

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

July 2006

AURPO NEWSLETTER

Editor T.J.Moseley

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EDITOR'S INTRODUCTION

Holiday time will soon be with us and we can all top-up our vitamin D with a nice dose of UV. Have you noticed all the positive articles on UV exposure recently? We just have to balance up the risks against the benefits – moderation is best for most things.

I hope you find time to read our latest newsletter, there should be something of interest for everybody.

One thing that really gets me annoyed is the way that the HSE hijacks terms and then says that they only mean what they say they mean. So an RPA is only there to advise an employer on matters relating to IRR99 and an RPS is only there to supervise compliance of IRR99 in designated areas. An internally appointed RPA in a University will also have management functions in ensuring compliance with not only IRR99 but of equal importance RSA93 and possibly transport regulations as well – see this point debated further in HSE News (page 7).

RPAs and prospective RPAs will need to take note of the revised HSE statement (see HSE news on page 7 and the Focus Group report on page 14). Those involved in the transport of radioactive materials need to take note of developments with new Carriage Regulations planned for 2007 – watch out for the consultation document and please respond.

The review of LLW may have serious consequences for those who use the VLLW disposal route if this is redefined as indicated in the consultation document. Hopefully enough of us have responded to influence matters here. There may be hope for a revival of 'special precautions burial' as EA recently commissioned a report on this topic see SNIFFER article.

Please don't forget to register for the AURPO conference at Oxford 5th-7th Sept (*please try and register by 23rd July*). Niall Higbee is making sure we all get a warm welcome. Not to be missed will be the Barn Dance on Tuesday evening (*dancing optional but I hear there will be a free bar sponsored by Global Dosimetry*). There will also be a few extra presentations on Tuesday afternoon on: RPA recertification; security and CTSAs; and a review of the Strathclyde AURPO Cert Course and developments. I look forward to seeing you there. (*For information on latest AURPO/Strathclyde course see page 4.*)

Thanks to all those who made a contribution to this issue of the newsletter and I look forward to more contributions for the next one. Where are all the aspiring RPAs who have produced some good pieces of work for their portfolios? 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.

Remember to use Hasnet-Rad as a discussion forum. If you are not signed up to this contact Gus Zabierek (g.a.zabierek@bham.ac.uk) who will get you started.

Contributions for next issue by 17th November 2006 preferred format Word emailed to -

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PRESIDENT'S REPORT

We are very near to the AGM and Annual Conference and once again I am looking forward to seeing as many members as possible in Oxford in September 4th – 6th.

Please do think of how you might help in the running of the Association. In this edition there is a call for nominations for membership of the Executive Committee and its Working Groups. We would like to hear from you if you are interested in joining the Executive Committee or the Technical Coordinating Committee.

TCC has finalised the Scientific Programme and once again promises some very interesting sessions. Three proffered papers are chosen for presentation and one of them will win a handsome reward. This may encourage new entrants into the radiation protection field. We will hear how the new HSE Statement on RPAs will affect the process of gaining certification and re-certification from RPA2000. Our organisers in Oxford also promise us some fantastic entertainment for the social function on Tuesday night.

We are looking for a venue and volunteer to host the 2009 Annual Conference. Please think if you have such a place to offer. Is it time to go back to Scotland again?

Gillian has now fully taken up the role of Honorary Treasurer and is ready to deal with all the treasury business.

UCEA accepted a Position Statement on “The Radiation Protection Officer in Universities, Colleges and Research Institutes” written by Dr Peter Marsden on behalf of AURPO and will incorporate it in the Guidance for Management later this year. (You can see the ‘Position Statement at www.aurpo.org in Publications under AURPO Guidance.)

I am sure you always find the newsletter is very useful and it is highly regarded by many outside AURPO. Please help the Editor of the Newsletter by regularly submitting items. It does need the input from you, the members. Please contact Trevor if you wish to help in any way.

See you in Oxford

Sonia Nuttall
27th June 2006

ANNOUNCEMENTS

45th Annual General Meeting of the AURPO

In accordance with Section 6(a) of the Constitution, notice is hereby given of the above to be held at 16.00 on Tuesday 5th September 2006 at the University of Oxford. Any motions, duly proposed and seconded must be received by the Secretary by Monday 7th August 2006. All papers will be available at the meeting.

D Hague
Honorary Secretary

Call for Membership of the Executive Committee and its Standing Committee(s)

Nominations are invited for membership of the Executive Committee of the AURPO. This Committee consists of President, Secretary, Treasurer and five other members of the Association.

All nominations, proposed and seconded, must be received by the Secretary by Monday 7th August 2006. If necessary a Returning Officer will be appointed for all elections.

Nominations are also invited for membership of the Technical Co-ordinating Committee.

D Hague
Honorary Secretary

AURPO Certificate of Professional Development in Radiation Protection

This course has been developed by the Scottish Centre for Occupational Safety and Health (SCOSH, University of Strathclyde) and the Association of University Radiation Protection Officers (AURPO) in collaboration with the Health and Safety Executive (HSE) and RPA 2000.

The aim of the course is to assist those people wishing to attain greater knowledge and understanding of radiation protection matters. The course is benchmarked against the HSE criteria for the 'Core of Knowledge' required for a Radiation Protection Adviser.

- ◆ 9 month programme commencing 18 September 2006
- ◆ study by distance learning with online tutor support
- ◆ available to graduates currently working in radiation protection or related fields.

For further information and an application form:

Tel: 0141 548 4147

Email: scosh@strath.ac.uk

Web: www.cll.strath.ac.uk

ICRP NEWS

In 2004, ICRP consulted publicly for 6 months on a first version of its draft next Recommendations. The consultation generated overwhelming interest and more than 600 pages of constructive and helpful comments from some 200 respondents all over the world. Now, ICRP are consulting on an updated draft which was compiled taking the consultation comments on the previous version into account.

This updated draft is posted for consultation on the comments page. This can be found at:- <http://www.icrp.org/remissvar/remissvar.asp?doc=Recommendations>

Just select 'view document'.

ICRP are looking for comments no later than Friday 15 September.

ICRP would be particularly grateful for feedback from radiological protection professionals on the following items:

Scope ICRP was asked in comments received on the earlier draft to rethink the sections on exclusion and exemption.

Is the present treatment of the scope of radiological protection in the new draft of the Recommendations adequate?

Justification Comments on the previous draft showed that this important topic had not been presented clearly enough.

Is the present treatment of justification adequate?

Optimisation Comments indicated that the word 'matrix' could be misinterpreted. Also that the concept of stakeholders was unclear. Draft reports on optimisation and on the representative person have since been subjected to consultation and will be published soon. These will have clarified some of the issues.

Is the present treatment of optimisation in the draft of recommendations adequate?

Dose constraints Comments showed that ICRP had treated this tool somewhat inconsistently. The ICRP has tried to streamline the concept of constraints to make the Recommendations more helpful.

Is the present treatment of dose constraints adequate?

Natural sources of radiation

Comments indicated that this topic had not been treated in sufficient depth.

Is the present treatment of natural sources of radiation adequate?

ICRP have already consulted on documents on health risks and on dosimetry that will form Annexes to the draft Recommendations. These documents are not part of the present consultation, but links to them as updated after consultation are provided here - http://www.icrp.org/draft_foundation.asp

so that you are able to refer to them for completeness. Similarly, you may wish to refer to our draft reports on the representative person and on optimisation, both of which have already been subjected to consultation. You may also wish to refer to our draft report on the scope of radiological protection for which we are accepting consultation comments until 19 June.

SRP International Committee will be making a collective response and AURPO may also be doing likewise. Notifications of these will probably be made via the Hasnet mailbase.

Further information on this and other matters related to the work of the SRP International Committee together with any input you may have for the International Committee can be obtained/ made through John Makepeace (john.makepeace@npl.co.uk) who has replaced Tony Richards (Cardiff) as our representative on this committee.

