Imperial College London

Health and Safety Matters

OCCUPATIONAL HEALTH & SAFETY NEWSLETTER

Issue 18
December 2009

*i*Care
Control the situation
Assess the hazards
Reduce the risk
Educate staff & students

Inside this issue:

Safety policy format 1
Gas & cryogenics safety 2
Annual College Health & Safety seminar 2
Moving closer to new legislation on biological agents 3
Safety Department & Occupational Health Service news 3
Controlling the risks arising from soldering 4
The clinical waste cycle 5
Accidents & Near Misses 6
FAQ—Laboratory spillages 7
Training 8

Format of future safety policies formalised

The Safety Department have drafted a proposal for the format and implementation of safety policies. The main points of the proposal are as follows:

- Policies will outline the main objectives that need to be achieved. They will be written clearly in a manner that can be understood by staff and students and take account of legislative requirements where appropriate.
- There will be minimal detail on procedures – this will be provided by supporting Codes of Practice, guidance documents and audit questions.
- Policies will not duplicate information already described elsewhere. If new policies supersede older ones, then the older ones will be withdrawn.
- They will stipulate the requirement for any special staff responsibilities or approvals (where not already covered in the College Safety Management System [SMS]).
- In the first instance, consultation will be internal within the Safety Department and Occupational Health. If relevant, this will then include Facilities Management, Building Projects and any other specialists considered to warrant an input. Consultation will then extend to Departmental / Divisional Safety Officers, Faculty Safety Managers and Trade Union representatives.
- On completion of the above consultation process, approval for issue will be sought from College Health and Safety Consultative Committee and College Health and Safety Committee before release to the College community.
- The policies will then be issued along with the support tools mentioned above. It is feasible that for some new policies there may already be substantial guidance or a Code of Practice already in existence.
- The issue of all new policies will be formally announced via the already familiar CHASE (College Health and Safety Essentials) Notice. CHASE Notices are targeted at Heads of Department and copied to College Principals, Faculty Operating Officers, Departmental / Divisional Safety Officers and Faculty Safety Managers.
- New policies will also be publicised via the usual channels including SHRUG, the Safety Department / Occupational Health Service web pages, *Health and Safety Matters* newsletter and at the various Campus / Departmental / Divisional / Faculty Safety Committees. In some cases, it may be appropriate to have a more formal launch.
- Policies will be reviewed as appropriate (at least annually) but will only be re-issued for consultation where significant changes are made. The final decision on whether changes are considered to be significant will be made by the Safety Director and Director of Occupational Health.

The proposal was approved by the Health and Safety Consultative Committee at their most recent meeting in October and was subsequently approved by the College Health and Safety Committee in November. The document will itself have the status of a policy and has been uploaded onto the Safety Department website: http://www3.imperial.ac.uk/safety/policies

Access this Newsletter in electronic format at:
http://www3.imperial.ac.uk/safety/otheresources/newsletter

Imperial College London

BOC A Member of The Linde Group

Working together to improve gas & cryogenics safety

College safety staff have been working closely with BOC with the shared goal of improving compressed gases and cryogenics safety on College premises. Regular monthly meetings have been held over the summer period and progress has been made on a number of fronts:

The health and safety section of the joint College / BOC agreement has been expanded and strengthened to include:

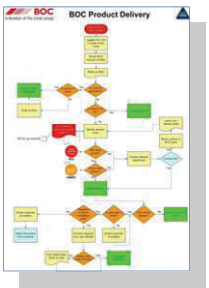
* Accident and near miss reporting procedures.
* Acknowledgement that College access control procedures will be complied with.
* A commitment from BOC that any new staff working on College premises shall undergo both local induction training and Month One Safety Training.
* That where BOC are commissioned to install, inspect or maintain piped gas systems, this shall be carried out in accordance with relevant British and European Standards and that evidence of compliance shall be provided.
* Definition of the procedures for inspecting, labelling and reporting with respect to regulator testing and pressure vessel examinations. A new series of regulator labels have been devised (see below).

~~~~~~~~

BOC have stepped up the provision of Material Safety Data Sheets with deliveries of compressed gases. A direct link to gas MSDS's has also been inserted into the Safety Department website: http://www3.imperial.ac.uk/safety/guidanceandadvice/gasesandcryo

~~~~~~~~

BOC are close to producing a final version of a Standard Operating Procedure in the form of a Product Delivery Flow Chart. The chart outlines the stepwise procedure from the point of ordering gases to the point of delivery to the destination. Similar charts are planned for describing the process for regulator inspections, pressure vessel inspections and compressed gas pipeline inspections.



~~~~~~~~

BOC have carried out a fire risk assessment of their main bulk gas storage compound in the Huxley undercroft on the South Kensington campus.

