

### We would love to hear from you....

Please do contact Helen Conlin, Newsletter Editor at [slpsgecm@ichememember.org](mailto:slpsgecm@ichememember.org) about contributing articles or providing feedback and comment on: Good practice, previous SIG events, outreach (e.g. support to Universities, other institutions), or anything else that you think our readers would find interesting.

### Introduction

Welcome to the February 2021 edition of the relaunched S&LP SIG newsletter.

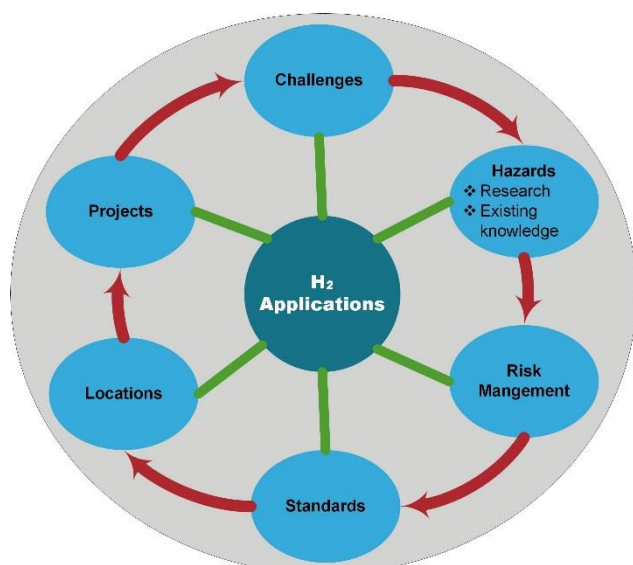
This issue includes articles on [Member Feedback](#), the S&LP SIG [Topics of Interest](#), [Process Safety News](#), [S&LP SIG Event Reports](#), [Professional Process Safety Engineer](#), [Lessons Learned Database](#) an [Incident Round-Up](#) and the [S&LP SIG Committee](#).

### Member Feedback

We were delighted to receive feedback and expressions of interest in the Functional Safety Management (FSM) topic featured in the October Newsletter.

From this feedback, the FSM topic group has three new participating members with ideas and suggestions for taking the topic forward.

### S&LP SIG Topics of Interest – Hydrogen



The S&LP SIG has formed a working group on Hydrogen, focussing on process safety hazards associated with novel uses for hydrogen. The objective is to identify and share resources available and publicise relevant events. The figure above illustrates the proposed coverage for the S&LP SIG Hydrogen resources hub.

There is significant activity worldwide exploring production options, economics and uses for blue (produced from reforming natural gas with Carbon Capture and Storage) and green hydrogen (produced from electrolysis powered by renewable energy sources).

IChemE Clean Energy SIG (CESIG) have produced a series of articles on The Hydrogen Economy hosted by TCE here:

<https://www.thechemicalengineer.com/tags/clean-energy-sig-the-hydrogen-economy>

IChemE are hosting a web based Panel Debate: Hydrogen Safety Challenges for the Energy Transition on 25<sup>th</sup> February:

<https://www.gexcon.com/event/panel-debate-hydrogen-safety-challenges-for-the-energy-transition/>

The UK Health and Safety Executive is running an online conference Safe Net Zero 2021 – Hydrogen across three mornings during March 2021:

<https://content.govdelivery.com/accounts/UKHSE/bulletins/2b4dc21>

The S&LP SIG Hydrogen topic working group plan to collaborate with the CESIG and to organise a webinar during Q2 2021 to further facilitate information and good practice sharing.

If you wish to participate in the Hydrogen topic, please contact us at [slpsgecm@ichememember.org](mailto:slpsgecm@ichememember.org).

## Process Safety News

### Free LPB Online Access

From January 2021, all IChemE membership grades have free online access to the Loss Prevention Bulletin. This includes six LPB issues a year and full access to the archive of over 40 years of lessons learned. This is a highly welcome and positive contribution to improving and sharing learning from incidents and loss prevention.

February 2021 is a special edition: '*Natural hazards leading to technical disasters.*'

This edition reviews process safety learnings 10 years on from the Fukushima Daiichi Nuclear Power Plant failure in Japan. It explores various natural and man-made hazards, the risks they pose to operations and how to effectively manage these risks.

Read more about the special issue here: <https://www.icheme.org/about-us/press-releases/special-loss-prevention-bulletin-issue-to-mark-fukushima-and-natural-disaster-events/>

## Process Safety and Loss Prevention Inspirations

Trevor Kletz inspired many people to become involved and make a difference to process safety and loss prevention.

