



Association of **U**niversity **R**adiation **P**rotection **O**fficers

March 2006

AURPO NEWSLETTER

Editor T.J.Moseley

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EDITOR'S INTRODUCTION

Well here it is the first official electronic issue – I just hope I've got everybody's emails. Please remember to keep your subscriptions up to date because if you go over a year late in payment you go in the treasurer's bad books and off my mailing list! You had better check your status with Sonia if in doubt, or, make use of the last reminder at the back of the newsletter.

I want to hear more from affiliates. Make use of the newsletter. I'll put in any new product news, special offers or announcements free of charge (*until I get my knuckles rapped!*).

I was hoping to put a bit more information in relating to the transport of radioactive materials (see news item 12) but the Department for Transport RMTD are very slow at responding to queries. Hopefully I will have more information for the next issue. The Executive Committee have also agreed to get me a subscription to the IATA Regs so that in future I should be able to answer any air transport queries with an up to date copy.

TCC have been finalising the program for Oxford and the theme of the main Scientific Programme on 6th September is on 'Back to Basics'. A flyer on the meeting will be sent out shortly with full details of speakers etc, but just to whet your appetite here is an outline of the topics to be covered:-

- Epidemiological studies in Japan and elsewhere
- Radon and lung cancer
- Bystander effects and hormesis
- Radiation and tissue weighting factors
- Microdosimetry
- Kerma and ambient dose
- Choice of instruments
- Accident reporting and dosimetry for the small user
- Tritium contamination monitoring and estimation of activity in waste

The TCC is also working hard on updating the 'Handbook for Laboratory Workers' and hope to have this work finished shortly. We will also look to publish that electronically and then keep it updated regularly.

Thanks to all those who made a contribution to this issue of the newsletter and members don't be shy, if you have a procedure or guidance note that you think is good and could be of benefit to others send it in to me and we can see about getting it published.

Contributions for next issue by 2nd June 2006 preferred format Word emailed to -

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PRESIDENT'S REPORT

We are well into 2006 and once again I am looking forward to seeing as many members as possible at the AURPO Annual Conference later this year in September.

The annual conference, which will take place in Oxford from 4th – 6th September 2006, is now beyond its planning stage and we await your participation. The facilities look excellent and the Scientific Programme is now close to completion and promises to hold some very interesting sessions. The social evenings promise to have us all well entertained.

The meeting in Greenwich in 2007 is in its early stage of planning. Topics are always difficult to choose, so if you have any suggestions, do please let us know. We are looking for offers for hosting the annual conference for year 2009 and beyond. It seems early to talk about 2009 but the conference planning and confirming of facilities usually needs at least 2 - 3 years in preparation. If anyone feels that they have good facilities at their organisation please let us know. The 2008 meeting will be in Liverpool, and we have not visited the very north for sometime, so 2009 in Scotland would be a nice choice – any offers?

Thinking ahead to the future I wish to remind all of you that in a short time we will be calling for nominations for membership on the Executive Committee. Also the Technical Coordinating Committee needs some volunteers who have time to help with the work. We would like to hear from you if you are interested in joining the Executive Committee or the Technical Coordinating Committee.

I will be handing over the role of Treasurer to Gillian Glazier at the end of this month. From the 1st April 2006 will all members pass the treasury business directly to Gillian. I shall miss the direct personal contact with members but I will still be available to help with any enquiries you may have in any matters regarding the AURPO.

Executive Committee endorses a Position Statement on “The Radiation Protection Officer in Universities, Colleges and Research Institutes” written by Dr Peter Marsden on behalf of AURPO. AURPO will put this on the Agenda at UCEA Meeting and hope that through UCEA the statement will be circulated to all universities, colleges and research institutes. Thank you Peter for this excellent piece of work that clarifies the role of the RPO. Most members will find this document very useful indeed.

I welcome the first issue of AURPO electronic newsletter. As usual it is packed with interesting articles and useful information.

Good wishes to you all.

Sonia Nuttall
10th March 2006

“Effective Radiation Regulation Through Better Communication”

HSE Headquarters, London – Meeting Report

This meeting was held by the HSE Radiation Specialist Inspectors on 22nd November 2005.

The aim of the day was for attendees to raise issues related to HSE Regulation with the Inspectors.

The meeting, organised by Sandra Mackie, was in an Open Space format which involved everyone noting/nominating items to be addressed. These were then divided into 6 sessions over 4 workstations. Attendees moved from one discussion group to another as items of interest were addressed. As the group produced many more than 24 items, the titles were grouped into related subject matters. Initially, approximately 30 minutes per session were allocated, but this was too little time and one set of sessions had to be discarded, leaving 16 discussion topics.

The “convenors” of each session were the people who raised the item. The convenors provided some background information on the topic and it was raised, then discussions began. Notes were taken by one member of the group and passed to the “Newsroom” where they were typed up. This record of the day was then sent out to all participants. However, it should be realised that the notes are one person’s opinion of what occurred; they have not been checked by attendees.

The topics addressed were:

- ★ HSE and RPA Issues
- ★ Communication
- ★ Visiting contractors
- ★ RPO Recognition
- ★ Pregnancy
- When will there be an accreditation scheme for NIR?
- Sun beds
- Training
- Lasers
- Nuclear Medicine Controlled and Supervised areas
- Radiation Employer education
- Radon
- Critical examinations
- Does prosecution work?
- Hand held dental X-ray: Good or bad?
- How to identify new technology/trends

Due to the nature of the meeting I can only report on those sessions that I attended (marked ★, above).

The ‘HSE/RPA Issues’ session was very well attended and raised much discussion which, I am sure, is no surprise to anyone. What was surprising was the discrepancy between what the HSE expected from an RPA and what an RPA actually does. The HSE see the RPA very much as an advisor, removed from the implementation process and not required to be present for inspections. Legally, the RPA is not even required to visit a site. However, the general feeling from the group was that you could not advise an unseen site and that an RPA who didn’t visit the site would not be a “suitable” choice. The HSE would like more management involvement during inspections, which raised the issue of management “training” i.e. how to make managers aware of their responsibilities and train them to judge “suitability”. This also

raised the issue of how the HSE should deal with a non-competent RPA. At the moment there is no policy for this, and it was felt that there should be a system for reporting back to the assessing bodies. There was lively discussion amongst the HSE Inspectors over whether being certified made you an RPA or not. It was felt that a clear definition of the individual roles (RPS/RPO/RPA) was required. That this was the employers' responsibility was not determined and the issue was further discussed in the 'RPO recognition' session.

