



Hazards forum

The Hazards Forum Newsletter

Issue No. 61
Winter 2008

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Edited by Dr John Bond

Views expressed are those of the authors, not necessarily of the Hazards Forum

Further information regarding the articles in this issue is available from

Adam Kirkup on 020 7665 2230

e-mail: admin@hazardsforum.org.uk

Hazards Forum Website: www.hazardsforum.org.uk

December 2008

HAZARDS FORUM EXECUTIVE MEETINGS

During the last half of 2008, two Executive Committee meetings have been held. They were on 8th October and 21st November. Business included looking forwards to planning the Evening Events calendar for 2009.

A number of events are being planned and can be seen in the Diary at the end of this Newsletter, including a series on energy commencing in September 2009. Additionally we are planning a trial of Internet broadcasting of events to help those who are unable to attend, possibly because of living some distance from London. Please look out for more on this.

The date of the next AGM has been set for 10th March 2009 and is due to be held at the Institution of Civil Engineers, Westminster.

Some other news is that Hazards Forum recently welcomed a new member of staff into the Secretariat, Adam Kirkup. We are pleased to have him on board. With Adam's arrival we have had to say goodbye to Alison, whom we thank for all she has done for the Forum and wish her well for the future, of course. There is another change where we welcome Jason Simpson in the accounts department and thank Lucy Roberts for all she did for the Forum. We also wish her well for the future.

Brian Neale, Secretary

Improving the Resilience of Infrastructure to Climate Change; Lessons from Summer 2007 Floods

This Evening Event was held at The Royal Academy of Engineering on the 19th June 2008. The meeting was co-sponsored by Risk Management Solutions, Royal Sun Alliance and the Royal Academy of Engineering.

Dr. S. Steedman, Director of High-Point Rendel and Vice President of The Royal Academy of Engineering welcomed everyone and introduced the speakers.

The first speaker was **Craig Woolhouse of the Environment Agency** on "Managing the infrastructure implications of a severe flood". He reminded us that there was unprecedented rainfall which led to floods which caused several fatalities together with 55,000 homes and businesses flooded and about £3.0 billion in losses. The emergency response involved protecting over 100,000 properties from flooding by defences, received 206,000 calls to the recorded message service, made 34,000 direct warnings and involved over 2,200 staff.

The lessons that had to be learnt included flood warning advice, implications for the critical infrastructure and significance of surface flooding and drainage. Over the previous ten years there had been other significant regional flooding but not as great as the summer of 2007. There were warnings in the Autumn of 2000 when floods in Lewes, Shrewsbury, Bewdley, Malton and Portsmouth indicated the need for a high degree of contingency planning in the public sector and utility companies. Also the floods in Carlisle in 2005 showed the vulnerability of the location of control centres and telephone exchanges in low lying locations which needed reviewing with respect to the risk of flooding. The Summer of 2007 was a shock to the system of transport systems, public services, reservoirs, water supply and power supply where many deficiencies were revealed. The number of critical facility sites located in flood planes had to be examined

Now one year on [*since the flooding*] we have to ask has the issue been recognised, what has been done and where are the gaps? Firstly, clearer Met Office and Environment Agency warnings are to be given to trigger effective action to promote a more comprehensive response. which is clear, accurate and timely. Secondly, there is a need to modernise legislation to manage, inspect and plan reservoirs to withstand future floods. Thirdly, critical infrastructure of key utilities and public services had to be protected from surface water flooding. The Pitt Review of April 2008 reported "it is disappointing that insufficient progress has

been made against the recommendations which relate to critical infrastructure ...”

The Environment Agency was now looking at:

- Improved flood risk mapping
- Improved flood warning
- Delivering advice around mitigation options and funding advice
- Providing leadership at Resilience Forums

They are asking for:

- Effective risk assessment and appropriate measures - including flood resistance, and identifying how to promote resilience,
- Clarity on level of risk we are prepared to accept.
- Regulatory and other incentives.

In conclusion no one can now say they do not know about the issues. The message is getting through and work is being planned but little has changed so far on the ground.

The second speaker was **Alan Raymant of E.ON** on “Lessons from the 2007 floods on managing Electricity Supplies”. E.ON Central Networks is the UK’s second largest distribution company, servicing 5 million customers in Central England. We take power at 132kV from 29 grid supply points on the National Grid transmission system and distribute it through a network of 48,000km of overhead lines, 81,000km of underground cable and 97,000 sub-stations. In July 2007, supplies were disrupted to customers in Worcestershire and Gloucestershire due to flooding. Timberdine sub-station in Worcester flooded due to storm water run-off (pluvial flooding) causing damage to some of the equipment and resulting in disconnection of 13,000 customers for 2 hours.



