

- **2020 Dow Sponsored CCPS Student Boot Camp**
  January 11-12 | Michigan State University

- **2020 Ecolab Sponsored CCPS Student Boot Camp**
  January 17-18 | University of Minnesota, Twin Cities

- **2020 Eastman Sponsored CCPS Student Boot Camp**
  February 7-8 | Tennessee Technological University

- **2020 Bayer Sponsored CCPS Student Boot Camp**
  February 14-15 | Montana State University

- **2020 Lubrizol Sponsored CCPS Student Boot Camp**
  February 21-22 | University of Cincinnati

- **2020 AdvanSix and FMC Sponsored CCPS Virtual Student Boot Camp**
  October 10-11 | Drexel University

- **2020 Celanese Sponsored CCPS Virtual Student Process Safety Workshop**
  October 30-31 | Prairie View A&M University
Launching your career with a strong process safety foundation to help create a safer, more livable world...

...begins in the classroom. As part of 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 university level so now you can graduate with a strong foundation in process safety.

### 32 FREE Courses

#### NEW! LEVEL ONE COURSES
- Introduction to Process Safety  
  [aiche.org/ela950](aiche.org/ela950)
- Hazard Recognition  
  [aiche.org/ela951](aiche.org/ela951)
- Identifying & Minimizing Process Safety Hazards  
  [aiche.org/ela952](aiche.org/ela952)
- An Introduction to Managing Process Safety Hazards  
  [aiche.org/ela953](aiche.org/ela953)
- Lab Safety  
  [aiche.org/ela954](aiche.org/ela954)

#### NEW! LEVEL TWO COURSES
- Toxicological Hazards  
  [aiche.org/ela961](aiche.org/ela961)
- Chemical Reactivity Hazards  
  [aiche.org/ela962](aiche.org/ela962)
- Fire Hazards  
  [aiche.org/ela963](aiche.org/ela963)
- Explosion Hazards  
  [aiche.org/ela964](aiche.org/ela964)

#### NEW! LEVEL THREE COURSES
- Source Models  
  [aiche.org/ela965](aiche.org/ela965)
- Atmospheric Dispersion  
  [aiche.org/ela967](aiche.org/ela967)
- Understanding Hazards & Risk  
  [aiche.org/ela969](aiche.org/ela969)
- Hazards and Risk: What Can Go Wrong?  
  [aiche.org/ela970](aiche.org/ela970)
- Hazards and Risk: Introduction to Pressure Protection  
  [aiche.org/ela971](aiche.org/ela971)
- Hazards and Risk: Safeguards Other Than Relief Systems  
  [aiche.org/ela973](aiche.org/ela973)
- Hazards and Risk: Introduction to Hazard Identification and Risk Analysis  
  [aiche.org/ela974](aiche.org/ela974)
- Process Safety Ethics — A Brief Introduction  
  [aiche.org/ela975](aiche.org/ela975)
- Risk Review Using LOPA (Layer of Protection Analysis)  
  [aiche.org/ela980](aiche.org/ela980)
- Human Factors  
  [aiche.org/ela981](aiche.org/ela981)
- Inherently Safer Design  
  [aiche.org/ela984](aiche.org/ela984)
- Practical Process Safety 1  
  [aiche.org/ela985](aiche.org/ela985)
- Practical Process Safety 2  
  [aiche.org/ela987](aiche.org/ela987)
- Damage Mechanisms  
  [aiche.org/ela988](aiche.org/ela988)
- Runaway Reactor & Overpressure Protection  
  [aiche.org/ela989](aiche.org/ela989)
- Facility Siting  
  [aiche.org/ela990](aiche.org/ela990)
- The Role of Inert Gases in Process Safety  
  [aiche.org/ela991](aiche.org/ela991)
- Dust Explosions  
  [aiche.org/ela992](aiche.org/ela992)
- Common Chemicals and their Major Hazards  
  [aiche.org/ela993](aiche.org/ela993)
- Risk Based Process Safety: Commit to Process Safety  
  [aiche.org/ela995](aiche.org/ela995)
- Risk Based Process Safety: Training & Procedures  
  [aiche.org/ela996](aiche.org/ela996)
- Risk Based Process Safety: Manage Risk - Operations  
  [aiche.org/ela997](aiche.org/ela997)
- Risk Based Process Safety: Learn from Experience  
  [aiche.org/ela999](aiche.org/ela999)

### ECP Early Career Professionals

Engineering Professionals early in their career find that Process Safety training and the understanding of practical aspects of day-to-day work are typically challenging. In July 2019, a subcommittee of Early Career Professionals (ECP) in Process Safety was established. The subcommittee’s charter was to identify the needs of the ECP to execute their responsibilities in the Process Safety field. The subcommittee recognized the variations in the level of training ECPs receive, prior to starting their careers. The subcommittee has identified key focus areas that ECPs encounter, to determine the best in-class training available and where the gaps in knowledge can be found. For various topics in each area, the team defined the required curriculum depth from Basic Understanding to Working Knowledge, with a focus on making the ECPs independently productive. CCPS intends to create a program to fill these in gaps with training geared to the target population, by using a variety of methods and techniques.

For more information about the program, please contact Anil Gokhale at anilg@aiche.org.
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, Company Training, e-Learning Courses, and Career Planning

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.

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

Public Courses

- CCPS / RAPID Webinar: The Link Between Process Safety & Process Intensification
- 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

Career Planning Courses

- Persistence: How to Handle Rejection in your Professional Life
- Marketing your Value

Some eLearning Courses are also available in Spanish, Portuguese, and Mandarin. Please visit aiche.org/academy for details.

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 Process Safety eLearning course is launched, CCPS Member companies are entitled to three free seats. For more information, contact CCPS@aiche.org.
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. These events are part of AIChE’s Doing a World of Good campaign.

Due to the pandemic, the Faculty Workshops were conducted virtually in 2020.

- **2020 BASF Sponsored CCPS Faculty Workshop**
  July 22-23, 2020

- **2020 Chemours Sponsored CCPS Faculty Workshop**
  August 4-5, 2020

- **2020 Dow Sponsored CCPS Faculty Workshop**
  October 6-7, 2020

For more information: [aiche.org/ccps/resources/conferences/events/faculty-workshops](http://aiche.org/ccps/resources/conferences/events/faculty-workshops)

Process Safety Boot Camps

One of the most popular public course offerings is the Process Safety Boot Camp, which uses the Risk Based Process Safety (RBPS) approach and comprehensively covers the 20 elements of RBPS. The CCPS instructors use a variety of teaching tools, including case studies, CCPS Beacons, videos, and regular polling questions along with quizzes after each section. This course is now offered in an instructor-led virtual format that comes with a detailed Participants Guide. It can also be customized to be taught to any sized company’s specific needs. If you’re interested in the Process Safety Boot Camp go to [aiche.org/academy/courses/ch900/process-safety-boot-camp](http://aiche.org/academy/courses/ch900/process-safety-boot-camp) for more information.

CCPS Process Safety Professional Certification

Become recognized as an expert in Process Safety by passing the CCPS Process Safety Certification (CCPSC) exam and show your employer and colleagues that you have the depth and breadth of experience needed to excel in your career. This rigorous certification process verifies your competency in the latest process safety tools and techniques.

The exam to obtain your CCPSC credential, offered multiple times per year, is receiving global recognition and is in high demand.

The requirements to qualify for this rigorous exam include 5 years’ experience and a degree in a STEM (Science, Technology, Engineering or Math) field, or 10 years’ experience. References, academic and employment information, and an in-depth knowledge of the CCPS Risk Based Process Safety concepts and applications are also required. The annual renewal, which includes a continuing education requirement, serves to prove your ongoing proficiency. It’s the one certification every process safety professional needs.

For more information about the CCPSC certification program, please go to [aiche.org/ccps/resources/certified-process-safety-professional](http://aiche.org/ccps/resources/certified-process-safety-professional)
NORTH AMERICA

On Wednesday, January 29, 2020 Shakeel H. Kadri, Executive Director & CEO of AIChE’s Center for Chemical Process Safety (CCPS®), testified before the Senate Committee on Environment & Public Works on the mission and role of the Chemical Safety Board (CSB).

16TH GLOBAL CONGRESS ON PROCESS SAFETY

The 16th Global Congress on Process Safety (GCPS) was held virtually, from August 17 -21, 2020, as a safety measure amid the COVID-19 pandemic. This world premier process safety conference offered 5 tracks containing 55 technical sessions (over 150 technical presentations), and 1 poster session (over 100 posters). The interactive online format allowed new flexibility for attendees to replay recorded presentations for a month after the conference.

Virtual Conference Lobby
A special panel was programmed during the 16th GCPS to address how effective leadership in the time of COVID-19 has shaped a new corporate culture; including developments in the search for effective medical treatment and vaccines. The panel also reflected on the role of the scientific community in managing COVID-19-related risk and transforming safety incident investigation techniques.
CCPS PANEL DISCUSSION:
LEARNINGS FROM MANAGING PROCESS SAFETY DURING COVID-19

On May 4, 2020, Dr. Anil Gokhale, CCPS, hosted a panel entitled, “Learnings from Managing Process Safety During COVID-19” to share the best practices from top PSM professionals at CCPS member companies on managing process safety during the pandemic. Moderators Ramesh Harrylal, National Gas Company of Trinidad & Tobago (NGC), and Jennifer Bitz, CCPS, facilitated the discussion as the panelists expanded upon the concepts from the CCPS Monograph, “Risk Based Process Safety During Disruptive Times,” and shared how their companies maintained and adapted their RBPS programs during the pandemic.