The 'Communication' session was aimed at finding ways to encourage attendees to speak to their HSE Inspectors; it was felt that radiation users avoid them for fear of inspiring a visit! The Inspectors are looking at setting up an independent advisory service, however this would not be manned by radiation specialists as there are too few of them. It was pointed out that RP News is or should be a link from RPAs to the HSE. Several ideas were raised and will be discussed to assess the benefits of each option (see actions below).

The discussion on 'Visiting Contractors' led to more questions than answers! The general consensus was that it was the site's responsibility to put the safety systems in place and to police them, unless the contractor actively took responsibility for the area they were working in (this would have to be done in writing).

The discussion on 'RPO recognition' was extensive. It was recognised that in many cases the RPA and RPO were the same person, however, the roles are very different and this can lead to problems for example if an internal RPA is replaced with an external RPA. Most of the jobs that RPOs carry out are legally defined roles and as such should be properly assigned. The general feeling was that the role of RPO should be recognised and defined legislatively, thus adding more weight to the role. Until this happens it remains a management issue. The role of RPA is currently being reviewed within the EU—which may lead to changes, such as having grades of RPA, which may encompass the RPO role as well. In the interim there is an AURPO paper on the role of an RPO which could be used to raise management awareness.

The 'Pregnancy' discussion was really interesting as it would appear that we are all quick to educate staff and work towards a precautionary principle. One of the major issues is how to apply this to patients, for example when is it acceptable to ask if someone is pregnant? How do staff ensure informed consent without causing undue concern/stress to the patient? These issues will have to be addressed within the appropriate groups, as guidance is obviously needed.

In conclusion, the format of the meeting worked very well; most of the attendees had no difficulties in expressing opinions, sharing experiences and offering up solutions that they themselves had implemented. The HSE Inspectors joined in the discussions, and in some cases could clear up an issue. However in many other cases it was obvious that there were grey areas which required interpretation; this can lead to inconsistency of application (one of the main issues raised). During several of the sessions an action was raised that the Inspectors felt needed to be addressed, and these have been noted below. The real measure of the meeting may be in whether or not these actions are implemented.

Actions

- Look into the possibility of having an RPA-like role for Non-ionising radiation and other H&S legislation, as there is concern about impending regulations. Note: action is to highlight this shortfall to the HSE Inspectors before it becomes an issue.
- Laser safety guidance is required following the implementation of the Physical Agents (Optical) Directive. New guidance should cross-reference existing material so as not to overlap.
- Discuss the need to review IRR99.
- Need to ensure employers are aware of their responsibilities regarding Ionising Radiation, possible via professional bodies. (SRP AGM in 2006 looks at “Suitability”, might this address employer duties?)
- “When is an RPA an RPA?” article to be prepared for the newsletter.
- HSE Inspectors to review their resourcing. They will then decide what is the best way to use available resources to further improve communication, e.g.-set up an operational group, attend SULG, produce a letters page in RP News, invite PIRSDG to IR H&S Forum

Outcome, the meeting was successful and should happen again. It was great to be able to communicate freely with the regulators and I am sure that they got a great deal out of the day as well. I feel that the Inspectors’ aim of the day was to be seen as approachable, it may be that they recognise that ‘5 minutes to advise is better than weeks to prosecute’, and I think in many cases they achieved this but there is still a long way to go. To this end I am sure there will be further meetings, the next one may be with a different set of attendees to ensure that they continue to get fresh feedback, it may be with a mixture of old and new, or they may go for the same group again. No matter what approach is taken I hope that it is as well received the next time round as it obviously was this time.

Kate Goan
Organon Ltd

NEWS FROM ICRP

The work of an ICRP Task Group is nearing completion. The report of the Task Group addresses the scope of radiological protection. Since virtually everything is slightly radioactive for natural reasons, there has to be a practical level below which material is not regarded as radioactive for radiological protection purposes, and the draft report discusses that level.

The draft report can be accessed on the following consultation page:-
<http://www.icrp.org/remissvar/remissvar.asp>

You need to select the document from the drop down box - ‘The scope of radiological protection’ and then select ‘view document’ to download a pdf version. This page is also used to post any responses to ICRP and please note that comments have to be in before 19th June.

The EU Electromagnetic Fields (EMF) Physical Agents Directive – EC/40/2004.

‘Implementation into UK National Legislation’

**Roundtable Discussion on 5th January 2006
at HSE Headquarters, Rose Court, London.**

Introduction

The Directive¹ came into force on 29th April 2004 and as such must be implemented into UK law by the end of April 2008. It deals with ‘protection of workers from risks ... arising or likely to arise from exposure to EMFs (0 Hz to 300 GHz) during their work’. It is restricted to ‘known short-term adverse effects in the human body’, and ‘does not address suggested long-term effects’.

This meeting focussed on the detrimental impact the Directive will have on certain clinical MRI practices when it is eventually transposed into national legislation. It was attended by approximately 50 key stakeholders including radiologists, radiographers, medical physicists, clinical scientists, RPAs, engineers and equipment manufacturers.

The Problem

The Action Levels and Exposure Limits tabulated in the Directive are based on, and essentially identical to, the Reference Levels and Basic Restrictions contained within The International Commission on Non-Ionising Radiation Protection (ICNIRP) guidelines². It appears that these guidelines are based upon evidence that is not, on the whole, scientifically sound. They relate to a variety of physiological effects, many of which are arguably inappropriate. This had led to overly stringent exposure limits being adopted in the Directive.

