

# SAFETY AND LOSS PREVENTION SUBJECT GROUP NEWSLETTER

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## EDITORIAL

The long awaited Corporate Manslaughter and Corporate Homicide Bill (CMCH) has now been published and is available on the Home Office web site. It is concerned solely with organisations including certain crown organisation such as the police etc. My major concern is that companies will restrict the recording of accidents for fear of the litigation problems.

There has been an interesting and unprecedented joint statement from four of the world's leading air safety bodies condemning recent trends by enforcement and judicial bodies towards taking criminal action after aviation accidents. One of the bodies who signed the resolution was the Royal Aeronautical Society. The President of Flight Safety Foundation, Bill Voss stated:

*"We are increasingly alarmed that the focus of governments in the wake of accidents is to conduct lengthy, expensive, and highly disruptive criminal*

*investigations in an attempt to exact punishment, instead of ensuring the free flow of information to understand what happened and why, and prevent recurrence of the tragedy"*

With the new CMCH Bill it is expected that the police will seek gross breach of a relevant duty of care by senior managers. This could well result in a further reluctance to the sharing of information on accidents.

Already the Professional Aviation Maintenance Association has endorsed the resolution. The full resolution is available on [www.safetyfoundation.org](http://www.safetyfoundation.org) . Watch this space!

## PETROLEUM STORAGE SAFETY CONFERENCE. 28 September 2006

A one day conference organised by the Energy Institute (EI) and co-sponsored by the S&LPSG titled 'Improving Safety in Petroleum Storage Facilities and Distribution Operations' took place at Donnington Park.

Niall Ramsden began the conference by recounting his experiences from his first day call to advise on response to the Buncefield incident. It would seem that the fire services were determined to fight the fire rather than allowing burnout. Hopefully an objective assessment of the wisdom of this decision will be published in due course but for the present Niall presented photographs to graphically illustrate resulting concerns. Later in the conference Niall launched the EI's revised IP19 code covering fire precautions on refineries and bulk storage installations which introduces the concept of Fire and Explosion Hazard management (FEHM). FEHM provides for the development of a

single consistent strategy covering fire prevention, fire detection and fire incident response.

Ben Morgan introduced the terminal version of EI's IP Risk Manager the filling station version of which has been applied to more than a thousand installations over the past five years. It is a risk matrix based tool for the assessment of workplace HSE issues. It is unfortunate that its launch so closely follows the Buncefield incident because in spite of its title it does not address major incident concerns.

Philip Nichols introduced the EI's new screening tool for establishing the risks associated with tank release contamination of aquifers. This package employs a source/pathway/receptor approach to assess vulnerability and encourages the user to determine preventative measures accordingly. Dave Mercer related Vopak's experience of applying this screening approach to a number existing terminal installations. Relating to the same aquifer contamination concern, Andrew Holt reported that the results of HSE sponsored studies suggest that, undertaken by skilled and practised practitioners, magnetic floor scanning is effective in determining the ongoing integrity of tank floors and hence is likely to become the authorities' technique of choice.

Phil Chadfield, with reference to the newly issued IP environmental guideline, highlighted various issues which are currently the focus of the EA attention, notably the elimination of all bund wall penetrations including drains and the containment of firewater.

A portion of the capacity attendance was doubtless disappointed that there were no new revelations about the Buncefield incident nevertheless they were introduced to a series of new initiatives relating to this hitherto assumed mature theatre of process operations. It is unfortunate that most of these new tools will require early day

modification when the full findings of Buncefield are published.

Hedley Jenkins

## **RECENT ADVANCES IN ALTERNATIVE FUELS AND CARBON CAPTURE. 9 Nov. 2006**

A very interesting meeting was held at the Health and Safety Laboratory at Buxton. Dr. L.Cusco gave an overview of the problems that would be encountered with Biodiesel and Bioethanol both of which are sensitive to taxation policy

Dr. S.Hall of BP talked about the hazards associated with biofuels and gave an industry view. Ethanol market was 140m barrels of 95% from fermentation process but it was negative on CO<sub>2</sub> due to the energy usage but would be positive if the residue from the process could be used as fodder for cattle. Ethanol could be used at 10% in gasoline without modification of the car but 85% ethanol would require a modified engine. Agriculture land for bioethanol would be considerable.