Jerry Forest, Celanese, shared the importance of managing organizational change (MOC) during uncertain times. Remote PHA (HIRA) and proper management of administrative controls were key focuses for panelist Rehan Baig, Bayer North America. Fred Henselwood, NOVA Chemicals, reminded us about past major incidents that were partially due to reduced staffing levels and cautioned us to keep our sense of vulnerability (Culture) during this time. David Cummings, DuPont, shared interesting insight regarding Tier 1 and 2 incident rate metrics that may appear to worsen due to reduced exposure hours. Elena Blardony, Repsol, offered insight into managing the staffing changes in a pandemic, while also seeing a decrease in demand for Oil and Gas. Sandro França, Braskem, discussed managing the Asset Integrity program using risk-based decision making. Vivek Bichave, Reliance Industries, Ltd., shared how his company engaged the workforce through increased communication and provided stress reduction resources to employees and their families. Martin Laycock, Celanese, shared how the pandemic has affected his company’s China locations and how they kept process safety focus at the forefront while continuing to remain vigilant to their crisis emergency management plan.

Host

Anil Gokhale, P.E.
Director, CCPS Projects

Moderators

Jennifer Bitz, CCPSC
CCPS Project Manager / Lead Engineer

Ramesh Harrylal
VP Operations – National Gas Company of Trinidad & Tobago (NGC)

Panelists

Jerry Forest
Celanese

Rehan Baig
Bayer

Fred Henselwood
NOVA Chemicals

David Cummings
DuPont

Elena Blardony
Repsol

Sandro França
Braskem

Vivek Bichave
RIL

Martin Laycock
Celanese, China
COVID-19 affects how we do business globally and has resulted in profound changes in how we interact, but some focuses did not change. Companies that focus on the conduct of operations and operational discipline have systems in place to move through this time of COVID a little easier. Louisa Nara moderated this discussion with panelists Lucas Ng, General Manager PCS, Andrew Goddard, Arkema, Mary Casaro, Pluspetrol, and Karen Tancredi, Chevron. Below is a synopsis of each presentation on how they manage Risk and Culture now and beyond COVID-19.

First, you must lead the crisis response. All functions need to be represented when a change occurs. It is at this time that process safety competency is essential. Ensure lines of command and who is in charge. Assign trainers for new and transitioning employees and anticipate organizational changes due to sick-leave and personal loss. Reassign those who must self-isolate to work remotely. Communication during this time is essential, as is maintaining a sense of vulnerability.

Continue with all required regulatory training, recognizing the limitations of remote training. Reschedule non-regulatory training activities, where possible, until face-to-face meetings are allowed. Share COVID related safety events and ensure employees understand the hazards and risks. Maintain HIRA schedules, conduct those studies remotely with the walk-through’s postponed. Transition from a smaller face-to-face audit team to a larger audit team remotely, and use a more specific SME focus with the larger group. This may require a higher level of competency.

Consolidate sustainability as a value of the organization, and developing conscious and committed leadership, keeping in mind the importance of maintaining a sense of vulnerability. Understand and act according to hazards and risks and develop and empower employees with open and effective communications in an environment of mutual trust. Combat the normalization of deviations, promoting operational discipline in a learning environment, and don’t forget contractors.

The positive aspects of sound management systems ensure repeatability and reliability. It is vital to keep them evergreen. Communication and transparency of your intentions help to build trust. This trust, along with training and competency, supports human performance at a high level. Maintaining Conduct of Operations and Operational Discipline is vital to get through the pandemic and for future recovery. Collaboration, teaming, and agility lead to creative solutions. If you manage deferrals, you can manage risks more effectively. Celebrate and focus on accomplishments when appropriate.

The way an organization behaves in challenging times will leave a lasting impression.
5TH ANNUAL CALGARY REGIONAL MEETING

This year’s Calgary Regional Meeting, held virtually on September 10th, featured its highest number of attendees with over 100 people for the 5-hour meeting. Fred Henselwood of NOVA Chemicals moderated and Frank Verbeek of Aon co-moderated and hosted the meeting.

The meeting began with updates from CCPS, CIAC PSN, CSChE, and CSA Z767, followed by COVID-19 business updates and approaches from Parkland Refining and NOVA Chemicals, as well as a presentation on Energy Engineering and Business Interruption Risk in the Face of COVID-19 given by Aon. Afternoon events began with 3 segments from Aon, starting with an Introduction to PSM and Insurance, followed by Improving Process Safety Reporting from an Insurance Perspective and concluded with Industry Incidents and Losses. The meeting wrapped up by featuring three University of Alberta students who presented their research. This portion of the meeting is always a big highlight, as attendees hear from the best and brightest, and have a chance to learn about topics such as Artificial Intelligence, and how it can reduce incident rates in the oil and gas industry.
NORTH AMERICAN VIRTUAL ROUNDTABLES

To continue member engagement during COVID-19, CCPS hosted two North American Regional Roundtables, hosted by Michele Horwitz, CCPS, Membership Manager and moderated by Louisa Nara, CCPS, Global Technical Director. The first event on October 15 entitled, “Making CCPS Resources Work for Your Company” featured topics such as providing an Overview of CCPS' Website, Networking, Member Engagement by using CCPS Programs, Products, and Services, Vision 20/20 Road-Mapping and Resources, and CCPS Tools. Speakers were CCPS’ Jing Chen, Sr. Engineering Specialist; Cathy Pincus, ExxonMobil TSC Representative; Ken Tague, CCPS Emeritus Member; Bruce Vaughen, CCPS, Lead Process Safety Subject Matter Expert; and Louisa Nara.

The 2nd Roundtable, on October 28th, “Dealing with Aging Equipment and Fit for Purpose,” featured Louisa Nara as a moderator. Invited speakers were Brian Kelly, CCPS Emeritus and Fellow; Kathy Kas, Process Safety Expertise Leader at The Dow Chemical Company; Bruce Vaughen, CCPS, Lead Process Safety Subject Matter Expert; and Ken Tague, CCPS Emeritus Member. The two-hour meeting was highly engaging and featured the following topics:

→ **Dealing with Aging Facilities and Infrastructure** (Brian Kelly)
→ **Approaches to Mechanical Integrity** (Risk-Based vs. Fixed Based) (Kathy Kas)
→ **RAST Tool** – Reliability and Failure Frequency to Estimate Risk (Bruce Vaughen)
→ **Member Experience** - Takeaways from Dealing with Aging Process Facilities and Infrastructure (Ken Tague)
LATIN AMERICA

LATIN AMERICA VIRTUAL MEETING – MARCH 31, 2020

In response to COVID-19 and the postponement of the 16th GCPS, the Latin America region hosted a virtual meeting on March 31, 2020. There were 30 process safety engineering professionals in attendance, affiliated with 16 member companies and 14 nonmember companies.

Topics discussed were:
→ CCPS activities in Brazil, Colombia, and Argentina
→ University student engagement for Process Safety in Brazil
→ Latin American Conference on Process Safety

CCPS VIRTUAL MEETINGS FOR LATIN AMERICA REGION

An average of 60 people from 20 organizations also met virtually on June 8 and July 8, 2020. CCPS Executive Director & CEO, Shakeel Kadri, attended the events alongside Latin America Regional Manager, Marvin Szoychen, and CCPS Global Technical Director, Louisa Nara. The attendees discussed process safety challenges in mining, biofuels, and metals operations.

A panel discussion titled “Process Safety Management in Non-Chemical Industries,” discussed specific challenges in Process Safety application in mining, steelmaking, agro, and the oil industries. Speakers representing these sectors in the Region were:

Eduardo Francisco
Vale

Eduardo Barbosa
Almeida
USIMINAS

Flavio Monteiro
Chevron

Federico Hosenen
Cargill

Enrique Campos-Sutter
Chevron

JOINT REGIONAL WEBINARS

More than 60 people from 30 companies virtually attended three meetings on June 12, July 30 and October 9, 2020, which featured oil and gas, energy generation, and industrial manufacturing industries. Louisa Nara, CCPS Global Technical Director hosted the meetings; Marvin B. Szoychen, CCPS Latin America Regional Manager and Walter Sarmiento from WSI presented the webinars and responded to questions. During each webinar, companies discussed two different elements of Risk-Based Process Safety (RBPS), incident investigations, process safety culture, and asset integrity.