On the other hand, the current IEEE Standard (details on IEEE standards website) focuses on Peripheral Nerve Stimulation (PNS) effects. PNS has been thoroughly investigated and is considered to be the most sensitive indicator of acute adverse health effects. It would be very difficult to have serious deleterious effects without experiencing noticeable PNS beforehand (at lower levels of EMF exposure). Cases of PNS reported by patients are rare, and virtually non-existent when it comes to staff. Although, in extreme situations, PNS effects can be painful they are transient and disappear when the MR scan is completed. It was felt that it would be more appropriate to use the IEEE standard for the basis of limits in MRI. However, it is currently not accepted by the EC.

At present, the Directive’s EMF limits would severely restrict, or even prevent, substantial amounts of interventional MRI where staff must remain close to the magnet during the procedure. Consequently, this work would have to be performed by CT, leading to an increase in the well-established stochastic risks associated with ionising radiation doses to patients and staff. A situation that appears to be a contradiction to the ALARP principle.

What can be done?

How can we amend or ‘get around’ the exposure limits as they stand? It was acknowledged that the Directive is due for technical review and possible amendment in 2009, but this would have to be considered by the EC in conjunction with ICNIRP’s review of the current evidence. Even if modifications were agreed at that time, over-precautionary UK legislation could be in force for years before the changes appear at a national level. Action needs to be taken quickly. Rapid scientific investigations have to be done now to determine the extent of non-compliance with the Directive. Then a campaign of lobbying the EC/European Parliament by a broad range of stakeholders in the hope that either:

- (a) a change can be made towards more realistic exposure limits based on IEEE Standard, or,
- (b) MRI might be considered a special case and gain a derogation from the Directive.

Although negotiated changes to EC Directives are not unheard of, the process can be slow and problematic, especially when the proposed alterations are to actual numerical values.

The full HSE report on this meeting will shortly be available on the HSE website.

References:

1. EC Directive 2004/40/EC on the minimum health and safety requirements regarding the exposure of workers to the risks arising from physical agents (electromagnetic fields). 2004.
2. ICNIRP. Guidelines for limiting exposure to time-varying, electric, magnetic and electromagnetic fields (up to 300GHz). Health Physics, **74** (4), 1998.

Dr. Pete Cole
The University of Liverpool

1st March 2006

NEWS FROM RPA 2000

RPA2000 held its AGM on 7 February 2006.

It noted there had been 48 applications in 2005 of which 15 were for renewal and 6 for the new LPA Certificate. At the end of the year there were 418 holders of current RPA Certificates issued by RPA2000.

At the end of the year there were 25 Assessors. There would be a meeting of Assessors in May 2006.

Finances were discussed in depth and the need to balance Income and Expenditure over each 5 year cycle of operations. It was agreed that fees needed to be increased to achieve this. New fees, coming into effect from 1 April 2006, would be:-

- £200 for first applications by members of the constituent societies
- £100 for re-certification applications by members of the constituent societies
- £400 for first applications from non-members of constituent societies
- £200 for re-certification applications from non-mebers of constituent societies

Revision of all documentation would soon be carried out .

Due to the imminent amalgamation of IRP and SRP it was agreed a Board of 5 members (2 each from SRP and IPER and 1 from AURPO) would be sufficient (your Executive agreed with this at a recent meeting).

Tony Richards
10 March 2006

‘LEAKING’ TRANSPORT CONTAINER HITS THE HEADLINES - AEAT PROSECUTED

Newspapers and TV never let the true facts get in the way of a good story and I’m sure some people have probably been out there trying to find traces of the ‘leak’ on the route from Leeds to Windscale. Joking apart this was a serious incident in which a transport container was not properly sealed allowing a beam of gamma radiation from a waste Co-60 teletherapy source to get past the shielding with potentially serious consequences.

Therefore it was not surprising that at Leeds Crown Court on 20/02/2006, AEAT was fined a total of £250,000 and ordered to pay £151,323 prosecution costs. The company had previously pleaded guilty to criminal charges under health and safety and road transport law, of exposing employees and subcontractors to potentially very high risks from radiation.

James Taylor, a Principal Specialist Radiation Inspector with HSE, said: “This case should serve as a reminder that radiation protection should never be taken for granted and that management must understand the principles, not least of which is the need to supervise their staff properly.”

The joint HSE/DfT prosecution followed an incident in March 2002, when AEAT were contracted to remove material, previously used in cancer treatment, from a Leeds hospital and transport it by road to Windscale, Cumbria, for disposal. At Windscale, very high radiation levels were discovered coming from the specialist container used to transport the material.

A joint HSE/DfT investigation revealed that a vital shield plug was missing from the transport container, allowing a beam of radiation to emit from its base and that this had gone unnoticed. A primary cause of the incident was the company’s failure to supervise and support their staff properly.

James Taylor continued: “I am pleased that the court clearly saw this as a serious matter. While there is no evidence that anyone received a significant exposure during the preparation and transport of this material, there was clearly the potential for an extremely serious incident. Anyone exposed to the beam coming from the container could have exceeded the legal dose limit within seconds and suffered radiation burns within minutes.

“The case also highlights the need for proper preparation and monitoring of transport packages. Adhering to approved operating procedures would have detected the omission of the shield plug before the radioactive material was loaded into the container.

“HSE is always willing to work with companies handling radioactive materials to ensure that workers and the public are not exposed to excessive and therefore unacceptable levels of radiation. In HSE’s judgment, however, the management failures and the level of risk in this case merited prosecution, in line with our published enforcement policy.”

The following is a list of the charges that were made against AEAT and which the company pleaded guilty to at the main hearing on 14th December 2005.

1. Failed to ensure, so far as reasonably practicable, the health safety and welfare at work of employees during work associated with the removal of a Cobalt 60 radiation source from a teletherapy machine at Cookridge Hospital, Leeds and its transport by road to Windscale for disposal, contrary to Section 2(1) of the Health and Safety at Work etc. Act 1974;

2. Failed to conduct its undertaking, namely the transport and management of radioactive materials, in such a way as to ensure, so far as was reasonably practicable, that persons not in its employment who may be affected thereby were not exposed to risks to their health or safety, contrary to Section 3(1) of the Health and Safety at Work etc. Act 1974;
3. Failed to take all necessary steps to restrict, so far as reasonably practicable, the extent to which employees and others were exposed to ionising radiation, contrary to Regulation 8(1) of the Ionising Radiations Regulations 1999 (IRR).
4. Failed to ensure that ionising radiation levels were adequately monitored, contrary to Regulation 19(1) of IRR.
5. Caused a package containing a radioactive source to be transported without determining the Transport Index of that package, contrary to Regulation Regulation 14(1) of the Radioactive Material (Road Transport) (Great Britain) Regulations 1996; and
6. Failed to ensure that requirements for package inspection were satisfied before shipmen, contrary to Regulation 31(2) of the above Regulations.