A new process taking cellulose material would use enzymes to produce C<sub>5</sub> and C<sub>6</sub> hydrocarbons. Butanol by fermentation was also being researched.

Biodiesel based on methyl esters would give glycerol as a byproduct for which there was little market.

Mr. Geoff Chamberlain of Shell Global Solutions discussed the hazards associated with hydrogen at high pressure in vehicles. A serious problem was the hydrogen refuelling station where pressures of 400 bar would be present. Releases from this pressure had been measured. It was considered that a suitable design could be acceptable but the experiments were still being analysed. Consideration was being given to 700 bar pressure in a vehicle.

Mr. S. Hawksworth of HSL discussed the need to develop safe application, storage and the infrastructure required for a hydrogen economy. A network of integrated programmes HYSAFE was in

operation through the world to integrate standards. He regretted that there was little information on accidents involving hydrogen, due to the reluctance of people giving information. The web site is [www.hysafe.org](http://www.hysafe.org)

Hydrogen was being used in a fuel cell in the Telecommunications Tower. The Tees lighthouse was fuelled by hydrogen from Wilton. There was a laptop computer being powered by a fuel cell using methanol. A 1000 bar hydrogen system was also being considered

Dr. Cusco then described the problems associated with carbon capture, transport and storage. Transport would probably be by pipeline but would have some corrosion problems. Storage would be in saline aquifers and depleted oil/gas reservoirs.

There could be very large quantities involved requiring large diameter pipework operated in the supercritical region. Pipelines would be in populated and a release could be very serious. There were a number of gaps in our knowledge including dispersion behaviour, jet effects human performance impairment, detection, crack propagation and thermodynamic properties.

A demonstration of a propane flame used for testing structures against a fire was given. The following was a picture of the flame:



John Bond

## **ASSET INTEGRITY MANAGEMENT IN THE PROCESS INDUSTRIES**

**28 September 2006**

A one day meeting titled 'Asset Integrity Management in the Process Industries' was jointly organised by the IChemE Safety & Loss Prevention Subject Group, the IChemE Milton Keynes Centre, and the IMechE Pressure Systems Group. The event took place at the National Hockey Stadium, Milton Keynes on the 28th September and was attended by 35 people.

The event focussed on the integrity management of process equipment and protection systems. Selected speakers from the regulatory authorities, operating and contracting companies and consultants gave an overview of integrity management. The meeting also presented a sample of techniques and methods used for systematising and improving integrity management, such as Risk Based Inspection, Integrity Baseline Assessment and Criticality and Vulnerability studies. The meeting was chaired by Dr Ken Paterson, Group SHE Manager of Synthomer Europe and by Mr John Wintle, of the Welding Institute, vice-chairman of the Pressure Systems Group of the IMechE.

The first speaker was Mike Skellett of the Health and Safety Executive, who provided the regulator's view of integrity management. The Chemical Industry Division (CID) of the Hazardous Installations Directorate has a 5 year strategy with 3 Key Goals: preventing major accidents, mitigating the effects of major accidents and FIT3 (occupational health). There are 2 major HSE projects for the purposes of prevention of Loss of Containment: Pipework and Atmospheric Storage Tank (AST) projects. The presentation highlighted pipework-related issues such as volume, complexity, access (racks or buried) and non-codal equipment. He then illustrated flange failures, internal and external corrosion, small bore failures and buried and masked areas. The main

issues with AST integrity management is the variation in design and inspection maintenance standards and the use of second hand tanks. AST failures may involve floors, the lower shell, corrosion under insulation and vents.

Peter Weller of the Shaw Group presented the designer's view of the implementation of Instrumented Protective Functions (IPF). The relevant design standards (particularly IEC 61508 and IEC61511) have been helpful to the industry. The risk graphs method for SIL evaluation was presented but it was explained that a qualitative assessment was tried over a period of 8 years with varying levels of success. The author expressed a preference for a quantitative risk estimation and a procedure involving layers of protection. The author further reviewed the process plant data lifecycle through the design, procurement, installation, commissioning and operation phases of the project. He also highlighted the importance of training and competency in integrity management.