~~~~~~~~

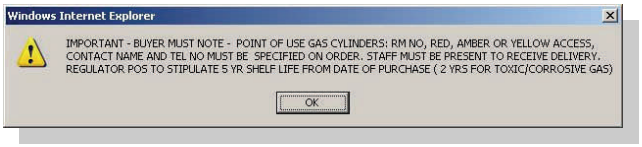
Further measures have been taken to discourage smoking in the vicinity of the above storage compound — 'pigeon spikes' have been fitted on top of the low wall and better no smoking signage has been posted.

~~~~~~~~

In an effort to improve traffic safety, BOC plan to install a forward facing camera on their forklift truck used at South Kensington campus. It is hoped that this will provide the driver with greater visibility while manipulating the fully laden vehicle.

~~~~~~~~

The ICIS popup notification has been amended to alert those ordering gas cylinders of the information required to enable the order to be processed. It also stipulates the requirement for a member of staff to be present to receive the delivery to enable any issues over safe access to be addressed.



~~~~~~~~

There will be a focus on improving safety and security at liquid nitrogen delivery points. This will commence with South Kensington campus. BOC have provided a plan with the current routine delivery points marked up.

~~~~~~~~

BOC have made known their willingness to attend College safety committees at the invitation of the committee in cases where gases or cryogenic safety may be on the agenda.

~~~~~~~~

Annual College Health and Safety Seminar 2009

The 2009 Annual Heath and Safety Seminar took place on 17 November with a number of presentations.

Ian Gillett (College Safety Director) began with a talk covering the College safety philosophy, the role of the Safety Department, interactions with the enforcing authorities, future developments and some recent incidents. Alan Swann (Occupational Health Director) followed with a talk on supporting health and wellbeing. David Forbes (Director of Risk Management and Disaster Recovery) completed the internal speakers contribution with a presentation on risk management at Imperial College.

Two external speakers also gave presentations. Dr John Groom (Safety & Sustainable Development Adviser at Anglo American plc) presented a talk on safety and the role of leadership and Russ Timpson (Managing Director of the Fire Strategy Company) concluded the session with a talk on risk management in a large organisation.

The Powerpoint presentations are in the process of being uploaded onto the Safety Department website: http://www3.imperial.ac.uk/safety/hodinfo
~~~~~~~~

Moving closer to new legislation on biological agents

As reported previously in *Health and Safety Matters* (see Issues 11 and 14), the HSE are in the process of developing a new single regulatory framework covering deliberate work with wild-type biological agents harmful to humans and certain animals, and all Genetically-Modified Organisms. Imperial College recently hosted one of the national Focus Group meetings being held by the HSE, in which key stakeholders were provided with the opportunity to review a draft set of the regulations and the accompanying guidance prior to the commencement of the formal consultation process in February 2010.

What we know about the regulations (some of this has changed since we last reported in this newsletter in 2008)

- The regulations will be called *The Biological Agents and Genetically Modified Organisms (Contained Use) Regulations 2010.*
- The timetable for consultation and implementation is currently as follows:
  - February 2010 – consultation commences. This should run for 3 months.
  - October 2010 – new regulations come into force with a 6 month transitional period.
  - March 2011 – the transitional period ends and the Regulations are fully enforced.
- An element of risk remains with the above timetable in that the Regulations will come into force at the start of a new government. It is not impossible therefore that timings will be further delayed.
- There is little significant change to regulation of genetically modified organisms and to all intents and purposes, the requirements of the current *Contained Use Regulations* will remain.
- With regard to wild-type biological agents the key changes will be:
  - Instigation of the 'Class' terminology currently utilised for GM work. As with GM work, the Class will be determined by the Containment Level identified by the risk assessment.
  - Requirement to notify all Class 2 work to the HSE. There will be a charge for this.
- With regard to Specified Animal Pathogens (as currently defined under the *Specified Animal Pathogens Order*), these will also fall into the same terminology and risk assessment principles of the current *Genetically Modified Organisms (Contained Use) Regulations*. The requirement will again be to notify work at Class 2 and above to the HSE.
- The new single regulatory framework will apply to deliberate use of these agents only. It is currently unclear precisely to what extent these regulations will apply to tissues or other material that may be contaminated with these agents. This will be clarified before the formal consultation begins in February.
- A significant change to the current arrangements will be that the HSE will have to charge for the provision of advice, for accident investigation and for inspection linked to notification. The precise fee structure has not yet been announced but it is likely that the costs will be significant. The best way for the College to deal with this has yet to be decided.