Louisa Nara
CCPS

Marvin B. Szoychen
CCPS

Walter Sarmiento
WSI
CCPS organized the first Latin American Virtual Conference on Process Safety October 28 - 29, 2020, which attracted over 175 attendees. Topics included Process Safety Leadership, Lessons Learned, Human Factors, Outreach, and Remote Process Safety Management. Regional attendees at the meeting were from the chemical, agro, mining, steelmaking, and oil industries. The Conference had two session tracks, six keynote speakers, and a panel discussion.
LATIN AMERICA REGIONAL VIRTUAL STUDENT BOOT CAMP (LASBC) – DECEMBER 5-6, 2020

This event sponsored by the AIChE Latin America Association Chapter (AIChE LATAM), provided an introduction to chemical engineering for students in the Latin America region. It showcased how leading companies across a variety of chemical process industry (CPI) sectors manage process safety to prevent catastrophic accidents involving toxic, highly reactive, and flammable materials.

Held for the first time in the Latin America Region, this student boot camp opens the door for future events in upcoming years. In doing so, it will raise the awareness of Process Safety at the undergraduate level in the Region. Thirty-Six students participated, as well as four assisting Professors.

CCPS and AIChE LATAM looks forward to planning additional collaborations on projects in 2021.
WEB-SEMINAR SERIES ON RBPS DURING COVID-19 AND SIMILAR DISRUPTIVE TIMES

The CCPS Europe web-seminar series started on May 18, 2020. It was created as a benefit for CCPS member companies to provide support during the COVID-19 pandemic with useful updates on COVID-19 related process safety topics. At the first event of this series, hosted by the CCPS Europe Regional Office and attended by 40 attendees, three presentations were given by speakers from Repsol, Arlanxeo, and the CCPS Director of Projects Dr. Anil Gokhale, respectively. Additional web-seminars were conducted on June 22, July 20, September 21, November 16, 2020 and were attended by more than 100 participants in total. The events were supported by process safety experts from Ashland, BASF, Braskem, Covestro, DEKRA, DNV GL, DuPont, FMC, Ingenero, P&G, Tronox, and World Steel Organization.

2020 VIRTUAL EUROPEAN CONFERENCE ON PROCESS SAFETY AND BIG DATA

This first-time virtual event held October 13-14, and in its 5th year, included four keynote lectures, two panel discussions, and four sessions covering topics in the field of Big Data, which have the potential to improve process safety in the chemical process industry and related industries. The sessions covered topics in Big Data Analytics, Risk Assessment & Management, Predictive Maintenance, and Robotic & Emerging Technologies. Among the highlights were a presentation by Dr. Katherine Lemos, CEO & Chair of the US CSB. She underscored the importance of knowledge derived from big data. Lloyd Colegrove, a retiree from Dow, talked about the digital transformation in the Chemical industry. He emphasized that in order to extract usefulness out of the big data, one must have a depth of context and subject matter (engineering, chemistry, etc.) expertise. Several other presentations had insights on Digital Twins, AI -Machine Learning & Predictive Maintenance, and Digitalization & Safety.

This event was co-organized by CCPS and the European Process Safety Center (EPSC). The organizers welcomed 22 presenting organizations and over 150 attendees from 100 companies around the globe.
WEBINAR ON RISK MANAGEMENT IN THE TIME OF COVID-19 – JUNE 11, 2020

Aon and CCPS hosted their first-ever joint meeting in the South Africa Region with 80 attendees. The webinar took a look at lessons learned as well as best practices from both an insurance and process safety risk management perspective. The webinar covered HIRA (Hazard Identification and Risk Analysis), Workforce Involvement, Stakeholder Outreach, Asset Integrity and Reliability, Management of Change, Auditing, and Process Safety Culture.

The panel was hosted by CCPS Executive Director & CEO, Shakeel Kadri and Fabio Lupo, MD, Head of Energy Risk Engineering, Aon Global Risk Consulting.
CCPS MEMBER WORKSHOP
As a part of membership engagement, Umesh Dhake - CCPS Regional Manager, Asia-Pacific & Middle East Region facilitated a face-to-face workshop on January 7-8, 2020, at Bharat Oman Refinery Limited (BORL), Bina, India. The topics for the interactions were “Bow-ties in Risk Management” and the “RAST Tool”. The workshop was attended by 30 professionals from BORL.

CCPS INDIA REGIONAL MEMBERS MEETING – FEBRUARY 6, 2020
On February 6, 2020, the Gas Authority of India Ltd. (GAIL) held a meeting at Jubilee Tower, Noida. A total of 84 participants from leading Oil & Gas sectors, chemical manufacturing, EPC contractors, academic institute and consultants i.e. GAIL, OISD, BORL, Reliance, HMEL, Tata Steel, Exida, DuPont, Fluor, Bechtel, L&T, BPCL, IIT, and others shared their experiences with participants.
Events and Meetings

1. Shakeel Kadri and Umesh Dhake visit Tata Steel in Jamshedpur, India, February 13, 2020
2. Shakeel Kadri and Umesh Dhake participate in the 2020 Middle East CCPS Technical Steering Committee Meeting in Bahrain
3. Shakeel Kadri presenting the keynote at the International Process Safety Conference, February 11-12 in New Delhi, India
4. Umesh Dhake represented CCPS at the India Bromine Association meeting on February 18, 2020, and presented on the CCPS Risk-Based Process Safety Management framework and CCPS Vision 20/20. Representatives from ten India Bromine Manufacturers attended the meeting.
REGIONAL MEMBER OUTREACH

Virtual Meeting with Qatar Petroleum and Abu Dhabi National Oil Company (ADNOC) – June 2020

Shakeel Kadri – Executive Director & CEO, CCPS, hosted panel discussions with two CCPS member companies in the Middle East Region: Qatar Petroleum and ADNOC. CCPS panelists shared best practices for managing process safety programs during COVID-19. Umesh Dhake – CCPS Regional Manager, Asia-Pacific & Middle East Region, presented an overview of Risk-Based Process Safety as a basis for decision making during the pandemic. Panelist Jennifer Bitz – CCPS Project Manager / Process Safety Lead Engineer, presented key points for managing HIRA and Audits during the pandemic, including remote meeting options and staffing for safeguards and actions. Louisa Nara – CCPS Global Technical Director, discussed remote support for the Workforce of Management of Change, and the importance of Management of Organizational Change during a pandemic. Dr. Anil Gokhale – Director, CCPS Projects, provided insights into risk-based approaches for prioritization in Asset Integrity programs, and the importance of communication to maintain a good Process Safety Culture and a sense of vulnerability.

Virtual Meeting with Tata Steel, India – April 2, 2020

On April 2, 2020, a 2-hour virtual engagement workshop was conducted with Tata Steel employees by Mr. Umesh Dhake - Regional Manager, Asia Pacific, and Middle East Region. The topic of the workshop was CCPS RAST (Risk Analysis Screening Tool). One hundred and fifty-five employees from various TATA Steel locations participated in the session. Following the session, Tata Steel TSC representative, Mr. Ramesh Kumar, stated in a written testimonial, “The workshop was very informative, the content was relevant and well presented. It gave us a chance to put RAST into practice for ongoing process safety activity at Tata Steel Ltd.” Tata Steel now wants to further explore and consider the RAST approach for hazard evaluations and risk assessments to improve process safety performance. Going forward, Tata Steel is looking for a similar workshop on various topics coming under the scope of CCPS.
CCPS South East Asia Regional Members Meeting – May 13, 2020

The CCPS South East Asia Regional Members Meeting was held virtually on May 13, 2020, jointly hosted by CCPS and Petronas, Malaysia, and attended by 41 representatives from 20 CCPS member companies in South East Asia (including Singapore, Malaysia, Japan, Thailand, Vietnam, and Australia). Presenters from Petronas, Petrochemical Corporation of Singapore (PCS), and Reliance Industries shared lessons learned as well as best practices in managing process safety during organizational changes (COVID-19).

Mr. Shakeel Kadri, CCPS Executive Director, and CEO presented an update of CCPS financials, new members, and new initiatives in 2020. Following, Ms. Louisa Nara, CCPS Global Technical Director explained ‘The Importance of Global Regions in the Proposal / Planning Process’ and Dr. Anil Gokhale, Director of Projects, presented on ‘CCPS Life Cycle of Projects’ and provided a CCPS Projects update. During the next session of experience sharing, M Bashir B. Ngah, GM, Process Safety from Petronas presented a case study on ‘Shared Facilities Effective Barrier Management.’ At the conclusion, he emphasized key learnings to ensure competency and subject matter expertise of personnel, who are involved in the assessment of shared facilities.

Mr. NG H Kiang Lucas, General Manager from PCSPCS, presented ‘Managing Process Safety Risks during Organization Changes and OCM Tools (COVID-19),’ and also acknowledged the CCPS Monograph Risk-Based Process Safety during Disruptive Times as very timely, relevant, and helpful during this challenging COVID-19 pandemic. He further appealed to all Process Safety practitioners to promote the CCPS Monograph.


Mr. Shakeel Kadri, CCPS, thanked the presenters and participants on behalf of the CCPS team and appreciated the steadfast support by the South East Asia members to fulfill CCPS’ vision and mission in process safety.
HMC Polymers Process Safety Inspirational Leadership Sharing Session –
May 14, 2020

On May 14, 2020, an interactive session was organized for the leadership team of HMC Polymers on ‘Process Safety Inspirational Leadership.’ Shakeel Kadri, CCPS Executive Director, and CEO delivered the session. Ms. Kunthira Kheanprasit, Manager Process Safety, and Mr. Siridech Kumvongdee, President, HMC Polymers were also on hand.

