Imperial College London

Health and Safety Matters

OCCUPATIONAL HEALTH & SAFETY NEWSLETTER

Issue 15
March 2009

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

Inside this issue:

Respiratory Protective Equipment—a project for 2009

One of the joint Safety Department and Occupational Health Service projects earmarked for this year will be a study into the use of Respiratory Protective Equipment (RPE). The purpose of the study is twofold:

- to enable improved guidance to be produced on the rational selection and use of RPE.
- to identify potential associated cost savings by eliminating unnecessary use without compromising safety.

Personal Protective Equipment, which includes RPE, is one of the most familiar safety controls to many staff working in laboratories, workshops and on maintenance tasks. However, there is anecdotal evidence that it is not always well understood. In the controls hierarchy, it should always be the last resort—yet in practice, it is often the first refuge for those wishing to protect themselves from the inhalation of harmful materials. Of course, there will be situations where RPE is necessary, but sometimes preferential control methods may be overlooked—particularly in cases where control of the hazard at source, for example, by enclosure of the process or local exhaust ventilation will protect all personnel in the vicinity rather than just the mask wearer.

Once it is established that RPE is required, selection of the correct mask for the task in hand becomes another issue. It will also need to be fitted and worn correctly. In addition, if it is not a disposable type, it will require some basic maintenance—which should be recorded - and safe storage away from sources of contamination. So there are a number of aspects that need consideration to achieve a good regime for the selection, use and maintenance of RPE.

We envisage that the study will incorporate all or most of the following:

- production of a College RPE Policy that outlines what needs to be achieved.
- a targeted survey of current RPE users to determine types, uses etc. ICIS has already been interrogated by the Purchasing Department to produce a report summarising purchasers, types of masks acquired, costs, details of suppliers etc. This has indicated a spend of around £60K for 2008.
- production of guidance to support the policy. This may possibly take the form of an 'indicative' list of tasks carried out in the College for which it is accepted that RPE is required. The matrix will then indicate types of RPE required, face-fit testing regime, maintenance and storage requirements etc.
- establishment of robust face-fit testing arrangements. This can be time consuming and the *Portacount* equipment is expensive, so these matters will need to be addressed.
- a drive to encourage departments to buy standard issue RPE that may already be familiar to us—this should result in economy of scale and avoid the potentially complicated issue of sourcing adaptors to facilitate the face-fit tests.

Updates on progress will follow via Health and Safety Matters and the other normal channels of communication in due course.

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

Medical help following a hazardous laboratory exposure

Dr Alan Swann

Most accidental exposures in a laboratory are trivial and don't need medical assistance. Washing off a contaminant or simple first aid treatment is sufficient. However, some exposures, particularly to biological agents, need medical assessment or follow-up to avoid harm.

However, the need for medical assessment, the urgency of obtaining it and—most importantly— where to access medical help is different depending on the material, the exposure and the campus where the exposure happens. The College Health & Safety Services are producing a simple rapid reference guide on when and where to get help. This will distributed after Easter. Get ahead of the game. Here's the *Health and Safety Matters* sneak preview:

Material	*Significant exposure*	*Source of help*	*Speed*	*Comment*
Unscreened human blood, serum or unfixed human tissue	*Inoculation, contamination of broken skin or splash into mouth, eye or nose*	*1. Campus OH service 2. A&E if OH Dept closed*	*Within 1 hour*	*If the wound is sufficient to require medical treatment beyond simple first aid, go to A&E first. Take any information available on the source of the material (donor, supplier, infectious status (negative tests results are as important as positives). If the donor is traceable, the treating OH Service may wish to contact the donor to arrange tests for infection with blood borne virus.*
Genetically modified organism	*Variable (risk assessment should specify) Inoculation exposures should always be regarded as significant*	*College OH Service, South Kensington*	*By next work day*	*For most GMO exposures immediate treatment to prevent infection is not necessary, or possible. Follow-up, to monitor for signs of infection can begin the next working day and will be carried out by the College OH Service.*
Biological toxin	*Inoculation, ingestion*	*1. College OH Service 2. Local A&E*	*Within 1 hour*	*A&E for any symptoms. Otherwise, contact the OH Service by phone in the first instance to discuss & assess the risk. Give details of:* ♦ *the incident* ♦ *substance(s) involved* ♦ *risk assessment or MSDS for the material.*

Only a section of the guide is shown here and the final format is still being developed . The guide will also contain information on the contact numbers for the Occupational Health services on each campus.

