Imperial College London

Health and Safety Matters

December 2014

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Fire Safety Awareness Training Goes Online

Adrian Dorrington, College Chief Fire Officer, describes the latest fire safety training initiative

Images from the new online training course

The start of the new academic year saw the launch of a new on-line Fire Awareness Course available to staff and postgraduates. This is aimed at filling a gap where individuals are unable to secure a place on one of the classroom and practical fire extinguisher courses, (where demand always tends to be outstrip availability) but also to ensure that the level of fire training is more appropriate for each individual's needs.

Events at the College have shown us that when we have outbreaks of fire, quite often the response from those involved does not always follow the expected course of action. Sometimes individuals leave the scene in search of someone else to inform, without raising the alarm and warning others who may be at risk. Other times the fire is tackled, but not in an appropriate or safe manner. Follow up investigation of these incidents sometimes shows that it was simply down to utter surprise leading to confusion. At times however, individuals say that they did not feel adequately prepared for an incident.

Thankfully, the likelihood of being faced with an outbreak of fire is quite low for many of us at the College. For a number, it is a bit higher and in some cases the nature of the work, study or research means that certain individuals are quite likely to encounter an incident at some point. The level of risk is usually linked with the type of work environment and roles undertaken by individuals.

Therefore, the online course is a complementary supplement to suitable induction and workplace briefing to fulfil the minimum knowledge requirements of those who work in low risk areas, such as offices or similar environments and where they do not have a defined role during the managements of an incident. Local briefings should be updated as required, but the online course should be revisited every two years as refresher training.

Where there is a higher chance of being exposed to fire, such as for fire wardens, co-ordinators, laboratory / workshop managers and technicians etc. then the above is still relevant, but attendance on a fire safety course including fire extinguisher training remains necessary to ensure that those persons have the appropriate knowledge and are properly equipped.

A third tier to fire safety training is often needed where the work or processes have unique or specialist fire risks, require specific controls or tailored intervention measures in the event of a mishap. This will usually be addressed by the department, but there are instances where the necessary tools (such as specialised suppression systems or fire extinguishers) are not in place and sometimes where they are, the people likely to operate them do not know how. Where any doubt exists, the Fire Safety Office should be contacted for advice and where required, assistance with providing bespoke training for the risk.

You can access the online Fire Safety Awareness course through ICIS 'My Training' or for those without ICIS accounts, a web based version can be found on the Learning & Development web pages:

http://www3.imperial.ac.uk/staffdevelopment/safety/index/firesafetyelearning

SAFETY CHECKS
for Vacuum Insulated Cryogenic Tanks

The HSE recently posted a safety alert on their website describing the brittle fracture of the outer jacket of a 60,000 litre liquid nitrogen tank which resulted in the ejection of steel fragments over the surrounding area (see image above). BOC have posted a similar notice on their own website to all their customers using vacuum insulated cryogenic storage tanks. The BOC page also has a downloadable pdf presentation outlining what went wrong, what safety checks to carry out and has links to both the HSE website and relevant BCGA (British Compressed Gases Association) guidance on the subject (though this link appears to be broken - the correct link is provided at the foot of this article).

The type of vessel affected was designed with an automatic economisation system, so that if the vessel pressure rises through low or intermittent use, any potential boil-off gas is fed into the process line in preference to liquid. The high pressure is sensed by a regulator and the process continues until the gas pressure drops to normal. The gas can either be returned to the liquid line at ambient temperature (hot piped) or at low cryogenic temperatures (cold piped). This process can cause thermal expansion in the pipe which runs within the vacuum interspace between the outer and inner jacket (which is filled with perlite - a volcanic powder that acts as an insulating medium). The resultant leakage of of cryogenic liquid into the vacuum space may, if sufficient enough, cause cooling of the outer jacket resulting in brittle failure. Such failures are expected to follow a defined pattern - loss of vacuum; operation of vacuum relief devices; localised icing of the jacket in the vicinity of the leak and ultimately brittle failure. There are therefore precursors to the final failure of the tank that can be recognised and prompt intervention before the tank ruptures.

The HSE are at pains to stress that cryogenic liquid storage tanks have been run safely in the UK for many years with no previous significant incidents reported. BOC also state that the vast majority of their vessels do not have automatic economiser systems and those that do, tend to be small vessels with the cold-piped configuration. They operate a small number of hot-piped vessels that they claim have already had their economiser circuits isolated to prevent thermal stresses occurring.

