Imperial College London

Issue 14
December 2008

Health and Safety Matters

*i*Care

Control the situation

Assess the hazards

Reduce the risk

Educate staff & students

OCCUPATIONAL HEALTH & SAFETY NEWSLETTER

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All Change for Biosafety Legislation

The most significant change to the regulations covering work with human and animal pathogens in a generation is now well under way. Following the accidental release of Foot and Mouth Disease Virus from laboratories at the Institute of Animal Health site at Pirbright in 2007, the HSE Biological Agents Unit are in the process of merging all current legislation covering work with genetically modified, and unmodified, human and animal pathogens into a single regulatory framework (SRF). This process is Phase 3 of the implementation of the Callaghan review (see March 2007 Edition No 11 of Health and Safety Matters).

Members of the Safety Department attended the first of a series of consultative meetings to be run by the HSE as the implementation of the SRF continues. As the SRF will affect all researchers at Imperial involved in work with human or animal pathogens, the Safety Department will continue to provide regular updates on any information gleaned on the new SRF, and more importantly, on how the College will deal with this.

What we know now about the implementation:

- The SRF will comprise a single regulation, probably to be named 'The Contained Use Regulations'.
- This regulation will replace the biological component of COSHH, the entire GMO (Contained Use) Regulations and the entire Specified Animal Pathogens Order (SAPO). The Health and Safety at Work Act will also be suitably updated to accommodate animal pathogens.
- The date for implementation of the new regulation is April 2010.
- There will be a transitional period, as there was for the GMO (Contained Use) Regula-

tions in 2000. During this transitional period the College (and the rest of the UK) will have to achieve complete compliance with the new Regulations.

 The new Regulations will be accompanied by a comprehensive guidance document. The HSE are intending to build upon all existing guidance, for example, SACGM Compendium and ACDP 'Management, Design and Construction of Microbiological Containment Laboratories' in order to provide a substantive and detailed guide to interpretation of the new Regulation.

What we know about the new Regulations:

- These will be risk based and similar in feel to the GMO (Contained Use) Regulations.
- They will cover biological agents capable of causing human disease and those capable of causing exotic or notifiable disease in animals. The definition for inclusion of animal pathogens in these new Regulations is in line with those requiring inclusion in SAPO.
- Containment criteria and classification will be Class 1 to 4, similar to the current GMO Regulations.
- Containment criteria will be selected from 3 tables depending on the type of work being undertaken - research, diagnostics or large scale. Criteria will be similar to those currently prescribed under COSHH or the GMO (Contained Use) Regulations.
- A requirement for notification to the HSE will be included. This will be activity based (as well probably as a premises notification). This will therefore likely be again be very similar to the current GMO (Contained Use) Regulations, except that it will now apply to animal pathogens and unmodified human pathogens.
- There will be full cost recovery from the notifications for the enforcement of these Regulations. Again, expect this to be in line with the system already in place for GMOs.

Continued on Page 5.....



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

Accounting for Uranium and Thorium Compounds

Alongside the relevant IAEA safeguards requirements, civil nuclear material in the Member States of the European Union is also subject to the safeguards provisions of the *Euratom Treaty*. To this end, the College must keep a detailed inventory of the quantities and locations of all materials that contain uranium and thorium.

Compounds containing uranium are commonly used in electron microscopy and are found in many laboratories across College. Commercial uranyl acetate, when supplied, typically has a specific activity of between 11,000 and 25,000Bq/g (dependant on how the salt has been prepared and the time elapsed since the compound was made). This means, that as well as being subject to the requirements of the *Euratom Treaty*, it is also necessary for users of uranium salts to comply with both the requirements of the *Radioactive Substances Act* 1993 and the *Ionising Radiations Regulations* 1999.