IRPA NEWS



The Argentine Radiation Protection Society is hosting the 112th International Congress of the International Radiation Protection Association. It will be held on October 2008 in Buenos Aires.

The Congress will focus on three major areas:

- The epistemology of radiation, namely the methods, the validity and the scope of current knowledge of the physical and biological sciences in relation to the effects of radiation exposure.
- The paradigm of radiation protection, namely the conceptual model for keeping people safe from the health effects due to radiation exposure
- The practice of radiation protection, namely the actual application and use of radiation protection plans and methodologies by practitioners and industries making use of radiation.

For further information on the IRPA 12 meeting please visit – <http://www.irpa12.org.ar/>

Do not hesitate to contact us about any concern regarding the IRPA 12 meeting

Best regards
Maximo D. Rudelli, Organizing Committee

HSE RADIATION PROTECTION NEWS - Issue 29

The latest Radiation Protection News has been issued and can be found at -
<http://www.hse.gov.uk/radiation/ionising/rpa/rpa29.htm>

The main items covered in this issue are:-

- The revised HSE statement on Radiation Protection Advisers
- Third edition of Guidance Note PM77 on equipment used in connection with medical exposures
- Updated HSE guidance on radon
- A report on the meeting held at the end of last year on 'Effective Regulation through Better Communication' (*covered in the last AURPO newsletter by Kate Goan*)
- Radiation Employers Duties and Overdependence on RPAs
- Training – adequate standards not always achieved.
- Radon in Workplaces: HSE Action Plan update.
- Transport prosecution (*AEAT prosecution covered in last AURPO newsletter*).
- Approved Dosimetry Services – Change of contact details.

I'm sure you will all download the newsletter yourselves and read the items of interest. One item that I feel I should draw to your attention is the one on Radiation Employers Duties.

I have heard that with some recent inspections the HSE have wanted to see and hear from senior management on radiation protection issues and not from the RPA or RPSs. The HSE seem to be obsessed with a narrowly defined role (defined solely by them) for people undertaking these functions. Perhaps we (RPAs in Universities) need to stop calling ourselves 'RPA' and revert to 'RPO' with an executive role in ensuring that on behalf of the Vice-Chancellor all radiation protection regulations are observed by the University. Along a similar vein, if we wish to define the role of a departmental RPS to include management functions with regard to record keeping, dosimetry and monitoring, that should be entirely up to us.

As long as the advisory and supervisory duties entailed by IRR99 are being performed adequately it should be of no concern to the HSE how we manage the other aspects of radiation protection management or what we ask our own RPAs or RPSs to do so long as everything is adequately covered.

Perhaps we can start a debate on this topic on Hasnet, or in the newsletter, and encourage members with HSE connections to argue the HSE position.

Perhaps at this time I should use a footballing analogy to explain my position. If you are the manager of a team you employ a doctor and physio to look after the fitness of the players. If one of the players has a breakdown it is up to the doctor and physio to get them fit again with the manager wanting to be kept informed of progress and when they will be fit for play. He would not want to interfere directly in something for which he had no expertise but would rely on the expertise of others. It is the same with radiation protection matters and a whole host of other specialist areas in a University context – senior management rely on appointed officers/specialists to deal with specific issues but they expect to be kept informed of what duties/legal obligations the University has and that these duties/obligations are being adequately performed and met.

T.J.Moseley RPA/RPO University of Sheffield

DfT MEETING 24/04/06 - Better Regulation – Administrative Burden Reduction and Simplification Workshop.

This meeting was called at short notice by DfT and they seemed quite serious at the time about fulfilling the purpose of the meeting, although afterwards one had to question their sincerity.

The meeting had a lot of DfT officials there and an adviser from the Cabinet Office. Myself and Neil Utting had effectively invited ourselves, there was a rep from Medical Physics, Peter Swann from Safeguard, a few other nuclear industry reps and then other organisations involved in the transport of dangerous goods. We split into two groups: those interested solely in radioactives and then the others. The organisers said they wanted to listen to our concerns and act on them. Now was the chance to make our voice heard.

Unfortunately it appeared that the DfT idea of deregulation and simplification is to produce one huge document that is incomprehensible (Carriage Regs) and use this to replace fairly straightforward stand alone regulations. They can then proudly report that they have cancelled a whole list of regulations. It was pointed out to them by all in our group that this was not our view on deregulation and simplification and nobody had a good word for the Carriage Regs. I asked why they could not just have a set of regulations that stated that the ADR and RID were being adopted in full subject to the following derogations together with a list of additional requirements that outlined who was responsible for implementing/ observing the requirements of the ADR/RID.

We were informed that this did not meet with the UK legal guidelines – perhaps it is the legal guidelines that need looking at!

Jim Stewart let slip that the DfT had in mind to put the Transport Regs into the Carriage Regs and I suspected that the meeting was just one big con designed for the benefit of DfT to show it was following (paying lip service to) the Better Regulation agenda. This opinion was confirmed when in chasing Jim Stewart up for outcomes from the meeting he sent me instead the **5th draft** of the new (July 2007) Carriage Regs that would replace the 2002 Transport regs.

It is just as complicated as ever with confusing use of language and double negatives – so confusing in fact that the DfT head of regulation does not seem to understand it herself. e.g Reg 8 Carriage in or on certain vehicles, which they thought meant a vehicle had to have 4 wheels (the previous regs did not define a vehicle and so you could legally use a motorbike or bicycle) and is an example of how not to write a regulation:-

8. (1) *this regulation applies to carriage by road.*
- (2) *These regulations do not apply to any vehicle which does not satisfy the conditions specified in paras (3) or (4)*
- (3) *the vehicle-*
 - a) *is a motor vehicle (complete or incomplete)*
 - b) *has at least 4 wheels; and*
 - c) *a maximum design speed exceeding 25km/h*

So rather than prohibiting vehicles from the transport of dangerous goods this draft regulation just says that the regulations do not apply!! Del Boy will be back!

The regulations seem to be designed for DGSA's who know their ADR backwards. So that even if you don't legally need a DGSA one may feel obliged to consult one just to understand what one is required to do.

Throughout the draft regulations rather than simply telling you what you have to do they use convoluting cross-referencing e.g.

*Reg35 (5) (relating to carriage of Class 7 goods)
'Paragraph (4) does not apply to the extent that, but for this para, it would remove the obligation pursuant to regulation 56(6) to comply with CV33(1.1) and (1.4) of sub-section 7.5.11.'*

I suggested the following -

'In addition to the requirements of paragraph (4), when transporting goods where the external dose-rate of any package exceeds 5uSv/h, the requirements of ADR 7.5.11 sub-section CV33 shall be observed.' *(these requirements relate to segregation of goods and segregation of goods from people)*

We can only hope that if enough people complain to them they will start to listen. If they mainly consult DGSA's this may be in itself be a stumbling block. Draft regulations should be out for general consultation in July. I will let everybody know when this happens.

Some outcomes that we were promised from the meeting may materialise and if they did it would be very helpful. These include: regular (2-3 times/year) small user meetings with DfT to improve understanding and compliance with transport issues; improvements to website and to know contacts for particular queries – I asked for them to produce a Service Level Agreement where they would agree to answer questions in a reasonable time (*my experience is that they usually ignore the ones they don't want to answer*).

PS Note for Tony. There is nothing to stop you using a motorbike for deliveries at present!

