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

July 2012

AURPO NEWSLETTER

Editor T.J.Moseley

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EDITOR'S INTRODUCTION

Welcome to the July edition of the Newsletter. I was going to call it the summer edition – but it does not look as if we are getting one this year!

Many thanks to Simon Willis, Peter Cole and Christine Edwards for producing the IRPA report on page 10. Peter Cole has been a busy boy recently, writing books and helping out at IRPA13 in Glasgow and providing us with a report for the newsletter. He has also negotiated a discount for members on the latest edition of 'An Introduction to Radiation Protection'. Get your copy quickly and get him to sign it for you at conference! NB you get more than just the book with the latest edition as there are also online resources as well – see review on page 8.

We have 2 book flyers with this edition of the newsletter one from HodderArnold with the discount code for Introduction to Radiation Protection and from the British Institute of Radiology on Radiation Shielding for Diagnostic Radiology (both inside the front cover).

Check out the Laser News as there are some new laser safety videos available – and some are free!

There are lots of changes at HSE, they are losing inspectors particularly their radiation specialists and our good friend Gareth Thomas is moving over to the nuclear regulation side of HSE. If you get an inspection in future you will probably have done something wrong and you will pay for it in more ways than one –see page 5.

The latest version of the conference program is on page 4. Most things have been confirmed but I have just been informed that our potential HSE speaker can not make the Wednesday but hopefully can make the Tuesday so we may need to do some re-jigging. Everything will be there but possibly not in the current order advertised!

If you want to bring any items up at AGM or put forward people for committees please read the Secretary's announcements on page 3, deadlines are 14th August. I'm stepping down as STC Chairman this year having put in a second long stint, so I'm hoping others are going to step up to the plate.

The next edition of the newsletter will go out after the next SULG meeting which is on 4th December, so if I could have your contributions for the next edition by 30th November I would be most grateful. Hope to see many of you in Preston in September.

PS Don't forget to renew your subscription –see reminder from Treasurer from page 20.

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PRESIDENT'S REPORT

You should have all now received information about our forthcoming Annual Meeting at

University of Central Lancashire, in Preston. Many thanks go to Christine Edwards and her team at the Facility Management Office for all the work they have done in planning and making the arrangements. Also thanks as always go to our Scientific and Technical Committee for all their hard work in putting together the scientific programme, which I think you will agree looks excellent. I hope to see you all there. Our theme for this year is 'When the Inspector calls!" and this follows an update session on training on Tuesday afternoon.

For any new members who have never attended a conference, but are considering attending this year, I am sure you will find it of great benefit both scientifically and socially. It provides an excellent way to meet fellow members, hear lectures by experts in the field and discuss equipment and service requirements with exhibitors. For those of you who would like to take along your spouses or partners, Christine has made provisional arrangements to meet your accommodation needs. This year on the same week as our conference, Preston is to hold "Preston Guild" which is an event held every 20 years at Preston. I am sure that your spouses or partners will also, along with ourselves, enjoy the varied social programme which Christine has arranged for us together with events offered by the Preston Guild week.

Plans have already been made for next year's conference. The dates for your diaries are 3rd – 5th September 2013, when we will be hosted by the University of Edinburgh. Offers are now being sought for somebody to host the conference in 2014 and beyond so if anybody out there would like to volunteer, we would be very happy to hear from you.

It is always very pleasing to welcome aboard new members to the Association and this year has once again seen a steady increase in membership and again I would like to welcome all those who are newcomers to the Association. I hope to meet some of you in Preston.

Once again it is time to think of how you could help the Association. AURPO is a well known professional association and has representatives on many radiation protection related committees and working groups. Please come forward to offer help in running the businesses of our association. You will also see the call for AGM inside this issue. I wish to remind you that the association could not go on as it is without the valuable help of its members. Please come forward with your offer and broaden the list of volunteers even more.

May I wish you all a happy and relaxing holiday and hope to see you in Preston.

Sonia Nuttall
26th June 2012

Membership News

Welcome to the following new members to the Association who have joined since April:-

Helen Day	Imperial College Reactor Centre
Daniel Harrison	University of Westminster
Angelique Korny	Institute of Cancer Research (Chester Beatty Labs)
Lorraine Russell	Herriot-Watt University, Edinburgh
Simon Barnes	University of Surrey
Michael Konstantinos	Royal Free Hampstead NHS Trust

Association of University Radiation Protection Officers

51st Annual General Meeting of AURPO

In accordance with Section 6(a) of the AURPO Constitution, notice is hereby given of the above meeting, to be held at

16.45 hrs on Tuesday 4th September 2012

at the Darwin Lecture Theatre, Darwin Building, University of Central Lancashire, Preston.