Peter Elliott of BP presented the development of a global BP Integrity Management standard and its engagement and implementation within the group. Accidents occurred because of the simultaneous failure of the 3 layers of protection "plant, processes and people" and leadership was essential in maintaining these protection layers. BP's IM standard is part of the company's operating management system and is being revised according to a 6-year programme following the cycle "appraise-select-define-execute-operate". The BP IM standard includes 10 elements namely: accountabilities, competence, hazard evaluation & risk management, facilities and process integrity, protective devices, practices & procedures, management of change, emergency response, incident investigation & learning, performance management. All BP operations need to meet the IM standard by the end of 2008 or

otherwise, they need to obtain an exception or cease operations.

Bo Malmqvist of DNV gave a presentation on measurement and evaluation of asset integrity with the specific case study of one major international operator the BG group. The evolution of total recorded injuries and illnesses worldwide indicate that there has been a continuous improvement in occupational safety since 1993 but it is not obvious that major accidents follow the same trend. Refinery data indicate that there has even been a year-on-year increase in material damage costs during the last 40 years while other data might imply no improvement or reduction stagnation in the number of events such as fires and explosions. On the other hand, the nature of changing and maturing assets within the BG group as well as a number of potentially serious incidents in 2004 has motivated the management of some companies to initiate a systematic integrity assessment programme with assistance from DNV. This involves a maturity level scoring for each asset, taking into account 12 evaluation elements. This allowed comparison against industry benchmarked performance, identification of high risk areas and detailed recommendations for risk reduction. His discussion also covered the concept of the "mindful" high reliability organisations that go to great lengths in challenging status quo, are continuously suspicious of quiet periods, and tirelessly address insipient major hazards that will always be present in hazardous industries.

Kirsti Olson of Maclay, Murray & Spens presented the legal consequences of process infrastructure accidents. These include: recovery of company's own losses, property damage claims, facing claims for personal injury and criminal liability prosecution. The legal consequences could be mitigated with advanced planning, including keeping of good records and use of contracts to

minimise scope for liability. Effective dealing with the incident would involve preservation of the evidence, use of independent tests and consultation with the insurers.

Lyn Fernie of Aker-Kvaerner Consultancy Services presented how asset integrity was considered within a typical Engineering, Procurement and Construction (EPC) project. Global engineering projects may involve a large number of parties such as the owner, the licensor, the project management & engineering contractors, the vendors, the consultants and the operators. Although there are many opportunities for engineers to be innovative and improve integrity during the various phases of the project cycle, these opportunities are often not realised because of the ambiguity in the responsibilities and because of commercial and project management considerations, aggravated by the project complex organisation.

Ray Cochrane of ABB Engineering Services (speaking on behalf of Brian Hudson of ABB and John Richardson of Hydro Polymers) presented a case study of maintenance improvement through the use of the equipment criticality and vulnerability technique. The study was motivated by a planned re-organisation and role-handover within Hydro Polymers and it was important to identify areas of vulnerability and propose actions to mitigate impacts on SHE, maintenance costs and production loss. The criticality and vulnerability studies covered 3 plant areas over a period of 3 years and the main focus was producing actions lists. The maintenance system was re-organised while numbers were reduced by 25% and the production increased by 25%.

The last speaker was Dr Panos Topalis of DNV Software who provided an example of implementation of an integrated Risk Based Inspection (RBI) System for an Onshore Installation in Kuwait. He first presented DNV's risk based maintenance

(RBM) approach and then he focused on the quantitative RBI technique which is a good basis of an optimised inspection plan. For each equipment item, quantitative models are used to predict the consequence of failure and the likelihood of failure as function of time. This is then used to define the items to inspect, inspection dates and inspection techniques. Integrated inspection software is used for the detailed scheduling and follow-up of inspections and recording of inspection history for the whole asset hierarchy. The system is currently used for management of inspections within the Kuwait Oil Company.

An open forum was also held at the end of the formal presentations, which produced considerable discussion. Concern was voiced on how we can drive integrity management standards upward and improve safety performance in the face of workforce numbers being continuously challenged by commercial considerations. Risk assessment techniques were extensively discussed with focus on the estimation of the consequence and likelihood of failure. Until recently, the consequence of failure has been the main decision criterion but some delegates argued that the use of a combination of consequence and likelihood was preferable, particularly for managing inspection and maintenance. However, in many aging plants attempting to meet increasing strict asset integrity standards can be extremely costly. Does this mean that, when European plant is closed down for this reason, its replacement is made elsewhere in the world where enforcement of standards is not as robust?

