2nd CCPS Canada Regional Meeting
Calgary, Alberta, 26 September 2017
<table>
<thead>
<tr>
<th>Time</th>
<th>Subject</th>
<th>Leader/Speaker</th>
</tr>
</thead>
<tbody>
<tr>
<td>8:30 AM</td>
<td>Arrival – Breakfast</td>
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</tr>
<tr>
<td>9:00 AM</td>
<td>Safety Briefing</td>
<td>David Guss, Sr. Manager PSM, Nexen</td>
</tr>
<tr>
<td>9:05 AM</td>
<td>Roll Call (Self-Introduction)</td>
<td>All</td>
</tr>
<tr>
<td>9:15 AM</td>
<td>Welcome Note</td>
<td>Shakeel Kadri, Executive Director, CCPS</td>
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<tr>
<td>9:30 AM</td>
<td>CCPS Review 2017</td>
<td>Shakeel Kadri, Executive Director, CCPS</td>
</tr>
<tr>
<td>10:00 AM</td>
<td>• CCPS Projects Update</td>
<td>Anil Gokhale, Director, CCPS Projects</td>
</tr>
<tr>
<td></td>
<td>• Opportunities of Participation</td>
<td></td>
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<tr>
<td>10:30 AM</td>
<td>Coffee/Tea Break</td>
<td></td>
</tr>
<tr>
<td>10:45 AM</td>
<td>Regional CCPS Projects – Engagement &amp; Needs</td>
<td>David Guss/Fred Henslewood</td>
</tr>
<tr>
<td>11:15 AM</td>
<td>CCPS Membership Overview</td>
<td>Michele Horwitz, CCPS Membership Manager</td>
</tr>
<tr>
<td>11:30 AM</td>
<td>Credentialing</td>
<td>Shakeel Kadri/Anil Gokhale</td>
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<tr>
<td>11:45 AM</td>
<td>Undergraduate Process Safety Education</td>
<td>Shakeel Kadri/Anil Gokhale</td>
</tr>
<tr>
<td>12:00 PM</td>
<td>Lunch</td>
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<tr>
<td>1:00 PM</td>
<td>Canadian PSM Standard CSA Z767</td>
<td>Guy Brouillard, GCM Consultants</td>
</tr>
<tr>
<td>Time</td>
<td>Subject</td>
<td>Leader/Speaker</td>
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<tr>
<td>1:30 PM</td>
<td>PSM Metrics Workshop&lt;br&gt;Presentation Max 20 Minutes Each</td>
<td>David Guss, Nexen</td>
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<tr>
<td></td>
<td>1. Nova PSM Metrics</td>
<td>1. Fred Henslewood, Nova</td>
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<tr>
<td></td>
<td>2. Nexen PSM KPI’s</td>
<td>2. Tom Guest, Nexen</td>
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<tr>
<td></td>
<td>3. CCPS / API PSM Metrics</td>
<td>3. Shakeel Kadri, CCPS</td>
</tr>
<tr>
<td>2:30 PM</td>
<td>Break</td>
<td></td>
</tr>
<tr>
<td>2:45 PM</td>
<td>PSM Metrics Workshop – Group Discussion and Sharing</td>
<td>David Guss/Fred Henslewood/Shakeel Kadri</td>
</tr>
<tr>
<td>3:45 PM</td>
<td>Roundtable Discussion</td>
<td>Shakeel Kadri, Executive Director CCPS</td>
</tr>
<tr>
<td>4:15 PM</td>
<td>Incident Sharing &amp; Lessons Learned</td>
<td>All</td>
</tr>
<tr>
<td>4:50 PM</td>
<td>• Closing Comments&lt;br&gt;• Date &amp; Location of Next Meeting</td>
<td>Shakeel Kadri, Executive Director, CCPS</td>
</tr>
<tr>
<td>5:00 PM</td>
<td>Meeting Adjourned</td>
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</table>
Presentation outline..

• Process Safety & Chemical Engineering
• The Harm We Bring to Many...
• About CCPS
• Our Global Effort
• CCPS Certification
• Undergraduate Process Safety Education
• Global Responsible Collaboration
• Process Safety Journey to Excellence
• Q&As
Chemical Engineering & Process Safety

- What good we bring to the many?
- What harm we bring to some?
- The harm all remember.....

“The Global Community Committed to Process Safety”
What harm we bring to some that we may not remember?

Flixborough, UK, 1974

28 fatalities

“The Global Community Committed to Process Safety”
What harm we bring to some that we may not remember?

Seveso, Italy, 1976

“The Global Community Committed to Process Safety”
What harm we bring to some that we may not remember?

Piper Alpha, UK 1988

167 fatalities

“The Global Community Committed to Process Safety”
What harm we bring to some that we may not remember?