Mr. Kadri presented the topic ‘Driving Excellence through Process Safety Leadership.’ His communication with the HMC Leadership team on Process Safety challenges included key topics such as, Managing Operational Risk, Risk Elevation Process, Importance of Senior Incident Review Board and Alignment of Leaders, and Goals with Front-Line Management. During the presentation, a video featuring interviews with renowned Global Leaders from the chemical industries was shown. It showcased their experiences and success stories with process safety to prevent incidents and improve process safety performance. Mr. Kadri sensitized the leadership team about the importance of top management’s participation in process safety programs and encouraged leaders to share information, especially when it comes to lessons learned and incident sharing.

Mr. Siridech Kumvongdee acknowledged that the thoughts shared by Mr. Kadri provided the impetus to foster an open dialogue between HMC Polymers senior management and the team responsible for process safety matters.
CCPS INDIA REGIONAL MEMBERS MEETING

On September 22, 2020, CCPS held its India Regional Members Meeting [virtually]. The meeting, hosted by L&T Hydrocarbon Engineering Ltd., was attended by 140 process safety professionals from 35 companies across India. The primary goal of this meeting was to bring CCPS Member companies, academia, professors, and students together to discuss and share CCPS activities in the region, as well as share experiences by member companies on process safety related topics. The diverse and dynamic group of speakers provided in-depth insight, as well as actionable and practical tools on various process safety topics. Of significant importance during this meeting, CCPS and OISD (Oil Industry Safety Directorate, India) announced the signing of an MoU for responsible collaboration in the field of process safety.

3RD MIDDLE EAST PROCESS SAFETY VIRTUAL MINI-CONFERENCE – NOVEMBER 18, 2020

The Middle East Process Safety, 3rd Edition Virtual Mini-Conference concluded on a high note. Middle East operators, HSE leaders, academia, and chemical engineering students were among more than 200 process safety professionals who registered for this event from the MENA region. The 3.5 hour briefing had leaders and process safety technical experts get to the heart of finding alternative ways to manage process safety during COVID-19 and went as far as making these new practices the new normal of tomorrow.

The presentation topics were selected from over 100 abstracts, by speakers from different Middle East companies, who addressed best practices, shared their knowledge and rich experience with examples in the application of process safety practices from their companies. Presentation topics included; “Plant Safety Override Assessment” by Kuwait Oil Company, “Issues to be Considered during the Early Stage of HFE Screenings” by Ristec-TUV Rheinland, “Dust Explosion Prevention in Polymer Additive Areas” by S-Chem, “Overcoming Barriers to ORM Digital Twin Adoption - Knowing how to Articulate it for Business Case and Translate the Concept into Operational Practice” by Sphera, and “Process Safety Management Governance” by SIPCHEM.

One of the primary learning outcomes from the event was the affirmation that COVID-19 has brought extraordinary challenges to employees and Industry. As such, companies have been forced to develop a better understanding of the pandemic and find alternative ways to manage process safety during and beyond COVID-19. The conference provided an important springboard for initiating discussions on the development of process safety centered strategies across a range of operational environments in public and private sector companies. This CCPS-MEPSC Virtual Mini-Conference concluded with the announcement that the 3rd Process Safety Conference will take place in person from October 25-26, 2021 at the Sheraton Dammam Hotel & Convention Centre, Dammam, Kingdom of Saudi Arabia.
## IMPORTANT HIGHLIGHTS FROM THE AP/ME REGION

### Responsible Collaborations

**Memorandums of Understanding (MoU) in 2020**

- CCPS and the Jordanian Engineers Association (JEA) signed an MoU to provide a knowledge sharing platform for Jordanian industries, process safety professionals, and academia in the country.

- CCPS and the OISD (Oil Industry Safety Directorate, India) continued their MoU in 2020 to exchange experience and increase reach to the Oil & Gas Industry in India for process safety related matters.

- CCPS and the National Institute of Chemical Safety (NICS), South Korea, continued its MoU to explore new opportunities to collaborate in the field of process safety in South Korea.

### Event Participation

Throughout the year, CCPS actively participated in many National and International forums in the Asia Pacific and Middle East region. These events were organized by leading Government and Private organizations that work in promoting awareness in the field of process safety. Through these efforts, CCPS successfully reached out to thousands of process safety professionals and shared initiatives taken up by AIChE-CCPS in the field of process safety. Following are some of the notable responsible collaborations done in 2020.

### CCPS Representation in National/International Events

<table>
<thead>
<tr>
<th>Event</th>
<th>Date</th>
<th>Location</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>INPSC Conference</td>
<td>India:</td>
<td>11-12 Feb</td>
<td>Topic - CCPS VISION 20-20 18 Feb</td>
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<tr>
<td>All India Bromine Manufacturers Association Meeting</td>
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<td>Indian Society of HSE Professionals (iHSE) 3 June</td>
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<tr>
<td>Webinar on “Ensuring Safe and Reliable Operations Post Prolonged Lockdown.”</td>
<td></td>
<td></td>
<td>Co-organized with Indian Chemical Weekly 26 June</td>
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<tr>
<td>Webinar on “Running or Restarting Chemical Facilities During or After COVID-19”</td>
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<td>National Safety Council, Kerala Chapter, 15 July</td>
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<tr>
<td>Webinar on “Operational Excellence through PSM”</td>
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<td></td>
<td>Confederation of Indian Industry (CII), Virtual Panel Discussion, 29 August</td>
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**Total Number of Professionals Reached through these Events: 1,000**

### Outreach Programs during COVID-19

To actively engage with member companies in the Asia Pacific Middle East Regions during COVID-19, CCPS conducted various virtual events, webinars, workshops with member companies across the region to share ‘Learnings from Managing Process Safety during COVID-19.’ More than 1,000 process safety professionals attended these virtual events during the COVID-19 period from March-December 2020.

**Sponsored & Live Webinars**

- Process Safety Webinars available to employees of Member company
- Region/Country specific support
- “How to access” Guide developed

**Virtual Workshops**

- CCPS Tools & Guidelines Explained
- Duration: 1 to 2-hours
- Interactive sessions
- Delivered by Umesh Dhake

**CHEF/RAST Virtual Workshops**

- 10 Recorded Sessions
- Duration: 2-hours/session
- Delivered by Ken Tague & Dr. Bruce Vaughen

**Number of Professionals from CCPS Member Companies that Attended Virtual Workshops: 1,000**
The Center for Chemical Process Safety-China Section (CCPS-CS) was founded by the Center for Chemical Process Safety of the American Institute of Chemical Engineers and the Center for Safety and Environmental & Energy Conservation Technology of the China University of Petroleum in April 2007.

**Missions of CCPS-CS:**

- Advancing the state of the art 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 SECTION ACTIVITIES AT A GLANCE**

**Translation Activities**

- RAST User Manual
- Monograph: RBPS During COVID-19 & Similar Disruptive Times
- Be Smart: Safe Restart

**Books translation to Chinese in Progress**

- Introduction to Process Safety for Undergraduates and Engineers

**VIRTUAL CHINA REGIONAL TECHNICAL STEERING COMMITTEE MEETING**

A virtual China Regional TSC meeting was conducted in May of 2020 and addressed the following hot topics:

- CCPS Conference and Regional Projects Status Update – CCPS China Section Leads
- Coronavirus Impact & Challenges – CCPS member companies
- Chemical Reactivity Worksheet Demonstration by CCPS China TSC Chair, Malcolm Pu
2021 Meetings, Destinations and Global Offices

NORTH AMERICA

VIRTUAL MEETINGS

→ DIERS Spring Meeting
  March 10-12, 2021

→ Advisory Board Meeting
  March 24, 2021
  8:30am-11:30am EST

→ 17th Global Congress on Process Safety
  April 18 - 23, 2021

→ CCPS Technical Steering Committee Meeting
  April 28, 2021

→ TSC Planning Committee Meeting
  June 10-11, 2021

→ Advisory Board Meeting
  June 30, 2021
  8:30am-11:30am EST

→ Advisory Board Meeting
  October 6, 2021
  8:30am-11:30am EST

HOUSTON

→ Offshore Technology Conference
  August 16-19, 2021

CALGARY, CANADA

→ 6th Annual Canadian Regional Technical Steering Committee Meeting
  September 9, 2021

SUGAR LAND, TX

→ Fall Technical Steering Committee Meeting
  November 10-11, 2021

→ TSC Planning Committee Meeting
  November 12, 2021

HOUSTON, TX

→ DIERS Fall Meeting
  Date TBD

EUROPE

→ 6th European Virtual Regional Technical Steering Committee Meeting
  March 10, 2021

→ European Regional Meeting
  September 15-16, 2021
  Location TBD

FRANKFURT, GERMANY

→ 6th Europe Process Safety and Big Data Conference
  October 13-14, 2021

SOUTH AMERICA

REGIONAL TECHNICAL STEERING COMMITTEE MEETINGS
Meeting dates to be determined for:

→ March 2021
→ June 2021
→ August 2021
→ November 2021

RIO DE JANEIRO, BRAZIL

→ 9th Latin America Conference on Process Safety (LACPS)
  November 17-18, 2021

GLOBAL TECHNICAL STEERING COMMITTEE WEB CONFERENCES

• February 17, 2021
• July 1, 2021
• September 15, 2021

All Web Conferences are from 10:00am-12:00pm EST
Please note that any meeting that is designated with a face-to-face location in 2021, can be changed to Virtual if deemed unsafe to meet due to COVID-19. Please keep up to date with all events at aiche.org/ccps/conferences-events.