What we will be doing next

We would like to encourage all of those of you that will be affected by this to be involved in the consultation process. The Safety Department will be holding a number of open group sessions in order to discuss the regulations once they opened for formal consultation. Notification of these meetings and of how to provide feedback will distributed via the Campus Safety Advisers, DSOs and Faculty Safety Managers.

Safety Department and Occupational Health Service News

Staff news….

Jan Lailey, Clinic Nurse with the College Occupational Health Service retires at the end of December. We would like to thank Jan for her valuable contribution to the team over the past ten years and wish her well for the future.

Fume Cupboard Code of Practice

We are continuing to develop the draft Fume Cupboard Code of Practice that is open for consultation on the Safety Department website. The section on maintenance and performance testing has recently been added. Feedback is welcome on any aspect of the CoP:http://www3.imperial.ac.uk/safety/guidanceandadvice/localexhaustventilation/fumecupboards

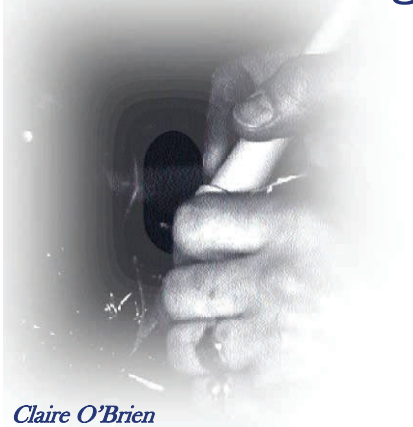
Hammersmith Chemical Waste Store Opening Day

As from 4 November, the opening day for the Hammersmith waste chemical store will change from Tuesdays to Wednesdays. Opening time will remain the same—10am to 11am. Waste producers at the campus have been notified by e-mail and a notice will be posted on the door of the store.

Off Site Working Q&A Leaflets

A series of Q&A leaflets have been published on the subject of off-site working. These can be downloaded from the Safety Department website and are designed as 'tri-fold' leaflets. The publications attempt to answer some of the commonest questions we are asked in relation to this type of work: http://www3.imperial.ac.uk/safety/guidanceandadvice/offsiteworking1

Controlling risks arising from *soldering.....*



Claire O'Brien
Principal Occupational Health Adviser

Work with colophony (rosin) based solder, can cause health problems. Reports of a high incidence of occupational asthma in the electronics industry in the early 1980's, demonstrated that there was a significant health problem caused by exposure to rosin based solder flux fume. In 1996 the EU classified it as a cause of allergies (asthma, as well as eye, nose and skin allergies). Soldering with rosin-based or modified rosin-based solder fluxes is one of the most significant causes of occupational asthma in the UK, in addition to it's association with causing skin problems. Rosin-based solder flux fume has a Workplace Exposure limit of 0.05mg/m^3 (long term) and 0.15mg/m^3 (short term).

Colophony, or rosin, is a solid resinous material obtained from pine trees and is a constituent in solder pastes, powder, liquids and integral soldering wire. When the flux or wire is heated to 200–300°C it produces a white fume. This rises on warm air currents (from the soldering iron) and can be inhaled. Fumes may also accumulate in a work area. People who do not solder continuously, e.g. plumbers, may be exposed to high levels of fumes over a short exposure period. This can result in the development of allergies—symptoms include: eczema - broken or sore skin, watery itchy eyes, a running nose with or without sneezing, coughing, wheezing, chest tightness and shortness of breath. Once an individual becomes sensitised they can develop symptoms when exposed to even the very smallest quantity of flux or fume. This is a permanent and irreversible health problem - the person may never be able to work with solder again.