Footnote on Derogations

The following is an example of how difficult it is for the small user to comply with the transport and carriage regs. A small engineering company I act as RPA for (I got the DfT to agree that they did not need a DGSA some years ago) were recently inspected by a DfT Compliance Officer. They basically were on top of most things to the inspector's satisfaction except for a few small details. One of these related to the use of the FX derogation (RO-SQ 15.4). The inspector said that they could not use it for their transport operations – they usually transport one nuclear density gauge (TI 0.3) at a time in a small van and always carry one FX irrespective of any radioactive material on board. He asked them to fit 2 x 2kg FXs (minimum requirement under ADR for vehicles <3.5 tonnes). I asked first Jim Stewart and then Iain Davidson at DfT the status of RO-SQ 15.4 and was eventually told by Iain Davidson that the 2003 derogation was still valid but they were looking to get an amended version included in the new Regulations and he sent me a newer version referenced 2005/263/EC. This newer version was still badly worded but would continue to permit exemption from the carriage of FXs for small loads (not more than 10 packages TI <3). I was then contacted by the Compliance Inspector in response to the Company response to his inspection – I had told them they could continue to use the derogation until things were clarified. He wanted to check which version of the derogation I was referring to – he had an amended version of 2005/263/EC that he now said was the current one!! Needless to say he claimed that this only permitted use of the FX derogation for excepted packages, however, on close examination the derogation in fact clarified nothing, as nothing was defined, excepted packages were

mistakenly called exempt packages, and the old contents clause from the previous derogation (which related back to the old description of a small load i.e. up to 10 packages TI<3) had been left in. Don't take my word for it read it yourselves –

http://eur-lex.europa.eu/LexUriServ/site/en/oj/2005/l_328/l_32820051215en00620067.pdf

How can anybody be expected to comply with regulations and derogations when one is given conflicting information from different sections of the Radioactive Materials Transport Division of DfT. How can any user be expected to keep up to date with changes in derogations when there is no notification given of changes, no posting of derogations on DfT website and when even the DfT officials themselves are not aware of the current status of them. I will endeavour to plug away for some sanity in this regulatory area but I'm not holding my breath!

I think that the DfT were obliged to hold a meeting on better regulation by the Better Regulation Executive based in the Cabinet Office - perhaps they need to be instructed from upon high to pay more than lip-service to this initiative. Further info on the Better Regulation Initiative is given below – anyone can get involved and is encouraged to make suggestions.

T.J.Moseley RPA University of Sheffield

BETTER REGULATION INITIATIVE

The Government is looking for ways to reduce the regulatory burdens placed on business and other stakeholders. The simplification programme looks at removing or merging regulations and resolving overlap or inconsistency within or between them. This includes reducing the burden of unnecessary paperwork and the time taken dealing with information requests.

The program is not going to be limited to UK legislation but will also look at simplifying EU legislation as well – *what they really need to consider is the complicated way in which EU regulations are translated into UK law as in the Carriage Regs above.*

The Government is looking for practical proposals from business and other stakeholders in order to reduce the regulatory burden. To get more information, find out how to get involved and make an impact see – www.betterregulation.gov.uk



NPL Ionising Radiation Metrology Forum - Spring Meeting

The Ionising Radiation Metrology Forum (IRMF) meets twice a year at the National Physical Laboratory. It is attended by upwards of 60 people from the nuclear industry, consultancy companies, equipment manufacturers, calibration laboratories, regulators, the defence sector, universities and hospitals.

The IRMF exists primarily for the benefit of UK organisations that are regulated under the ionising radiations legislation, although attendance from non-UK organisations is welcomed. The Forum has four aims; it gives an opportunity to discuss matters of common interest in radiation measurements both technical and regulatory, it advises on best practice in measurement and maintaining traceability to national standards, it organises intercomparison exercises to demonstrate quality of measurements and it promotes production of Good Practice Guides which are then published by NPL.

Each meeting normally covers issues with surface contamination, decommissioning, dosimetry and neutrons. These are complimented by other topics of either interest or need, for example regulatory matters. Attendees are encouraged to put forward subjects for discussion.

The most recent meeting was on 17th May 2006. A brief summary of several of the presentations is given below. The minutes of the meeting will be published on the NPL website shortly with a link to the presentations at www.npl.co.uk/irmf.

The keynote presentation was on research and development in the Nuclear Decommissioning Authority (NDA), presented by Neil Smart who is the NDA Nuclear Research Co-ordinator. The talk introduced the UK National Cleanup Programme. The NDA is to ensure that the 20 civil public sector nuclear sites are decommissioned safely, securely, cost effectively and in ways that protect the environment for this and future generations. The availability of skills in the future is a key issue.

Pete Burgess, who recently joined NPL, gave an interactive talk on ‘Why GM instruments (sometimes) fail at high dose rates’. Pete described in detail the reasons why this may occur, such as wrong counting threshold, inappropriate detector, amplifier paralysis and insufficiently stiff HT supply. At the end of the presentations Pete demonstrated what happens when a GM tube ‘pops’.

NPL is currently formulating the new scientific programme for 2007-2010. Dave Rayner (NPL) gave a presentation on the current programme formulation. The aim of the scientific programme is to enable all users of ionising radiation in the UK to carry out measurements for radiation dosimetry, radioactivity and neutrons to an accuracy that is fit for purpose and at the forefront of good practice internationally. To that end, the programme seeks to provide appropriate primary measurement standards, associated services and knowledge transfer mechanisms, and to support UK industry and user communities in the innovation of instrumentation and measurement methodologies in line with government policy. The programme formulation period is an opportunity for the user community to make suggestions on what they would benefit from in the future. Consultations will be held with the public between June and October 2006.

Julian Dean (NPL) gave an update on the progress of producing a reference material for decommissioning. Initially, one 200 litre drum is to be made up by September 2006 and will

be circulated to interested UK laboratories. The drum will consist of activity at a level of less than 0.4Bq g⁻¹ total of ²⁴¹Am, ⁶⁰Co and ¹³⁷Cs and with a density of 0.3, typical of soft waste

The Forum also encourages open discussions. Duncan McClure (HPA) led a discussion on the re-instatement of instrument specialist certificates. The Forum supported this idea and will write to RPA 2000 to see whether this reinstatement was possible. The Forum is happy to take a more pro-active approach towards this accreditation by running workshops and leading the knowledge transfer process. A small working group will convene after the next IRMF meeting to discuss this further.

The next IRMF meeting will be held on 15th November at NPL. Those who are interested in attending or would like to be kept informed of future meetings please contact Roger Hughes by e-mail: roger.Hughes@npl.co.uk. New attendees will find the Forum welcoming and stimulating.

Dagmara Tyler, NPL

WORK EXPERIENCE INVOLVING IONISING RADIATIONS

Colleagues may wish to be aware of advice from the HSE regarding the absence of a lower age limit for work experience involving exposure to ionising radiation. The reply is extremely comprehensive (reproduced below), but to summarise:

- There is currently no lower age limit below which it would be illegal to offer work experience involving exposure to ionising radiation.
- A risk assessment must be conducted - but in practice the 1 mSv dose limit is unlikely to be approached.
- There appears to be an intention on the part of HSE to implement an Article of the International Labour Office Convention that will prohibit anyone under the age of 16 years from working in areas involving exposure to ionising radiation.

Of course there are many reasons why you may not consider it appropriate to have young people in the work place. Guidance on this matter is available in **HSE INDG364. THE RIGHT START**. Work experience for young people: Health and safety basics for employers.

The address for this is

<http://www.hse.gov.uk/pubns/indg364.pdf>.

The advice in this document that nobody under 16 years should gain work experience in areas involving exposure to ionising radiation is incorrect in so far as it has no basis in law (at present).

HSE letter reproduced below:

Following your query regarding whether there is an age below which it would be illegal to permit work experience in areas involving exposure to ionising radiation irrespective of the assessed risk, I have consulted my colleagues in both FOD Radiation Team and Policy Division.

The legislation relevant to under 16s is:

- IRR99 Regulation 11(1) and thus Schedule 4, Part I: "..the limit on effective dose for any person other than an employee or trainee, including any person below the age of 16, shall be 1mSv in any calendar year."
- Management of Health and Safety at Work Regulations 1999, Regulation 19(2): "..no employer shall employ a young person for work ...involving harmful exposure to radiation;..and in determining whether work will involve harm or risks for the purposes of this paragraph, regard shall be had to the results of the assessment." A 'young person' is persons under the age of 18, and includes those under 16.