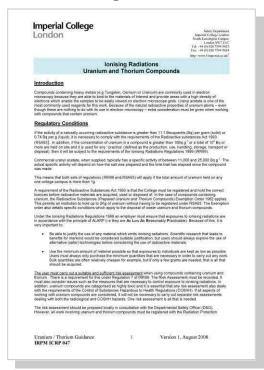
To help users understand what it required, a new guidance note has been produced and can be found on the Safety Department website under the 'lonising Radiation Safety' section (IRPM ICRP 047 – Uranium and Thorium Compounds:

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

The guidance note sets out the steps that must be taken to ensure regulatory compliance when using these compounds and the proce-

dures that must be followed to ensure that stocks of uranium and thorium compounds are reported so that the College can meet its obligations under the *Euratom Treaty*. These requirements include obtaining prior authorisation from the College RPO before ordering; registration of existing holdings and submission of a monthly summary of all waste disposals.

There is a positive outlook with regard to our accounting for these materials, since a recent College-wide *Euratom* audit by a European Commission inspector resulted in us achieving 100% compliance.



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TRANSPORT OF RADIOACTIVE MATERIALS BY ROAD

A revised College Code of Practice has recently been published concerning the transport of radioactive materials by road.

Research activities often necessitate the transport radioactive materials and samples. Transfer could be between collaborators from different institutions or between different Imperial College campuses. The transport of radioactive materials by road is subject to the requirements of the Carriage of Dangerous Goods and Transportable Pressure Equipment Regulations 2007 (CDG2007). The purpose of the regulations are to

ensure that radioactive materials are packaged such that the contents do not present a significant radiation risk both during the conditions of normal transport and in the event of a reasonably foreseeable accident. The ethos is that:

- Packages must be designed in such a way that the risk of any radioactive contamination and external radiation hazard are kept to a minimum.
- Shipments must be traceable back to the sender.
- Good quality assurance is of the essence so that the public can be reassured that radioactive materials are being transported safely.

Requirements are based on threshold activity limits that vary according to the radionuclide being transported and the revised code of practice details the activity limits and allows to consignor to determine which category their package will fall into. The CoP addresses the packaging, marking and labelling, documentation, record keeping and the modes of transport that are permitted to be employed. Other considerations are also given some attention, such as whether transport in dry ice is required, whether there may be other chemical or biological hazards present and arrangements for security and emergency situations.

The Code of Practice may be found on the Safety Department website at: http://www3.imperial.ac.uk/safety/guidanceandadvice/ionradiation

Jon Fear, College Radiation Protection Officer

Hammersmith Waste Chemical Store

Waste producers at the Hammersmith campus will have recently noticed an increased level of contractor activity in the vicinity of the College waste chemical store at the end of the Lower Medical Corridor. This is related to preparation work for the L Block redevelopment project and as a result of this, there are plans to relocate the waste store to a new position well away from the construction works. Due to space being at a premium, there are a limited number of options. A number of potential sites have been reviewed and the most suitable location is likely to be at the eastern end of the Burlington Danes building-this has provisionally been approved. It also presents an opportunity to acquire a new state-of-the art hazchem store since the existing one is reaching the end of its lifetime and may not survive being moved. We will keep all waste producers at Hammersmith informed of the situation and place an update in the next edition of Health and Safety Matters.

Chemical Spillages and Chemical Splashes

Stefan Hoyle, one of the Faculty Managers for Natural Sciences, recently arranged for Response Ltd, a company specialising in spillage absorption and first aid products for chemical splashes, to visit the College to carry out a demonstration of some of their products. This was with a view to suitably equipping areas throughout Natural Sciences.



The first product to be demonstrated was *Trivorex*®, a chemical absorbent effective against a wide range of substances. A test was carried out on some diluted acids and bases to indicate its absorbent ability and its colour change pH indicator function. It was also tested on acetone. One

of the advantages proffered was, that the residue that remains once the hazardous fluid has been absorbed, can subsequently be disposed as non-hazardous waste. The product is sold in a range of pack sizes including kilogram quantities.

The second substance demonstrated was *Diphoterine*[®]. This agent is applied in an aerosol form and can be used as first aid treatment for a wide range of chemical splashes to the skin. It also comes in a liquid applicator for eye contamination. The company also supplies a similar agent, Hexafluoride[®], which can be used to specifically treat hydrofluoric acid burns.