Castle Meads substation in Gloucester flooded and was switched off to protect the equipment. Supplies to 47,000 customers were lost initially and were progressively restored within 20 hours.



Central Networks is a Category 2 responder under the Civil Contingencies Act. We supported Gold and Silver commands for both incidents at Worcester and Gloucester. We typically experience one or two major incidents each year for which we implement our emergency plan. Therefore, our level of preparedness is high, enabling effective and efficient response to major incidents as in the cases of the Worcester and Gloucester flooding. The plans result in engaging with 6 Regions and 14 local authorities.

Flood resilience requires a long term investment and programme of work and we are seeking support from Ofgem to increase investment in flood resilience as part of the Distribution Price Review for 2010 to 2015. We continue to support the work on flood resilience being undertaken by the Energy Networks Association.

The third speaker was **John Lee of Seven Trent Water** on “Looking Back Going Forward”. He started with an overview of Seven Trent Water and what happened in 2007. Unprecedented rainfall over the Severn and Avon catchments areas occurred resulting in the highest level of water in Tewkesbury ever seen. The normal average rainfall for a July was 56mm but on the 20th July more than 120mm fell in the one day. The utility infrastructure was inundated and the Mythe Water Treatment Works was shut down resulting in the loss of piped water supply to 350,000 consumers.



Water supplies had to be switched to tankers, bowsers and bottles. There was a formation of Gold Command and the biggest emergency operation undertaken by a UK Utility Company. Much was learnt from the experience.

By Monday the 23rd July 70,000 were without piped water and by Tuesday 24th July 140,000 properties were without water. Non potable water was restored to all customers in 10 days and mains water fit to drink in 16 days. There were 15 distribution points for bottled water. 150,000 litres was given out on the 23 July and 3 million litres a day available by the end 24 July with 5 million litres at the peak. More than 90 tankers were operating at any single point in time and 1,500 bowsers were available.

Other impacts of the flooding included restrictions of road access in the area, sewerage problems, the failure of the Castlemead substation and Waltham sub-station under threat of closure. Three key themes were identified in lessons:

- Flood defence
- Resilience
- Contingency planning

At Mythe Water Treatment Works, 1,000 m of stone filled flood barrier was constructed. Flood defence and electrical resilience was being reviewed with planning for a higher risk criteria.

Climate change was expected to result in hotter and drier summers and wetter warmer winters. But more frequent extreme weather conditions had to be considered and planned for.

Dr. Robert Muir-Wood conducted the discussion session which included comparison of the experience of interruption to supplies of water and electricity in the Summer 2007 floods with the major impact on electricity and water supplies in the windstorms at the end of 1999 in France. The UK has been fortunate in not

experiencing any severe windstorms causing very widespread disruption of power supplies since 1990. The disruption to electricity and water supplies in Summer 2007 had come close to requiring an evacuation of people on an unprecedented scale – comparable to that of Hurricane Katrina in New Orleans. Climate change and extreme events, including coastal floods and windstorms had particular implications for sustaining infrastructure – as highlighted at this meeting.

In his concluding remarks, Dr. Robert Muir-Wood thanked all speakers for their work in illuminating the process of learning that had taken place by both utilities and government agencies since these catastrophic events.

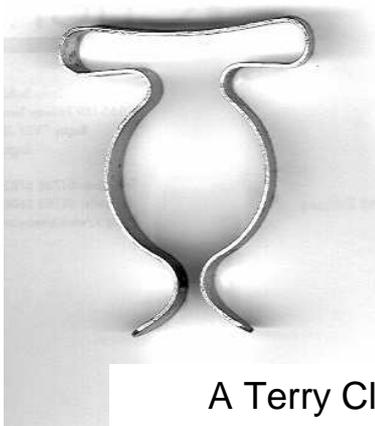
Do We Ever Learn Lessons - The case of the Terry clip?

In 1941 I was evacuated with my school to Pitlochry in central Scotland and joined the Air Training Corp in 1942, writes John Bond. Our high days were visits to the Fleet Air Arm station at Arbroath, where we could get flights in a Fairey Swordfish. In those happy days these open cockpit aircraft were appropriately called 'String-Bags' - on one occasion we took off with the low engine oil pressure warning light showing red, but our pilot blithely announced that it was usually the electrics that were wrong! But I digress.