Contact with colophony can also cause irritation of the skin eyes nose and throat. These symptoms are easily confused with allergy, but are less serious and effectively prevented by wearing gloves and using fume extraction.

In each area there should be COSHH assessments for all uses of products containing colophony and the familiar COSHH hierarchy of controls should be applied. Where possible, it should be replaced with a safer alternative and if there is no suitable alternative there should be exhaust extractors removing the hazardous chemicals from the air. The following principles should be followed:

- Consider the possibilities for eliminating the need for soldering by employing alternative techniques such as mechanical jointing or conductive adhesives (however, it is recognised that elimination is often the most difficult COSHH step to achieve).
- Substitute rosin-based solder with a safer alternative. Check that commercially available 'rosin-free' solders do not present similar health risks. Some fluxes contain natural rosin derivatives and some synthetic fluxes contain resin acid groups similar to those found in natural rosin. These substances may still be of concern and will require controlling.
- If a suitable safer alternative cannot be found, reduce the amount of flux used and / or the percentage of rosin contained within the flux.
- Ensure you are working in a well-ventilated area.
- Use local exhaust ventilation (LEV) or tip extraction. If local exhaust ventilation is employed, ensure that it is adequately maintained and there is a means of determining that it is working correctly. Thorough examination and testing of extraction systems is a legal requirement under COSHH and must be carried out by a competent person at least every 14 months (in practice, annually).
- Ensure that users are properly trained in all aspects of the process including the use of LEV.
- Include process temperature and frequency and duration of the activity as a factor in the COSHH assessment.
- Avoid skin contact with colophony pastes and wear suitable PPE. Gloves must be worn when handling solder wire and when using liquids and pastes. Eye protection should be worn where there is a risk of splashing of liquid fluxes.
- Dispose of waste materials and used protective clothing correctly.
- Ensure that adequate hygiene facilities are accessible. Always wash your hands after handling colophony based solder flux, even if you have worn gloves.
- In particular, always wash your hands before rest breaks.

If it is not possible to eliminate use of colophony or to avoid exposure to fume though local exhaust ventilation then health surveillance will be necessary. This identifies individuals with medical conditions which might be made worse by exposure and monitors for early signs of allergy. Surveillance is carried out by the College OH Service. If you work with colophony solder but are not included in the surveillance programme, you should contact the OH Service to enrol.

The HSE has produced numerous publications on working with solder. For more information, visit the HSE website: http://www.hse.gov.uk/index.htm

The Clinical Waste Cycle

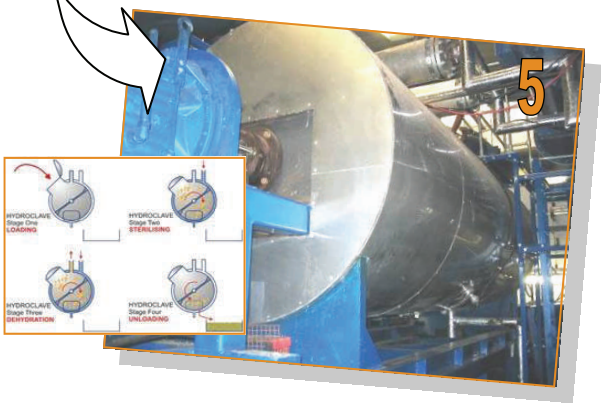
Earlier in the year, staff from Imperial College paid a Duty of Care visit to the premises of Grundon Ltd. at Knowl Hill, Berkshire—home of their alternative treatment facility for processing 'orange stream' clinical waste. This facility receives waste from the Hammersmith, Charing Cross and St. Mary's campuses. This page briefly describes the treatment process……...