INDIA AND MIDDLE EAST

VIRTUAL MEETINGS

→ CCPS India Virtual Regional Meeting
   February 2, 2021
   Hosted by Chola MS Risk Services
   (1st Meeting of 2021)

INDIA

→ CCPS India Regional Member Meeting
   September 23, 2021
   (2nd Meeting of 2021)

DAMMAM, SAUDI ARABIA

→ 3rd Middle East Process Safety Conference
   October 25-26, 2021

MUMBAI, MAHARASHTRA, INDIA

→ 6th Global Summit on Process Safety
   December 15-16, 2021

ASIA

→ CCPS Southeast Asia Regional Virtual Meeting
   March 2, 2021

PERTH, AUSTRALIA

→ Australia Regional Meeting
   Date TBD - 2nd Quarter 2021

QINGDAO, CHINA

→ 8th CCPS China Conference on Process Safety
   End of September/Early October 2021
   (Dates TBD)

→ 6th CCPS China Regional Technical Steering Committee Face to Face Meeting
   End of September/Early October 2021
   (Dates TBD)

CCPS OFFICES

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

Look for upcoming events on our website — aiche.org/ccps
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 Executive Director & CEO 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 & Operating Committee
- Technical Steering Committee

Additionally, members of the Technical Steering Committee and other member company representatives serve on subcommittees that oversee CCPS projects. The Managing Board has a 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.

**2021 CCPS MANAGING BOARD**

June Wispelway  
AIChE Executive Director & CEO (Chair)

Rick Cain  
AIChE, Chief Financial Officer

Shakeel Kadri  
CCPS Executive Director & CEO

Deborah L. Grubbe  
AIChE President

Christine Grant  
AIChE President-Elect

Monty Alger  
AIChE Past President

Ana Davis  
AIChE Director

Pete Lodal  
AIChE Director

Elsa Reichmanis  
AIChE Director

Joseph Smith  
AIChE Secretary

Wendy Young  
AIChE Treasurer

Sincere gratitude to the outgoing 2020 Managing Board Members

Lori McDowell  
AIChE Director

Kim Ogden  
AIChE Past President

Rose Wesson  
AIChE Treasurer
Sincere gratitude to the outgoing 2020 Advisory Board Members

Al Cusson, IV
Air Liquide

Derek A. Fairclough
BASF

Abdullah A. Ghamdi
Saudi Aramco

Cheryl Kennedy
DuPont Company

Cari Parker
Eastman Chemical

Keith Silverman
Ashland

Prasad Tipnis
Reliance Industries, Ltd.

Kristie Williams
Ecolab

Fred Henselwood
NOVA Chemicals
(Chair)

Chris Aiken
Cargill
(1st Vice Chair)

Jerry Forest
Celanese Chemicals
(2nd Vice Chair)

Abdul Aldeep
Siemens

Steve Arendt
Emeritus

Todd Aukerman
LanXess Corporation

Vivek Bichave
Reliance Industries, Ltd.

Gustavo Correa
YPF

Tony Downes
Honeywell

Eric Freiburger
Linde plc

Anil Gokhale
CCPS

Cheryl Grounds
Emeritus

Greg Horton
SABIC

Shakeel Kadri
CCPS

Gregg Kiihne
BASF

Pete Lodal
Emeritus

Jack McCavit
Emeritus

Louisa A. Nara
CCPS

Cathy Pincus
ExxonMobil

Jatin Shah
BakerRisk

Karen Tancredi
Chevron Corporation

Scott Wallace
Olin Corporation

John Wincek
Dekra Insight

Shakeel Kadri
CCPS
(Chair)

Khaled KAA Alalyani
SABIC

Bob Bahr
ExxonMobil

Beth Ballard
Ecolab

Garry Bryan
Bayer

Michelle Caveness
Eastman Chemical

Yong Sai Chung
PETRONAS

Ana Davis
Syngenta Corporation

Rob DiValerio
BP Corp

Dave Greganti
DOW

Karen Koster
Honeywell

Perry W. Logan
3M

Anne O’Neal
Chevron

Senyo Opong
DuPont Company

Mark Patterson
BASF

Richard Pawulski
Air Liquide

Kuddallur Seshadri
Reliance Industries, Ltd.
Projects and Volunteers

**PROJECT 244: PROCESS SAFETY - VISION 20/20**

Anne O'Neal, Chair  
Chevron Corporation

Ken Tague  
CCPS Staff Consultant

Denise Albrecht

Steve Arendt  
Emeritus

Todd Aukerman  
LanXess Corporation

Eline Beulens  
Cargill

Vivek Bichave  
Reliance Industries, Ltd.

Michelle Bryner  
AIChE

Jing Chen  
CCPS

David Cummings  
DuPont

Umesh Dhake  
CCPS

Jeffrey L. Fox  
Emeritus

Anil Gokhale  
CCPS

Leonard Gomes  
Cheniere

Cheryl Grounds  
Emeritus

Fred Henselwood  
NOVA Chemicals

Greg Horton  
SABIC

Gregg Kühne  
BASF

Peter N. Lodal  
Emeritus

Jack McCavit  
Emeritus

Jennifer Mize  
Eastman Chemical Company

Louisa A. NRA  
CCPS

Myles Peterson  
SI Group

Cathy Pincus  
ExxonMobil

Caitlin Prigge  
3M

Ellen Ross  
Chevron Corporation

Samantha Scrgggs  
BP Corp

Kathy Shell  
eaSolutions

Karen Tancred  
Chevron Corporation

Scott Wallace  
Olin Corporation

Paul McAllister  
Shell Projects & Technology

Andrew Minister  
DOE - Pacific Northwest National Laboratory, Retired

Kaiabir Moideenkutty  
Abu Dhabi Oil Refining Company (TAKREER)

Richard Palluzi  
ExxonMobil, Retired

Christian Rauchegger  
Linde Engineering North America Inc.

Sebastien Righini  
Solvay

Amy E. Theis  
Dekra Insight

Ronald J. Willey  
Northeastern University

Joel B. Young  
BASF

Kevin D. Watson  
Chevron Corporation

Tracy Whipple  
BP Corp

**PROJECT 270 MEMBERS FROM THE SPE**

Charlie Williams, Co-Chair  
Center for Offshore Safety

John Gidley  
Atwood Oceaneering, Retired

Brad Smolen  
BP Corp

Terrance Sookdeo  
Baker Hughes, Inc.

Rebekah Stacha  
Society of Petroleum Engineers

**PROJECT 275: GUIDELINES FOR PROCESS SAFETY DURING THE TRANSIENT OPERATING MODE - MANAGING RISKS DURING PROCESS START-UPS AND SHUT-DOWNS**

Theresa Broussard, Chair  
Chevron Corporation

Daniel Sliva  
CCPS Staff Consultant

Susan Bayley  
Linde Engineering

Donald Connolley  
AcuTech

Eddie Dalton  
BASF

Reyyan Koc Karabocak  
ExxonMobil

Pamela Nelson  
ioMosaics Corporation

Jitesh Patel  
New Jersey DEP

Scott Schiller  
BakerRisk

Sandeep Vipra  
Reliance Industries, Ltd.

Elliot Wolf  
The Chemours Company
PROJECT 276: GUIDELINES/ESSENTIALS OF SAFE WORK PRACTICES

Vivek Bichave, Chair
Reliance Industries, Ltd.

Brian Farrell
CCPS Staff Consultant

Katherine M. Anderson
ioMosaic Corporation

Jonas Duarte
LanXess Corporation

Sarah Eck
Dekra Insight

Pamela Feldman
Chevron Corporation

Anil Gokhale
CCPS

Kevin He
Shell

Julio Jeronimo
Petrobras

Jerry Keezer
Bostik

Gregg Kiihnne
BASF

Steve Lindemann
Mallinckrodt Pharmaceuticals

Jitesh Patel
New Jersey DEP

Robert J. Weber
PSRG, Inc.

Daniel Wilczynski
Marathon Petroleum Company

Ruskin Damani
Reliance Industries, Ltd.