HSE NEWS

The 3rd edition of Guidance Note PM77 on 'Equipment used in conjunction with medical exposures' has now been published by HSE and can be found at:-

<http://www.hse.gov.uk/radiation/ionising/exposure.htm>

The HSE is hosting the next meeting of the Ionising Radiation Health & Safety Forum on 22nd March. Amongst the items to be discussed will be the revision of the HSE statement on RPAs which should be published soon. The sorting of dustbin waste and its effects on dustbin disposals will also be discussed – is this a new practice and is it justified?

The HSE have been recruiting some more specialist inspectors for radiation matters and I hear one may be based in Sheffield so I'll have to watch out!

Following on from the Government's new policy to reduce the burden of legislation, IRR99 is being looked at by consultants Price Waterhouse Cooper who will be reporting to the Cabinet Office.

POWER FREQUENCY ELECTROMAGNETIC FIELDS, MELATONIN AND THE RISK OF BREAST CANCER

In February the independent Advisory Group on Non-Ionising Radiation (AGNIR) published a report¹ that examines whether electromagnetic fields (EMFs) associated with the supply and use of electricity can influence the risk of breast cancer. Following a thorough review of the published scientific literature, the report concludes that overall the evidence does not support the hypothesis that exposure to EMFs is associated with an increased risk of breast cancer. In addition, EMFs do not appear to affect the production or biological action of the hormone melatonin.

People are exposed to EMFs wherever electricity is supplied or used, both in the home and at work. Common sources of exposure include overhead power lines, electrical wiring and domestic appliances. The suggestion that exposure to EMFs may increase the risk of breast cancer, via a reduction in production of the hormone melatonin, was first made almost 20 years ago and has generated much research. Melatonin is produced mainly during the night as a secretion from the pineal gland in the brain, and it has many effects concerned with the timing of biological functions within the body.

The Advisory Group report considers whether exposure to EMFs can influence melatonin, and concludes that there is no consistent or convincing evidence to indicate that EMFs can affect the production or action of melatonin. However, the report acknowledges that there are some deficiencies in the existing research, particularly with regard to assessing the effects of long-term exposure to EMFs, which leave open the possibility of an effect.

The report also considers whether melatonin can affect the risk of breast cancer, and concludes that although there is evidence that melatonin can inhibit the growth of cancers in laboratory tests using animals and cell cultures, the situation in humans is unclear. The few studies that have investigated if melatonin levels are different in women who later develop breast cancer were considered to be inconclusive.

In addition, the report considers studies investigating the effect of light exposure (which affects levels of melatonin) on the risk of breast cancer. There is some evidence, but not conclusive, that the risk of breast cancer in shift workers and airline cabin staff is increased and that blindness may be associated with a decreased risk of breast cancer. It is not clear if these changes in risk are caused by changes in melatonin levels.

Lastly, the report considers whether exposure to EMFs can affect the risk of breast cancer, and concludes that there is no consistent evidence for such an effect, nor has any mechanism for such a response been demonstrated.

The report gives a number of recommendations for further research to fill the gaps in knowledge.

1. Power Frequency Electromagnetic Fields, Melatonin and the Risk of Breast Cancer. Documents of the Health Protection Agency, Series B: Radiation, Chemical and Environmental Hazards, RCE-1, Feb 2006. ISBN 0 85951 573 3. Available to download from the HPA website at: http://www.hpa.org.uk/radiation/publications/docs_hpa/index.htm
Printed copy, £30.00 + 10% postage and packing, available from CRCE Information Office (Tel: 01235 822742/822603, email: information@hpa-rp.org.uk)

FATAL INJURY STATISTICS

The Health and Safety Commission periodically publishes statistics on fatal injuries and these can be useful for comparing risks. The latest data available can be found on the HSE website at:- www.hse.gov.uk/statistics There you will find the HSC Statistics of Fatal Injuries 2004/5 -<http://www.hse.gov.uk/statistics/overall/fat10405.pdf> .

In this document there is a useful summary of the industries with the highest rates of employee fatal injuries, with data combined for 2002/3 to 2004/5. A selection of the data is reproduced in the table below together with the equivalent risk factors. Those familiar with other previously published tables (e.g. in the Handbook for Laboratory Workers, Connor & McLintock) will notice some dramatic reductions for some industrial sectors and we now have waste recycling rising to the top of the pile from obscurity in the past.

Annual rates of employee fatal injury 2002-2005

Industry	Rate per 100,000 employees	Equivalent Risk Factor
Recycling of waste and scrap	18.57	1 in 5400
Mining for coal, ignite and peat	10.2	1 in 9800
Agriculture and hunting	5.79	1 in 17300
Construction	4.58	1 in 21800
Extraction of oil and gas	3.71	1 in 27000
Manufacture of metal products	2.05	1 in 48800
All industries	0.68	1 in 147000
<i>For comparison theoretical rate and risks of contracting a fatal cancer for a worker from exposure to 1mSv of radiation</i>		
	4	1 in 25000

The industry with the highest rate of fatal injury to employees is the recycling of waste and scrap, where the rate is approximately 27 times the national average. In the three-year period from 2002/03 to 2004/05, there have been eight deaths to employees in this industry.

The other industry with a rate of fatal injury to employees that is more than ten times the national average is the mining of coal, lignite and peat extraction. Over the three-year period, there have been three deaths to employees in this industry. It should be noted that these days the rates of injury are based upon a relatively small number of fatalities and can therefore be easily affected by one major incident hence the averaging over a three year period.

The industrial sector with the highest number of actual deaths in 2004/5 was the construction industry, which accounted for 72 out of a total of 220 work related fatalities.