Pasadena, TX, 1989

23 fatalities

“The Global Community Committed to Process Safety”
What harm we bring to some that we may not remember?

Mexico City, 1984

600+ fatalities

“The Global Community Committed to Process Safety”
The harm we all remember...

Bhopal disaster...
3000 + fatalities
Bhopal -- Lessons Learned

- Bhopal is the worst process safety incident that’s ever occurred in the chemical industry
- It heightened focus on worst case events and how they are managed
- It became a catalyst for a safety reform
- It has lead to improved process safety practices worldwide
- Global process safety improvement initiated
- AIChE was asked to create a Safety Center — Center of Chemical Process Safety [CCPS] — to lead a collaborative effort to eliminate catastrophic process incidents

“The Global Community Committed to Process Safety”
About CCPS

- Formed on 23 March 1985
- Not for profit organization; part of AICHE
- Corporate supported – nearly 200 members
- Global scope and mission; 40% of members outside of USA
- Focus: preventing process incidents: fires, explosions, and toxic releases
- Petroleum production, refining, chemicals, pharma, chemical users
- Headquarters in New York City, with offices in Frankfurt, Mumbai, Singapore, Ningbo [China] and Houston.

“The Global Community Committed to Process Safety”
“To protect people, property and the environment by bringing the best process safety knowledge and practices to industry, academia, the governments and the public around the world through collective wisdom, tools, training and expertise.”
CCPS Mission

Eliminate catastrophic process incidents globally by:

• Advancing global PS technologies, culture, and management practices
• Establishing Process Safety as foundation for responsible operation
• Serving as premier worldwide resource of Process Safety
• Fostering knowledge and understanding of Process Safety
• Promoting Process Safety as key societal value and expectation
Leading Process Safety since 1985

CCPS Certified CCPSC

Creating Books and Publications

Creating Industry-wide Tools, Programs and Guidelines

Sharing Best Practices

Educating Educators

Process Safety Beacon

Conducting Global Conferences and Training

"The Global Community Committed to Process Safety"
More Regional Engagement...

Technical Steering Committee Meetings

- China Regional TSC
- Canada Regional TSC
- Global TSC
- Europe TSC
- ME TSC
- India TSC
- Latin America TSC
- Asia-Pacific TSC
- Au Regional TSC

The Global Community Committed to Process Safety
2017 Progress / Plan
• Added 19 new members during the Jan-Sept 2017 period
• Undergraduate Process Safety Education Program progressing well:
  – 10 New SACHE modules will be done
  – 5 + translations are in progress
  – 5 Faculty Workshop completed; including 1 is in India
  – 119 faculty members participated at these workshops
  – 2 Students Boot Camps completed
• Grow CCPSC globally
  – 2 exams completed in May & Aug 2017; 46 took CCPSC exam
• Expand Vision 20/20 – RBPS Web Tool, Risk Not Chance videos
  – 3 videos are in progress
• Executing key conferences / workshops around the world
  – 13th Global Congress in Process Safety held in San Antonio, TX
  – CCPS PSM Congress with EUROCORR held in Prague, Czech Republic
  – 4th CCPS Global Summit held in Okayama, Japan
  – 5th China Conference, Nanjing, China
  – PS Workshop in Seoul, S. Korea [Louisa Nara and Umesh Dhake]
  – PS Workshops held in Latin America [Louisa and Orlando]

• Planned key conferences / workshops around the world
  – 2017 CCPS Middle East Process Safety Conference, 9-11 October 2017, Bahrain
  – Joint [CCPS, IChemE, EPSC, MKO, and WPLP] PSM Symposium at 10th World Congress of Chemical Engineering, Barcelona, Spain, 2-3 Oct 2017
  – 2nd CCPS Conference in Europe on PS + Big Data, 14-15 Nov 2017, Frankfurt, Germany
  – 1st API-754 Process safety Metrics workshop by Kelly Keim and Shakeel Kadri, 27 November 2017 in Kuwait
• **CCPS Membership:**
  – As of June 2017, we added 19 new members
  – 52% North America [NA]
  – 48% outside NA

• **Face to face Regional TSC meetings in all regions**
  – Europe [March 2017] – Done
  – Asia Pacific [May 2017] – Done
  – Australia [May 2017] – Done
  – Latin America [March-May 2017] – Done
  – China [22 September 2017] – Done
  – Calgary, Canada [26 September 2017] – Done
  – India [20 Dec 2017] – Planned
Global / Regional Engagement...

