



To Radiation Protection Supervisors and Departmental Administrators
From David Plumb, Radiation Protection Adviser
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Subject Update information
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(DATE FOR YOUR DIARY - RPS UPDATE MEETING NEXT YEAR - MORNING OF
WEDNESDAY 28th MARCH 2012!)

Following the Radiation Protection Supervisors update meeting held on 30 March 2011, a reminder of some of the topics covered is provided below. These topics are relevant to RPS and also to Administrators and senior management of departments. The full PowerPoint slide presentations for the various sessions given at the update meetings for 2008 - 2011 can now be found at: <http://www.admin.cam.ac.uk/cam-only/offices/safety/radiation/ir/training/index.html>

Please also read some other important reminders that can be found on the pages five and six of this update memo.

1. Nature and effect of Ionising Radiations

A summary was given of the nature, effects and tissue interactions of ionising radiations. Although RPSs do not need to know a vast amount about radiation physics, the core of competence for RPSs published by the HSE, states that there is a need for ‘... *an understanding of what is meant by the general term ‘dose of ionising radiation’*. The short talk and the accompanying ‘hand-out’ provided, were intended as a reminder of dose units, effects and how these relate to health risks from ionising radiation. Dose assessments are required as part of radiations prior risk assessments!

2. Personal Dosimetry

Stuart Yates, Head of the Cambridge Personal Radiation Monitoring Service (CPRMS) gave a review of the need for personal dosimetry, highlighting the difference in provision for classified and non-classified workers. It was noted that, in the view of the HSE, in the Health Service (and possibly in the University sector), under-classification may occur – this may be the case particularly in the ‘accident situation’ and was relevant to some examples of accidents/doses in Universities as quoted in the previous “nature and effects” presentation. A reminder was given of the options for assessing doses to non-classified workers working in Controlled areas (by use of personal monitoring or other means), and examples shown of improper use/misuse of film badges that

Safety Office
16 Mill Lane
Cambridge CB2 1SB

Tel: +44 (0) 1223 339531
Fax: +44 (0) 1223 330256
Email: drp21@admin.cam.ac.uk
www.admin.cam.ac.uk/offices/safety/

can lead to results being reported as “impossible to assess”. Notice was given that later in 2012 ‘film’ would cease to be available for whole-body dosimetry purposes, and CPRMS were exploring alternative technologies – TLD (Thermo-Luminescent Dosimetry) or OSL (Optically Stimulated Luminescence). Maximum sensitivity (smallest reported doses) may be improved - less than 0.1 mSv or less may be possible, and the costs of the replacement devices (if lost or not returned) will be higher than for the present film badge holder. Advice was given in terms of the general management of dosimetry – wearing in association with PPE, monitoring in multiple locations, and employee responsibilities under the IRR 1999 and Section 7 of the Health and Safety at Work Act 1974. Finally, a reminder was given that a significant reduction in the eye dose limit is likely to occur in the near future – this may have a significant effect, for instance for PET workers – and result in more eye dose monitoring being required.

3. HSE

A summary of the most relevant aspects of the Ionising Radiations Regulations 1999 to work in Universities, was given by a Principle Specialist Inspector from the Health and Safety Executive.

The importance of the prior risk assessment carried out for new practices, *in accordance with paragraphs 36 to 58 of the Approved Code of Practice* to the Ionising Radiations Regulations 1999 was stressed. The hierarchy of control measures was described, noting that in order to ensure that all exposures (to ionising radiations) are as low as reasonably practicable, this should be by use of engineering controls, followed by systems of work and then by personal protective equipment.

As the SO have reminded departments at the time of audit, contingency plans, where they are identified in Local Rules, should be rehearsed at suitable intervals – usually at one to two year intervals. Reminders were also given of the requirement for provision of information, instruction, and training, the basis for designation of areas, provision of local rules and appointment of Radiation Protection Supervisors. Suitable monitoring, the designation of classified persons, accounting for sources and record keeping requirements were also included in the presentation. Evidence of appropriate training for all levels of staff may be sought at inspection - including training of senior staff!

The Inspector described the process of an IRR inspection – the need for management to be involved (and in the day-to-day operations of the facility!) – and he asked - “is too much reliance placed on RPSs, and, are University prior risk assessments and contingency plans complete, relevant and up to date?” Note was made of the need for the decision process to be clear when designating areas as Supervised or Controlled – HSE expect that realistic justification can be given on the decision to designate areas as ‘Supervised’ (i.e. kept under review) rather than as ‘Controlled’.