Field Research in China

An article appeared in the press early in the New Year concerning two British Students who fell foul of the Chinese authorities during a field research trip to collect seismic data in the province of Xinjiang last September.

The reports described the plight of the students who, ten days into their programme, had been approached by local officials and questioned for several hours about their activities. Neither spoke Chinese—data and equipment were confiscated during the process. The authorities protested that the students had collected 'illegal' data. In many parts of China, most forms of mapping and some forms of scientific research are considered illegal unless carried out by the Government. The students were fined around £1000 each.

It transpired that the group had obtained visas and had been invited to China by institutions based in Beijing but permission had not been obtained from local authorities in the area. Local permission had been sought but had been delayed by the Olympics and so the visit went ahead as it had already been planned. The academic supervisor had been in telephone contact with the students and had been taking students to China for ten years without encountering any problems.

Imperial has many staff and students engaged in fieldwork in all corners of the globe and this incident is indicative of the type of problems that can arise. This reminder should serve as a 'heads up' that meticulous planning is often required for trips to politically sensitive or unstable areas. Local permits may be required and certainly, local knowledge may prove invaluable. We have had other incidents reported whereby certain situations could reasonably have been avoided had local knowledge been sought and acted upon. College research groups have many collaborators based in foreign parts and it often possible to consult with them and benefit from their knowledge. Indeed, it is encouraging that we have much evidence of this routinely being put into practice.

Another factor to consider is that the political situation can change very rapidly in some regions. It is important therefore, to consult reliable sources of information such as the Foreign and Commonwealth Office website and also to act on advice from local contacts right up to the point of travel. It may sway the decision to either go ahead or cancel. If travel goes ahead, it is also prudent to monitor the situation on a daily basis for the duration of the trip and to ensure that emergency action can be taken in the event of foreseeable scenarios.

The College Off Site Working Policy and supporting guidance can be found at:

http://www3.imperial.ac.uk/safety/guidanceandadvice/offsiteworking1

Safety Department and Occupational Health Service News

Welcome….

Ian Hackford joined the Safety Department in February as Biological Safety Officer (non GM). Ian, formerly the Division of Medicine Safety Officer, becomes part of the biosafety team supporting Anton de Paiva who now has the title of Deputy Safety Director and BioRisk Manager.

Leigh Turvey has recently joined the Occupational Health team as an Occupational Health Nurse Adviser. Prior to joining the College, Leigh had spent many years involved in casualty work and health screening.

Farewell….

Amanda Jones, College Radiation Protection Officer will not be returning to employment with Imperial following her maternity leave. We would like to extend our best wishes for the future to Amanda and her family .

David Searl, who has been standing in for Amanda for the past year, leaves the Safety Department at the end of March. We wish David well for the future.

Hammersmith Waste Chemical Store

As forecast in the December edition of *Health and Safety Matters*, we now have a new hazchem store at the Hammersmith Campus. The store was delivered just before Christmas and is now in full use. It is positioned on the paved area at the east end of Burlington Danes. It proved something of a squeeze getting the store unloaded from the back of the vehicle (see adjacent picture) and we had to unceremoniously uproot some border railings. However, other than that, it went without hitch. It is certainly more presentable than its predecessor. It even has a heating element to prevent the contents freezing, which is also welcome for the human users in midwinter!

iCheck….the safety auditing software commercially known as CHASE

Further to the article in the last edition of *Health and Safety Matters*, confirmation that the name chosen for the College safety auditing software system will be '*iCheck'*. A series of half-day training sessions on familiarisation have now been completed and the software has been duly rolled out by ICT and installed on the PC's of the course attendees.

Biosafety—disinfectants and answers to questions

To help researchers complete the waste disposal section of their risk assessments, the biosafety team will shortly be issuing a simple, easy-to-follow flow chart system allowing researchers to choose the optimum disinfectant according to their requirements. The flowcharts will be comprehensive and will contain all the necessary information regarding use, range of activity, workplace limitations and safety hazards associated with some of the most commonly used disinfectants. They will all be linked to manufacturer's websites giving further details of any available validation data.

Another means by which we aim to more readily disseminate information to researchers will be via a series of FAQs, where we will look to address some of the more commonly asked questions. Examples will be fairly diverse and will include a number of topics from use of third generation lentiviral vectors to extent of coverage of RNAi technology by the current GM (Contained Use) Regulations and conditions attached to DEFRA licences for work associated with animal pathogens.