We were instructed in the use of a parachute, including the fitting of its harness. The four straps (one over each shoulder and two between the legs) had to be snapped into a buckle positioned over the stomach. This buckle had a large circular aluminium knob, and should it be necessary to bale out this knob had to be rotated to the left and struck inwards just after reaching the ground. This action would release the buckles of the harness straps and free the parachute so that it would not drag me with it if there was a strong ground wind.

However, it seems there had been a case of an airman accidentally rotating this knob on the buckle and knocking it on a piece of the aircraft while climbing out of the cockpit. The release of the harness and parachute while baling out had, of course, a tragic consequence. Subsequently

a clip was adopted (originally to hold fishing tackle upright against a wall and called a Terry clip), attached to the harness by a piece of string. It was explained to us that this clip was to be kept underneath the aluminium knob so that even if the knob was rotated accidentally while, say, turning round in the cockpit, the clip would prevent the knob from being struck in and releasing the harness and parachute prematurely. The clip, of course, had to be pulled from behind the knob just before reaching the ground. This Terry clip and its purpose made a distinct impression on me, as in the open cockpit of a Swordfish you could easily imagine a free fall without a parachute, especially when the aircraft made a sharp banking manoeuvre. I made quite sure that the clip was always in place.



A Terry Clip

But time moved on and in 1986 *Flight International* carried a report of an RAF instructor falling out of his parachute harness after baling out. This prompted a reader to describe a similar case, of which he had personal experience, of a pilot ejecting from a Hunter Mk2 some thirty years previously and shedding his parachute. This accident, in 1956, had been attributed to the pilot not fitting his harness correctly. However, it was proved shortly afterwards that in the cramped position of a pilot in a Hunter the quick release knob could be rotated merely by rubbing on clothing, and on climbing out of the aircraft the knob could easily be knocked and the harness with the parachute released. To prevent this, the RAF had come up with a modification to the harness - a clip similar to a Terry clip, no less, attached to a cord stitched to the harness.

Thus was an accident prevention system, certainly in use in 1942 but evidently discarded somewhere along the way, re-invented in 1956. In view of the 1986 fatality, one is tempted to think that the 1956 re-incarnation of the simple clip has gone the way of the 1942 version.

Despite modern G-suits, ejector seats, etc., does the Terry clip need re-inventing yet again? Have any of our ex-Fleet Air Arm or ex-RAF readers any views?

John Bond

NATURAL DISASTER UPDATES

These are based on the NASA's Earth Observatory.

FIRES

FIRES IN CALIFORNIA

Gusty winds drove wildfires into southern California cities in mid-November 2008.

FIRES IN QUEENSLAND

In late October 2008, scattered fires burned across Queensland from Cape York Peninsula to the area around the city of Rockhampton.

FIRES IN NORTHWEST INDIA

Seasonal agricultural fires dotted the Punjab and Haryana states of north western India in early November 2008.

SEVERE STORMS

HURRICANE PALOMA

A late-season storm, Paloma developed as a tropical depression in the Caribbean off the coast of Honduras and Nicaragua on November 5, 2008, and became a hurricane the following day.

TROPICAL STORM RASHMI

Tropical Storm Rashmi came ashore over Bangladesh on October 27, 2008, taking at least 15 lives.

DUST, SMOKE, AND HAZE

DUST PLUMES OVER THE ARABIAN SEA

Multiple dust plumes blew off the coasts of Iran and Pakistan, and over the Arabian Sea in mid-November 2008.

DUST OVER THE MEDITERRANEAN SEA

Saharan dust blew across the Mediterranean Sea at the beginning of November 2008.

HAZE ALONG THE HIMALAYA

Haze hugged the Himalaya in late October 2008. The haze probably resulted from a

combination of agricultural fires and urban pollution, and may have contained some airborne dust.

FLOODS

FLOODS IN EASTERN FRANCE

The rivers of eastern France swelled in early November 2008 as heavy rain fell over the region.

FLOODING IN VIETNAM

Torrential rains brought the worst floods in decades to northern and central Vietnam in early November 2008.

FLOODING IN CENTRAL AMERICA

Landslides and floods caused extensive damage throughout Central America in the latter half of October 2008, after Tropical Depression 16 dumped heavy rain on the region.

FLOODING IN YEMEN

Devastating flooding swept across eastern Yemen in the wake of heavy rains from Tropical Storm Three.