1. Clinical waste is collected from the waste producers premises in purpose designed containers commonly known as 'Eurocarts'. The containers are approved for the transport of clinical waste by road and are colour coded orange for alternative treatment (alternative to incineration)

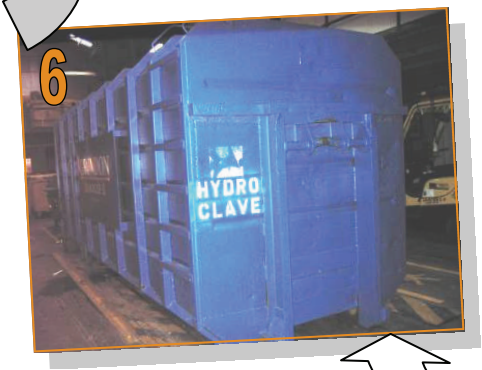
2. The Eurocarts are loaded onto the waste contractors tail-lift vehicle for transportation to the disposal plant. The vehicles are plackarded and equipped for the transport of clinical waste

3. On arrival at the alternative treatment facility, the Eurocarts are unloaded from the vehicle and the contents mechanically tipped onto an upward slanting conveyor belt

4. The waste bags proceed via a negatively pressured hopper through two shredding devices. The bags and contents are reduced to small fragments



5. The shredded waste is propelled by a screw feed and is deposited into a hydroclave (industrial autoclave). It is then steam sterilised at 130°C for 20 minutes before the moisture is removed from the chamber and the treated waste unloaded



6. The final residue, known as 'flock', is collected in large transport containers. It is either taken for landfill or incinerated to produce electricity at an Energy from Waste Facility

7. The empty Eurocarts are cleaned and disinfected in a purpose-built cleansing chamber before being returned to the waste producer for the cycle to commence once again

**some photographs taken during visit, other courtesy of Grundon Ltd.*

Accidents & Near Misses

Rohini Gowtham, Accident Investigation Officer

Review of new accident reporting software

The Safety Department have recently been examining some commercially available web based accident and incident reporting software with a possible view to adopting such a system to replace the existing procedures. At present, the accident report form is completed either electronically or by hand and is then returned to the Safety Department. The information is then manually keyed in to the *Safety One* database which is accessible only to members of the Safety Department. Web based reporting systems offer some benefits over the existing system and have the potential to be more flexible and reduce the administrative burden. Needless to say, they also carry a cost.

One software package has been reviewed to date and a second is due to be examined in due course. Warwick International Computing Systems visited to demonstrate their Health & Safety Management Software Module. (WICS is the company which supplies OPAS, the software used by the College Occupational Health Service for managing OH records). Some of the selling points were presented as:

- Utilisation of a simple online form for users to initiate the report.
- The facility for the information to be automatically entered into a central database.
- The ability for the software to generate actions or 'to do' lists and e-mails to relevant personnel.
- The capability to generate graphical outputs and textual summary reports.
- The capability to append additional information in a variety of formats including photographs.
- The capability for a variety of access permissions to be set so that accident information in the database can be either be made viewable to selected personnel or restricted according to whatever is required.

It also became apparent that there would possibly be some technical difficulties to overcome since the setup is designed to operate with Internet Explorer as a platform and these seemed to be some uncertainty as to how it would perform with alternatives to IE.

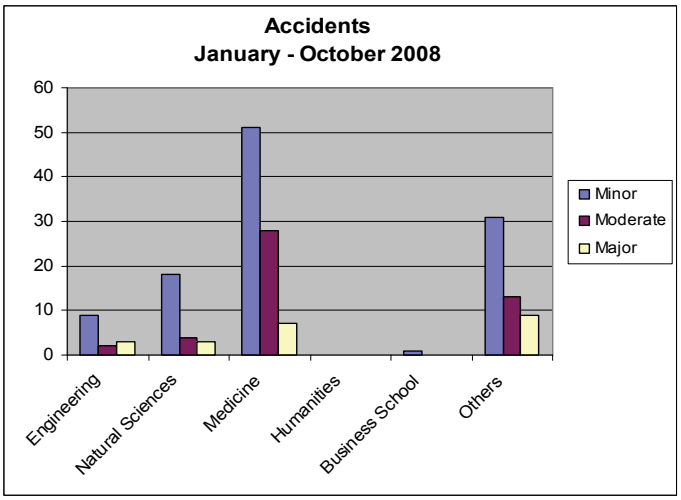
Arrangements have been made for the demonstration of an incident reporting software package produced by A-WARE International Limited for sometime in December.