The meeting agreed that there is a need to include human factors elements in a holistic approach to integrity management to make real gains with managers delivering a positive message at all times. The best performance a company can expect is the worst its management will tolerate.

At the end of the meeting the delegates were asked if there would be interest for a yearly IChemE meeting dedicated to Integrity Management and it was agreed that this would be appropriate as there are few groups with chemical and mechanical people working together. Input from technicians / engineers would be particularly welcome.

All presentations are available to the members of the IChemE Safety and Loss Prevention Subject Group on <http://www.icheme.org/>

Panos Topalis

### **DISSEMINATING THE LESSONS LEARNT FROM RECENT ONSHORE AND OFFSHORE ACCIDENTS 6 DECEMBER 2006.**

The meeting was attended by 115 people, about 30% of whom were IChemE SG members and the rest members of the Fire and Blast Information Group (FABIG).

The morning session of the meeting was chaired by Dr. Mike Considine, Chair of the S&LP Subject Group. Kevin Allers, Head of the Chemical Industries Division of HSE gave the keynote address, reviewing the progress of legislation from Flixborough to the current day. His central messages to industry included ensuring that you know your plant, know your people, and learn from incidents whether they are yours or those of others. Dr Brian Fullam, Head of the HSE Process Safety Pool continued this theme describing how major incidents influence the regulatory architecture in the UK and Europe. While disasters such as Flixborough and Piper Alpha create a step change in regulatory structure, the ongoing process of learning lessons leads to an evolutionary change in regulations. S. Mohammad Ali of ConocoPhillips concluded the session with an account of the 2001 explosion at the Humber Refinery SatGas plant. The lessons learned through the investigation process forced major changes in pipework inspection processes, including the need to

engage a multidiscipline team with clearly defined roles and responsibilities to ensure mechanical integrity.

Discussion at the end of the morning session centred around the need for suitably qualified and competent people to be available to meet the high workload required to prepare Safety Cases to the required standard. Particular concern was voiced that HAZOP is not being included in some Safety Cases as a result of lack of resources. Part of turning this around in the long term is a challenge on all professional engineers to work within their institutions to persuade more young people to enter the engineering profession.

The afternoon session, chaired by Kevin Allers, commenced with Mike Broadribb of BP describing the March 2005 Texas City explosion, when 15 contractor employees were killed and many others injured. While the immediate lessons focused on the siting of temporary worker accommodation for major turnarounds and the atmospheric venting of hydrocarbon streams there was a lot of learning related to the use of procedures, competence of the workforce as well as virtually all of the elements of process safety culture. Gustav Heiberg of DNV then gave an account of a major gas release from the Viskund platform in the Norwegian sector of the North Sea. The internal design of a blowdown drum imposed severe flow restrictions during periods of heavy flaring that resulted in a separation of the outlet pipe from the blowdown vessel itself. The presentation focused on the component parts of the investigation through forensic work in the laboratory, failure mode analysis and stress analysis to determine the true cause and provide information essential for remedial design. The final presentation of the day was made by Scott Berger, Director of CCPS, who described the Process Safety Incidents Database. The concept is one where contributing companies can learn from each other in a manner that preserves confidentiality while

limiting corporate liability. Participating companies are obliged to contribute a number of incidents reports to the database each year depending on dollar sales volume.

The final discussion of the day focused initially on the aftermath of the Texas City incident. Although BP has been very open with providing public access to its own investigation reports and settling civil claims out of court, there may well be proceedings initiated by the US Department of Justice after reports are published by the US CSB (Chemical Safety Board) and the independent safety review panel chaired by ex-US Secretary of State James Baker III. Some questioned whether this incident has diluted the role of OSHA in the US process safety management (PSM) regulatory regime. It was thought that while the US PSM rule worked well when it was introduced in 1992, performance had subsequently slipped to minimum regulatory compliance across the industry. There are perceived gaps in the PSM rule in respect of management leadership and commitment, and a focus on hazard identification rather than risk assessment, which is the focus of the UK and European safety case regulations.

Process safety indicators also featured in the discussion, with one delegate questioning whether the Frank Bird triangle can be modified appropriately. However delegates strongly felt there is a major disconnect between traditional occupational safety and health and process safety performance, and that a basket of leading process safety indicators needs to be used to prevent rare, high consequence accidents. CCPS has commenced a project on process safety metrics, which is involving the UK HSE which has already published in this area. CCPS is also examining the learnings from the past 15 years of PSM in the USA, with a report expected in April 2007.