Gretel D’Amico
Pluspetrol

Joseph Deeb
ExxonMobil

Alexandre Glitz
Emeritus

Cheryl Grounds
Emeritus

Anil Gokhale
CCPS

Jeff Hazle
Marathon Petroleum Company

Gregg Kiihnne
BASF

Caroline Morais
ANP (Brazil Petroleum Regulator)

Andrew Moulder
Inter Pipeline

Louisa A. Nara
CCPS

Christa Pennino
CCPS

Meg Reese
Occidental Chemical Corporation

Ajay Shah
Chevron Corporation

Scott Wallace
Olin Corporation

Jennifer Bitz
CCPS

Cecil Clements
The Chemours Company

Michael Hazzan
Acutech

Manuel Herce
DuPont

Alok Khandelwal
Shell

Lisa Parker
Braskem

Jordi Costa Sala
Celeanse

Martin Timm
Linde plc, Retired

PROJECT 281: HUMAN PERFORMANCE FOR PROCESS SAFETY PROFESSIONALS

Chris Aiken, Chair
Cargill

Eric Freiberger, Vice Chair
Linde plc

Charles Cowley
CCPS Staff Consultant

Sandra Adkins
BP Corp

Mayara Carbono
SBM Offshore

Carlos Carvalho
Petrobras

Erin Collins
Jensen Hughes

Ruskin Damani
Reliance Industries, Ltd.

Gretel D’Amico
Pluspetrol

Joseph Deeb
ExxonMobil

Alexandre Glitz
Emeritus

Cheryl Grounds
Emeritus

Anil Gokhale
CCPS

Jeff Hazle
Marathon Petroleum Company

Gregg Kiihnne
BASF

Caroline Morais
ANP (Brazil Petroleum Regulator)

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Ajay Shah
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Scott Wallace
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Michael Hazzan
Acutech

Manuel Herce
DuPont

Alok Khandelwal
Shell

Lisa Parker
Braskem

Jordi Costa Sala
Celeanse

Martin Timm
Linde plc, Retired

PROJECT 281: MEMBERS FROM THE ENERGY INSTITUTE

Stuart King, Co-Chair
Energy Institute

Lee Alford
Energy Institute

Rob Saunders
Shell

Ruskin Damani
Reliance Industries, Ltd.

Gretel D’Amico
Pluspetrol

Joseph Deeb
ExxonMobil

Alexandre Glitz
Emeritus

Cheryl Grounds
Emeritus

Anil Gokhale
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CCPS

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Occidental Chemical Corporation

Ajay Shah
Chevron Corporation

Scott Wallace
Olin Corporation

Jennifer Bitz
CCPS

Cecil Clements
The Chemours Company

Michael Hazzan
Acutech

Manuel Herce
DuPont

Alok Khandelwal
Shell

Lisa Parker
Braskem

Jordi Costa Sala
Celeanse

Martin Timm
Linde plc, Retired

PROJECT 283: GUIDELINES FOR THE REVALIDATION OF PHAs, 2ND ED

Laura Turci, Chair
Ashland

Warren Greenfield
CCPS Staff Consultant

Mohammed Baig
Bayer Corporation

Ruskin Damani
Reliance Industries, Ltd.

Gretel D’Amico
Pluspetrol

Joseph Deeb
ExxonMobil

Alexandre Glitz
Emeritus

Cheryl Grounds
Emeritus

Anil Gokhale
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Jeff Hazle
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Gregg Kiihnne
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ANP (Brazil Petroleum Regulator)

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Inter Pipeline

Louisa A. Nara
CCPS

Christa Pennino
CCPS

Meg Reese
Occidental Chemical Corporation

Ajay Shah
Chevron Corporation

Scott Wallace
Olin Corporation

Jennifer Bitz
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Cecil Clements
The Chemours Company

Michael Hazzan
Acutech

Manuel Herce
DuPont

Alok Khandelwal
Shell

Lisa Parker
Braskem

Jordi Costa Sala
Celeanse

Martin Timm
Linde plc, Retired

PROJECT 289: GOLDEN RULES OF PROCESS SAFETY FOR SPECIFIC TECHNOLOGIES

Chris Devlin, Chair
Celeanse

Warren Greenfield
CCPS Staff Consultant

Denise Albrecht
3M

Ammar Alkhashawdeh
BASF

Eric Atkins
Olin Corporation

Michael Broadribb
BakerRisk

Denise Chastain-Knight
Exida

Walt Frank
Emeritus

Paul Gathright
Ascend Performance Materials

Amy Gay
Occidental Chemical Corporation

Anil Gokhale
CCPS

Nirupama Gopalaswami
Honeywell

Stephen Greco
Kuraray

Ghaffar Keshavaraz
NOVA Chemicals

Alan Kobar
The Dow Chemical Company

Rebecca Lipp
Marathon Petroleum Company

April Lovingood
Eastman Chemical Company

Marcus Miller
System Improvements, Inc.

Louisa A. Nara
CCPS

Assem Saleh
Petro Rabigh

Cathy Pincus
ExxonMobil

Jatin Shah
BakerRisk

Scott Wallace
Olin Corporation

PROJECT 291: GUIDELINES FOR MANAGEMENT OF ABNORMAL SITUATIONS

Tony Downes, Chair
Honeywell

Brian Farrell
CCPS Staff Consultant

Todd Aukerman
LanXess Corporation

Susan Behr
Braskem

Michelle Brown
FMC Corporation

Seshu Dharmavaram
DuPont, Retired

Felix Azenwi Fru
National Grid

SP Garg
GAIL

Paul Gathright
Ascend Performance Materials

Amy Gay
Occidental Chemical Corporation

Anil Gokhale
CCPS

Nirupama Gopalaswami
Honeywell

Stephen Greco
Kuraray

Ghaffar Keshavaraz
NOVA Chemicals

Alan Kobar
The Dow Chemical Company

Rebecca Lipp
Marathon Petroleum Company

April Lovingood
Eastman Chemical Company

Marcus Miller
System Improvements, Inc.

Louisa A. Nara
CCPS

Assem Saleh
Petro Rabigh
Projects and Volunteers

Nicholas Sands
DuPont

Bryant Sartor
AdvanSix

Bruce Spencer III
SABIC

Todd Stauffer
Exida

Stephanie Wardle
Husky Energy

**PROJECT 292: LESSONS LEARNED YEARS LATER**
Fred Henselwood, Chair
NOVA Chemicals

Daniel Silva
CCPS Staff Consultant

Elena Blardony-Arranz
Repsol

Donald Connolley
AcuTech

Rajender Dahiya
AIG

Alexandre Glitz
Emeritus

Allison Knight
3M

Jeffrey Lu
Wanhua Chemical Group

Reid McPhail
CNRL

Gene Meyer
Kraton Corporation

Dan Miller
Emeritus

Pamela Nelson
ioMosaic Corporation

Sufyan Nor
Petronas

Janet Persechino
Enbridge Inc.

Gill Sigmon
Advansix

Ken Tague
Emeritus

Elliot Wolf
The Chemours Company

**PROJECT 293: GUIDELINES FOR PROCESS KNOWLEDGE MANAGEMENT**
Michelle Brown, Chair
FMC Corporation

Denise Albrecht, Co-Chair
3M

Brian Farrell
CCPS Staff Consultant

Abdul Aldoob
Siemens Energy, Inc.

Jennifer Brittain
Advansix

Cho Nai Cheung
Contra Costa Health Services

Russ Davis
Mistras Group, Inc.

Amy Gay
Occidental Chemical Corporation

Andrew Goddard
Arkema, Inc.

Anil Gokhale
CCPS

Dave Gratten
aesolutions

Mark R. Hall
Mallinckrodt Pharmaceuticals

Dan Hannewald
BASF

Rainer Hoff
Gateway Consulting Group, Inc.

Abhinav Jain
Bayer Corporation

Sanjay Jaiswal
Kuwait Oil Company

Allison Knight
3M

Benjamin K. Lee
DuPont

Jennifer Mize
Eastman Chemical Company

Steve Murphy
Syngenta

Mohammad Nashwan
Saudi Aramco Oil Company

Ravi Ramasamy
Nghi Son Refinery & Petrochemical LLC

Miguel E. Rizo
Contra Costa Health Services

Jeffrey E. Todd
Marathon Petroleum Company

Florine Vincik
BASF

Jerry Yuan
Industry Risk Control, Ltd.

**PROJECT 294: MANAGING CYBERSECURITY – A RISK BASED APPROACH BUILDING ON THE PROCESS SAFETY FRAMEWORK**
Seshu Dharmavaran, Chair
DuPont, Retired

Peter N. Lodahl
CCPS Staff Consultant

Hafiz Zeeshan Ahmad
Tronox

Hussain S. Alabduljabbar
Saudi Aramco Oil Company

Steve Arendt
Emeritus

Blake Benson
ABS Consulting Group

John Biasi
Burns & McDonnell

Denise Chastain-Knight
Exida

John Cusimano
aesolutions

Chris DaCosta
Air Products and Chemicals Inc.

Eric Feldmeyer
DuPont

Felix Azenwi Fru
National Grid

Anil Gokhale
CCPS

Azmi B. Hashim
Petronas

Kathy Kas
The Dow Chemical Company

Wail Khatayate
Aon Energy Risk Engineering

Anthony Lachawiec
Intel Corporation

Rafael Martinez
FMC Corporation

**PROJECT 299: INTRODUCTION TO PROCESS SAFETY FOR UNDERGRADUATES, 2ND ED.**
Cheryl Grounds
CCPS Staff Consultant

Kobus Diedericks
NOVA Chemicals

Ken First
The Dow Chemical Company, Retired

Jerry Forest
Celanese

Warren Greenfield
Emeritus

Barry Guillory
Louisiana State University

Jim Klein
ABS Consulting Group

Greg Nesmith
The Dow Chemical Company

Robin Pitblado
DNV GL

Bala Raman
Ecotab

Jonathan Slater
3M

Bruce Vaughn
CCPS

Dave Moore
AcuTech

Louisa A. Nara
CCPS

Divyang Shah
Reliance Industries, Ltd.