RPA/RPO TRAINING and UPDATES

AURPO Technical Committee has tried to ensure that our scientific meetings and update sessions cover a range of topics that reflect the requirements of the HSE's basic syllabus for RPAs. Basic atomic and nuclear physics and basic biology are generally not covered.

A breakdown of these areas of knowledge are given below with details of last coverage by AURPO at conference/update meetings. All those items covered since 2000 and relating to ionising radiations have been detailed in the first table.

An additional table has now been added detailing our coverage of non-ionising topics and this can now be found at the end of this item. The Technical Committee would welcome views from members, particularly new members, on items that they would like to see covered in forthcoming meetings. We will be starting to think about next year's conference this summer – so make your views known by emailing t.j.moseley@shef.ac.uk

Items in italics are planned for 2006

IR Topic	Date last covered with brief details
Biological effects of radiation	Sept 2000 - Radiobiology, Tawn (Westlakes) Sept 2000 - Dose coefficients for embryo and foetus, Phipps (NRPB) Sept 2000 - Damage models, Watts (St Andrews Univ) Sept 2002 - Chernobyl - effect on the environment, Jackson (ENVIROS) Sept 2002 - Chernobyl - epidemiological effects, Zhang (NRPB) Sept 2002 - FASSET and effects on the environment, Williams (EA) Sept 2003 – Transfer of radionuclides to neonates and foetal doses, Phipps (NRPB) <i>Sept 2006- Update on epidemiological studies, Radon epidemiology, Bystander effects and Hormesis</i>
Basis of radiation protection standards and ICRP principles - justification, optimisation, dose limitation.	March 2003 - Justification of Practices, Tattersall (NRPB) Sept 2005 – Justification and BPM, Brember (EA)
Legislation - EU	
- IRR99	March 2002 - Implementation of IRR99, Taylor (HSE)
- RSA 93	March 2001 - Requirements under RSA93, Fischer (EA) Sept 2003 – Process Management in EA, Englefield (EA)
- General	

Risk assessments - laboratory	Sept 2001 - Regulatory requirements under IRR99, Gill (HSE) Sept 2001 - Generic assessments, Pearson (Nottingham City Hospital) Sept 2001 - University perspective, Hornsey (Bath Univ)
impact - environmental	Sept 2001 - University experience, Haslam (Leeds Univ) Sept 2001 - Models for small users, McDonnell (NRPB) Sept 2004 – Environment Activity Levels, Titley (EA) Sept 2004 – Environmental monitoring in Northern Ireland, Larmour (IPRI)
- critical group doses	Sept 2001 - Smith (Westlakes) Sept 2005 – Sewer systems and human interactions, Thomas (Sheffield)
Control of releases	Sept 2001 - Application of BPM, Weedon (EA)
Monitoring - detection and measurement	Sept 2001 - Instrument development and type testing, Sheppard (Saint-Gobain) Sept 2001 - Practical radiation monitoring, Richards (Leeds Univ) Sept 2004 – Radon monitoring, Green (NRPB) <i>Sept 2006 – Choice of instruments, Measuring Kerma and Ambient Dose</i>
- calibration of instruments	Sept 2001 - Periodic testing, Moseley (Sheffield Univ)
- uncertainties	
Personal dosimetry	Sept 2000 - External and Internal, Temperton (RRPPS) Sept 2003 - Appropriate Dosimetry, Arwell-Barrett (HSE) <i>Sept 2006 – Application of Tissue Weighting Factors, Microdosimetry, Accident dosimetry</i>
Biological monitoring	Sept 2000 – Blood as a dosimeter, Edwards (NRPB) Sept 2000 - Uptake studies, Bowmer (Univ of Leeds)
Contingency planning/ emergency procedures	Sept 2002 - UK emergency monitoring, Burgess (UKAEA) Sept 2002 - Emergency planning outside the nuclear sector, Thomas (HSE) Sept 2002 - Emergency planning in the nuclear sector, Skegg (British Energy) Sept 2003 – Contingency Plans, Morecombe (GSK)

Decontamination/ remediation	<p>March 2002 - Revocations and decommissioning guidance, Heaton (EA)</p> <p>March 2002 - Contractor's perspective, Hardcastle (RWE NUKEM)</p> <p>March 2002 - GSK experience, Morecombe (GSK)</p> <p>Sept 2002 - What may be out there - decommissioning experiences, Sykes (Independent RPA)</p> <p>Sept 2005 - True cost of compliance, Cooper (Cambridge)</p> <p>Sept 2005 – Decommissioning a laboratory, Bush (EA)</p> <p><i>Sept 2006 – Tritium contamination and estimating activities in waste</i></p>
Designation of areas	<p>March 2002 - University experience, Moseley (Sheffield Univ)</p>
Laboratory design	<p>March 2002 - University experience, Cooper (Cambridge Univ)</p> <p>March 2002 - Current and best practice at GSK, Muir (GSK)</p> <p>March 2002 - Ventilation, Munnery (MG Partnership)</p> <p><i>Sept 2006 – Lab design for different activity levels</i></p>
Classification of workers	
Systems of work/ permits to work	
The role of the qualified expert	<p>Sept 2000 - RPA 2000, Partington (BNFL)</p>
Dealing with contractors and other employers	<p>March 2002 - In relation to lab design, Cooper (Cambridge Univ)</p>
Organisational structures and responsibilities	<p>March 2003- Management training, Haslam (Leeds)</p> <p>March 2003 – RPS training, Morecombe (GSK)</p> <p>Sept 2003 - Risk management and organisation of Radiation Protection at RAL Wright (RAL)</p> <p>Sept 2003 – Advisory Committees: their role in radiation protection, Davies (Amersham)</p> <p>Sept 2005 – The University RPO, Marsden (UCL)</p>
Communication skills	<p>Sept 2002 - Various speakers from universities and HSE addressed issues relating to training, from RPA training down to radiation worker training in an afternoon session.</p> <p>Sept 2004 – AURPO Training Package, Haslam (Leeds)</p> <p>Sept 2005 – Public and Stakeholder Engagement, Burgess (UCL)</p>