The wording of reg 19(2) does not absolutely prohibit under 16s from working with ionising radiation, so long as the employer can prove that they have carried out a suitable and sufficient risk assessment showing that the work would not "involve harm".

A future development that you should also be made aware of is that HSE intend to implement Article 7.2 of the International Labour Office Convention 1960 (No. 115) that prohibits any under 16 year-old working with ionising radiation via the IRR99 Amendment Regulations.

The link to ILO C115 is

<http://www.itcilo.it/actrav/actrav-english/telearn/osh/legis/c115.htm>

The link to the items to be included in the IRR99 revision is

<http://www.hse.gov.uk/radiation/ionising/rpa/rpa24.htm#irr99>

My understanding of the ILO Conventions is that they are produced by the International Labour Office and have no standing in individual countries unless and until those countries choose to implement them within national legislation. Therefore, the mechanism for implementation of

ILO C115 within the UK would be via HSE-enforced radiation protection legislation. HSE Policy Division remain unable to provide a definitive date when the IRR99 amendments will be implemented, therefore at the moment the only legal requirements specifically relating to under 16s are those of IRR99 Reg 11(1), Schedule 4, Part I and MHSWR99 Reg 19(2).

So in answer to your question, until such times as the amendment regulations or ILO Convention 115 are implemented, if it is considered necessary for under 16s to be engaged in work experience with ionising radiations, their employer should ensure that radiation exposures of

those persons are restricted so far as reasonably practicable in accordance with IRR99 Regulation 8 and should definitely not exceed the "other persons" dose limit of 1mSv per calendar year. A suitable and sufficient risk assessment must also be carried out in accordance with MHSWR99 Reg 3 and 19(2) and IRR99 Reg 7.

As you rightly advised, INDG364 is misleading as it does state that children below the MSLA must never do work involving ionising radiation. HSE will therefore consider whether it should be revised. I hope this answers your query, however if you do have any other questions or wish to discuss it in any more detail please give me a call.

Alison Mackie,
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Head of Nuclear Medicine Services/Radiation Protection Adviser

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HSE FOCUS GROUP MEETING: REVIEW OF THE HSE'S STATEMENT ON RPAs 6th MARCH 2006

Present: Jane Lumb (Head of Radiation Policy Delivery, HSE); Gus Zabierek (AURPO); Cathy Griffiths (RPA2000); Tony Hudson (Secretary of RPA 2000); Rick Hallard (Secretary of BNFL Assessing Body); Colin Partington (SRP); Neil Pierce (RPA (small users)); David Sykes (Independent (RP Consultants)); Michael Nettleton (Radiation Specialist Inspector, HSE); John Tyler (Nuclear Inspector, HSE); Laurence Evans (Radiation Policy Delivery, HSE).

The meeting was convened to discuss HSE's review of the HSE Statement on radiation protection advisers (RPAs) and issues raised in the recent HSE external statement consultation.

Role of the RPA and the scope of radiation protection covered by the Statement

HSE's proposed definition that the role of the RPA to be defined as 'to advise on compliance with the IRR99 and radiation protection matters upon which that compliance depends'. Legal advice may require some changes to ensure the scope is not extended beyond that in the IRR'99.

Practical experience required – Annex 3 of statement

Subject to an amendment to clarify that some evidence derived from simulation exercises should also be acceptable, applicants will be required to demonstrate practical experience for those elements in the basic syllabus requiring a Detailed Understanding (DU).

Number of topics in Annex 3 requiring Detailed Understanding (DU)

Five elements in the basic syllabus will be in the DU category and require practical experience. The elements 'optimisation' & 'dose limitation' will now only require Basic Understanding (BU).

Criteria of Core Competence for renewal of recognition

The revised Statement will not refer to or make appointment a necessary part of the renewal process. In addition, experience will not be made mandatory on renewal.

Retention of N/SVQ route

The N/SVQ route should be retained. HSE is to consider how to take this route forward.

Retention of paragraphs that refer to suitability

Paragraphs referring to suitability are to be retained but that further guidance on suitability was required. HSE suggested that it was more appropriate for the Assessing Bodies and SRP to develop detailed guidance to employers on suitability, in particular any sectoral guidance.

Finite timescales for Assessing Bodies

It was agreed that it was not necessary to impose firm guidelines in the Statement, though HSE should set indicative targets in its Guidance on the Requirements for Assessing Bodies.

Minimum quorum of assessors required

The preference was that the quorum of assessors should be three, but that this could be reduced to two in exceptional circumstances. Two assessors would be acceptable when dealing with applications for renewal of certification.

Relationship between the role of the RPA and other legislation

The Statement applies to IRR'99 only.

Next steps

There may be some delay in posting the new Statement on the web. The BNFL Assessing Body looks set to cease operating from September 2006 and therefore the intent would be not to have the requirements of the new Statement come into force before then. 1st January 2007 appears to be the target date for the new statement.

G A Zabierek - Abstract of the draft HSE notes from the meeting

SNIFFER

SNIFFER (Scottish and Northern Ireland Forum For Environmental Research) was formed in 1994 as a company limited by guarantee and a registered charity. They identify and manage environmental research on behalf of members and stakeholders.

They are funded mainly from the five member organisations (Scottish and Northern Ireland bodies including SEPA). Additional income is received from funding partners at a research project and programme level.

All research projects are undertaken by contractors who are selected through a tendering process. They have a staff of seven based in Edinburgh who oversee the management and delivery of their research program.

They produce a number of reports on radioactive substances regulation that are useful to us south of the border as well and their website is well worth a visit. In particular they have produced a number of recent reports in relation to radioactive waste management and are currently looking at the 'Dose implications of dustbin disposals' (UKRSR09), and are proposing to look at 'Qualified Experts and RSA93' (UKRSR10).

Recently Published Reports

UKRSR03/2006 Development of a framework for assessing the suitability of controlled landfills to accept disposals of solid low-level radioactive waste.

This project aimed to establish a framework for assessing the suitability of landfill sites for 'special precaution burials'. The disposal of radioactive waste alongside other wastes at landfill sites is a disposal route aimed at small users rather than the nuclear industry and is restricted to relatively low activity wastes. There were 5 outputs from the study:

- a principles document;
- an assessment model;
- a user manual;
- technical reference document, and,
- a case study report

Download the documents from the sniffer site by searching on 'UKRSR03'

UKRSR07/2005 Identification and assessment of alternative disposal options for radioactive oilfield wastes (NORM waste).

UKRSR05/2005 Review of the application of BPM within a regulatory framework for the management of radioactive wastes.

You can find them at:- <http://www.sniffer.org.uk/>

ENVIRONMENTAL IMPACT ASSESSMENTS

The EA, SEPA and DoF in Northern Ireland in collaboration with FSA and HPA-RPD have developed and published principles and guidance for the prospective assessment of public doses. Following the recommended staged approach for the assessment of critical group doses they have now produced an 'Initial Radiological Assessment Methodology' consisting of a simple and cautious assessment.

The following Science Reports have now been published (April 2006):

Science Report SC030162

Initial Radiological Assessment Methodology- Part 1 User Report

ISBN No. 1844325423

Product Code SCHO0106BKDT-E-P

Science Report SC030162

Initial Radiological Assessment Methodology- Part 2 Methods and Input Data

ISBN No. 1844325431

Product Code SCHO0106BKDV-E-P

It is hoped that these Science Reports will prove useful to both Environment Agencies and applicants for RSA93 authorisations, in particular the non-nuclear sector.

The methodology used allows the assessment of the release of 100 radionuclides via the following routes: air - estuarine/coastal waters - rivers/streams – public sewer.