David Thaman
PPG, Retired

Lu Yi
Industry Risk Control, Ltd.

Jeff Young
Syngenta
Projects 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
- Mike Snyder - Sponsor
  - DEKRA Insight
- John Herber, Co-Chair
  - Emeritus
- Rüdiger Lenz, Co-Chair
  - Celanese, Retired
- 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
- Seshu Dharmavaram
  - DuPont, Retired
- Tony Downes
  - Honeywell
- Jeffrey L. Fox
  - Emeritus
- Thomas Guest
  - CNOOC
- Kathleen Kas
  - The Dow Chemical Company
- Dave Krabacher
  - BASF, Retired
- 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 Sands
  - DuPont
- Jatin Shah
  - BakerRisk
- Tom Spicer
  - University of Arkansas
- John C. Stoney
  - BP
- Anthony A. Thomson
  - Bayer Corporation, Retired
- John C. Wincek
  - DEKRA Insight
- Jan Windhorst
  - Emeritus

**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)
- Ning Li
  - China National Chemical Corporation Zhenghe Group Co., Ltd
- Juguang Liu
  - Shanghai Aviation Industrial (Group) Co., Ltd
- Yi Liu
  - China University of Petroleum (East China)
- Jing Li
  - Arlanxeo High Performance Elastomers (Changzhou Co., Ltd)
- Souwei Wang
  - Shandong Huatai Interox Chemical Co., Ltd
- Yangli Zhang
  - Fujian Fuhaichuang Petrochemical Co., Ltd
- Yichen Zhang
  - Fuyuan Industrial & Commerical Development Co., Ltd (Gulei Branch)
- Xiaoming Zeng
  - DEKRA Insight (Shanghai)

**PROJECT 260: TRANSLATION OF CCPS BOOKS INTO SPANISH**
- Gustavo Correa, Co-Chair
  - YPF
- Laura Turci, Co-Chair
  - Ashland
- Nestor Spósito
  - CCPS Staff Consultant
- Christian Prieto Barragan
  - Pluspetrol
- Juan Manuel Fernandez Becerra
  - YPF
- Trina Carrillo
  - Técnicas Reunidas
- Ricardo Ceskiavikus
  - YPF
- Gretel D’Amico
  - Pluspetrol

**PROJECT 300: BOOK OF BEACON**
- John Herber, Chair
  - Emeritus
- Rüdiger Lenz, Vice Chair
  - Celanese, Retired
- Dennis Hendershot
  - CCPS Staff Consultant
- Jing Chen
  - CCPS Project Manager
- Vishal Chavan
  - CCPS
- Brenton Cox
  - Exponent, Inc.
- Elroy Marcelino Christie
  - SABIC
- Jeffrey L. Fox
  - Emeritus
- Anil Gokhale
  - CCPS
- Marc Levin
  - Washington State University
- Peter N. Lodal
  - Emeritus
- Louisa A. Nara
  - CCPS
- Albert Ness
  - Emeritus
- Nicholas Sands
  - DuPont
- Sara Saxena
  - BP Corp
- Jatin Shah
  - BakerRisk
- Souwei Wang
  - Shandong Huatai Interox Chemical Co., Ltd
- Yangli Zhang
  - Fujian Fuhaichuang Petrochemical Co., Ltd
- Yichen Zhang
  - Fuyuan Industrial & Commerical Development Co., Ltd (Gulei Branch)
- Xiaoming Zeng
  - DEKRA Insight (Shanghai)
### Programs and Volunteers

<table>
<thead>
<tr>
<th>Name</th>
<th>Company</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ronald Ivan Tello David</td>
<td>Pluspetrol</td>
</tr>
<tr>
<td>Federico Hosenen</td>
<td>Cargill</td>
</tr>
<tr>
<td>Rodolfo Edgardo Kramer</td>
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<td>Luis Andres Landa</td>
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<tr>
<td>Andrés Leguizamon</td>
<td>Pluspetrol</td>
</tr>
<tr>
<td>Juan Manuel Martinez</td>
<td>YPF</td>
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<tr>
<td>Matias Massello</td>
<td>Process Improvement Institute, Inc.</td>
</tr>
<tr>
<td>Paul Enzon Rodriguez Paucar</td>
<td>Pluspetrol</td>
</tr>
<tr>
<td>Carlos Facundo Rodriguez</td>
<td>Pluspetrol</td>
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<td>Federico Rybner</td>
<td>Pluspetrol</td>
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<tr>
<td>Jordi Costa Sala</td>
<td>Celanese</td>
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<tr>
<td>Heber Varela</td>
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<td>Sergio Leandro Vilches</td>
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<tr>
<td>Josefina Yañez</td>
<td>Técnicas Reunidas</td>
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<td>Erick García</td>
<td>Braskem</td>
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<tr>
<td>João Carlos Gregoris</td>
<td>The Dow Chemical Company</td>
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<tr>
<td>Talita Guimarães</td>
<td>DuPont</td>
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<tr>
<td>Eduardo Maia Leite</td>
<td>Fuzzy Engenharia</td>
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<tr>
<td>Marcal Leite</td>
<td>Fuzzy Engenharia</td>
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<tr>
<td>Cristina Maretti</td>
<td>Cetrel</td>
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<tr>
<td>Silvio Martins</td>
<td>Mosaic Fertilizantes do Brasil Ltda</td>
</tr>
<tr>
<td>Eduardo Meinking</td>
<td>DuPont</td>
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<tr>
<td>Luiz Maia Neto</td>
<td>Petrobras</td>
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<tr>
<td>Paula Onishi</td>
<td>BASF</td>
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<td>Gustavo Peron</td>
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<td>Sergio Silva</td>
<td>Petrobras</td>
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<tr>
<td>Limberg Estremadouro Suárez</td>
<td>ADM Nutrition América do Sul</td>
</tr>
<tr>
<td>Renato Tupimanbá</td>
<td>Procter &amp; Gamble</td>
</tr>
<tr>
<td>Ignacio Alonso</td>
<td>Consejo de Seguridad de Procesos (CSP)</td>
</tr>
<tr>
<td>Jennifer Bitz</td>
<td>CCPS</td>
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<tr>
<td>Bruce Bullough</td>
<td>Corden Pharma Colorado</td>
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<tr>
<td>Denise Chastain-Knight</td>
<td>Exida</td>
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<tr>
<td>Dan Crowl</td>
<td>Emeritus</td>
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<td>Jeffrey L. Fox</td>
<td>Emeritus</td>
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<tr>
<td>Warren Greenfield</td>
<td>CCPS Staff Consultant</td>
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<tr>
<td>Greg Hounsell</td>
<td>Emeritus</td>
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<tr>
<td>Jennifer Mize</td>
<td>Eastman Chemical Company</td>
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<tr>
<td>Matt Pfeiffer</td>
<td>Ashland</td>
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<tr>
<td>Scott Wallace</td>
<td>Olin Corporation</td>
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<tr>
<td>Ad Hoc Members of the Exam Committee</td>
<td></td>
</tr>
<tr>
<td>Cheryl Grounds</td>
<td>Emeritus</td>
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<tr>
<td>Peter N. Lodal</td>
<td>Emeritus</td>
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<tr>
<td>Pamela Nelson</td>
<td>ioMosaic Corporation</td>
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<tr>
<td>Bruce Vaughen</td>
<td>CCPS</td>
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<tr>
<td>Nestor Spósito</td>
<td>CCPS Staff Consultant</td>
</tr>
<tr>
<td>Deyse Cassais</td>
<td>RSE Consultoria</td>
</tr>
<tr>
<td>Carlos Cazarotto</td>
<td>BP Corp</td>
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<tr>
<td>Thaiane Duarte</td>
<td>RSE Consultoria</td>
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<tr>
<td>Isadora Ferreira</td>
<td>Clariant</td>
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<tr>
<td>Joedson Jose Goncalves</td>
<td>Tronox</td>
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<tr>
<td>Eduardo Maio Francisco</td>
<td>Vale</td>
</tr>
<tr>
<td>Kevin Homann</td>
<td>LyondellBasell</td>
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<tr>
<td>Vera Javier</td>
<td>Arkema, Inc.</td>
</tr>
<tr>
<td>Nancy J. Ko</td>
<td>PPG</td>
</tr>
<tr>
<td>Amorette Kwan</td>
<td>The Lubrizol Corporation</td>
</tr>
<tr>
<td>Patrick Mason</td>
<td>The Lubrizol Corporation</td>
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<tr>
<td>Pratibha Ramachandran</td>
<td>Reliance Industries, Ltd.</td>
</tr>
<tr>
<td>Greg VanOmmeren</td>
<td>FMC Corporation</td>
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</table>