Further information on these products can be obtained direct from Stefan Hoyle or from the Safety Department. The company's web site is www.response-ltd.co.uk. We are currently seeking the opinion of Dr. Alan Swann, College Occupational Health Director, on the merits of the first aid products.

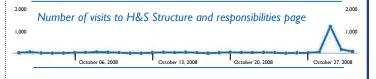


An e-mail was circulated to all College staff on 29 October outlining Imperial's commitment to health and safety and reinforcing the point that everyone in the College has a duty to take measures to protect themselves and their colleagues. Staff with specific roles were requested to

take a moment to visit the relevant Safety Department web pages to ensure that they understood their duties under

College policy. Subsequent analysis of website statistics revealed a significant 'spike' with regard to the number of visits to the Health & Safety Structure and Responsibilities page. This escalated from 48 hits the day before the email was issued to 1112 on the 29 October. In addition to this, a request to click an additional link to monitor the effectiveness of the communication had registered 986 hits within five working days. Thank you to all who took the time to read and respond.

Safety Duties



'You're not bringing that on here' stem cells almost fail to reach their destination

An article appeared in *The Independent* on 21 November concerning the recent groundbreaking transplant of a laboratory-grown trachea. This operation involved transporting the stem cells from Bristol, were they were grown, to Barcelona, where they were to be used. There was a sixteen hour window to achieve the transfer and despite the significance, a low-cost airline was chosen. However, the team of scientists claimed that the journey was placed in jeopardy when check-in staff refused to allow the stem cells aboard the aircraft in the event that they may be 'dangerous'. The scientists claim that the airline had initially agreed to the carriage, though the airline refuted this and claimed that no such request had been made to carry medical materials on board. The team resorted to chartering a private jet at a cost of £14,000.

This illustrates a potential problem for College researchers electing to take 'non-hazardous' biological samples aboard aircraft and we have long warned of this type of difficulty arising when we have been asked for advice on the subject. Indeed, our web page on the transport of dangerous goods carries such a warning. Researchers are advised to use a reputable courier to consign the goods as freight wherever possible or at the very least to obtain unequivocal (written) agreement from the airline in advance of travel if they are insistent on carrying the materials with them. Medical couriers are not always cheap but usually come in at less than £14,000.



CHASE Audit Software

A brief introduction

Julia Cotton, College Safety Auditor

The College has recently purchased a software system designed for health and safety audits. It is produced by

HASTAM and goes by the acronym CHASE (Computerised Health, Safety and Environmental [Auditing]). As this acronym will cause confusion with the pre-existing College Health and Safety Essentials notices, it is likely we will be changing this to something different—sensible suggestions are welcome. The software will enable departments to quickly and easily an-

swer a range of questions on the safety management system, and eventually on the risk control system as well. It allows for confirmation of supporting evidence, gives immediate access to guidance, and users can even conduct their own audits and run their own reports.

The database is held on the central server, and administered via the Safety Department. Users attend a half day's training, after which the software front end is loaded on their work PC. Access levels are set by the Safety Department, that is, which areas of the College can be viewed or reported upon. The software can also be loaded onto PDAs, allowing for full portability which is very useful when interviewing or inspecting. Subject matter can be examined across the College, for example: asbestos control, departmental train-

ing, driving, biological controls and so on. Alternatively, departments can be benchmarked with one another. The aim is for a "quick" audit to be carried out by HoDs and DSOs in early June, to provide a baseline upon

which all future audits will be measured. Once this is complete, a new audit will be started, this time to be held open for a year. This should allow departments to slowly build up all the required safety management system elements being measured by the audit.

In addition to the SMS and RCS audits, the Director of Safety is also using the Legal Compliance module provided by HASTAM (and updated annually), to check the current status of the College. HASTAM also produce other commercially available audit modules which we may purchase later. The College Safety Auditor will

continue to carry out the in-depth audits and assistance with SMS implementation in addition to examining the specific subject areas and developing new ones.

The system is capable of providing instant assurance and progress reports to senior management as they will be able to access the database directly.

The first tranche of training, scheduled to be carried out at the end of January, will be targeted at those staff who attended the HASMAP training last year. This includes some of the "high risk"

departments. By this time the College SMS audit will be ready to be trialled and then the fun and games will begin further workshops may be necessary.