Record keeping systems	Sept 2003 - Management of Records, Faulkner (Univ of Glasgow)
Auditing	March 2003 - Internal auditing, Walland (Univ of Bristol)
Radioactive waste management	<p>March 2001 - Radioactive waste at Drigg, Scott (BNFL)</p> <p>March 2001 - Waste Management for small users, Morecombe (GSK)</p> <p>Sept 2004 – Waste storage and decay, Marsden (UCL)</p> <p>Sept 2004 – Disposal routes for sealed sources, Heaton (Aberdeen)</p> <p>Sept 2005 – Sealed Source Disposal, Slarke (EA)</p> <p>Sept 2005 – Recycling of sealed sources, Caiden (MRC)</p> <p>Sept 2005 – Dealing with radium luminised items, Heaton (Aberdeen)</p> <p>Sept 2005 – Tritium waste recovery, Lashford (GE Healthcare)</p>
Radioactive waste disposal principles	<p>Sept 2004 – Holding and disposal of sealed sources, Russ (EA)</p> <p>Sept 2005 – The work of CORWM, Clark ()</p>
Transport of radioactive materials	<p>March 2001 - Changes in ADR and revision of 1996 Regs, Turnham (DETR)</p> <p>March 2001 - Transport operations, Billing (BNFL)</p> <p>March 2001 - Quality assurance procedures for the small user, Moseley (Sheffield Univ)</p> <p>March 2003 - New Transport Regulations Stewart (DfT)</p>
Practices and Interventions	<p>Sept 2002 - Radiation Incidents in the UK, Tattersall (NRPB)</p> <p>Sept 2002 - University accidents and incidents, Hornsey (Univ of Bath)</p> <p>Sept 2005 – Use of IR for security purposes, Tattersall (HPA-RP)</p>
<p>Practical workshops</p> <ul style="list-style-type: none"> - monitoring - lab techniques - dealing with emergencies 	<p>These were covered by March 2003 workshops at Strathclyde</p>

Non-Ionising Topics	Date Last Covered with Brief Details
Lasers	Sept 2000 - Laser Update on BS EN 60825, Zabierek (Univ of Birmingham) Sept 2003 – Laser Standards Update, Zabierek (Univ of Birmingham) Sept 2005 – Laser Inspections & Outcomes, Bradley (HSE)
UV	Sept 2000 – UV Safety- effects, measurements, standards & protection, Hart (YourRPA)
Microwaves/RF/Mobile Phones	Sept 2003 – Risk of EM Fields in Research, Hart (YourRPA)
NMR	Sept 2003 - Management of NMR and large DC Magnetic Fields, Cole (Univ of Liverpool)
General	Sept 2004 – Non-Ionising Radiations – 3 steps to aid legislative compliance, Hart (Your RPA)

Already I can see we should be doing something on UV next year and possibly on the Implementation of the Physical Agents Directive.

Trevor Moseley
University of Sheffield

CARRIAGE REGS AND DRIVER TRAINING

The Carriage of Dangerous Goods and Use of Transportable Pressure Equipment Regulations 2004 (SI 2004 No.568) implements the European ADR on the transport of dangerous goods. It replaces a host of other regulations including the DGSA Regulations and the Driver Training Regulations. It only partly covers the transport of radioactive materials because these of course are covered by separate transport regulations. However, instead of the usual overlap of requirements this time we have some gaps and some requirements of the ADR that the Carriage Regulations implement for non-radioactive hazardous goods are not implemented for radioactive materials. So additional requirements relating to the provision of miscellaneous equipment (wheel chocks, self-standing warning triangles, warning vests etc) and training of vehicle crew and transport manager have not been applied. This is because the general training requirements (Reg 9) are not applied by Reg 3.(4)(a) (as amended SI2005 No.1732) and it is only the training requirements in relation to the driver that are applied in Reg 24.

Therefore the requirements for driver training remain much the same except that there is now a requirement for all training to be documented.

Summary of Driver Training Requirements

The general requirements concerning the training of drivers are covered by section 8.2.1 of the ADR. The basic requirement for drivers of vehicles carrying dangerous goods is to hold a certificate, valid for 5 years, issued by the competent authority upon completion of a training course and passing an examination. Drivers are also expected to have received such specialised training as is necessary in accordance with Chapter 8.5 of ADR. It is Chapter 8.5 that also details various exemptions from the full training requirement when: a) excepted packages only are carried; and b) a limited number of low risk packages are carried. The following interpretation of the training requirements can therefore be deduced:

1) For those who will only be involved with the transport of excepted packages

- appropriate documented training from the employer

2) For those transporting excepted packages and up to 10 labelled packages* at any one time (where the sum of the Transport Indexes[TI] is less than 3) - they must hold a certificate provided by the employer confirming that they have received instruction and training enabling them to -

- understand the hazards presented by the goods they are transporting and the action to be taken in the event of an emergency
- know their duties under Sections 3, 7 and 8 of the Health and Safety at Work etc Act 1974
- know their duties under the Radioactive Material (Road Transport) (Gt. Britain) Regulations 2002 (RAMROAD)

3) For those transporting higher activities of material

- they will be required to attend a 2 day City & Guilds course and obtain a vocational training certificate (VTC) valid for 5 years.
- will need to be aware of all relevant items from the ADR and in 2 above
- will need to keep their VTC with them during transport operations

I have been in contact with the Department for Transport seeking clarification of the implementation of the Carriage Regulations in relation to the transport of radioactive materials as my understanding is that we should really be implementing the full requirements of the ADR unless we have received official derogations e.g. as we have for fire extinguishers and orange plates. So further amendments could be coming - watch this space.

T.J.Moseley

**It should be noted that there are separate derogations for excepted packages and for 'up to 10 packages containing radioactive material with the sum of the TI<3'. As the derogations in relation to excepted packages allow for unlimited numbers of packages I have taken the reference to '10 packages with a combined TI<3' to relate to labelled packages only (e.g.. Type A, Cat 1, 2 or 3) as excepted packages are already excluded.*

NEWS FROM HPA- Radiation Protection Division

Well it's a new year so have gone over to the new name for NRPB. As usual they have been busy writing reports. If some of the links below don't work you can look up the documents yourself from the main web site at: <http://www.hpa.org.uk/>

Publications specifically about radiation can be found at:
<http://www.hpa.org.uk/radiation/publications/index.htm>

Electronic copies of most documents are now published in full but hard copies can be obtained from the information office: see -
http://www.hpa.org.uk/radiation/contact_us/other_contacts.htm

Since the last newsletter there have been two new publications in the HPA-RPD series and these are as follows:-

- **HPA-RPD-012**

[Doses in Radiation Accidents Investigated by Chromosomal Aberration Analysis XXIV: Review of Cases Investigated, 2003–2005](#)

- **HPA-RPD-011**

[Statistical Methods for Biological Dosimetry](#)

There is also another report which was published in February under a different series on Power Frequency Electromagnetic Fields and that is reported as a separate article in the newsletter.