Doses can be calculated for seven different groups of the public and four age groups (including the foetus) who may receive doses as a result of the potential discharges.

The reports can be found on the Environment Agencies website in the new Publication Section -

<http://publications.environment-agency.gov.uk/epages/eapublications.storefront>

If you go to the 'storefront' and in the search box on LHS type 'radiological assessment' items 6, 8 and 10 will be of interest (7, 9 and 11 appear to be just repeats). When you have selected an item you get to a page with information on it, but you need to scroll down so that action buttons appear. Below the 'add to basket' button you should find a 'click to download pdf'. Further under this are direct links to related items so you don't have to go back to the first search results.

Hopefully by the time of the next newsletter someone will have had the chance to study and use these reports and I'll have a further report on this next time. – *from John Scott perhaps?*

Trevor Moseley
University of Sheffield

NEW TESTING INSTRUMENTS EXEMPTION ORDER

The Radioactive Substances (Testing Instruments)(England and Wales) Exemption Order 2006 (S.I. 2006 No.1500) was made on 5th June 2006 and comes into force on 6th October 2006. It replaces the existing EO for these sources for England and Wales – Scotland will have to sort themselves out!

There was no public consultation on this topic because it was considered not to be contentious as it is just restating the existing EO with extension/clarification in relation to the use of mobile sources.

What precipitated action on this EO is the use of mobile chemical agent monitors (CAMS) by the emergency services. These devices normally incorporate a 370 MBq Ni-63 source and the powers that be considered that use of these as a mobile source was not covered by the existing EO. The Final Regulatory Impact Assessment associated with this EO is somewhat confusing by making the statement – ‘Such sources, if used at one location (i.e. not mobile) would be exempt under the existing order.’ This would imply that sources used at a number of locations would not be exempt under the existing order whereas I have always assumed that they are exempt provided the sources are used on ‘premises’. My understanding is that the difference with these CAMS is that they could be used anywhere and not just on premises and hence the need to explicitly exclude this type of device, using Ni-63 sources, from mobile registration.

Other Class 1 and Class 2 sources used for testing instruments are now also explicitly excluded from registration under Section 10 of the Act (mobile registration), so I can now sleep easy at night as I take my sources to people to carry out monitor calibrations!

Trevor Moseley
University of Sheffield

CONSEQUENCES OF THE CHERNOBYL NUCLEAR ACCIDENT

The 20th anniversary of the Chernobyl accident on 26th April has produced a number of papers, articles and claims about the health effects of the accident both here in the UK and in Eastern Europe. The estimates of the number of health effects caused by radiation exposure from the accident vary widely, from a few thousand to hundreds of thousands of deaths.

Estimates of Health Effects from Chernobyl have been reviewed in a publication available online from a WHO organisation the International Agency for Research on Cancer - <http://www.iarc.fr/chernobyl/IARCBriefingChernobyl.pdf>

Three people died immediately as a result of the accident and a further twenty eight died within a few weeks as a direct result of acute radiation doses¹. They were staff working at the Chernobyl nuclear power station at the time and staff from the emergency services, particularly the fire service. Nineteen more of these emergency workers died during the period 1987 to 2004 from various causes. There is also an increase in the incidence of thyroid cancer in people who were children in 1986, including those in utero at the time of the accident. At present over 4000 cases of thyroid cancer have arisen in Belarus, the Ukraine and parts of Russia, most of which can be attributed to exposure of the

thyroid gland by radioactive iodine isotopes from Chernobyl². This condition is fatal in only about 1% of cases but it is nevertheless a serious health effect; people affected need to take medication for the rest of their lives.

Predictions of increases in the incidence of cancer in general, and of other illnesses that might have resulted from exposures to radionuclides from Chernobyl, are subject to large uncertainties and can therefore be contentious. These uncertainties are at their greatest when attempting to estimate the number of excess cancer cases attributable to very low radiation doses received by very large numbers of people. A wide range of estimates have been reported in recent weeks using various risk factors and differing methods of calculation. The most reliable recent evidence comes from Elisabeth Cardis and colleagues from articles published in the International Journal of Cancer³ and the Journal of Radiological Protection⁴.

References

1. UNSCEAR (2000). United Nations Scientific committee on the Effects of Atomic Radiation. 2000 Report to the General Assembly. Volume II Effects (New York, UN)
2. WHO (2006). Health Effects of the Chernobyl Accident and Special Health Care Programmes. A report of the UN Chernobyl Forum. Expert Group "Health". (Geneva UN). See http://www.who.int/ionizing_radiation/chernobyl/who_chernobyl_report_2006.pdf
3. Cardis E et al (2006). Estimates of the Cancer Burden in Europe from Radioactive Fallout from the Chernobyl Accident. Int. J. Cancer.
4. Cardis E et al (2006). Cancer consequences of the Chernobyl accident: 20 years on. J. Radiol. Prot. 26, 127-140. <http://www.iop.org/EJ/toc/0952-4746/26/2> (*from a HPA-RPD Press Release*)

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

The consultation on this ended on 31st May 2006 and a number of members reported their comments to me before I made a consolidated response on behalf of AURPO. Members were also encouraged to make responses of their own and I know that a number did. Thanks in particular to those members that discussed this topic with me. Everyone that I talked to was in agreement over the main issue and that was the re-defining of dustbin disposal waste. Everyone thought that it should remain as it is in terms of activity/unit volume and not be brought into line with activity/unit weight, especially as the suggested limit of 4MBq/tonne beta-gammas and 40MBq/tonne for H-3 and C-14 would actually work out at 1/10th of the existing limit for 0.1 cubic metre of VLLW weighing typically less than 10kg. Weighing waste prior to disposal was also considered to be an unnecessary additional burden for small scale disposals. It was also thought that the nuclear boys appeared to be trying to hijack our VLLW category for their own use when it was originally intended as a subset of LLW designed specifically for the convenience of non-nuclear users.

We also pressed for local solutions for radioactive waste disposal and lamented the loss of our special precautions burial sites. However all might not be lost on this issue because 'Sniffer' (see SNIFFER article on page 15) have just released a report (UKRSR03) on assessing the suitability of landfill sites for controlled burials of LLW waste, so perhaps the powers that be could facilitate their revival.

T.J.Moseley, University of Sheffield

DfES consultation on revoking registration of radioactive materials used in schools in England and Wales.

The acquisition, work and disposal of radioactive material in secondary school science is subject to the same regulations as higher educational establishments (although there is an Exemption Order that exempts schools conditionally from most parts of RSA93). There is also legislation controlling radioactive material that applies just to schools - Regulation 7 of the Education (Schools and Further and Higher Education) Regulations 1989 (as amended). It is this that the DfES (Department for Education and Skills) is proposing to repeal. This would abolish the requirement for schools funded by local authorities to seek approval from the Secretary of State (effectively the DfES or Welsh Assembly Government Department for Education, Lifelong Learning and Skills) before purchasing or using radioactive sources or X-ray equipment.

The school-specific legislation is causing problems for schools, and potentially for RPAs who advise schools, because much of it is out-of-date. Schools have to agree to follow the DfES guidance, explained in administrative memorandum AM 1/92, before permission is given under Regulation 7. The DfES AM1/92 was written in 1992 when IRR85 was in force, and so schools are agreeing to conform to obsolete Ionising Radiations Regulations. Therefore, on first look, the repeal of regulation 7 appears to be sensible. Unfortunately, the repeal would reinforce the weaknesses of the much older Schools Exemption Order. The exemption quantities are excessive for the current science curriculum. Without Regulation 7, local authority schools and colleges could procure up to 74 MBq of unsealed sources (excluding alpha emitters) and 148 MBq of sealed sources with no requirement to register the use and holdings with any external authority.