John Atherton

## **HSE REVAMPED GUIDANCE ON RISK ASSESSMENT.**

The HSE has launched a revised 11 page booklet on risk assessment which is now available free online at: [www.hse.gov.uk/pubns/indg163.pdf](http://www.hse.gov.uk/pubns/indg163.pdf)

The booklet provides advice and tips on five key elements to an effective assessment; identifying the hazards; deciding who might be harmed and how; evaluating the risks and deciding on precautions; recording findings and implementing them; and finally ensuring that they are reviewed at regular intervals. This is supported by four examples of what a risk assessment might look like.

## **NEW PUBLICATIONS**

**“Developing process safety indicators - A step-by-step guide for chemical and major hazard industries” HSG254 ISBN 0 7176 6180 6 is available from HSE Books, priced £11.95.**

Too many organisations rely heavily on failure data to monitor performance, so improvements or changes are only determined after something has gone wrong. Early warning of dangerous deterioration within critical systems provides an opportunity to avoid major incidents. Knowing that process risks are effectively controlled has a clear link with business efficiency, as several indicators can be used to show plant availability and optimised operating conditions.

'Developing process safety indicators - A step-by-step guide for chemical and major hazard industries' is aimed at senior managers and safety professionals within organisations that wish to develop performance indicators to give improved assurance that major hazard risks are under control. Although primarily aimed at major hazard organisations, the generic model for establishing a performance measurement system described in this guide can be equally applied to other enterprises requiring a high level of assurance that

systems and procedures continue to operate as intended.

The guide describes a six-stage process which can be adopted by organisations wishing to implement a programme of performance monitoring for process safety risks. Each stage is explained in detail within a separate chapter. To help put the process into context, a fully worked example for a top-tier COMAH site is included.

#### NEWS IN BRIEF

##### **Council architect fined £15,000 over Legionnaire's Disease**

After an 8-week trial an architect was cleared of manslaughter but was fined for breaking health and safety regulations for her role in Britain's worst outbreak of Legionnaire's Disease. The local authority was fined £125,000 for similar charges. The prosecution alleged that the architect cancelled a contract that ensured the necessary tests were carried out on the air-conditioning unit and had no training in health and safety. At least 5 people died and 170 others were infected.

#### ARTICLES IN THE NEXT ISSUE OF THE LPB

Issue 193, February 2007

- A long chain of events and a near disaster
  - Fire hazards of plastic IBCs containing flammable or combustible liquids
  - A falling support frame causes severe foot injuries
  - Too much data, too little information. Some thoughts on the explosion at Milford Haven in 1994
  - A perchlorate explosion causes a man's death
  - Explosion in a naphtha cracking unit
  - An environmental incident caused by a major chlorine leak
  - Bulletin briefing
  - Events
- Member subscription rates for 2007 (no price rise for this year) NOTE. These are for members use only

Print and online           UK £235 + VAT  
                                      ROW £255 + VAT

Online only                 UK £40 + VAT  
                                      ROW £40 + VAT

To upgrade a subscription to include the back archive is an additional £30 + VAT.

Non-member subscription rates for 2007  
Print only                 UK £312   ROW £322

Online only                 UK £312 + VAT  
                                      ROW £312 + VAT

Print and online           UK £343 + VAT  
                                      ROW £355 + VAT

To upgrade to include the back archive is an additional £100 + VAT.

All of these prices are for single user access only. If online access is required for more than one person a multi-user/site licence must be taken - quotes from me at [jcheshire@icheme.org](mailto:jcheshire@icheme.org)