VOLCANOES AND EARTHQUAKES

ACTIVITY ON THE ERTA ALE RANGE

In early November 2008, a volcano erupted in the Erta Ale Range in north eastern Ethiopia.

CROPS AND DROUGHT

DROUGHT IN EASTERN ETHIOPIA

Poor rains were forecast for eastern Ethiopia at the end of 2008.

PLANKTON BLOOM SURROUNDS CHATHAM ISLANDS

A bloom of plankton encircled the Chatham Islands in mid-November 2008.

provide courts with greater sentencing powers for those who flout health and safety legislation has been welcomed by DWP Ministers.

The Act raises the maximum penalties that can be imposed for breaching health and safety regulations in the lower courts from £5,000 to £20,000 and the range of offences for which an individual can be imprisoned has also been broadened.

The Buncefield Investigation

The following was published on 13th Nov and may be of interest to members:

"The Buncefield Investigation - Government and Competent Authority's Response". It will be interesting to note from page 15 that the Process Industries Leadership Group "will provide the means for collecting and sharing incident data and will act as a conduit for improvements to be promulgated to industry"

<http://www.dwp.gov.uk/publications/dwp/2008/buncefield.pdf>

The Final Report on the Buncefield Incident is now available on the HSE Web Site:

www.buncefieldinvestigation.gov.uk/reports/index.htm#final

The ***Health and Safety Executive*** of Great Britain - Be part of the solution:

The HSE are inviting safety people to visit the following site and to contribute:-

<http://www.hse.gov.uk/strategy/index.htm>

THE HAZARDS FORUM NEW WEBSITE

– an update from the Secretary

Those who have used the website will have noticed that the publications section has been rationalised a little. Also, the Newsletter part of the website has not been performing as desired. This is being looked into at the time of writing and is planned to be fixed before this edition of the Newsletter is published.

The Events section is updated as each event is developed and members are advised to look at this section from time to time to see various modifications to the programme. In this way dates can be reserved in your diaries ahead of

NOTES BY THE EDITOR

Some new developments have been noted on the HSE Web Site.

16 October 2008 – Ministers welcome tougher penalties for health and safety law breakers

New legislation, the Health and Safety Offences Act 2008, which will increase penalties and

receipt of invitations to attend particular events. Please be aware, however, that as we are now planning to give earlier notice of proposed Evening Events in this way, some details such

as dates may alter for various reasons as an event is developed.

Brian Neale

THE INTERWISE SYSTEM FOR ON-LINE BROADCASTING

Hazards Forum are planning to use the system soon and this article gives an overview of various features as operated by the Institution of Civil Engineers.

The ICE online broadcasting tool (i-Seminars and i-meetings) enables organisations to:

- Set-up live interactive web events to include several thousand members at the same time from within the UK and abroad
- Set up meetings one to one or boardroom live events with virtual attendees joining in.
- Allow members to see and hear visual presentations using graphics, slides, documents and video
- Hear questions and feedback from the participants in a controlled and organised manner
- Respond appropriately by initiating an open two-way dialogue
- Record and, if necessary, edit the events and store for later use.

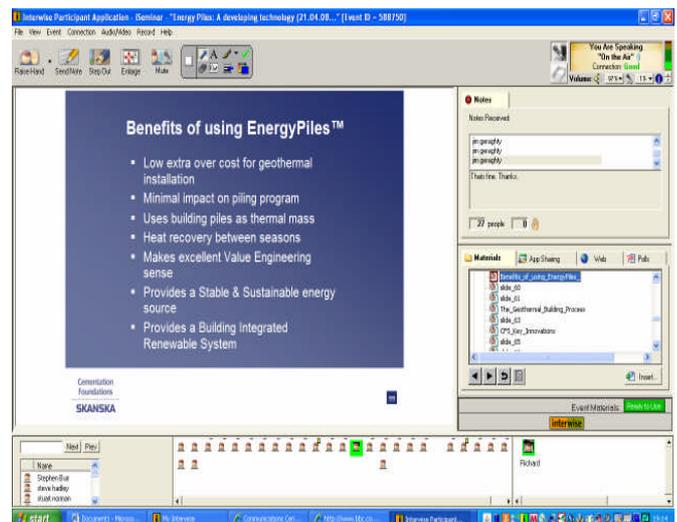
For the professional institution i-Seminars and i-meetings represent the best opportunity for real time communication with members. For members, it is the next best thing to attending in person - with the convenience of being able to do so from the comfort of their home or workplace. There have been enthusiastic posts for some 2008 ICE events.