A reminder was given that when University staff propose to visit external establishments where ionising radiations are used, appropriate prior assurances should be sought by management as to the likely radiation exposures that could be received, and, when new workers join the University, assurance should be sought to determine if they were classified workers in their previous employment, and, if so, the extent of any previous exposures.

A further implication for the University and for University staff is the situation where workers are working with ionising radiations and monitored in more than one location (in the University or elsewhere). In these situations, unless otherwise advised by the RPA, separate assessment of exposure should be made in each location. For instance, when visiting a controlled area in a department other than the home department, a separate assessment could be made by wearing

an electronic dosimeter (EPD), whilst it is also permissible, in addition, to continue to wear the 'home' film badge or TLD. Any recorded (EPD) doses accrued in the host department, should be communicated to the RPA (Safety Office). For similar situations, outside the University, in the UK or abroad, the 'home' TLD or Film badge would not *normally* be taken to the host institution – but departments/workers should ensure that a copy of the host's dose assessment is made available to them following the end of the work, and these assessment results are also forwarded to the Safety Office.

The session concluded with the message that the overriding objective of the HSE specialist radiations inspectorate, is to seek evidence that ALARP is being achieved in the workplace.

4. University Documentation and role of the RPS

A review of the documentation needed to meet the expectations of the HSE and the Environment Agency was presented. The advised approach within the University is, where possible, to bring together the local rules' requirements (IRR99) and the need for written systems as required by Permits issued under EPR10, into concise linked documents – which enable the essential components of Local Rules and the compliance issues for EPR to be readily located, but, where necessary, separately identified. The idea of a 'compliance matrix', to demonstrate EPR Permit compliance, was again suggested to those attending the meeting. This approach was also promoted by the EA speaker. The respective responsibilities of individuals appointed as RPSs (IRR) and as 'Competent Persons' (EPR) was discussed, and a reminder given that even though overall responsibility resides with management under both main items of ionising radiations legislation, actions by an individual that are wilful, or grossly negligent, and which result in the employer (University) facing regulatory action, can also result in action, by the HSE or the EA, against that individual.

Two recent 'incidents' involving uses of ionising radiation within the University were briefly described – a common factor in both incidents was insufficient communication within the department concerned, as well as with the Safety Office – a reminder was given that incidents do not have to result in injuries or environmental harm, in order to attract the attention of the regulators!

The various documents, forms and policies and guidance available on the Safety Office Website were discussed, recent updates to documents highlighted and a reminder given that the site should be checked from time to time to ensure that the current versions of these items are used within departments. Linking your website to the SO pages was advised.

So ... Please check that you are using the current version of any form! *Subsequent to the meeting we were asked if the documents and forms pages on the Website could be amended to include a reference to the date that the document was last revised – as well as that date appearing on the cover of each individual document - we will adopt this idea in the near future – starting with the "forms".*

<http://www.admin.cam.ac.uk/cam-only/offices/safety/radiation/ir/forms/index.html>

A brief update was provided on changes being implemented to the monthly 'Returns form' used by Departments to inform the Safety Office of purchase, disposal and stocks of radioactive substances. The only version of the form now on our Website is an Excel spreadsheet. Please use this version only, and do not amend the form in any way – just add your numbers in MBq (two decimal places)!

E-mail the completed sheet to: safety@admin.cam.ac.uk (no paper copy is now needed).

If you are making corrections to the basic data – eg for half-life or for delivered/expected volumes, these corrections do not need to appear in the sheet to support the data on the bottom row of the sheet ('stock at end of month'). If you make corrections, the 'stock at end of month' row *does not* have to exactly equal 'brought forwards' and purchases, minus disposals – just record your corrected 'stock at end' details on the sheet and send a note in the covering e-mail sent with the spreadsheet, noting what assumptions you have made to arrive at the corrected 'stock at end of month' totals.

We will trial the revised systems over the next few months – if any problems arise, we will contact you. If *you* have problems with this change, please contact Lisabeth or David.

5. Environment Agency

An Inspector from the Environment Agency provided a comprehensive review of the Environmental Permitting Regulations 2010 (EPR 19), inspection practice by the EA, their Enforcement Policy, and the forthcoming conclusion of the review into the Exemption Orders.