Discharges to Drain

The issue of discharges to the drainage system is currently under the spotlight at the South Kensington campus as Facilities Management are working together with Thames Water to renew the College Trade Effluent Discharge License for the site. This has presented the opportunity for the Safety Department to become involved in the discussions with Thames Water regarding what is permissible to be discharged to the system from our laboratory operations. If we are able to gain a greater degree of clarity, we should be in a position to issue clearer internal guidance to our researcher as to what is acceptable and what is not.

In addition to this, Thames Water have asked to be issued with an emergency plan outlining how the College would deal with a significant chemical spillage that may threaten to contaminate the site drainage system. This is to follow the format of the Environment Agency Pollution Prevention Guidelines (PPG21) document and advises the inclusion

of emergency contacts, site drainage plan, emergency procedures and....wait for it....a chemical inventory! Given the thousands of chemicals we have on site at a given time, the latter is obviously not possible. However, it is sensible and feasible for us to indicate our locations for bulk storage (particularly the outdoor ones). The Safety Department are currently working to itemise these and together with Facilities Management, attempting to make some sense of the drainage plans for such an extensive site so that we can present them in a recognisable way in the final document.



DAY ONE

How was it for you?

Julia Cotton, College Safety Auditor, looks at the results of an implementation survey for Day One Induction

The College Day One induction process was launched in January 2008 and has now been almost completely implemented. There are two parallel systems. The first is for staff including postgraduates, contractors, visitors and "temps" (and late arriving taught students), in order to acquire their ID Swipe Card. The second is for taught students as part of their first week of lectures. Both systems help to ensure information on building evacuation, first aid, emergency contacts, reporting faults and accidents and other useful facts, are instilled as soon as possible.

We have just completed an e-mail survey of 200 new employees, to determine:

- a). whether they had received an induction
- b). if they had retained any of the knowledge, and
- c). whether or not they found the process useful and welcoming.

We received a level of response of around 30% (previous surveys have registered around a 20% return rate). A book token reward was offered to the first five respondents. Almost all stated that the induction had taken place, that knowledge retention had been good, and that it was useful and welcoming. There were a few comments on how the induction could be improved - most requesting written information as well as the one-to-one. Others wanted a longer more detailed induction. There were only three negative responses one where an induction had not been given until the second day, leaving the new starter stranded without a card and the other two, where there had been a false expectation of a full laboratory induction.

We found the survey very useful and as a result, will improve our guidance and induction form. We will also endeavour to ensure that those carrying out inductions are better prepared themselves. In Spring 2009, a new training programme "MONTH ONE SAFETY TRAINING" or MOST will be launched, and this should help to refresh some of the Day One training.

Lucky £10 book token winners:

Chris Wadsworth Coreen Beckford Michelle Bonnelame Cecilie Hansen Lavanya Thana

Faculty of Medicine Faculty of Medicine HR Support Services Research Office Faculty of Medicine

The full results of the survey will be published on the Safety Department website in due course.

All Change for Biosafety Legislation—continued from Page 1....

Do we need to panic?

No. Probably not. The HSE are conscious of the communities' concerns regarding over-regulation and the costs associated with notifications. The intention behind the regulations will be to apply proportional safety measures. In other words, each activity will be assessed on its own risk. The aim is to try and streamline compliance requirements for Class 1 and 2 work, whilst tightening up on the higher risk work at Class 3 and 4.

The College will support all its researchers involved in 'biological' research by providing as much resource as possible pre-emptively so as to facilitate the transition to the new Regulations. It will also be necessary to investigate the best options for the payment of fees. It is too early to discuss this yet though and we can leave this until 2009!



Seasons Greetings

Answers to burning questions

the office.

The College Fire Safety Team will be conducting presentations on the impact of the Fire Safety Policy on the 9th and 11th of December. Sessions will take place in LT140, Huxley Building between 12.00 and 14.00.

To reserve a place, contact 49641 before Friday 5th December.