The mercury vacuum ceases to exist….

Please note that the Nilfisk mercury vacuum that the Safety Department has possessed for many years has fallen into disrepair and is in the process of being disposed. Requests to borrow the machine had become increasingly rare with the progressive elimination of mercury thermometers and other mercury containing instrumentation as the years have passed. Any departments still using mercury in their activities should have their own spillage procedures in place that are proportional to the likely scale of the spillage. Mercury uncovered during demolition and refurbishment projects will be considered to be the responsibility of the project.

Off road driving for off site work

Ian Hackford describes his experiences of a Land Rover driver training course

I am delighted to report that we are seeing plenty of off-site risk assessments coming through to the Safety Department for advice and review. In the travel section, many of the assessments mention driving, and a fair percentage of those go on to explain that this will be on non-metalled road surfaces i.e. "off road" driving. Even taking a vehicle along dusty tracks can be a tricky proposition. We have had at least one vehicle written off when it was tail ended and then T-boned by vehicles following too closely on African roads. Fortunately our staff in the lead vehicle were shaken but not hurt.

Clearly something should be done to provide training in off-road driving techniques and vehicle based expedition planning. Being a member of the Royal Geographical Society has many benefits, one of which is access to their events list which happens to advertise an off-road driving course. Basically the RGS have teamed up with Land Rover to offer off-road driver training aimed at those organising or involved in, research, community, or conservation projects in the UK and overseas. The two day course costs £150 (including lunch). This represents a substantial discount over approaching Land Rover directly and you don't have to be a member of the RGS to benefit.

I undertook an evaluation of the course in September 2008 at the Land Rover premier training establishment at Eastnor Castle in Herefordshire. Land Rover provided new LWB *Defender* vehicles. The challenging terrain comprised several thousand acres of woodland and open farm land that included rutted tracks, steep ascents and descents, deep water, fallen trees and various other natural obstacles. The instructors were all very experienced and knowledgeable with nerves of steel. The pupil to teacher ratio was 3 to 1 and the greater proportion of our time was spent in the field actually getting to grips with the vehicle so there was ample driving time for everyone.

In summary the two days broke down as follows:

Day one - An introduction to key off-road driving techniques.

Theory session

- The mechanics of the 4-wheel drive system and Land Rover specific technology
- Vehicle preparation
- Risk Assessment
- Care of the environment
- Dealing with obstacles and introductory off road techniques

Practical session

- Steep ascents
- Steep Descents
- Deep water
- Rutted tracks and ditches
- Side slopes

Day two – An increase in difficulty and recovery techniques.

Theory session

- Further equipment preparation
- Marshalling Techniques
- Advanced off road driving techniques
- Vehicle recovery
- Convoy driving
- Winching

Practical session

- More advanced driving skills with less input from the instructor
- Practical application of the theory lessons on winching, recovery and rope work

So was the course worth two days and £150 plus accommodation? There is no question about it - if you are planning any sort of vehicle based expedition and there is the slightest chance that you will be driving on anything other than tarmac, then this is a course you cannot afford to miss. Professionally run, excellent value for money and spot on for relevance. The knowledge and skills you gain will help to prevent accidents and make the expedition run more efficiently.

Course details and booking information can be found at: http://www.rgs.org/WhatsOn/Training+and+CPD/Fieldwork+and+expeditions/Land+Rover+Driver+Training.htm

REACH

Have you heard of it and do we need to worry about it?

John Luke, Safety Adviser

What is it all about?

REACH…..another acronym has entered our safety lexicon. Registration, Evaluation, Authorisation and Restriction of Chemicals. This EU Regulation requires manufacturers and importers of substances to register them with the European Chemicals Agency (ECHA) in Helsinki. Registrations need to be supported by a package of technical information on the substances and their hazards which will then enable them to be evaluated. The Regulation has a number of aims which include:

- better protection of human health and the environment.
- placing the responsibility for understanding and managing the risks associated with chemicals onto the manufacturers and importers.
- to permit free movement of substances on the EU market.
- To enhance innovation and competitiveness across the EU chemical industry.

REACH became law on 1 June 2007, but the registration process is set to continue in accordance with a timetable as far as 2018 and beyond. Enforcement is the responsibility of national competent authorities—the Health and Safety Executive, in the case of the UK.

What does it apply to?