Most bulk tanks on user premises are leased from the gas supplier and therefore maintenance and testing responsibility rests with the gas supplier. There are a number of bulk cryogenic tanks of various sizes on College premises, feeding supplies of cryogens to our buildings. While the HSE safety alert focuses on the actions to be taken in relation to the specific type of tank that failed, BCGA have issues a guidance leaflet (L11) offers good practice advice for users of all cryogenic storage tanks.

As far as College users are concerned, the following guidance should be followed. Most of these are observational checks.

1. *Identify the owner of your bulk storage vessel and gain assurance that it is being maintained (as mentioned above, most are leased)*
2. *Check readings to ensure that the tank pressure an liquid levels are within safe limits.*
3. *Check that the outlets from pressure relief devices are unobstructed, clear of ice and show no evidence of tampering.*
4. *Check for any signs of dents, cracks or damage to the vessel or associated pipework.*
5. *Check that there is not excessive ice build-up around operating controls (evidence of some icing is normal).*
6. *Inspect the outer skin of the tank for an abnormal signs of frosting.*
7. *Check that gas is not escaping from any part of the tank surface or connections to it.*
8. *Check that the tank is secure, access routes are clear any that the compound is free of any debris.*
9. *Check that appropriate signage is in place and is visible and up to date.*

It would be advisable of a named person is charged with this responsibility and good practice to record the findings in a checklist.

For those users who have BOC leased tanks, there is an emergency number manned 24 hours a day, 365 days a year:

0800 222 888

The above article is a precis of information taken from the HSE, BOC and BCGA.

HSE Safety Alert:
http://www.hse.gov.uk/chemicals/cryogenicalert.htm

BOC Tank Safety:
http://www.boconline.co.uk/en/sheq/gas-safety/tank-safety/index.html

BCGA Leaflet L11 (free download):
http://www.bcga.co.uk/pages/index.cfm?page_id=24&title=leaflets

Institute of Safety in Technology and Research
Summary of Autumn Symposium, November 2014

The Safety Department had representation at the recent ISTR Autumn Symposium held on the 19th. and 20th. November which took place at the Manchester Conference Centre. The Symposium entitled *"Change is inevitable, safety management is critical"*. In essence, if formed a catch up session attended mostly by representatives of educational institutes, and concerned a number of changes in the biosafety arena, some of which have a direct impact on College activities. A summary of some of the salient points is provided here, but a full complement of presentations are available at http://www.istr.org.uk/index.shtml for those College staff who are members of ISTR.

The Genetically Modified Organisms (Contained Use) Regulations 2014 ***Mike Paton, Senior Policy Adviser, Health & Safety Executive***
The amended Regulations introduce changes that reduce the control requirements for low risk work. The significance of this is a move to a risk based disinfection procedure for Class 1 agents, a risk based approach to air handling regimes and dropping the requirement to have Class 1 work approved by a Genetic Modification Safety Committee - but replacing it with the need for competent advice, which essentially means a Biological Safety Officer can approve Class 1 work. The Safety Department have been separately informed of these changes and are busy consulting with GM Chairs and Committees as to how best they should be implemented. The HSE are currently revising the *COSHH* guidance to improve consistency with the *Genetically Modified Organisms (Contained Use)* changes.

Changes to the Specified Animal Pathogens Order (SAPO)
There are some proposed changes to these Regulations. Currently Defra have the policy lead and the HSE are the regulators, which makes it difficult to unify under a Single Regulatory Framework. This arrangement will probably change and licensing will be controlled by the HSE. Control measures are likely to become risk based and not prescribed. The licence holder will become the institution not an individual, and guidance will be revised in accordance with this. These changes are planned for 2015 with consultation early in the year. No changes are planned to the **Import of Animal Pathogens Order (IAPO)**. At the time of going to print, the College currently has only one SAPO license holder.

Autoclaves ***Paul Jackett (stand-in presenter)***
The mechanism of how autoclaves work was described and it was emphasised that it was contact with steam and the release of the latent heat of vaporisation when that steam condensed on a surface that provided the sterilising power of the autoclave. It was also emphasised that the autoclave does not completely sterilise a load but "makes it safe" by reducing the microbiological burden to a level acceptable for handing outside of containment.