Particularly noted were the changed formats of Permits compared to the old style Registrations and Authorisations – the need for those involved with work with radioactive substances to understand the Permit conditions and be prepared at the time of inspection to readily demonstrate compliance with the relevant conditions and limitations of the Permits. The use of a 'matrix' to compile relevant information and demonstrate compliance with the Permit was suggested by the Inspector. The importance of demonstrable management systems (as part of 'Policy') is expected by the EA. The requirements for appropriate security of sources was discussed – this depending on the type of source and enhanced counter terrorism requirements where necessary. A reminder of the policy of encouraging users of radioactive substances to concentrate work (rationalise!) into fewer areas was given. This supports the long standing advice given to University Departments by the Safety Office. Infrastructure deficiencies were discussed and examples shown to the meeting – prior discussion with EA inspectors is always encouraged before embarking on expensive re-furbishments or 'new build' – in order to prevent expensive mistakes! Record keeping and reliance on those records continues to be a key area of interest to EA inspectors and it was stressed that all records should be clear and legible (including amendments), be made in a timely manner, and be retained for periods as agreed with the site inspector. The long awaited review of the Exemption Orders is expected to be completed this year, with the new requirements being placed into Schedule 23 of the EPR. It is hoped that the new format for 'exemptions' will provide a much more straightforward description of the applicability of, and restrictions to, the use of exemptions, in language that is easily understood, compared to many pages of arcane legal drafting that comprises the current orders. (Exemption orders to the Radioactive Substances Act/EPR have been used to in the University for many years – for instances for very small sources such as quench/test sources in scintillation counters, Nickel-63 electron capture sources in GCs, and for uses of Uranium and Thorium, and Uranium and Thorium prepared substances).

The meeting concluded with an interactive 'quiz', with questions based on the various sessions presented during the day – the results of the quiz appeared to demonstrate a reasonable understanding by those attending, of the information covered in the Update meeting! Unfortunately there was no time remaining at the end of the afternoon meeting for questions to the speakers – we will endeavour to timetable this provision in another way next year.

Next Year - Wednesday 28 March 2012!

We appreciate that other meetings are sometimes arranged after we fix the date for the annual update meeting – in an effort to maximise attendance next year, we have already set the date of the next RPS update as above. Further details, venue etc will be forwarded at the end of 2011!

Ideas and suggestions for the 2012 RPS update meeting are sought. It is anticipated that the format will revert to a conventional half-day meeting, with a number of formal presentations and a choice of workshop topics. Please forward any ideas and requests to David or Lisabeth.

Other news items

Two Day course for Radiation Protection Supervisors

RPSs are reminded that the annual two-day course will be held on the 13 and 14 July 2011, at the Department of Pharmacology, Tennis Court Road. Although the course is intended for RPSs who have recently been appointed, or 'potential' RPSs, existing RPSs who have not completed this course or who have been in post for many years are very welcome on this course! **If you have not attended this course in the past four years**, you really should consider registering for the course this year. The course is organised jointly with the East Anglian Regional Radiation Protection Service (Addenbrooke's Hospital), and places may be booked at the SO website. Further information is available from David Plumb. There is no course fee payable for members of the University, and refreshments and lunches are also provided.

Red Bins for Scintillation Waste

As all departments are aware, all completed bins/drums of solid and scintillation waste should be 'wipe tested' before consigning to, and collection by, Safety Office staff. The RPS signature on the transport document confirms that this test has been done and that the results are satisfactory. It is particularly important that we have confidence that this process has been properly completed for the 'red' scintillation waste bins (non-Addenbrooke's site departments), as these bins are passed to a third-party contractor for transport and incineration. The Safety Office does not carry out further wipe tests before consigning to the contractor and therefore is reliant on the RPS signature on the original transport document in order to confirm that the test has been satisfactorily carried out.

Radioactive Waste Transport Documents – return of confirmation to originating departments

A requirement of the Transport of Dangerous Goods etc. Regulations 2009, is that consignors (in our case individual departments of the University), retain *confirmation* of the collection of radioactive material (including waste) from their premises.

Most departments currently achieve this by asking our driver to sign a duplicate copy of the transport document on collection of the material, or making an instant photocopy of the original at the time of the waste collection. One of these options should now be the practice of all departments, with the duplicate or copied document being retained within the department.

Obviously, for departments at the Addenbrooke's site, where a central unattended waste store is utilised, this practice will not work, as the documents are left in sealed envelopes attached to the outside of the drums. Therefore, from now on, the Safety Office will return a copy of the transport document collected at the time of the waste collection to the RPS who has signed the original form. This will be done within seven days of collection of the waste. The returned copied forms should be retained in the department, along with other documentation relating to the batches of radioactive waste.

Reminder! - The Safety Office are pleased to be able to offer a short 'road show' on instrumentation and monitoring, and bring our expertise and range of monitors to your department and discuss issues and problems with users of radioactive substances and machines. A number of Departments have already taken the opportunity to facilitate this presentation. If you think that one or more short (up to one hour) sessions would be useful for users in your department, please do not hesitate to contact Lisabeth or David directly in order to discuss possible arrangements and to arrange suitable venues and times.