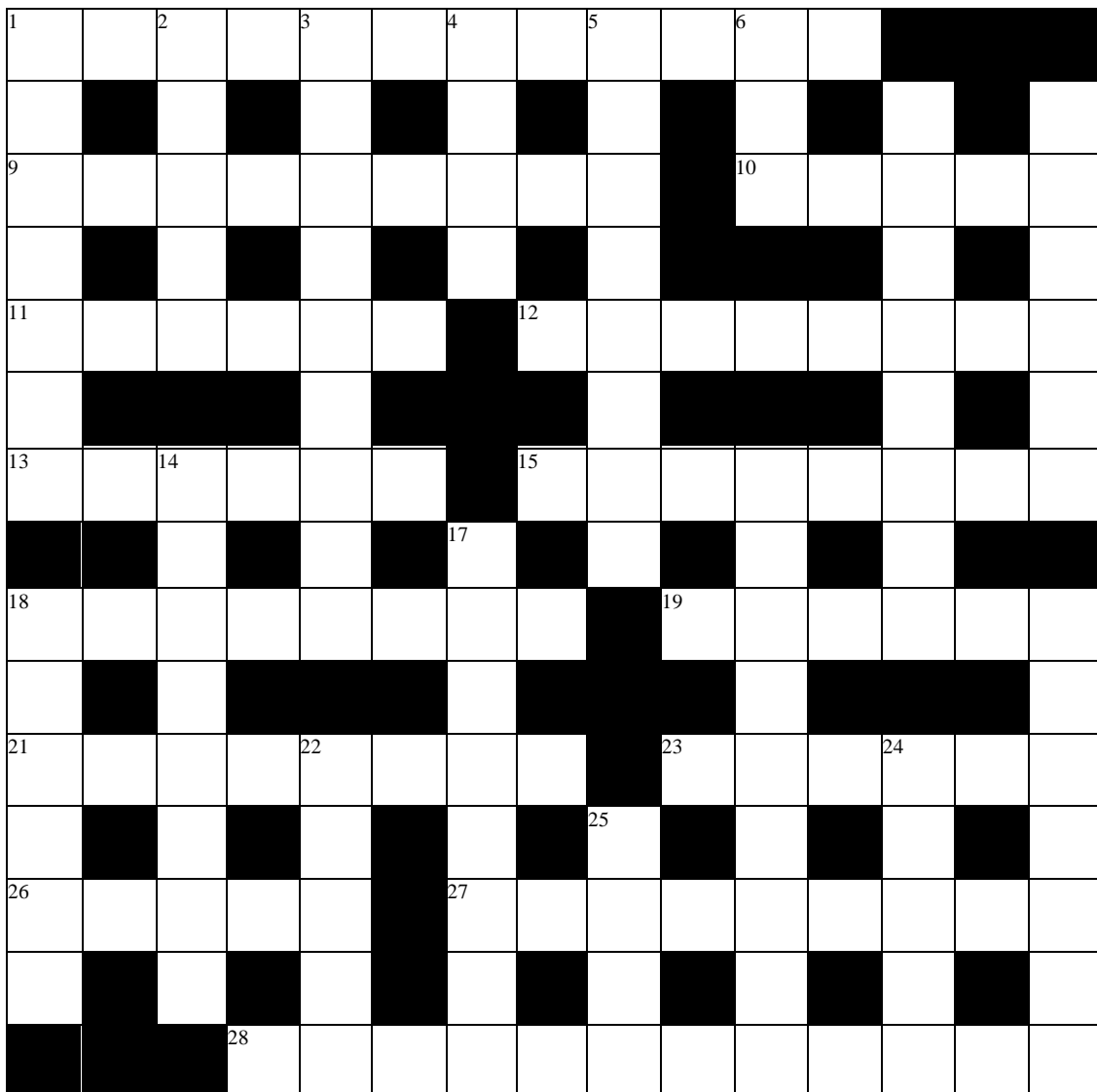
#### ARTICLES IN THE NEXT ISSUE OF PSEP

Issue January 2007 85(B1) Papers

- Effects of a Duct on the Venting of Explosions-Critical Review.
- Assessment of the Consequences of Accident Scenarios Involving Dangerous Substances.
- Experimental Study of the Interaction Between the Water Mists and PVC Fire
- An Interpolation Technique for Rapid CFD Simulation of Turbulent Two-Phase Flows.
- Taking Credit for Loss Control Measures in the Plant with the Likely Loss Fire and Explosion Index (LL-F&EI).
- Organizational Climate Metrics as Safety, Health and Environment Performance Indicators and an Aid to Relative Risk Ranking Within Industry.
- Methodology for Computer-Aided Fault Tree Analysis.
- Value at Risk Perspective on Layers of Protection Analysis.
- New Models of Sustainability for the Resources Sector: A Focus on Minerals and Metals.
- Particle Size Distribution to Assess the Performance of Trickling Filters.
- Influence of Organic Content in Dewatering and Shrinkage of Urban Residual Sludge Under Controlled Atmospheric Drying.