It applies to all individual substances (and those in preparations or mixtures) manufactured or imported in quantities exceeding 1 tonne per annum. It also applies to articles that contain chemicals that can be released intentionally or otherwise. There is an additional category of chemicals known as Substances of Very High Concern (SVHC) - the Regulation will apply to such substances irrespective of any threshold quantity and these will need to be authorised prior to being placed on the market. These are substances that have serious consequences such as carcinogens and substances that persist in the environment for a long time. Substances deemed to pose a particular threat may be restricted. A list of SVHC's is due to be published mid-2009.

What does it not apply to?

There are exemptions for certain low risk substances and natural products. Also exempt, are substances that are covered by other legislation, including: radioactive substances, waste, human and veterinary medicines and plant protection products and biocides.

What does it mean for Imperial College?

For the most part, universities are unlikely to meet the criteria of being manufacturers or importers and are likely to be considered as 'downstream users'. The Regulation defines scientific research and development as *'any scientific experimentation, analysis or chemical research carried out under controlled conditions in a volume less than a tonne a year'*. Therefore, the implications are as follows:

- we must use registered or exempt substances.
- we must continue to apply *COSHH.* It may be, that suppliers may eventually provide improved material safety data sheets and risk management advice.
- we may be obliged to provide manufacturers / suppliers with information on how the substances are used, to assist them with registration and subsequent evaluation.
- departments should monitor the availability of chemicals. Non-availability may mean seeking alternative sources or re-thinking experiments, so this is arguably the point of most concern for us.
- with regard to classification, labelling and packaging, there will be a new system of pictograms and precautionary phrases to familiarise ourselves with—the Globally Harmonised System (GHS).

Manufacturers and suppliers are throwing considerable effort into compliance and many have assembled dedicated REACH teams. College suppliers have been busy registering chemicals for supply, publishing information on their websites, conducting seminars and meeting with customers. A glance at the Sigma-Aldrich website whilst writing this article reveals such statements as *'at this time, we do not plan to discontinue any products because of REACH'.* As yet, at this early stage, we are not aware of any instances of suppliers contacting us to seek information on how we use the substances they sell to us. It may well be that some sort of generic statement such as 'university research activities' will suffice.

Departments who have any concerns about supply, should contact the suppliers directly or consult their information pages. The HSE has a dedicated microsite devoted to REACH and there is a wealth of information including lists of registered substances on the ECHA website.

http://www.hse.gov.uk/reach/index.htm
http://echa.europa.eu/reach_en.asp

Accidents & Near Misses

Rohini Gowtham, Accident Investigation Officer

Electrical safety……..another issue with Sanyo equipment

Continuing the theme of electrical safety from the last issue of Health and Safety Matters, we have received another near miss report concerning Sanyo equipment. This time, the issue involved the purchase of a Sanyo autoclave, model MLS-3020U. The instrument was bought direct from Sanyo. It was supplied with a flex but no plug. The flex did not conform to UK standards and comprised two black wires and a earth wire. As such, there were no identifiable markings for determining live and neutral and the circuit diagram had to be consulted to ascertain this information. It is fortunate that the department benefitted from the services of a competent electrical technician who was able to recognise the problem.

The above issue follows the matter reported in the last edition concerning a Sanyo freezer that was supplied fitted with a *Schuko* plug and adaptor. The Safety Department has contacted Sanyo and invited them to comment on both these incidents. However, at the time of going to print, no response had been received.

Micromark Tower Fans

This alert has already been circulated to College safety staff and the Purchasing Department, but it is worth repeating it here.

Office Depot forwarded a safety notice before Christmas warning of a product recall relating to Micromark tower fans, model number MM30142. The recall applied to fans with batch numbers ending in 0604, 0611, 0701, 0702, 0703 or 0704. The fans contain a fault that could cause overheating and therefore presents a fire risk. Anyone who possesses one of these items of equipment with the stated batch numbers should stop using it immediately and contact Office Depot on 0800 1970 998 or productrecall@officedepot.com