North America
GCPS

Latin America
Peru
2016
None planned
2017
Argentina
2018
T&T / Brazil
2019

Europe
Germany
2016
WCCE Spain
2017
Czech Republic
2017
Europe
2018/19

Asia-Pacific-
Oceania
China
2016
China, Japan
2017
China
2018
China, Singapore
2019

Middle East &
Africa
Saudi Arabia
2016
Bahrain
2017
Kuwait
UAE
2019

The Global Community Committed to Process Safety
13th Global Congress on Process Safety

March 26-29, 2017

Henry B. Gonzalez Convention Center, San Antonio, TX

Each year the Center for Chemical Process Safety (CCPS) and the AIChE Safety & Health Division present the Global Congress on Process Safety (GCPS). From its initial meeting in 2005, GCPS has grown into the world's largest gathering practitioners from industry, regulatory bodies and academia.

13th GCPS Grid

The 13th GCPS Pre-Conference Proceedings Have Been Posted. Click here to view →

To obtain a copy of CEU/PDH certificate for the conference please email certificates@aiche.org.
4th CCPS Global Summit on Process Safety

📅 September 12-13, 2017
📍 Okayama Convention Center, Japan

Over the past several years Process Safety has taken on increased importance. Today companies large and small, in the traditional process industries and in emerging areas, all put a premium on improving their Process Safety performance.
5th CCPS China Conference on Process Safety

September 20-22, 2017

International Youth Convention Hotel, Nanjing, China

Presented by the Center for Chemical Process Safety (CCPS), State Administration of Work Safety, China University of Petroleum, China Chemical Safety Association, and NCICS. This conference aims to bring together professionals, government, and academics in China and internationally to share advancements in process safety. The conference will be conducted via English and Chinese with simultaneous translation.

Conference Program
2017 Process Safety Congress at EUROCORR

September 5-6, 2017

Prague Congress Centre, Prague, Czech Republic

CCPS is pleased to announce that it will be holding the 2017 Process Safety Congress in conjunction with the 2017 EUROCORR and 20th International Corrosion Congress in Prague, Czech Republic. The 2017 Process Safety Congress will take place during the conference, September 5-6, 2017.

Registration
Hotel Information

Technical Program
Quick Links
Vision 20/20

Risk = Frequency x Consequences

Enhanced Stakeholder Knowledge

Enhanced Application of Lessons Learned

Vibrant Management Systems

Committed Culture

Responsible Collaboration

Intentional Competency Development

Disciplined Adherence to Standards

Harmonization of Global Standards

Meticulous Verification

Societal Themes

Industry Tenets

CPS
Center for Chemical Process Safety
## Responsible Collaboration

<table>
<thead>
<tr>
<th>Organization</th>
<th>Collaborating activity</th>
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<tbody>
<tr>
<td>Energy Institute [EI]</td>
<td>Bow Tie Guideline Book</td>
</tr>
<tr>
<td>American Chemical Council [ACC]</td>
<td>Enhancing Process Safety effort</td>
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<tr>
<td>Japan Society for Safety Engineering [JSSE]</td>
<td>4th Global Summit, Okayama, Japan</td>
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<tr>
<td>European Process Safety Center [EPSC]</td>
<td>Europe PS + Big Data Conference, Frankfurt</td>
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<td>EPSC + Dow Chemicals</td>
<td>RAST [Risk Analysis Screening Tool]</td>
</tr>
<tr>
<td>IChemE, MKO, EPSC and WPLP</td>
<td>2017 WCCE-10 Barcelona PSM Track</td>
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<tr>
<td>Singapore Chemical Industry Council</td>
<td>MOU signed; 6th Global Summit [2019]</td>
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<tr>
<td>PERTAMINA University [Indonesia]</td>
<td>MOU signed</td>
</tr>
<tr>
<td>Universiti Teknologi Petronas [UTP] University [Malaysia]</td>
<td>2nd Global Summit</td>
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<tr>
<td>OSHA</td>
<td>CCPS Risk Based Process Safety elements as best practices reference on the OSHA Web Tool</td>
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<tr>
<td>Chemical Safety Board [CSB]</td>
<td>Potential CCPS-CSB collaboration on developing video modules using CCPS content</td>
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Process Safety Journey to Excellence

- Standards and Procedures
  - Standards
  - Technical requirements
  - Safety emphasis
  - Compliance

- Process Safety Management Systems
  - Integrated MS
  - Reporting
  - Assurance
  - Competence
  - Risk Management

- Process Safety Risk Based Approach
  - Visible Leadership
  - Learning Process
  - Risk Quantification
  - “Risk” Process
  - External View

- Strong PSM Culture
  - Behaviour
  - Visible leadership
  - Personal accountability
  - Shared purpose & belief
  - Aligned performance & commitment

- Standards Based
  - What must I do?

- Systems Based
  - How must I do?

- Risk Based
  - How can I improve?

- Culture Based
  - How can I Lead?
Questions?