## CROSSWORD PUZZLE No. 22



### ACROSS

1. Is an American car a dangerous self-starter? (12)
9. Cad holds first automatic monitoring equipment for measuring flow. (9)
10. Correspondence found in the mail bag - or not? (5)
11. We hear idlers are needed to make an 18. (6)
12. In a comet all ice will include traces of e.g. copper. (8)
13. Transposed in case a protein is needed. (6)
15. Dismiss dance - it could be hazardous. (8)
18. Image can perhaps hog moral highground. (8)
19. Celestial body of terrestrial influence possibly. (6)
21. The grey meerkat almost provides a condition of safety. (8)
23. East European treatment for furniture. (6)
26. Work Edward chose. (5)
27. Not a course to be driving on. (9)
28. Beneath the panel all is in order. (5, 7)

## **DOWN**

1. Painting medium for chemical artists. (7)
2. Colleague of St. Paul was also Emperor of Rome. (5)
3. A good soaking reveals mini germs. (9)
4. Obsessive devotees strike back. (4)
5. Spicy herb to curry f(l)avour with. (8)
- 6 The last character is decidedly loopy! (5)
7. Fall back on belt or braces. (4-4)
8. Antifreeze component disguised by some ugly colouring. (6)
14. Foolish young Catherine is said to be on the rocks. (8)
16. Violent outburst from one-time liberation movement to ancient Jerusalem. (9)
17. Quiet item is very tiny. (8)
18. The psalmist hoped to be purged with this aromatic herb. (6)
20. Use the loan to acquire a petrochemical ... (7)
22. ... and/or a noble gas. (5)
24. Here in France the Queen is much colder. (5)
25. Smart fella! (4)

## **Answers to Crossword Puzzle No. 21**

### **Across**

1. Derv
4. Isothermal
9. Subnuclear
10. Ring
11. Edison
12. Agitator
14. Asia
15. Epoxy resin
17. Backshifts
20. Aint
21. Strumpet
23. Choral
24. Ouse
25. Anglomania
26. Pyrometers
27. Etna

### **Down**

2. Equidistant
3. Vent stack
4. Incense
5. Operator fatigue
6. Horrify
7. Moist
8. Luger
13. Orientation
16. Evaporate
18. Heptane
19. Sectors
21. Scoop
22. Riser

## DIARY OF SAFETY EVENTS

GROUP	TITLE OF MEETING	PLACE AND CONTACT	DATE
Hazards Forum	Improving Risk Management of Critical Computer Controlled Systems	Institution of Electrical Engineers, London Tel: 0207-665-2202 <a href="http://www.hazardsforum.co.uk">www.hazardsforum.co.uk</a>	Postponed
S&LP Subject Group	Improving Operational Safety & Competence through Human Factors	Inst. Chem Engrs. 1 Portland Place, London Robin Turney <a href="mailto:turneyrd@globalnet.co.uk">turneyrd@globalnet.co.uk</a>	20 February 2007
S&LP SG with Hazards Forum and Safety and Reliability Society	Offsite Risks from Major Hazard Sites	IChemE – London Offices One Portland Place London W1B 1PN Contact: Gemma Jones 01788 534433 <a href="mailto:gjones@icheme.org">gjones@icheme.org</a>	13 March 2007
UCL	Flixborough Revisited Prof. Jim Venart and Dr. John Cox	Sir Ambrose Flemming Lecture Theatre, Roberts Building University College London Dr.J.Cox <a href="mailto:Flixborough2007@aol.com">Flixborough2007@aol.com</a>	10am - 4.30pm 13 April 2007
Future Programmes	Ageing Assets Management of Alarms and Trips		
IChemE and EFCE	12 <sup>th</sup> International Symposium Loss Prevention and Safety Promotion in the Process Industries	Edinburgh International Conference Centre Contact R. Cragg IChemE Tel 01788-534476 Email <a href="mailto:rcragg@icheme.org.uk">rcragg@icheme.org.uk</a>	22 – 24 May 2007
Hazards Forum	Learning from Accidents - Just Culture Prof J. Reason & other speakers	TBA Simon Whalley <a href="mailto:Hazards.forum@ice.org">Hazards.forum@ice.org</a>	19 June 2007

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