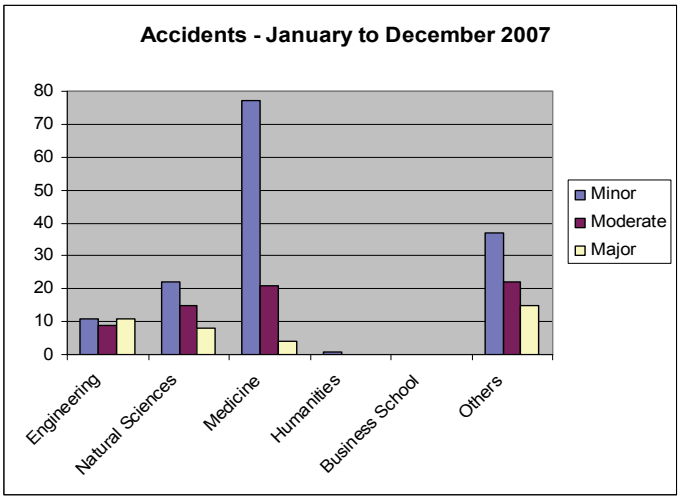
Personal details on RIDDOR report forms

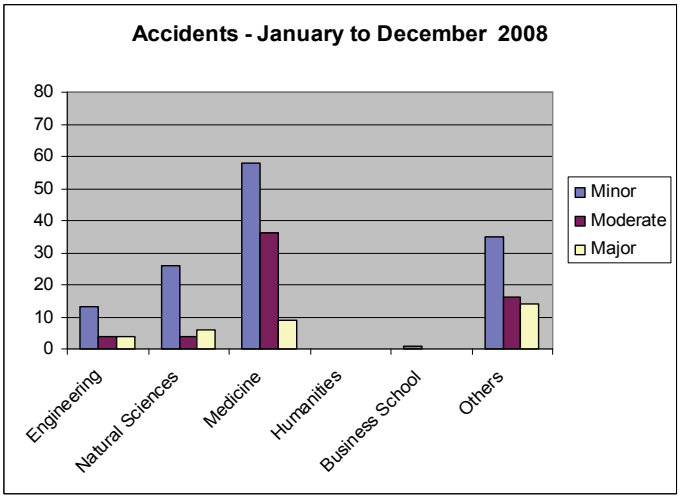
Part C of the standard HSE RIDDOR report form (F2508) requests personal details on the injured person, including the home address and telephone number. Occasionally, College staff who have been involved in a reportable accident raise concerns over the inclusion of this personal data and are sometimes reluctant to provide it. For clarity, the reason for requesting this information, is that it provides the HSE with a means of corresponding with the individual in a confidential manner should circumstances dictate that this is necessary.

Accident Statistics

	Jan-Dec 2007	Jan-Dec 2008
Total accidents reported to the Safety Department	253	226
Total accidents reported to the Health and Safety Executive in accordance with *RIDDOR 1995*	17	18

Comparison Graphs
January to December 2007 vs. 2008





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:

Can the Safety Department provide a decontamination certificate to permit removal of fume cupboard ducting?

The short answer is: no.

The decommissioning of fume cupboards presents a particular problem in that the inside of the extract ducting is inaccessible and does not allow any form of physical cleaning prior to removal. Testing for the presence of harmful substances is not only difficult from the accessibility aspect but also from the point of view that there would need to be some sort of indication of what to test for. It is quite possible for a fume cupboard to have been used for hundreds of different substances during its lifetime. If it were possible to test for particular substances, those tests may or may not reveal a presence. If a presence was revealed, it would in all likelihood, be at a very low concentration. It is also feasible that the presence of noxious substances may well be attributable to contaminated London air than to any substance that was deliberately used within. We can therefore see that there is a multiplicity of issues that preclude testing as being of any practical use. The one exception may be if the fume cupboard is known to have been used for radioactive material. In such a case, the College Radiation Protection team should be consulted.

So, in the absence of any suitable methods for cleaning or testing, what approach should be taken with regard to removing ducting? We can only take a precautionary approach which focuses on the use of personal protective equipment and sensible dismantling and wrapping of the ducting for final disposal. It is feasible that some small amounts of particulate hazardous material could survive within the ducting combined with the general dust around joints and junctions, though if the ducting has been designed and installed in accordance with British Standards, there should be minimal points for accumulation. Given the volume of air flow over the years, the risk must be considered as low. However, as it is not possible to decontaminate, it is not possible to issue a decontamination certificate.

Decommissioning the fume cupboard unit itself is a different matter. All items including chemicals and equipment must be removed and all accessible surfaces (worktop, panels, sinks etc.) suitably cleaned. A decontamination certificate should then be completed. This remains the responsibility of the department that occupies the area and it is the specific responsibility of the Principal Investigator to ensure that this exercise is diligently carried out.

Full guidance on removal and disposal of local exhaust ventilation ducting and laboratory waste pipes can be found on the Safety Department web pages:
http://www3.imperial.ac.uk/safety/guidanceandadvice/constructionsafety

Fume Cupboard Timeline

A reminder of what has already happened plus an update on what is happening at present and what is proposed for the near future…….