But don't just believe what we or others have to say about ICE online events, come and join us. Most prestige Lectures are available to join from www.ice.org.uk/lectures and on the same page you can listen to past *Recorded Events*. Below is a quick guide to getting started:

- Find the event either from an email sent to you or from the [ICE website](http://www.ice.org.uk) or perhaps your own portal that ICE will help set up.

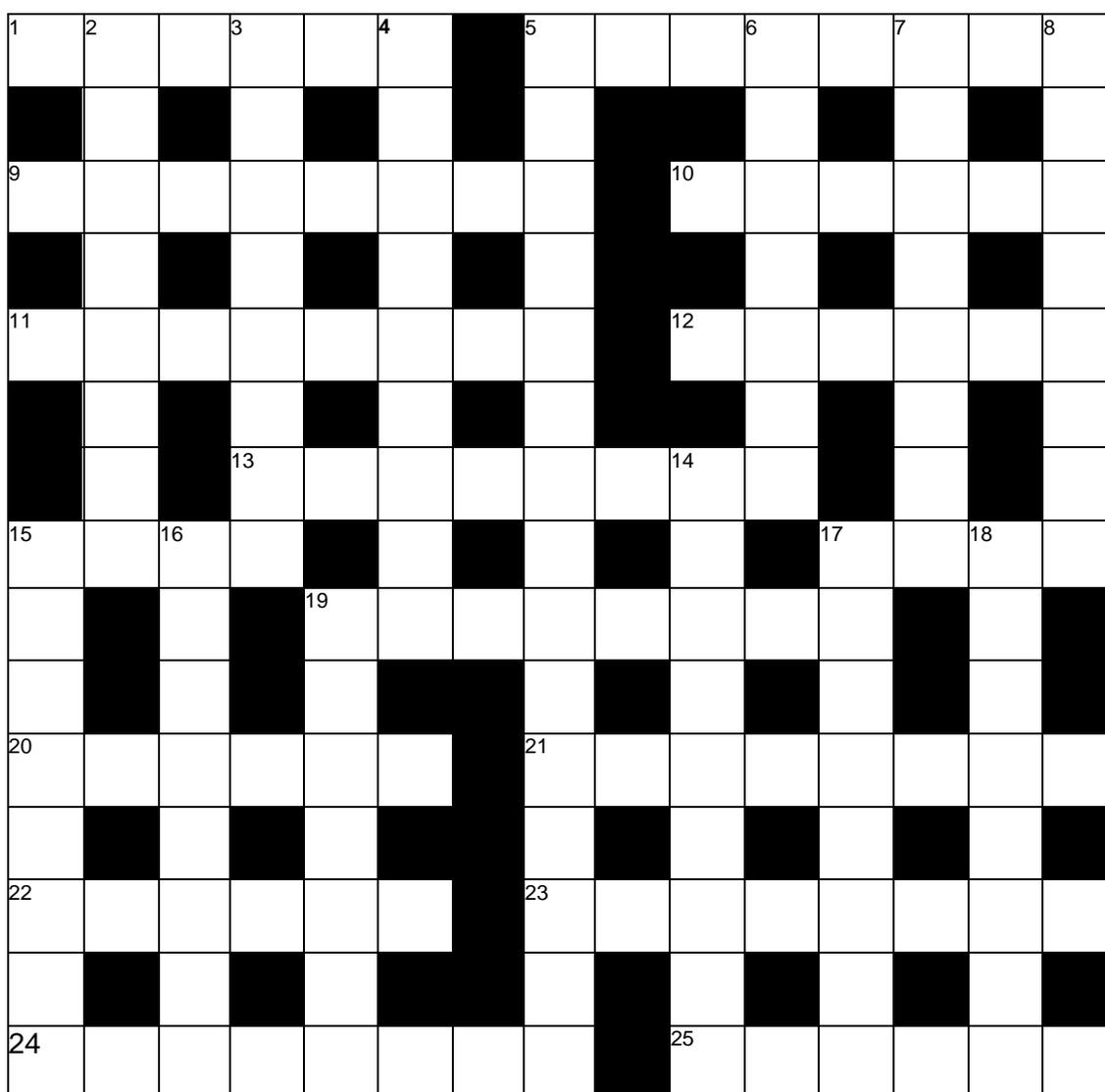
- Put it in your diary
- Download the Participation Application prior to the event and ensure your PC/Laptop is set up. This can all be done using the Getting Ready tab or better still (and this is a pre-requisite for viewing recordings if never participating in a live event).....
- Join one of the Two Free Live Events of the lectures site above. This ensures there is no last minute panic on the day of the event, ensures no firewall issues and as mentioned must be carried out if you are only interested in listening to recordings!
- Or contact richard.armstrong@ice.org.uk Tel: 020 7665 2411 and arrange your own trial.