Health Protection Matters

I could not report on the content of the autumn edition of 'Health Protection Matters' last time because of a glitch on the website. All is now well and you can access the latest magazine at:-
<http://www.hpa.org.uk/hpa/publications/HPM/HPM.htm>

In the autumn magazine there were a couple of articles that will be of interest to readers. The first is on the topic of 'Power Lines and Health'. The article considers the underlying issues and describes the current state of knowledge and guidance. The second article reviews the use of ionising and non-ionising radiation in medicine.

Training courses on HASS

The Radiation Protection Division are putting on training courses this Spring on the implications of the High Activity Sealed Source Regulations. These will be half-day courses that should tell the user what they need to know and what they need to do. To date a Leeds seminar has been organised for April 11th and a Glasgow one for April 12th (Chilton date yet to be confirmed). Contact your local HPA-RPD for more information.

Anniversary Offer from Radman Associates - RPS Training

To mark 21 years of providing RPS courses for industry, research and teaching establishments Radman Associates is pleased to offer a **25% discount on courses fees** to all university members of AURPO until September.

Monthly RPS courses are held in comfortable surroundings at a hotel in Macclesfield, Cheshire and alternate between the external radiation hazards of Sealed Sources and X-rays and the contamination control requirements for Laboratory Radiochemicals.

The success of these courses has hinged on their practical, straightforward approach to the subject with RPS duties given special prominence. Together with a basic understanding of the nature of the exposure risks presented by ionising radiations and the concept of radiation dose, delegates are provided with a concise summary of the various legislative provisions, and an in-depth look at modern radiation safety standards for ensuring statutory compliance. Risk assessment features large on both courses with examples given to assist in completing these and formulating the necessary contingency plans. Further practical understanding is enforced by running syndicate studies of industrial or laboratory-scale accidents which delegates are given time to consider and respond to (typically in the evening around the bar!)

All attendees receive a copy of the regulations plus a comprehensive book of course notes which provide a useful future reference. For full programme details and fees with or without accommodation, see www.radman.co.uk/training .

Robert Collins
March 2006

UPDATE ON LASER INSPECTIONS

Following on from Mark Bradley's (HSE) presentation at Manchester I said I would report on further HSE inspections of laser use. Members have reported 3 further inspections to me and the following list represents the sort of things that were picked up on where improvements were requested. This should be a guide to others to reflect on the procedures in their institutions so that we can all seek to make improvements and benefit from these inspections.

Some typical comments:

- Better storage arrangements for laser goggles required: to protect them, have them in the right place and have them clearly marked. It was suggested that the goggles should be housed outside the laser area in a dedicated rack and be colour coded with insulating tape to make sure that it was easy for users to pick up the right ones.
- More detailed written risk assessments required and risk assessments to include calculations of MPE and NOHD (*you'll have to get a copy of 'LaserBee' or LaserSafe PC' software*)
- Insufficient Laser Protection Supervisors.
- Better training of laser users and LPSs required.

HAZARDOUS WASTE REGS AND RADIOACTIVE WASTE

The Hazardous Waste (England and Wales) Regulations 2005 SI2005 No.894 came into force on 16th July 2005. They replaced the Special Waste Regulations 1996 and formerly 'special waste' is now termed 'hazardous waste'.

The previous relationship between 'Special Waste' and 'Radioactive Waste' has changed and the overlap in requirements that happened in the past has been eliminated.

It is Regulation 15 of the Hazardous Waste Regs that describes when the regulations apply to radioactive waste. The Regulations only apply to radioactive waste with other hazardous properties when the waste is not covered by the Radioactive Substances Act i.e. if you are disposing of waste under the terms and conditions of a Waste Authorisation then the Hazardous Waste Regs do not apply. However, if you are disposing of radioactive waste with other hazardous properties under the terms of an RSA Exemption Order then the Hazardous Waste Regs do apply. It will therefore mainly be disposals of uranium compounds as solid waste that will be affected and the old rule will still apply – if the waste contains greater than 0.1% uranium by weight then it should be treated as hazardous waste and the conditions of the Hazardous Waste Regs complied with. See FAQs on Hazardous Waste Regs for further details:-

http://www.environment-agency.gov.uk/commondata/103599/faq_1143471.doc

NB The above information has yet to be included in the RSA Guidance on the Business pages of the Environment Agency website. These pages still refer to the previous guidance on the interaction with the Special Waste Regs. (This has been pointed out to the EA.)

P-32 SKIN DECONTAMINATION

I have been reviewing decontamination procedures as there is an understandable reluctance from people to use the potassium permanganate/sodium metabisulphate procedure for removing radioactive contamination from skin other than the hands. I noted in HHSC Handbook No.14 Radiation Protection: Handbook for Laboratory Workers that reference was given to a letter in Health Physics Vol 60 p458, 1991 about a simple and effective solution to this problem in relation to P-32.

E Party of Rockefeller University, Department of Laboratory Safety reported the following:-

‘A worker came to our office to report that she had contaminated her face and hand with P-32 during an experiment. Although she had washed them repeatedly with soap and water, they remained contaminated at a level several times background. Drawing on the knowledge that mild acids are very effective surface decontaminants for phosphates, I used household vinegar with immediate and total success. After wiping her face with vinegar, I could not detect any counts above background with a β scintillation probe.’

This was obviously much less alarming to the worker to have her face wiped with vinegar than it would have been to have it wiped with some other 'dilute acid' or to have some chemical treatment.

This looks like a cheap and effective addition to the emergency kit and another use for this remarkable household substance.