In parallel with the launch of a compendium of Trevor Kletz work published by IChemE in partnership with Elsevier '*Trevor Kletz Compendium: His Process Safety Wisdom Updated for a New Generation*':

<https://www.icheme.org/about-us/press-releases/new-trevor-kletz-compendium-published-by-icheme-and-elsevier/>

we invite our readers to share their own loss prevention and process safety inspirations. The person(s) that inspired /supported /encouraged you to become involved and make a difference.

Please write to us at [slpsgecm@ichememember.org](mailto:slpsgecm@ichememember.org), with approx.150 words and we will include as many as we can in future editions.

To start the series off, Andy Rushton the S&LP SIG Chair, shares his personal memory of Trevor Kletz:

As host of Loughborough University's HAZOP and HAZAN course, in which Trevor was the star attraction, I had the pleasure of seeing Trevor at work more than most.

The best bits were the workshops based on real cases of 'what went wrong'. Participants would be placed by Trevor in the middle of the maze of possible explanations and options. Trevor would patiently help them to explore all the dead ends and complete circles.

Typically (as we all tend to), they would engineer their way out of the problem and declare themselves out of the maze.

At which point Trevor, with a flourish, would point to the door marked 'inherent safety' that had been at the centre of the maze all the time: '***Of course, there had been no real reason to locate the control panel in the tank farm in the first place!***'

## S&LP SIG Event Reports

### HAZARDS

The S&LP SIG hosted a virtual stand at HAZARDS 30, 26<sup>th</sup> to 27<sup>th</sup> November 2020 and gave a presentation to approx. 40 attendees.

Over the three days, it was really good to be able to meet and talk with SIG members and others who share our commitment to improving process safety and loss prevention.

### Deepwater Horizon – 10 Years On

The S&LP SIG and Natural Gas (SONG) SIG jointly collaborated with UK Oil & Gas Association (OGUK) to deliver a webinar on 8<sup>th</sup> December 2020 to explore the root causes of the incident and the intent and effectiveness of the resulting regulatory changes.

The speakers were Professor Geoff Maitland (Professor of Energy Engineering at ICL and IChemE Past President) and Katy Heidenreich (OGUK Operations and Supply Chain Director).

The webinar was well-received by nearly 450 attendees from around the world. Two key developments in response to Deepwater Horizon have been adoption of a goal-oriented safety management approach for offshore oil and gas in the US and integration of the oil and gas regulatory bodies in the UK.

The OGUK Wells Forum has successfully promoted collaboration between offshore

operations stakeholders as well as providing a potential means of making available anonymised information on 'near miss' incidents to help improve understanding of the likelihood of incidents occurring and informing prioritisation of areas for improvement.

### Webinar Series: 'Process Safety and the Future of Industry – A Digitalised world'

This February 2021 webinar series has been well received, with great attendance from a diverse audience.

We welcomed 275 participants to our first webinar. People attended from across the world and a wide variety of organisations, as illustrated in Figures 1 and 2.

Figure 1– Webinar 1 Attendance Heat Map

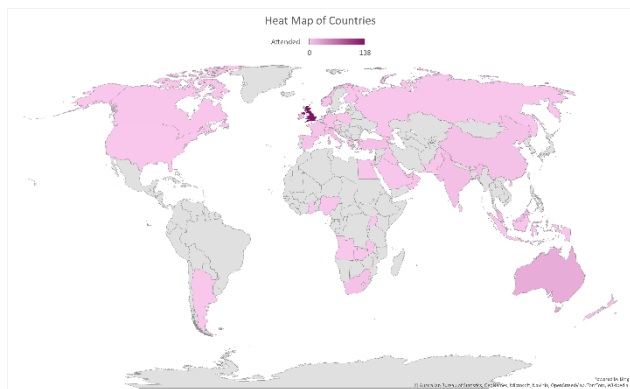


Figure 2 – Webinar 1 Sector Representation Word Cloud



This S&LP SIG webinar series successfully put process safety at the centre of the digitalisation topic. IChemE and the S&LP SIG recognise that digitalisation will have a transformative effect across all aspects of chemical engineering.

For the webinar series we invited experts from a wide variety of backgrounds and expertise to share their perspectives. Over four sessions we

have explored the opportunities and challenges that digitalisation provides for process safety.

The implications for:

- ❖ Management systems,
- ❖ Risk assessment,
- ❖ Equipment reliability,
- ❖ Cyber security,
- ❖ Human factors,
- ❖ Emergency planning; and
- ❖ Incident investigation;

have been discussed and explored.

Recordings and slides from the webinars will be available on the S&LP SIG website very soon.