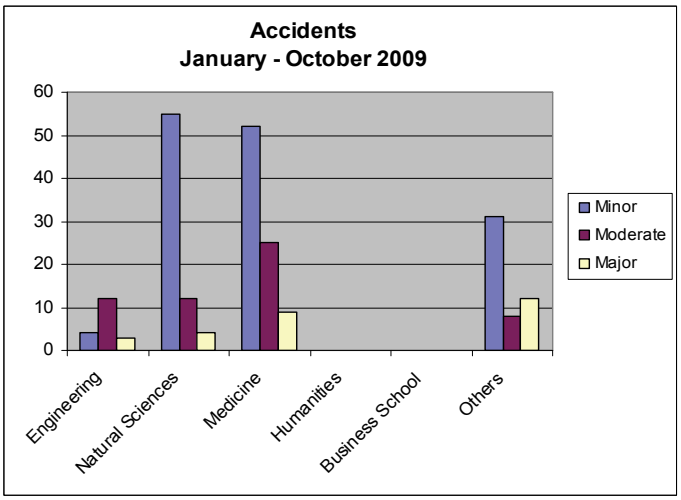
The consideration of these offerings is very much in the early stages and it is feasible that other contenders may appear during the course of the process. We will of course keep all relevant staff informed before any decisions are made.

Accident Statistics

	Jan-Oct 2008	Jan-Oct 2009
Total accidents reported to the Safety Department	179	227
Total accidents reported to the Health and Safety Executive in accordance with *RIDDOR 1995*	10	16

Comparison Graphs
January to October 2008 vs. 2009





Accident rating:

Minor: No treatment required / First Aid.

Moderate: Visit to Occupational Health / GP / Health Centre or A&E.

Major: HSE reportable / Lost time (up to 3 days) / member of public taken to hospital for treatment.

FREQUENTLY ASKED QUESTION:

Do I need to report laboratory spillages or releases of hazardous materials even if no apparent harm is done?

Certainly all incidents, including spills, aerosol releases, bites and scratches that could have led or did lead to a release of a biological agent or genetically modified micro-organism must be reported to the Safety Department. This should include unplanned events such as equipment failures that lead to uncontrolled releases—some common examples being centrifuge rotor (or tube) failure and failure of flasks in a shaking incubator.

The reasons for reporting are twofold:

- So that the incident may be investigated, improvements made where practical, and the experience used as a learning tool for the College as a whole.
- The legal requirements to notify external authorities such as the HSE, DEFRA, FERA, and the EA, are complex and not always clear cut. The Safety Department is the formal College route for all liaisons with health and safety enforcement agencies and is best placed to assimilate all the facts regarding an accidental spill or release and to make the decision as to whether the relevant enforcement agency needs to be informed.

A question that is sometimes raised, is whether there is a threshold limit to the size of the spill or release in order for it to be reported as an incident. All spills, by definition, result from a loss of control of the material, which subsequently results in contamination of the benchtop, work surface, floor etc. and this requires action to make it safe. It is true to say that spills involving small volumes of low hazard material may be easily dealt with by the researcher and they may be able to contain it, decontaminate the affected surface and then continue to work. However, for the reasons given above, we would expect all spills to be reported to the local safety advisor and then onwards to the Safety Department. In addition to biological agents, this also applies to hazardous chemical spills and spillages of radioactive material.

Chemical spillages can be particularly difficult to quantify with respect to the requirement for reporting to the enforcing authorities. *RIDDOR* contains a clause concerning the 'escape of substances' but offers little insight with regard to the threshold for reporting other than the fact that a decision must be made based upon the nature and quantity of the substance, the extent of dispersal and whether people were present. It is fair to assume that this is largely targeted at plant and process control failures and large-scale releases that are likely to be pretty much unheard of in the university sector.

'TIS THE SEASON TO BE JOLLY

Some mildly amusing (assuming you were not one of the unfortunates involved) Christmas accident statistics were recently circulated on the university safety advisers network (original source: RoSPA). We thought we'd share them with you. You have been warned!

- 3 people die each year after testing 9V batteries on their tongue
- 142 people were injured in 1999 by not removing all the pins from a new shirt
- 58 people are injured each year from using sharp knives instead of screwdrivers
- 31 people have died since 1996 by watering their Christmas trees with the lights still plugged in
- 19 people have died in the last 3 years, believing that Christmas decorations were chocolate
- British hospitals reported 4 broken arms last year after cracker pulling incidents
- 101 people since 1999 have had broken plastic parts of toys pulled from the soles of their feet
- 18 people sustained serious burns during 2000, by trying on new jumpers with lit cigarettes in their mouth
- Manual handling your turkey incorrectly can cause a condition know as 'turkey lifters back'

The Safety Department celebrate Jon Fear's recent birthday by tucking into a 'radioactive' cake……..