**PROJECT 261:** TRANSLATION OF CCPS BOOKS INTO PORTUGUESE

**Americo Diniz Carvalho Neto,** Chair

**Emeritus**

**Nestor Spósito**

CCPS Staff Consultant

**Deyse Cassais**

RSE Consultoria

**Carlos Cazarotto**

BP Corp

**Thaiane Duarte**

RSE Consultoria

**Isadora Ferreira**

Clariant

**Joedson Jose Goncalves Ferreira**

Tronox

**Eduardo Maio Francisco Vale**

**PROJECT 274:** CCPS PROCESS SAFETY CERTIFICATION (CCPSC)

Managing Committee

**Cheryl Grounds,** Chair

Emeritus

**Warren Greenfield**

CCPS Staff Consultant

**Jennifer Bitz**

CCPS

**Denise Chastain-Knight**

Exida

**Walt Frank**

Emeritus

**Jennifer Mize**

Eastman Chemical Company

**Exam Committee**

**Walt Frank,** Chair

Emeritus

**PROJECT 297:** PROCESS SAFETY TRAINING FOR EARLY CAREER PROFESSIONALS

**Jennifer Brittain,** Chair

Advansix

**Brittnay Corley Johnson,** Vice Chair

ExxonMobil

**Nathan Thompson,** Vice Chair

Ecolab

**Anil Gokhale**

CCPS Project Manager

**Alecia Cavender**

Marathon Petroleum Company

**Lauren Hampton**

BASF
CCPS Staff

1. Shakeel Kadri  
   Executive Director & CEO

2. Gary Amideneau  
   Lead Process Safety Engineer

3. Jennifer Bitz  
   Lead Process Safety Engineer / Project Manager

4. Vishal Chavan  
   Asia Pacific Project Manager

5. Jing Chen  
   Senior Engineering Specialist

6. Umesh Dhake  
   Asia Pacific and Middle East Regional Manager

7. Anil Gokhale  
   Director of Projects

8. Michele Horwitz  
   Membership Manager

9. Horst Massong  
   European Project Manager

10. Willi Meier  
    European Regional Manager

11. Louisa Nara  
    Global Technical Director

12. Christa Pennino  
    Engineering Associate

13. Marvin Szoychen  
    Latin America Regional Manager

14. Bruce Vaughen  
    Lead Process Safety Subject Matter Expert

15. Professor DongFeng Zhao  
    Director, CCPS China Section

16. Dr. Yi Liu  
    Assistant Director, CCPS China Section

17. Yifei Meng  
    Assistant Director, CCPS China Section
Daniel “Dan” E. Sliva, 77, passed away on June 3, 2020. Dan earned his degree at RPI, obtaining both a B.S. and a Ph.D. in Chemical Engineering. Dan retired after a thirty year career in management at General Electric and spent the last 20 years facilitating the writing of books on chemical process safety as a Fellow for the Center for Chemical Process Safety.

Thanks Dan. We will miss you. RIP
Updates and Impact

Where We Are Today

<table>
<thead>
<tr>
<th>FUNDRAISING ( Millions )</th>
<th>GOAL DATE</th>
<th>AMOUNT*</th>
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<tr>
<td></td>
<td>Prelim 12/2020</td>
<td>$26MM</td>
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<tr>
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<td>$6MM</td>
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*As of December 2020

507
UNIVERSITIES PARTICIPATING
IN UNDERGRADUATE PROCESS SAFETY
LEARNING INITIATIVE CURRICULUM

171,040+
SAFETY CERTIFICATES AWARDED TO
STUDENTS WORLDWIDE

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Pfizer Inc

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Trinseo, LLC
Wecker Chemical Corp.

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Honeywell
Intercontinental Terminal Company LLC

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Stepan Company
Syngenta
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UCOnn Health
UM US
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Whirlpool
Wiley
Women’s National Basketball Association

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ACM Facility Safety
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ADAMA
Adisseo Nanjing Co., Ltd.
AdvanSix
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AIG
Air Liquide Americas
Air Products and Chemicals Inc.
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American Refining Group, Inc.
Americas Styrenics
Angen
Amplify
Aon Energy Risk Engineering
Aperam Inox America Do Sul SA
Archer Daniels Midland
Arkema Inc.
Arlanxeo
ARPEL
Ascend Performance Materials
Ash Stevens
Ashland
Baker Hughes, Inc.
BakerRisk
BASF Corporation
Bayer Corporation
Bazan Group
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Berkshire Hathaway Specialty Insurance
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BHP Biliton Petroleum
Binh Son Refining and Petrochemical Co., Ltd. (BSR)
BP Corp North America
Braskem
Bright Calcs LLC
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Buckman North America
Burns and McDonnell
Calumet Specialty Products Partners, L.P.
CAMBREX
Canadian Natural Resources, Ltd.
Cargill
Celanese Chemicals
CF Industries Inc.
Chemiere
Chevron Corporation
Chevron Phillips Chemical Company LP
Chilworth, A DEKRA
China Chemical Safety Association
Cholamandalam MS Risk Services
CNOOC China National Offshore Oil Company
CNOOC International
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Contra Costa Health Services
Courge Chemicals Pty Ltd.
Corteva
Cosmo Oil Co Ltd.
Covestro LLC
CP Kelko
Croda
DASI Corp
Deccan Fine Chemicals (I) Pvt. Ltd.
Dexco Polymers LP
DNV GL
DuPont
Dyno Nobel
Eastman Chemical Company
Ecolab
Ecopetrol
Eli Lilly and Company
Emerson Automation Solutions
Eneos
Engro Polymer and Chemical Ltd MS
Engro Powergen
Equate Petrochemical Company
esencias
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
Galaxy Surfactants Limited
Gateway Consulting Group, Inc.
GEOARC
Gulf Petrochemical Industries Co.
Hengsuan Refining Company Berhad
HMC Polymers
Honeywell
HPCL-MITTAL ENERGY LTD.
Hunt LNG
Huntsman
Husky Energy
Idemitsu Kosan Co. Ltd.
India Glycols Limited
Industry Risk Control, Ltd.
Ingenero
Ingevity Corp.
Intel Corporation
Inter Pipeline
Ionomac Corporation
IRESC Inc.
Jay Chemicals
Jensen Hughes
Johnson & Johnson
Jordan Engineers Association
KBR Energy and Chemicals
King Industries Inc.
Koch Industries
Kraton Corporation
Kuray America Inc.
Kuwait Oil Company
L&T Hydrocarbon Engineering Limited
LanXess
Linde plc
LiquidPower Specialty Products
Lummus Technology
LyondellBasell
Mallinckrodt
Map Ta Phut Terminal
Massy Energy Engineered Solutions
Merck & Co., Inc.
Michelman, Inc.
Mistras Group, Inc.
Mitsubishi Chemical Corporation
National Grid
New Jersey Dep't of Environmental Protection
Newcrest Mining Limited
Nghi Son Refinery and Petrochemical LLC
Northwest Redwater Partnership
NOVA Chemicals Corporation
Nuclear Fuel Services
Nutrien
Occidental Chemical Corporation
Oil Industry Safety Directorate
Olin Corporation
ONGC Petro Additions Limited (OPAL)
Optima Chemical Group, LLC
OQ
Orchid Chemical & Pharmaceuticals Limited
Oxiquim
Pan American Energy LLC
Parkland Refining (BC) Ltd.
Peñoles
Petrobras
Petrochemical Company of Singapore (Pte) Ltd.
Petrostar
Petronas
Petro Rabigh
Phillips 66
Phoenix Park Gas Processors Ltd.
Plastipol S.A.
Point Lisas Nitrogen Limited
PPG
Procesadora De Gas Parinas
Process Improvement Institute, Inc.
Procter & Gamble
PSRG Inc.
Qatar Petroleum
Reliance Industries Ltd.
REPSOL
Resolver Consultoria
Rhodes Technologies
Rio Tinto
Rumex
Ruston
SABIC
Sadara Chemical Co.
Sahara International Petrochemical Co. (SipChem)
Sajjan India Limited
Saudi Aramco Oil Company
Saudi Aramco Total Refining & Petrochemical (SATORP)
Saudi International Petrochemical Co.
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SI Group
Siemens Energy Inc.
SIS-Tech Solutions
Solano County
Solvay USA Inc.
Southern Company
Spheria
Starr Technical Risks Agency Inc.
State of California - PSM
Strem Chemicals Inc.
Syncrude
Syngene International, Ltd.
Syngenta
System Improvements, Inc.
Talyo Oil Co., Ltd.
TATA Steel Limited
Tejin Aramid B.V.
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
Trans-Northern Pipelines, Inc.
Trinseo
Tronox
TÜV Rheinland (Shanghai) Co., Ltd.
TÜV Rheinland (Taiwan) Co., Ltd.
Unwin Company
US EPA / OEM
Usiminas
Vale, Brazil
Vertellus Specialties Inc.
W. R. Grace and Company
Wanhuas Chemical Group Co., Ltd.
Wesfarmers Chemicals Energy and Fertilisers
Western Midstream
World Steel Association
WSI Engineering
Yashashvi Rasayan Pvt. Ltd.
YPF - Yacimientos Petroliferos Fiscales

Center for Chemical Process Safety – An AIChE Technology Alliance
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Tel: (+1) 646.495.1371 • aiche.org/ccps • Email: ccps@aiche.org