### Professional Process Safety Engineer – Update

IChemE are making changes to address the challenges and frustrations of people practising chemical engineering and /or process safety, who hold degrees in other subjects. The S&LP SIG provides the following summary relevant to process safety:

#### Associate Membership of IChemE

Associate membership specifically for process safety is currently paused while IChemE databases are upgraded. IChemE aim to be able to reopen this category of application in April 2021.

General associate membership applications are unaffected.

#### New PPSE Applications

PPSE applications are open to those who already hold Chartered Chemical Engineer status.

PPSE applications for non-existing Chartered Chemical Engineers are currently paused. This was due to some IChemE internal alignment issues. These issues have now been resolved.

IChemE aim to be able to open PPSE to all applicants in April 2021.

#### PPSE and CEng

IChemE hope to offer CEng registration with a PPSE application, however this is awaiting approval from the Engineering Council. To do this the Competence and Commitment report will be aligned to the latest version of [UK SPEC](#).

## CEng for Existing PPSE

The plans for Professional Process Safety Engineers who do not hold CEng and who wish to take this up are work in progress, involving the Engineering Council.

Full details of the project to make applications 'smarter' were discussed in TCE:

<https://www.thechemicalengineer.com/features/individual-case-procedure/>

## Lessons Learned Database (LLD)

Six 1-page incident summaries have been added to the LLD in 2021: three in oil refining, two in pharmaceuticals and 1 in agrochemicals.

The current total is 38 incident summaries with several more currently in draft or out for peer review. Below is a link to a quick reference guide of incidents versus root causes:

[Major Process Safety Incident vs Root Cause Map](#)

The 1-page incident summaries are becoming widely used by academia and industry. For example, Paul Balcombe at Queen Mary University of London reports that a large proportion of Year 3 students' process safety module assessment is a series of group projects in which they investigate historical incidents. Initially, each group is required to make a short presentation on the top three incidents they would like to study and why. The 1-pagers are one of the resources the students use to inform their choices. The next steps are detailed study followed by in-depth oral and written reporting.

## Incident Round-Up

Unfortunately, technical (process) safety incidents continue to occur. As loss prevention and process safety professionals, we continue to learn in order to prevent more in future. The following incidents have occurred since the last Newsletter. Please contact Richard Mundy [slpsgwebmaster@icheme.org](mailto:slpsgwebmaster@icheme.org), if you would like to highlight a recent incident.

[Stuttgart \(Arizona\) Dust Explosion, 15<sup>th</sup> October, USA](#)

Grain dust explosion at food storage facility. Three workers injured, structural damage to building.

[Rotterdam Refinery Hydrogen Fluoride Leak, 15<sup>th</sup> November, Netherlands](#)

Leak of highly toxic alkylation catalyst from refinery. Two workers injured.

[Gwangyang Steel Mill Explosion, 24<sup>th</sup> November, South Korea](#)

Explosion whilst workers were handling high pressure gas. Three workers killed.

[Durban Refinery Fire, 3<sup>rd</sup> December, South Africa](#)

Large fire at refinery, spread to nearby residential apartment building. One person injured and several treated for smoke inhalation.

[Avonmouth Tank Explosion, 3<sup>rd</sup> December, UK](#)

Treated biosolids tank explodes at waste water treatment plant. Four workers killed.

[Qua Iboe Oil Terminal Fire, 13<sup>th</sup> December, Nigeria](#)

Fire whilst lighting flare during terminal start-up. One worker killed.

[Taoyuan City Pharmaceutical Plant Fire, 20<sup>th</sup> December, Taiwan](#)

Explosion followed by fire, which spread to multiple neighbouring buildings. One worker fatally injured. Local residents report dizziness and nausea.

[Salford Hazardous Waste Treatment Plant Explosion, 22<sup>nd</sup> December, UK](#)

Explosion at plant handling hazardous waste oils and chemicals. One worker severely injured.

## S&LP SIG Committee

The S&LP SIG committee last met on 18<sup>th</sup> December 2020.

Planned future S&LP SIG committee meeting dates:

- ❖ 19<sup>th</sup> February 2021
- ❖ 16<sup>th</sup> April 2021
- ❖ 18<sup>th</sup> June 2021
- ❖ 13<sup>th</sup> August 2021

If you have something for the committee to consider, please contact Andy Rushton, Chair, at [slpsgchair@ichememember.org](mailto:slpsgchair@ichememember.org).

*We are grateful to those who take the time to contribute to the S&LP SIG Newsletter. Please note that content and opinions are those of the contributor(s) (or in resources accessed online) and do not necessarily reflect the views of the Safety & Loss Prevention Special Interest Group Committee or the Institution of Chemical Engineer*