The Safety Department has been working on a comprehensive Code of Practice on the purchase, commissioning and use of autoclaves and plan to publish this in the New Year.

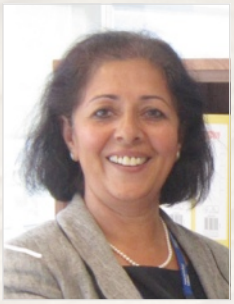
Animal by-products ***Ryan Metcalf, Compliance Officer at Manchester University***
This presentation described the site registration process with Defra for universities using animal by-products. The Safety Department have already completed this exercise for the College. End users intending to import animal by-products from outside Europe must notify the Safety Department as an import license may still be required.

Microbiological Safety Cabinets ***John Saunders, Health and Safety Laboratories***
Showed an interesting video of airflows in a capture hood, demonstrating back flow if the operator stands too close to the front aperture. Though demonstrated on a capture hood, it was pointed out that this would be observed in reality with Class 1 MSC's. Smoke testing was recommended visualise air flows when setting up an MSC for use, especially where there was any compromise to its location or equipment used inside it. In summary this demonstration highlighted the need to ensure that MSC's are commissioned properly, regularly tested and that users are properly trained and understand the limitations of the cabinet.

Ebola discussion ***hosted by Sharon Webster and Arthur Mitchell (Chair for the discussion)***
There was a discussion regarding educational institutions recovery plans from a suspected or actual case of ebola among the student community. No one present really had a plan other than to isolate the student and inform the local hospital. Nobody among the universities represented were sure about what authorities would become involved and how much they would help. It was concluded that more work on recovery planning was required. A representative from Public Health England emphasised that universities should not arrange for their own contaminated waste materials disposal but should inform the authorities and await assistance and instruction. A Department of Health representative stated that new guidance was being released on their web pages.

News Snippets

Welcome.....



Dr Surrinder Johal joined the Safety Department as Safety Director on 14 July. Dr Johal has a first degree and a doctorate from the University of Surrey and joins the College from the private sector research organisation LGC, where for the past six years she was LGC's Group Head of Safety, Health, Environment and Quality. Before that, she held a range of senior business roles.

Ross Manson also joined the Safety Department on the same date as College Radiation Protection Manager. Ross was formally employed by the UK Ministry of Defence (most recently by the Defence Science and Technology Laboratory) where he served in a number of technical and managerial roles. In recent years, Ross acted as Radiation protection Adviser for the Royal Navy and played a leading role in the UK's Nuclear Accident Response Organisation.

Lone Working Consent Form

In the June Newsletter we reported on the launch of the amended Lone Working Policy and the supporting Code of Practice for Safe Management of Lone Working. We also mentioned the Lone Working Consent E-Form which had been set up around the same time. The form allows staff to apply for consent online, notifying by e-mail the supervisors and other chosen contacts to review the request. The system will also notify the applicant once their request has been approved and when it has expired, asking them to review and resubmit. Faculties and Departments have been gradually rolling out the system throughout College and have been assisting us in resolving some of the teething problems associated with the new form. For more information, please see the Safety Department website: http://www3.imperial.ac.uk/safety/subjects/loneworking

Registration of Overseas Trips

Effective from 1 August 2014, the College Finance Department has asked that all staff and students engaged in overseas travel register online to provide basic details about their trip: http://www3.imperial.ac.uk/finance/sections/insurance/overseastravelinsurance/travelregistration. The intention is to begin to collect more reliable information about trips and destinations and is being done at the request of the College insurers in response to a 'deteriorating claims pattern'. Though this is a Finance Department initiative, it impacts on the Safety Department off-site working procedures and we have updated our procedures and guidance to take this requirement into account.

Guidance on GMO Regulations

The HSE have published the 5th edition of the L29 guidance on the Genetically Modified Organisms (Contained Use) Regulations 2014. This document is available to download free from the Health & Safety Executive website

(see also the ISTR article on Page 4).
http://www.hse.gov.uk/pubns/books/l29.htm

Safety Department Web Pages

Reader's will no doubt be aware of the launch of the College's new website earlier this month. A quick note to point out that the redesign of the Safety Department website is not part of Phase 1 of the project and is therefore not timetabled to change until July 2015 at the earliest. The Safety Department front page can still be accessed with one click from the 'Staff' front page under the 'Wellbeing and development' header. However, some aspects of the Safety Department website will change in the New Year with a reorganisation of the biological safety section, hopefully with a view to make it more user-friendly. Notification of the change will be given in due course.