The screen shot below shows an Energy Pile Lecture in 2008 with nearly 30 online attendees (bottom middle window). This actually transferred to approximately 100 attendees as some were studios/lecture halls of company firms with larger audiences viewing the single projected screen. Attendees/companies were able to put their own point of view at the Q&A session.



Richard Armstrong ICE

HAZARD FORUM CROSSWORD PUZZLE No. 2 by Miss M. Bond



ACROSS

1. Fire one - it'll help you to get free. (6)
5. We hear Welsh emblem grows older, allowing 16 down to 1 across. (8)
9. Marginal change can alert you. (8)
10. Valve providing, say, deliverance from distress. (9)
11. Event seen within CID enthral us. (8)
12. Falls, but slips back around first light. (6)
13. How tired you get stealing a car! (3-5)
15. Decorative work to worry about. (4)
17. Some risk its parody. (4)
19. Reagents differ according to rank. (8)
20. Chose the French in a cult. (6)
21. Follow the light that could be behind you. (4-4)
22. A meeting place - the fifth one is in New York (6)
23. Aristocratic vapour is sluggish. (5, 3)
24. Information unworthy to be held in a computer. (8)
25. Poorly made, not even in retiring. (6)

DOWN

2. The mute button for example. (8)
3. It's said the eldest son gets drunk when unventilated. (8)
4. Mr. Richter's earth shattering focus. (9)
5. Did St. Elmo down tools. (9, 6)
6. Joint protection for a one legged cricketer. (7)
7. Turn the key on linear network - what a jam. (8)
8. No danger for parliamentarians.(4, 4)
14. Investigators see in Marx a new development. (9)
15. A second helping afterwards perhaps (5, 3)
16. Outflow of industrial waste is almost rich. (8)
17. Toes tilt awkwardly in fashionable shoes. (8)
18. Is a male poet named after a great engineer? (8)
19. Give into, give away, give up, give ground, etc., etc. (7)

Solution to Crossword Puzzle No. 1

Across

1. Shipwreck
6. Blame
9. Adviser
10. Floodgate
11. Thermal
12. Overeat
13. Risks assessments.
18. Tornado.
20. Charger.
22. Gasometer.
23. Setback.
24. Digit.
25. Three Mile

Down

1. Seawater.
2. Invitees.
3. Wisdom.
4. Earful.
5. Kilotons.
6. Bad dream.
7. Ablaze.
8. Expert
14. Alarmist.
15. Short cut.
16. Nagasaki.
17. Sprinkle.
18. Tagged
19. Rising.
20. Cursor.
21. Auntie

DIARY or CALENDAR OF EVENTS

Please check the Hazards Forum website at www.hazardsforum.org.uk under the Events section for more information and to see any updates in the calendar such as additional events or perhaps amendments to events. Please note that attendance is by invitation.

Date	Event	Venue	Contact/further information
2009			
JANUARY			
9	Energy Safety: New Challengers IChemE S&LPSG with SONG SG	UCL, London	Email h.mahgerefteh@ucl.ac.uk
21	HF Evening Event: <i>Interpretation and enforcement of health and safety legislation – Have we got it right?</i>	King's College, London	Adam at hazards.forum@ice.org.uk
MARCH			
10	AGM – late afternoon followed by HF Evening Event: <i>Safety when road meets rail: trams, trains and level crossings</i>	Institution of Civil Engineers, One Great George Street, Westminster, London	Adam at hazards.forum@ice.org.uk
APRIL			
28	Possible Co-sponsored Evening Event on <i>risk</i> being discussed	Central London	
JUNE			
16	HF Evening Event: Joint meeting with Ergonomic Society - being developed	Central London	Adam at hazards.forum@ice.org.uk
SEPTEMBER			
22	HF Evening Event: Joint meeting – First of Three in <i>Energy Series</i>	Central London	Adam at hazards.forum@ice.org.uk
NOVEMBER			
24	HF Evening Event: Joint meeting – Second of Three in <i>Energy Series</i>	Central London	Adam at hazards.forum@ice.org.uk