Contact Details

Occupational Health

Level 4
Sherfield Building
South Kensington
London SW7 2AZ

PHONE:
0207 594 9401
FAX:
0207 594 9407
E-MAIL:
occhealth@imperial.ac.uk

WEBSITE:
www.imperial.ac.uk/occhealth/

Safety Department

Level 5
Sherfield Building
South Kensington
London SW7 2AZ

PHONE:
020 7594 9423
FAX:
020 7594 9424
E-MAIL:
safety-dept@imperial.ac.uk

WEBSITE:
www3.imperial.ac.uk/safety

If you have any comments or suggestions for inclusion in future Newsletters please contact the editor:

John Luke
Safety Department
j.luke@imperial.ac.uk

Training

Eric Miranda, Learning Development Consultant

Learning & Development are often asked why there is an internal charge associated with some safety training courses. Certainly, most of our courses are free to staff and postgraduates but there are a number of courses where we have to ask departments for a contribution. Contrary to popular belief, the safety budget is only funded centrally to the tune of £40,000 for 2009/10 academic year. This includes employing external consultants for our specialist courses, purchasing materials, catering and room bookings.

We have to generate funds in order to deliver the full range of programmes in order to meet the training needs of staff and postgraduates. If we do not ask for a departmental contribution than we will not be able to provide other courses like First Aid free of charge. We will run over 50 separate First Aid classes this academic year. Where possible we have tried to use our own internal resources to deliver training and without the support of the Safety Department this would not be possible. For example, we are going to bring Radiation Protection Supervisors training in-house in the future which will represent a considerable saving.

We do accept external delegates on a number of courses. The external charge reflects the true cost of the course and in effect benefits internal users. For the NEBOSH Certificate, external delegates are charged £1450 as opposed to the £200 internal fee but any income generated in ploughed back into the wider programme. Where the College is co-located with external organisations we do apply the neighbour principle and offer them access to our courses. However, for those courses than are income generating like the NEBOSH Certificate we must charge the external rate.

Increasingly, we have tried to link our training within a competency framework so that our Biological Safety Officers, Radiation Protection Supervisors and Laser Safety Co-ordinators have the necessary training to work effectively. The College is one of the first ever to run the Institute of Safety in Technology and Research (ISTR) accredited Bio-safety Practitioner (Level 1) training which provides a competency framework for bio-safety practitioners in the UK. However, the cost of this 5 day course is approximately £9000. We do ask departments to make a contribution but the course is heavily subsidised.

We are asking departments to factor in safety when planning their budgets. Although we will continue to run a core programme, we are looking at the frequency of our courses. It may be realistic to provide fewer training courses but targeted more effectively and perhaps delivered to larger class sizes. There may be economies without impacting on the success of the individual. For example, we have reduced the Carriage of Infectious Substances by Air course from 2 days to 1 day while maintaining a high pass rate.

We have made some decisions about improving our "product" by replacing external consultants who do not represent good value. We also have to consider how we can further up-skill local safety officers across the College who can deliver training within their departments. To date we have trained 30 Manual Handling Instructors who will be able to cascade best practice to their work areas.

training schedule & events

Below is a selection of forthcoming courses. The complete list for this term is too comprehensive to include here—please consult the training programme link for the entire range: https://www3.imperial.ac.uk/safety/training/coursesindex.htm

January 2010		February 2010	
Portable Appliance Testing *(South Kensington)*	20th	Principles of Radiation *(South Kensington)*	3rd
Emergency First Aid at Work *(South Kensington)*	21st	Personal First Aid *(South Kensington)*	10th
Introduction to Laser Safety *(South Kensington)*	27th	COSHH *(Hammersmith)*	10th
Fire Prevention & Fire Safety *(Hammersmith)*	27th	Pressure Fittings *(South Kensington)*	15th—16th
Biological Foundation Safety Training *(South Kensington)*	28th	Gas Safety *(South Kensington)*	24th

Next issue of Health and Safety Matters: March 2010