Accidents

Equipment and Electrical Safety

A few incidents have occurred in recent months that probably warrant wider communication:

'Schuko' plugs and adaptors

An electric shock accident involving a Sanyo freezer was reported at another university in August. The freezer had been supplied by the manufacturer with a Schuko CEE7/7 2-pin plug and a BS5733 Power Connections adaptor to allow for connection to a UK standard 3-pin socket outlet. The Schuko plugs are unpolarised by design and in this case, the plug had been inserted into the adaptor the wrong way round, resulting in the polarity being reversed. At the same time, the earth connection was incomplete, resulting in the equipment operating without an earth bond connection in addition. The combination of circumstances resulted in the freezer casing becoming live. Equipment purchasers in the College should ensure that equipment is provided with UK standard plugs or that continental plugs are replaced with fused UK plugs by a competent person (whilst checking that this does not invalidate any manufacturers warranty).

Magnetic heaters / stirrers

This is an old favourite that occurs periodically, but is worth another mention. A plastic ice bucket had been placed on top of a magnetic stirrer that had a heating function. The stirrer was plugged in and switched on at the mains but the heating control knob was in the off position (in fact, it had been taped in this position). Despite this fact, a malfunction resulted in the heater activating. The plastic bucket melted and emitted smoke. The fire alarm was activated and the fire brigade subsequently attended and disconnected the item of equipment from the mains supply. Though this particular incident resulted from an equipment malfunction, user error sometimes occurs whereby the heater control knob is mistaken for the stirrer control knob. Departments should ensure that the heater versions are only employed when the heating function is specifically required.

Lab Impex minus 80°C freezer

An engineer was called to carry out a PPM service on a Lab Impex -80° C freezer, model LIC-2090. It became apparent that the insulation on the suction line had started to deteriorate causing the suction line return to the compressor to ice over and drip melted ice. This is not uncommon with ageing freezers (this freezer dated from 1995) but in this particular model there is a transformer located directly below the suction line. When the engineer arrived, he observed smoke and a small blue flash coming from the transformer and immediately carried out remedial work. This arrangement is potentially hazardous and presents a fire and electrocution risk. Any departments possessing Lab Impex or Revco freezers (particularly older ones) are advised to have them checked.

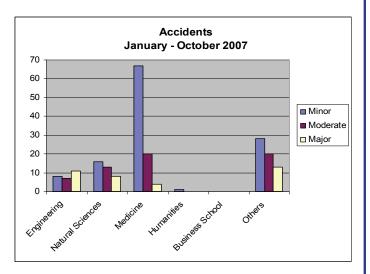
Photographs are shown opposite on Page 7.

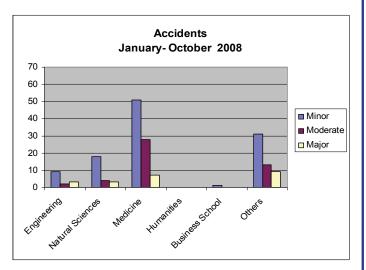
Rohini Gowtham, Accident Investigation Officer

Accident Statistics

	Jan-Oct 2007	Jan-Oct 2008
Total accidents reported to the Safety Department	216	179
Total accidents reported to the Health and Safety Executive in accordance with RIDDOR 1995	15	10

Comparison Graphs January to October 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.

Continued from Page 6—photographs of equipment



Schuko plug and adaptor





Stirrer / heater and damaged ice bucket



Lab Impex freezer transformer

FREQUENTLY ASKED QUESTION:



What constitutes a Near Miss?