The DfES consultation ended in May. Whatever the outcome, the DfES is planning to replace the administrative memorandum AM1/92 with a document prepared by CLEAPSS, the School Science Service¹. Another aspect arising from this consultation has been the DfES approval of suppliers of sealed sources. During the 1960s, the DES (Department of Education and Science, now the DfES) prepared a sealed source specification and only gave approval of suppliers if their sources met these specifications. It is now the view of the DfES that it has no regulatory role in such approval of suppliers or products. The DfES plans to give guidance on source specifications in its replacement to AM 1/92. However, if Regulation 7 is repealed, the guidance will only be advisory, schools will not have to follow it unless their employer makes it a health and safety policy to do so. Most probably will.

Ralph Whitcher, West Sussex County Council

¹ A working party organised by CLEAPSS (based on the Brunel University campus) and supported by the DfES, has made further progress in developing criteria for radioactive sources suitable for use in schools in England and hopefully elsewhere. It is intended that the specifications will address general principles (which include considerations of health and safety, recommended working life and the need to encourage a variety of experiments), standards for sealed sources and unsealed sources (used for half-life experiments) and cloud chamber sources. It is likely that manufacturers will wish to market inexpensive, new sets of sources and associated apparatus which universities could also use in undergraduate programmes. When a draft has been finalised by the working party, it will be sent out to a wide variety of interested parties for their comments.

(*Additional contribution on this topic from R Monty Guest, SRTS Ltd*)

NEWS FROM HPA- Radiation Protection Division

As usual they have been busy writing reports and producing articles to assist in raising awareness to the hazards from ionising and non-ionising radiations and their website is a tremendous resource for all in the radiation protection community.. 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 has been one new publication in the HPA-RPD series and this is as follows:-

HPA-RPD-013 Modelling Plant Uptake of Sulphur-35

http://www.hpa.org.uk/radiation/publications/hpa_rpd_reports/2006/hpa_rpd_013.htm

There are now 'Documents of the Health Protection Agency' in the Radiation Protection section which have replaced the previous 'Documents' series. Two publications have been made to date:-

- **RCE-2** Dose Criteria for the Designation of Radioactively Contaminated Land
<http://www.hpa.org.uk/publications/2006/rce2/default.htm>
- **RCE-1** Power Frequency Electromagnetic Fields, Melatonin and the Risk of Breast Cancer Report of an independent Advisory Group on Non-ionising Radiation
<http://www.hpa.org.uk/publications/2006/rce1/default.htm>

Health Protection Matters

The Spring edition of this magazine is now available at:-

http://www.hpa.org.uk/hpa/publications/HPM/spring_2006.pdf

Two articles will be of particular interest to members and these are:-

- Lasers in consumer products: a cause for concern? – An article written by John O'Hagan . The article summarises the latest laser classification system, looks at why people should want to use lasers, the hazards from laser beams and technological advances in laser design.
- Radon – reducing risks by minimising exposure. – This article reviews the UK radon programme, describes the passive detectors that are used, looks at the latest 'radon map' based upon nearly ½ million measurements in homes, describes effective remedial measures and highlights the work of the 'radon team' led by Martyn Green.

Glossary of Terms

There is a good glossary of terms on the HPA-RPD pages that members may find useful to refer to:- <http://www.hpa.org.uk/radiation/glossary/default.htm>



Radiation Awareness Courses

HPA-RPD runs a series of one day “awareness” courses aimed at those who work with radiation on a regular basis but who do not have a supervisory role. The courses address practical radiation safety issues without extensive coverage of the legal requirements. Dates available in 2006 are:

Radiation Awareness - Sealed sources:	7 September (Chilton)
	15 November (Leeds)
Radiation Awareness - Unsealed sources:	18 July (Chilton)
Radiation Awareness - X-rays:	12 October (Glasgow)

Other Courses

We also offer a range of RPS courses (including RPS Refresher) and we can provide tailored courses on site. For more information please visit our web site :

<http://www.hpa.org.uk/radiation/training/occupational>

or contact us:

Chilton - 01235 822670 Leeds - 0113 267 9041 Glasgow - 0141 440 2201

IRISH TAKE RADON SERIOUSLY

Thursday 15th June 2006: The Radiological Protection Institute of Ireland (RPII) has today welcomed the decision of the District court in Ennis to convict three employers for failing to comply with a RPII direction to measure radon in their workplace. Two of the defendants were fined €500 each. A third defendant, whom the judge noted had pleaded guilty at the first opportunity, was fined €300. All three were ordered to pay legal costs of €600 each. A fourth case was dismissed by the judge.

Commenting on today’s events, Dr. Ann McGarry, Chief Executive of the RPII, said: “We hope that all employers, particularly in high radon areas such as Ennis, will take note of today’s decision and will recognise the need to measure radon to ensure their employees are not at unnecessary risk. Long term exposure to radon increases the risk of lung cancer and we estimate that up to 200 people die from lung cancer as a result of radon in Ireland every year. Therefore, we will not hesitate to prosecute employers who fail to measure their radon levels after being directed to do so by the RPII”.

The Radiological Protection Act 1991, (Ionising Radiation) Order, 2000. S.I. No. 125 of 2000 empowers the RPII to direct employers to carry out radon measurements in their workplace. Once directed an employer has six months to comply and complete the measurement and inform the RPII of the result.

Affiliate NEWS - Suffolk Radiation Protection Services

Suffolk Radiation Protection Services, SRTS Ltd was set up five years ago to provide a responsive, professional radiation protection advice and consultancy service to universities, industry, health service professionals, companies using radioactive materials and X-ray set users.

These services concentrate on meeting the legal requirements and solving practical aspects to ensure doses are kept As Low As Reasonably Practicable (ALARP) or indeed eliminated, if practicable.

The team of five experienced and certificated RPAs and three consultants are based in East Anglia but have contracts in Glasgow, Rugby, Bristol, Belfast and Brussels.

When the company was set up, it inherited a 34 year track-record as one of the UK's leading providers of professional short courses in radiation protection. They take pride in the ability to develop, organise and deliver what the customer wants: well-designed, professional, interactive courses with nationally validated assessment standards.

SRTS courses include the well-established, pharmaceutical industry-standard PIRSDG RPS courses, which four universities have run on their own sites, an annual X-ray researchers RPS course run at Nottingham University, DfT Radiation Protection Supervisors, RPS, courses for trainers of Class 7 consignors, one day refresher courses, and they are the recognised provider of courses for East Anglian Dental Practitioners meeting requirements in the IR(ME)Regulations 2000.

In accordance with the principle that one should know one's own limitations, SRTS Ltd will not advise on areas outside the expertise of their RPAs and they are happy to refer potential clients to other more specialised RPAs. However, they have certain specialisms of their own including laboratory work with unsealed sources, neutron probes, industrial radiography, decontamination and surveys, dental and veterinary surgeries, and ports logistics.

Universities which SRTS advises include Warwick, Kent, Essex, and UEA.

www.suffolkradiation.co.uk 01473 623527 srtsltd@aol.com

PS See Below for details of next RPS course for x-ray work. This year it is going to be run at Brunel University.

RADIATION PROTECTION SUPERVISORS COURSE FOR X-RAY RESEARCHERS at BRUNEL UNIVERSITY (date to be decided)

Properties of X-radiation

Generation. Spectral characteristics
Attenuation. Scattering
Photoelectric Effect, Compton Effect, Pair Production, Rayleigh Scattering
Transmission and Shielding by different materials

Detection of X-rays

G-M and scintillation counters. Ion chambers. Solid state detection
Films and TLD materials
Energy response characteristics

Dose Concepts and Measurability

Absorbed Dose, Effective Dose and Equivalent Dose
Gray and Sievert, contrasted with Roentgen
Detectability and Measurability

Biological Effects

Acute effects Erythema and Eye doses
Long-term damage and cancer
Stochastic and Deterministic Effects

Radiation Doses

Primary and Scattered X-ray Beams
Calculations and measurements

Reported Accidents

Statutory Duties

Management of Health and Safety at Work Regulations
The Ionising Radiations Regulations 1999
Conditions of the HSE generic prior authorisation
Dose Limitation (Reg 8)
Legal Duty Holders (Regs 13 and 17)
Local Rules (Reg 17). Prior risk assessment (Reg 7)
Controlled and supervised areas (Reg 16)
Hierarchy of control measures (Reg 8)
Dose assessment & recording (Reg 21 & 22)
Investigation & notification of overexposure (Reg 25)
Outside workers (Reg 16)

This one-day course has been run successfully at GSK and at the Universities of Kent, Nottingham and UEA. The course is intended for researchers advising on, working routinely with and taking supervisory duties around X-ray sets used in research in crystallography, diffraction and related areas. Delegates working in engineering and medical fields have also found the course valuable. Priority will be given to university delegates and AUIRPO members.