SOLID LOW LEVEL RADIOACTIVE WASTE: CONSULTATION ON ITS LONG TERM MANAGEMENT

Proposals for dealing with solid low level radioactive waste were published by DEFRA on 28/02/2006. This consultation affects all areas of the UK.

Most of these wastes come from the operation of nuclear facilities, mainly paper, plastics and scrap metal. Smaller amounts are also produced by a range of non-nuclear industries such as hospitals, research and educational facilities and the oil and gas industries. There are currently 31,000 tons of LLW waste awaiting disposal (UK Inventory April 2004).

However, in future, the clean-up and decommissioning of nuclear sites will create substantial additional amounts (millions of tons), such as soil, building rubble and items such as ducting, piping and reinforcement.

With the current disposal facility – near Drigg in Cumbria – filling up, new options for the long term management of these wastes are needed.

The main questions being asked are:

- Whether there should be greater flexibility in the management of the wide range of low level radioactive wastes, provided that the necessary level of safety is maintained.
- Should the Nuclear Decommissioning Authority be expected to consider other (i.e. non-NDA) nuclear and non-nuclear industry needs when making arrangements for the management and disposal of its own wastes?
- Should regional and local authority planners play a greater role in providing for the management of non-nuclear low level radioactive wastes generated within their own areas?

The consultation period runs until **31 May 2006**. The consultation document can be downloaded from: www.peoplescienceandpolicy.com/llw/index.html.

Alternatively, hardcopies of the consultation document can be requested from John Howley, Radioactive Substances Division, Department for Environment, Food and Rural Affairs, 3/G25 Ashdown House, 123 Victoria Street, London SW1E 6DE or:

john.howley@defra.gsi.gov.uk

AURPO Response

People can obviously make their own response to this consultation, but AURPO Technical Committee will be making a collective response. Therefore can you please relay any comments you would like to make to t.j.moseley@shef.ac.uk by the end of April 2006 who will coordinate this action for TCC.

CONSULTATION ON REVOKING DFES REGISTRATION OF RADIOACTIVE MATERIALS USED IN SCHOOLS

DfES proposes to repeal its legislation and to arrange for updated guidance to be produced and publicised. This will help heads of science to comply with radiation legislation, taking advice from an RPA, without DfES intervention.

As schools use radioactive materials within the regulatory regime of IRR99 enforced by the HSE and usually operate under the conditions of the schools' exemption order under RSA93, enforced by the Environment Agency, there should be no need for the additional requirement for schools to obtain the Secretary of State's approval for use of radioactive materials in school. Hence the proposal to repeal Regulation 7 of the 1989 Education Regulations.

This is part of the Government's deregulation drive.

Anybody wishing to be involved in the consultation process should contact Martin Elliott at DfES - martin.elliott@dfes.gsi.gov.uk

Responses to the consultation have to be made by 23rd May 2006. AURPO and Universities are not on the consultation list but some members who advise schools may wish to get involved.

RADIATION SAFETY WEB SITES

Radiation Protection News – Issue 28 November 2005
<http://www.hse.gov.uk/radiation/ionising/rpa/rpa28.htm>

BOOKS AND PUBLICATIONS

G M Kendal et al

The development of the UK radon programme

Journal of Radiological Protection, Vol. 25, No. 4, December 2005

ICRP Publicatio 98

Radiation Safety Aspects of Brachytherapy for Prostate Cancer using permanently Implanted Sources

Annals of the ICRP Vol 35 No.3 2005

FROM FRIDGES TO BUILDINGS – SRP PRPTG Meeting

The Practical Radiation Protection Topic Group (Chairman Pete Burgess) are organising a workshop on 27th September near Oxford on dealing with radioactive legacies – *pity it was not on 7th September and could have followed on from our conference*. The following details on it have come from the SRP Newsletter.

Radioactive legacies come in all shapes and sizes, from an orphaned source or contaminated fridge to buildings and sites where radioactive materials have been used in the distant past. This workshop will cover practical issues to be faced by individuals and organisations faced with having to deal with a radioactive legacy. It is intended mainly for non-nuclear industry radiation users, such as universities, hospitals, research institutes and manufacturing industry, but will also be of interest to the nuclear industry, companies engaged in site clean-up and demolition, project managers and equipment suppliers.

The morning presentations will cover:

- A review of national strategy – how the UK government sees the approach to dealing with radioactive legacies;
- The regulators' expectations – what do they want from the site operator;
- Case studies from various backgrounds, including hospitals, universities, radium luminising and tritium users.

Afternoon workshops – discussion will centre on:

- Planning – building up a history, identifying potential problems, waste stream characterisation, requesting authorisations and engaging with regulators;
- Conditioning, packaging and disposal routes – decontamination, recycling.
- Practical implementation – monitoring, sentencing and contamination control
- Management of the process – information, tendering, documentation, interaction with site owners and with contractors.

The workshop will also be used to finalise a Good Practice Guide which will be available from the SRP web site.

This is the third in a series of workshops organised by the Practical Radiation Protection Topic Group. The first two, on practical radiation measurement and on clearance monitoring, were both very successful.

PRPTG hope to be able to offer exhibition space to organisations that can provide relevant equipment and services.

SRP website will have full details on the meeting posted shortly.

SUBSCRIPTIONS - LAST REMINDER

AURPO Subscription 2005-2006

To all members

The Annual subscription for 2005-2006 will end on **the 30th June 2006**. Will members who have not paid the subscription fees (£20 and £10 for retired members) please pay now.

Please send your cheque, payable to AURPO, with the tear-off slip below, as soon as possible. If in doubt check your membership status with the treasurer.

Sonia Nuttall

Honorary Treasurer

To: Mrs S Nuttall, Honorary Treasurer, AURPO
Faculty of Applied Sciences, Hawthorn Building
De Montfort University
The Gateway
Leicester LE1 9BH

I enclose a cheque payable to AURPO for the sum of **£20 (£10 retired member)** in payment of my subscription to the Association of University Radiation Protection Officers for the year **2005-2006 (1st July 2005 to 30th June 2006)**.

I confirm my membership of IRPA through the Association.

Name:

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