What you need to know about: RADIATION DOSIMETRY

Ionising radiations are used throughout College in a wide variety of locations for many different purposes. Personal dosemeters record the amount of radiation an individual has received, so if your work involves exposure to ionising radiations, you may be required to wear them.

There are a number of reasons dosemeters are issued. Radiation exposure is strictly limited, but the aim is to keep exposures as low as possible. There may be a legal requirement to wear a personal dosemeter or it may be provided to give reassurance that working practices and processes are adequately restricting radiation exposure. At Imperial, the work registration and risk assessment process is used to identify whether the issue of dosemeters is necessary.

There are various types of dosemeter available commercially and they are usually worn on the body and fingers. In certain circumstances eye dosimetry may also be required. The dosemeter is a sensitive radiation measuring device and its proper care is essential if it is to accurately measure your personal radiation dose. The radiation worker is responsible for the care of their dose meter. If you think you have received an unusual radiation dose in the course of your work, report it to your RPS immediately. Do not wait for your dosemeters to be processed.

In summary, your personal dosimeter is a fundamental part of the College's safety management system and following the simple rules contained in the article will help ensure the effective management of personal dose and radiological safety.

Examples of body and extremity (finger) dosemeters in use at Imperial College

DO:

- Wear it in the proper place – body badges should be worn on the left side between the hip and the shoulder. Finger rings should be worn on the index finger with the label facing inwards (towards the source of radiation).
- Keep the dosemeter on the outside of the clothing, but if special clothing for protection from radiation is being worn e.g. a lead apron, position the body dosemeter under this.
- Wear finger dosemeters inside any protective gloves to prevent any contamination splashing on them.
- Make sure that the name or serial number is visible in the window on the front and that the holder is closed properly when dosemeters are changed.
- Inform the Radiation Protection Supervisor (RPS) immediately if dosemeter is lost or if it gets damaged.
- Keep the dosemeter away from sharp pointed items.
- Return the dosemeters promptly when requested to do so.
- Remove dosemeters from coats, overalls etc before they go to the laundry.

DON'T:

- Interfere with the dosemeter in any way e.g. remove or tear the outer wrapping. It is an offence to tamper with protective equipment.
- Share the dosemeter with another person. It is for assessing the named person's dose only.
- Store the dosemeter in a radiation work area.
- Store the dosemeter near any sources of ionising radiations (e.g. x-ray sets or old luminous watches etc).
- Allow the dosemeter to pass through any security x-ray machines, including baggage inspection at airports.
- Store the dose meter in a hot environment.
- Wear dosimetry during any medical or dental x-ray procedure.

Safety Department makes first appearance at Freshers Fair

The Safety Department made its first appearance at this years Fresher's Fair which took place on the 7th. October. We ran a stall located within the Queen's Tower room which was manned throughout the day by members of the department working in shifts.

The purpose was simply to introduce ourselves, appear accessible and generally promote the Safety Department amongst the new intake of students. We were not slow to exploit the well established technique of drawing attention to ourselves by offering a wide range of freebies, including sweets, Oyster card wallets, flash drives and lanyards.....conditional of course, on also taking away a leaflet outlining the role of the Safety Department at Imperial.

We also had a jackpot first prize of an iPad. Those students who already had a Twitter account (or promised to open one quickly) .....and agreed to follow the Safety Department on Twitter, were invited to enter their details on a sheet that would be used for the draw that was to take place on a later date. Around 180 students signed up. The draw was made on 31 October and the lucky winner was Seung Yoo, an undergraduate from the Physics Department, who is seen below receiving her prize from Safety Director Surrinder Johal.

One of the things we learned from the event, was that not as many students have Twitter accounts as we had originally anticipated. Maybe we need to investigate other forms of social media for getting the health and safety message across before next years event takes place.