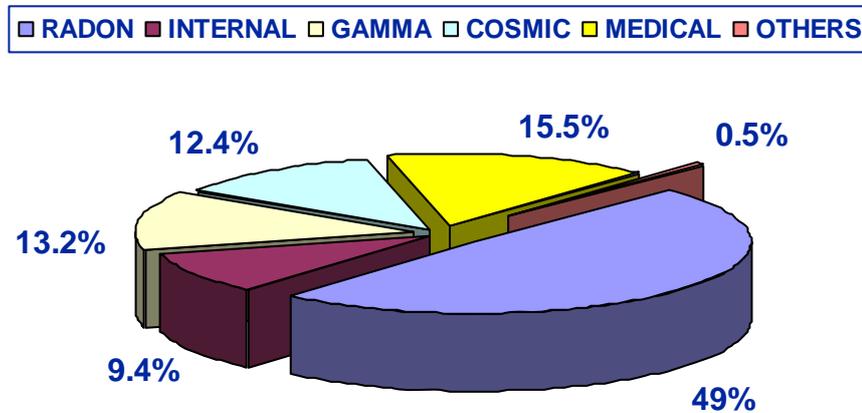
Course Fee is £198 + VAT (non-residential)

Enquiries to Louise Sullivan, Short Courses Administrator

E-Mail : srtsltd@aol.com Tel 01473 623527 Fax 01473 625838

BACKGROUND RADIATION 2005

The average level of natural background radiation in the United Kingdom is **2.23 mSv per year** coupled with artificial exposures this gives an overall average background population exposure of **2.65 mSv/person/year**. This is from the latest review of the data from the Radiation Protection Division of Health Protection Agency (HPA-RPD-001).



Average annual dose from sources of background radiation in the UK

Source	Average annual dose/person (μSv)
Natural - cosmic	330
- gamma (external)	350
- internal (ingested)	250
- radon (inhaled)	1,300
Artificial - medical	410
- occupational	6
- fallout	6
- waste disposal	0.9
- consumer products	0.1
Total	2,653

Putting doses in perspective

Air flights: return to Spain 15 μSv (5 hours); return to New York 100 μSv (15 hours).

Food: K-40 in all foods -165 $\mu\text{Sv}/\text{y}$; 100g of brazil nuts – 4 μSv (Ra-226); 80g jar of mussels – 4 μSv (from Po-210).

Medical Exposures

Chest x-ray: 8,300,000 procedures/year with an average dose of 0.02mSv.

CT chest scan: 200,000 procedures/year with an average dose of 8mSv.

Barium enema: 360,000 procedures/year with an average dose of 7.2mSv.

PTCA (coronary procedure): 22,440 procedures/year with average dose of 15.1mSv.

T.J.Moseley, Univ of Sheffield

NEW PUBLICATIONS

G A M Webb et al

Classification of events with an off-site radiological impact at the Sellafield site between 1950 and 2000, using the International Nuclear Event Scale
Journal of Radiological Protection, Vol. 26, No. 1, March 2006

R W Allott, B Lambers and J G Titley

Initial radiological assessment methodology – part 1 user report
Environment Agency Science Report: SC030162/SR1
<http://publications.environment-agency.gov.uk/pdf/SCHO0106BKDT-e-e.pdf>

B Lambers and M C Thorne

Initial radiological assessment methodology – part 2 methods and input data
Environment Agency Science Report: SC030162/SR2
<http://publications.environment-agency.gov.uk/pdf/SCHO0106BKDV-e-e.pdf>

Development of a Framework for Assessing the Suitability of Controlled Landfills to Accept Disposals of Solid Low-Level Radioactive Waste
SNIFFER UKRSR03

A Review of the Application of ‘Best Practicable Means’ within a Regulatory Framework for Managing Radioactive Wastes
SNIFFERUKRSR05
<http://www.sniffer.org.uk/index.asp>

Emergency Response Guidance For The First 48 Hours After The Outdoor Detonation Of An Explosive Radiological Dispersal Device
Stephen V. Musolino and Frederick T. Harper
Health Physics, Vol 90, No 4, April 2006

Cancer consequences of the Chernobyl accident: 20 years on
Elisabeth Cardis et al
Journal of Radiological Protection, Vol. 26, No. 2, June 2006
http://ej.iop.org/links/q46/gLrA7cryFqDCXWnLvVtJzA/jrp6_2_001.pdf

Radiation Protection News – Issue 29 May 2006
<http://www.hse.gov.uk/radiation/ionising/rpa/rpa29.htm>

Consultation on the Natural Mineral Water, Spring Water And Bottled Drinking Water (England) Regulations 2006
<http://www.food.gov.uk/Consultations/consulteng/2006/mineralwaterregs06>

Annals of the ICRP Volume 35 No.4 2005, ICRP Publication 99
Low-dose Extrapolation of Radiation-related Cancer Risk
ISBN 008-0449581

John Scott, University of Leicester



Association of
UNIVERSITY
RADIATION
PROTECTION
OFFICERS

AURPO Subscription 2006-2007

To all members

The annual subscription of **£20** (£10 for retired members) to the Association is due on the **1st July 2006**. Members who attend the Annual Conference in September 2006 may pay the subscription fee at the time of registration. Otherwise please return the tear-off slip below, together with your cheque made payable to AURPO, as soon as possible.

Gillian Glazier

Honorary Treasurer

To: Mrs G C Glazier, Honorary Treasurer, AURPO

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Plumstead
London SE18 1PE

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 **2006-2007** (**1st July 2006 to 30th June 2007**).

I confirm my membership of IRPA through the Association.

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Contamination Monitors

LabLogic features a wide selection of radiation contamination monitors for detecting isotopes commonly used in research laboratories.



Outstanding Features

- High sensitivity detector
- Direct reading log scale
- Externally adjustable trip alarm that can be set to trip at any level on the scale
- Audible count rate to give an estimate of radiation intensity
- Easy calibration
- Dependable performance
- Probes are connected by a BNC connector for easy replacement
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- Optional power supply to save on the batteries
- One year warranty
- User friendly
- Rapid delivery
- Count on LabLogic





Rad-Monitor™ MODEL GM1

- Detects ¹⁴C, ³²P, ³³P, ³⁵S

Model GM1 detects contamination from radiotopes commonly used in research laboratories. GM tube detector has a total effective area of 28.5mm (1.125 inches) and a window thickness of 1.5-2.0 mg/cm². Unique thin screen protects the end window and provides 86% open area for maximum sensitivity.

Order No.	Description
951020/R	Rad-Monitor™ Model GM1
950114/R	Calibration Certificate



Rad-Monitor™ MODEL GM2

- Highest Sensitivity for ¹⁴C, ³²P, ³³P, ³⁵S

Model GM2 features a large diameter thin end window GM tube with a total effective area of 45mm (1.75") and a window thickness of 1.5-2.0 mg/cm². This detector provides the highest sensitivity for detecting soft beta emitters such as ¹⁴C and ³⁵S. Ideal for benchtop monitoring.