July 2008

Interim policy on fume cupboard commissioning introduced. All fume cupboards purchased and installed from this point in time are subject to this policy. The policy requires commissioning tests in accordance with BS EN 14175 Part 4: 2004.

December 2008

Safety Department commence uploading elements of the Code of Practice for Selection, Installation, Use, Maintenance and Decommissioning of fume cupboards. The interim policy on commissioning is absorbed into the Code of Practice and is strengthened to include recirculating fume hoods.

January 2009

Facilities Management commence assessing the suitability of new companies to take on the role of annual testing of fume cupboards with a view to increasing competitiveness and an ongoing improvement in quality. Labcheck UK are employed on trial and initially undertake testing at Hammersmith and Silwood Park campuses. Future annual testing will be in accordance with BS EN 14175 Part 4, namely:

- Face velocity test
- Smoke visualisation test
- Alarms test
- General condition inspection

March 2009

Safety Department undertake to prepare a Paper for Management Board outlining the options for dealing with fume cupboards that pre-date July 2008 and for which there is an absence of original commissioning data. The options are expected to include:

- Re-commissioning all fume cupboards that fit into this category.
- Adopt a risk assessment approach and attempt to identify which fume cupboards are being used for 'high risk' types of work and to re-commission those fume cupboards only.
- Not to conduct any re-commissioning but to simply continue with annual testing on the basis that older fume cupboards will eventually be replaced with new ones.

The Paper will outline the risks, benefits and costs of each option.

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

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Training

Eric Miranda, Learning & Development Coordinator

Learning Paths and Competency Profiles

Organisations learn only through individuals who learn. For safety training, we need to think of a strategic 3 -5 year cycle to ensure we have sufficient competent staff in Departments and support areas. We need to make deliberate choices and prioritise key areas based on College need without threatening the integrity of the provision given that our funding may be reduced in the future.

It is necessary to ensure provision in core areas such as biological safety, radiation protection, laser safety, gas safety and COSHH but we also need to ensure that we have sufficient First Aiders, Fire Safety Wardens, Safety Officers, Radiation Protection Supervisors, Manual Handling & DSE Assessors and that they receive requalification and refresher training. We have been actively looking at using the knowledge base of safety officers, assessors and co-ordinators and want to empower them further. Safety inductions are now delivered locally and there is a plan to use our Manual Handling and DSE Assessors to deliver training which takes into account their local environment. Here, we can take advantage of courses offered by the Learning and Development Centre (LDC) such as Training the Trainer and Making Effective Presentations. Many of out Laboratory Managers, Safety Officers and Technicians have undertaken the NEBOSH Certificate and the retention of trained competent staff is important if we are to ensure this organisational learning.

We need to build on MOST (Month One Safety Training) & RAFT (Risk Assessment Foundation Training) scheduled to be launched in spring 2009. All staff and postgraduates need to think of their Learning Path while they are at the College. The mandatory courses that they need to take in order to comply with College policy, the specialist courses they need to attend as a result of risk assessment and the general safety courses. We have built into Oracle Learning Management System (OLMS) a learning history for each individual and are looking at recording competency profiles in the future starting with laser safety.

Typically, competencies are general descriptions of the abilities needed to perform a role in the organisation, and reflect the different skills, knowledge and professional behaviour expected at each level. Competencies are usually demonstrated by attendance on a course or briefing session, by assessment, or by confirmation from a more senior member of staff. Furthermore, competencies can be assigned to a course (e.g. The Introduction to Laser Safety will result in a Foundation Level competency) or to a person (e.g. Authority Level 4 for Laser Safety Supervisors).

The idea is to extend the competency profiles to other areas like biological safety & radiation protection.

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

March 2009		April 2009	
Introduction to Laser Safety (South Kensington)	18th	Principles of Radiation Protection (Hammersmith)	1st
Biological Foundation Training (Charing Cross)	19th	Asbestos Awareness (South Kensington)	7th
Fire Wardens and Coordinators Training (Silwood Park)	25th	Laser Safety Forum (South Kensington)	8th
CIEH Level 2 Award in Health & Safety (South Kensington)	26th	Gas Safety (South Kensington)	22nd
Fire Wardens and Coordinators Training (Charing Cross)	26th	Biological Foundation Training (St. Mary's))	23rd

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