For those who do have a Twitter account, follow the Safety Department:

#ICLSafety

Seung Yoo (right) receives her prize from Safety Director Surrinder Johal

FREQUENTLY ASKED QUESTION

FAQ

My laboratory work involves the use of carcinogens - do Occupational Health need to review my COSHH assessment?

This is what the College *COSHH* template indicates and this has been the case up until this point. However the situation has changed.

There is no longer any routine Occupational Health Service scrutiny of the risk assessment for work with carcinogens and mutagens i.e. those substances with H340, H341, H350 and H351 Hazard Statements. The only OH Service involvement will be to talk through health concerns with anyone worried by their exposure after an accident. Needless to say, if an accidental exposure occurs, this should be recorded on *SALUS*, the College online incident reporting system.

From now on, scrutiny of the risk assessment should be undertaken locally by the Faculty safety staff and the Safety Department and any risk assessments received by OH will be forwarded on to the Safety Department , who are arguably in a better position to advise on adequate controls in relation to the activity. We have started keeping a central database of all work involving carcinogens to aid compliance with Regulation 11 of *COSHH* (retention of health records). The information held within each record will include:

- the names of the substances
- the Hazard Statements and Workplace Exposure Limits (where relevant)
- the rooms where the substances are being used
- the name of the PI and those persons registered as working with the substances
- uploaded documents – typically, the risk assessment , SoP and MSDSs.
- a notes section containing any additional advice provided by the Safety Department

Safety Department guidance and the College *COSHH* form will be updated in due course to reflect these changes.

Safety Training

The Learning Development Centre (LDC) presented a report to the Health and Safety Consultative Committee on 15 October outlining the fact that the LDC cannot offer all safety training centrally, although 3421 participants accessed training courses during 2013/14. This included staff, postgraduates, contractors and partner organisations. The 2013/14 budget was £130,000 but total expenditure amounted to £144,000.

The LDC Safety Training budget for 2014/15 has been increased in order to bring in external consultants, offer specialist courses and find new ways of working including e-learning and to meet rising costs. The entire safety training programme 2014 /15 will be offered cost free to internal delegates including NEBOSH NGC and Bio-safety Practitioners Award.

There is an ongoing issue of how we manage places based on College need. The College has numerous site partners, tenants and contractors to whom safety training courses have historically been offered. This footprint continues to increase and places additional demands on the resources of LDC Safety Training. However, LDC has indicated to entities such as tenants that they have a responsibility as employers to manage safety rather than simply delegating this to the College.

There is a lack of dedicated training rooms**.** This creates additional administrative pressures to find suitable venues. This will inhibit our ability to deliver events on-site and make best use of the budget. However, LDC Safety Training has been able to fund specialist training externally, including: *CE Marking of Consumer Products* and *Professional Electronics and Electronic Product Safety Design* - given the amount of equipment now imported from outside the European Union.

LDC along with Occupational Health will continue to monitor the first aid provision at Hammersmith campus in view of the closure of Hammersmith A&E and the creation of 24 hour Urgent Care Centre (UCC) which will cater for most walk-in patients.

The e-learning *Introduction to Laser Safety* is now operational and has received positive feedback from Departmental Laser Safety Officers (DLSOs) and other stakeholders. The test element sits on Qualtrics which allows a report to be generated and sent to the DLSO identifying the student and their test result. A weekly spreadsheet is also generated and sent to the relevant DLSO using the reporting tool. LDC Safety Training has arranged with Aurora Health Physics Services Limited to deliver *Ensuring Laser Safety* BS EN 60825-1:2014 update to DLSOs on 28 January 2015.

Fire Safety and Awareness Training e-learning is now offered to all staff and postgraduates. Classroom sessions will still be delivered to those with a defined safety role like Fire Wardens and other responsible persons who will assist with the safe evacuation of College premises. The Fire Office will provide further guidance and pro-active interventions especially in high risk processes or experimental work where the risk assessment indicates further controls are needed. This intervention may require bespoke training to take into account highly flammable or reactive materials where the use of existing extinguishing agents would not be advisable.

We have been working with the Royal Geographical Society (RGS) to offer *Offsite Safety Management for Expedition Leaders and Fieldwork Researchers*. This two day event will be delivered in December and again in February at RGS premises on Exhibition Road.

The year has been a period of transition where LDC Safety Training has attempted to manage change given the departure of key personnel at the College. The LDC will continue to provide a service to end users.

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