Order No.	Description
951036/R	Rad-Monitor™ Model GM2
950114/R	Calibration Certificate

Detector Specifications

	GM1	GM2	GM2-P	SD10
Detector Type	End window G-M tube	Pancake G-M tube	Pancake G-M tube	Scintillation Detector
Application	Alpha, Beta, Gamma	Alpha, Beta, Gamma	Alpha, Beta, Gamma	Low energy Gamma
Energy Response	40keV beta	40keV beta	40keV beta	10keV to 1.5 meV gamma
Window Type	Mica	Mica	Mica	Aluminium
Window Area	6.0cm ²	15.0cm ²	15.0cm ²	32mm
Window Density	1.5-2.0 mg/cm ²	1.5-2.0 mg/cm ²	1.5-2.0 mg/cm ²	14 mg/cm ²
Effective Diameter	2.86cm	4.45cm	4.45cm	25mm
Background	<0.5cps	<1.0cps	<1.0cps	<8.0cps

Detection Efficiencies

Model	¹⁴ C	³² P	⁹⁰ S / ⁹⁰ Y	⁹⁹ Tc
GM1	10%	35%	45%	30%
GM2	12%	35%	48%	32%
GM2-P	12%	35%	48%	32%
SD10	Not Available	60%	Not Available	Not Available



Rad-Monitor™ MODEL GM2-P

• Ergonomic Design

Model GM2-P features a "pancake" style detector with a rubberised grip handle. Large diameter tube is mounted at a slight angle for convenient benchtop, hands and clothing monitoring.

Order No.	Description
951044/R	Rad-Monitor™ Model GM2-P
950114/R	Calibration Certificate



Rad-Monitor™ MODEL SD10

• High Efficiency for Iodine-125

Model SD10 features a high sensitivity scintillation probe for detecting low energy gamma emitters such as Iodine-125. The detector utilises a fast response photomultiplier tube and a 25.4mm x 2mm thick sodium iodide crystal with a thin 1mm (7mg/cm²) aluminium window. Suitable for thyroid monitoring of ¹²⁵I uptake. It is also suitable for detection of shielding leakages, x-ray and gamma radiation work.

Rad-Monitor Instrument Common Specifications

Meter Scale	0-2000cps
Linearity	+ (-) 10%
Drift	< 5% of full scale
Response Time to reach 90% of full scale	< 4 sec
Detector Saturation System	Built in saturation indicator give visible and audible signals when detector becomes saturated in a high energy field.
Temp. Coefficient	< 0.2°C
Input Sensitivity	0.02V to 10.0V adjustable
High Voltage	500-1500 VDC adjustable
Battery	Two 9V Alkaline included. Optional: Six 1.5V AA, Alkaline (or Rechargeable). Can also be mains operated.
Battery Life	Approximately 200 hours continuous
Temp. Range	0°C to 50°C
Humidity Range	5 to 95% non-condensing
Housing & Components	Two piece high impact and chemically resistant plastic. Nylon coated handle and probe holder.
Dimensions	19cm x 11.4cm x 12.7cm
Weight	1KG

Order No. Description

954065/R	Rad-Monitor™ Model SD10
950114/R	Calibration Certificate

Rad-Monitor GM Model Sensitivities

Model	Beta ¹⁴ C	Beta ³² P	Gamma ¹³⁷ Cs
GM1	0.3 cps for 1 Bqcm ⁻²	1.8 cps for 1 Bqcm ⁻²	3.0 cps for 1 μSv/h
GM2	0.7 cps for 1 Bqcm ⁻²	4.8 cps for 1 Bqcm ⁻²	6.0 cps for 1 μSv/h
GM2-P	0.7 cps for 1 Bqcm ⁻²	4.8 cps for 1 Bqcm ⁻²	6.0 cps for 1 μSv/h

Rad-Monitor Scintillation Model SD10 Sensitivities

Model	¹²⁵ I (3.7kBq at 20mm)	⁵⁷ Co (3.7kBq at 20mm)	^{99m} Tc (3.7kBq at 20mm)
SD10	525 cps	300 cps	200 cps

Contamination Monitors for some Common Radionuclides

Isotope	Rad Monitor
Americium 241 β and γ	GM1, GM2, GM2-P, SD10*
#Barium 133	SD10
Cadmium 109	SD10
Caesium 134, β and γ	GM1, GM2, GM2-P, SD10*
Caesium 137, β and γ	GM1, GM2, GM2-P, SD10*
Calcium 45	GM1, GM2, GM2-P
Carbon 14	GM1, GM2, GM2-P
Chlorine 36	GM1, GM2, GM2-P
#Cobalt 58	SD10
Cobalt 60 β and γ	GM1, GM2, GM2-P, SD10*
Gallium 67	SD10
#Gold 195	SD10
Indium 111	SD10
#Indium 113 ^m	SD10
#Iodine 123	SD10
#Iodine 125	SD10
Iodine 131 β and γ	GM1, GM2, GM2-P, SD10*
Iridium 192 β and γ	GM1, GM2, GM2-P, SD10*
Krypton 85	GM1, GM2, GM2-P
Nickel 63	GM1, GM2, GM2-P
Phosphorus 32	GM1, GM2, GM2-P, SD10
Phosphorus 33	GM1, GM2, GM2-P
Promethium 147	GM1, GM2, GM2-P
Radium 226	GM1, GM2, GM2-P, SD10
#Selenium 75	SD10
Sodium 22 β and γ	GM1, GM2, GM2-P, SD10*
Strontium 90 / Yttrium 90	GM1, GM2, GM2-P
Sulphur 35	GM1, GM2, GM2-P
Technetium 99 ^m	SD10
Tellurium 123 ^m	SD10
Thallium 204	GM1, GM2, GM2-P
Thulium 170	GM1, GM2, GM2-P
Natural Uranium	GM1, GM2, GM2-P, SD10

ELECTRON CAPTURE NUCLIDE

* SOURCE LOCATION

To locate an open beta/gamma source use one of our GM monitors to look for the beta radiation. However, to detect contamination from an open beta/gamma source then use our SD10 to look for the gamma radiation.

Guaranteed Delivery

At LabLogic we believe that in addition to providing good instruments it is equally important to supply the instruments within a reasonable time scale. That is why our instruments and spare parts are held in stock so that they can be supplied within a few days from the point at which LabLogic receive the order.

Service and Support

All of LabLogic's products are backed by our in house Service Department at our Head Office in Sheffield.



Spare Parts

Catalogue Numbers	Description
951037	Cable for Rad Monitors Models GM1, GM2, SD10
951067	Logic Circuit Board for GM1, GM2, SD10
951068	Power Supply Circuit Board for GM1, GM2, SD10
950130	On/Off Knob for all Monitors
959012	Plastic End Cap GM1
951034	Speaker for all Model Monitors
950142	Battery Holder for 6 "AA" Batteries
959023	Replacement Tube for GM1
959015	Replacement Tube for GM2
959018	Replacement Tube for GM2-P
959050	Replacement Tube for SD10

Microprocessor Radiation Survey Meters MODEL MRSD & MRSS

Innovative micro-processor circuitry automatically controls standard operating functions. Important features include automatic ranging, dead time compensation, probe linearisation and self diagnostic.

Models available with single or dual probe inputs. Dual probe inputs allow immediate selection between GM probe and scintillation detector. Ideal model for detecting both ¹²⁵I and beta emitters. Probes available separately.



Order No.	Description
956505/R/D	Dual Probe Microprocessor Survey Meter (probes sold separately) Model MRSD
956500/R/D	Dual Probe Microprocessor Survey Meter (probes sold separately) Model MRSS

Survey Meter Probes

Order No.	Description	Detection Capabilities
956023/R	High Sensitivity GM Pancake Probe	¹⁴ C, ³² P, ³⁵ S, ³³ P
956045/R	Scintillation Probe	¹²⁵ I