College policy defines 'Near Miss' as:

'An undesired event or condition where no injury, ill health, damage or other loss occurs'

In other words, something that has the potential to cause injury or material loss but, perhaps by sheer good fortune, has not done so, or has failed as yet to manifest itself. So what sort of things would we expect to be reported with regard to this? Some such events may be more obvious than others, but we have recently updated the Safety Department guidance to include some of the commonest incidents in the College:

- Falling or flying objects. If it hits someone or damages something, its an accident. If it doesn't, it's a near miss.
- Observation of unsafe conditions such as blocked fire exits or an item of equipment that has an obvious fault
- Unsafe acts such as non-authorised personnel entering restricted areas. For example, we have received reports in the past of cleaners and external company reps being found in areas where they should not have been permitted.
- Waste going into the wrong waste stream. Here, we have the potential to incur the wrath of both our waste contractors and the Environment Agency. Newly delivered chemicals 'disappearing' having been placed next to a domestic waste bin and clinical waste bags turned into porcupines due to protruding glass burettes have caused us consternation in the past.
- Failure of equipment that is designed and installed to protect human health. LEV such as fume cupboards and microbiological safety cabinets provide two of the most high profile examples.
- Failure identified by statutory testing. Inspections of lifts and lifting equipment for example. Also, failure of LEV during annual statutory testing under COSHH.
- Problems with building services e.g. lift entrapments (not uncommon), failure of water supply (potential to affect hygiene arrangements and cooling water supply for experiments) or room temperature issues (staff welfare, influence on LEV performance).

The College guidance on accident and near miss reporting can be found at:

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

Contact Details

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

John Luke **Safety Department**

Month One Safety Training—the most important you will ever do! [most



Following on from the successful implementation of Day One safety training, the Safety Department and HR will be launching a new training and competence testing tool, via the College's Virtual Learning Environment. This will enable new starters (those with computers, CIDs and College log-ons), to be automatically enrolled onto some of the foundation courses, by means of the Oracle Learning Management system (the OLM). This should solve some of the problems of having insufficient staff to deliver foundation training at the most appropriate time - and a large cost saving in travel to and from other campuses.

Month One Safety Training or "MOST" will be the first of the on-line training courses. It is aimed at new staff, including postgraduates, long-term visiting workers, contractors, and even some of our tenants. It is intended as an awareness-raising course, with the objective of making all us aware of our responsibilities, including the need to carry out risk assessments - and of why one needs to have training in order to conduct them. There will be links from MOST to other on-line courses, including Risk Assessment Foundation Training (to be known as RAFT - guess why . . .). MOST will also flag up the College's hazards, and provide basic information on what to do if you encounter them outside of your normal workplace. It will also include a refresher of Day One.

The intention is that delivery of MOST and other e-learning courses will be by a number of methods, but usually by logging on from any computer - home, office or computer laboratory. It will be designed so that it can be delivered one-to-one for those who do not have access to a computer or

who are not computer literate, and will also be fully accessible for those with no sound card. It can be undertaken in 90 minutes, and if you need to take a break, it will remember where you are in the course. For courses where an examination rather than a test is required the intention is to hold examinations in computer laboratories. invigilated by a member of our staff.

MOST will include information on asbestos, offsite working, construction, chemical/ radiation/biological hazards, slips trips and falls, lone working, access control, fire, electrical safety, waste matters, computer health, manual handling and incident reporting. The concept of competency and the need for further training, knowledge and experience will be iterated throughout the modules, and of course, details of how to obtain it. There is consultation with stakeholders across the College, for their input regarding the content and delivery mechanisms.

The course will be mandatory (those of you who know your safety signs will understand why the MOST logo is in these colours), and we expect that excepting software glitches and local computer issues, that this will be fully implemented and embedded in the next 12 months.

We will monitor how successful implementation is amongst our staff by comparing numbers of new starters with "passes" which are recorded on the OLM, so will be able to produce departmental/Faculty fig-

MOST and perhaps RAFT, will be coming to a computer near you, sometime in the Spring of 2009. Watch this space.

Julia Cotton

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 2009		February 2009	
Biological Safety Foundation Training (SK)	15th	Principles of Radiation Protection (Hammersmith)	4th
First Aid for Fieldwork (SK)	15th/16th	COSHH (SK)	11th
Pressure Fittings (SK)	19th/20th	Asbestos Awareness (SK)	17th
Fire Safety (Hammersmith)	21st	Safe Use of Slings, Hoists & Rigging (SK)	18th
Introduction to Laser Safety (SK)	28th	Gas Safety (Hammersmith)	25th
CIEH Level 2 Award (SK)	30th	Responsibilities for Principal Investigators (SK)	25th

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