Any motions, duly proposed and seconded, must be received, by the Honorary Secretary, by 14th August 2012. All papers pertaining to the meeting will be available at the meeting.

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Nominations are invited for membership of the Executive Committee of the AURPO, and for the position of Chairman of the Scientific and Technical Committee.

All nominations, duly proposed and seconded, must be agreed by the nominee and must be received by the Honorary Secretary by 14th August 2012.

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Volunteers or suggestions are also invited for members to be considered for membership of the Scientific and Technical Committee.

John Makepeace
Honorary Secretary AURPO
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AURPO Scientific Meeting Univ of Central Lancashire, Preston 4th & 5th September 2012

Tuesday Afternoon 4th Sept - Training Update

13.55 Introduction to Preston Conference from Christine Edwards

14.00 -14.10 Chairman Dr Peter Cole - Developing a Good Safety Culture

14.10 – 14.40 BSc in Radiation Protection at University of Cumbria (tbc)

14.40 – 15.10 Online training using Moodle (Peter Jewell, Bath)

15.10 - 15.40 Break and Exhibition

15.40 – 16.10 RWA – requirements, syllabus, accreditation (Angela Wright, SEPA)

16.10 -16.40 Laser Safety training update (Simon Hall, NPL)

16.45 AGM

Wednesday 5th September - When the Inspector Calls!

9.15 Official Welcome to University of Central Lancashire by Prof David Phoenix

9.30 Chair of morning session Dr Brian Heaton

9.30 – 10.15 Keynote presentation on source security (Dr Robert Forrest, Univ of Pennsylvania)

10.15 – 10.45 HSE update (HSE, tbc)

10.45 – 11.30 Break and Exhibition

11.30 – 12.00 Preparing for an EA inspection (Amber Bannon, EA)

12.00 - 12.30 Inspections carried out under CDG (David Rowe, ONR)

12.30 – 14.00 Lunch and Exhibition

14.00 Chair of afternoon session John Makepeace

14.00 – 14.30 Update on ICRP dosimetry issues and the use of effective dose (John Harrison, HPA)

14.30 – 15.00 Eye dose limits and eye dosimetry (Liz Ainsbury, HPA)

15.00 – 15.30 Break and Exhibition

15.30 - 16.00 Modern methods of dosimetry (Dr Derek Bingham, AWE)

16.00 – 1630 Surviving a Euratom Safeguards Inspection (Lawrence Johnson, HSE Safeguards Office)

16.30 Close

HSE News

E-Bulletins Subscribe to free news and e-bulletins from HSE - http://www.hse.gov.uk/news/subscribe/index.htm

News releases can be obtained from http://www.hse.gov.uk/news/index.htm

HSE Information and press releases can be accessed on the Internet: http://www.hse.gov.uk/press/press.htm

HSE's Research Reports are available free on the HSE website at: http://www.hse.gov.uk/research/rrhtm/

HSE priced and free publications - direct at HSE Books, PO Box 1999, Sudbury, Suffolk, CO10 6FS, Tel (01787 881165) and other good booksellers. HSE Books has its own website: www.hsebooks.co.uk

HSE Notifications can be made by email to irrnot@hse.gsi.gov.uk

Report an accident/incident
Telephone 0845 300 99 23 or download the appropriate form from:
https://www.hse.gov.uk/forms/incident/index.htm
email it to: http://www.hse.gov.uk/riddor/report.htm

Fee for Intervention The Health and Safety Executive (HSE) confirmed on 29th June that its cost recovery scheme, Fee for Intervention (FFI), will start on 1/10/12 subject to Parliamentary approval.

New, detailed guidance has been published on HSE's website setting out how the scheme will work in practice. Developed in consultation with representatives from industry, it explains how FFI works and includes examples illustrating how it would be applied. FFI recovers costs from those who break health and safety laws for the time and effort HSE spends helping to put matters right such as, investigating and taking enforcement action. Law-abiding businesses will be free from costs and will not pay a fee.

Gordon MacDonald, HSE's programme director, said:

"Confirming the date for the start of Fee For Intervention and publishing the guidance will give dutyholders clarity and certainty about the start of the scheme and what they can expect.

"We have worked with industry representatives in shaping the final form of the scheme and the published guidance explains how the scheme will work and what businesses can do to comply with the law and avoid incurring a fee.

"It is right that those who break the law should pay their fair share of the costs to put things right - and not the public purse. Firms who manage workplace risks properly will not pay."

EA, DEFRA & DECC MATTERS

SULG -38 Meeting Report

The Small Users Liaison Group met on 14th June 2012. The meeting was attended by representatives of AURPO, SRP, IPEM, HPA, Welsh Office, Northern Ireland EA, MOD, ONR Safeguards and ONR Radioactive Materials Transport as well as the usual EA representatives from Policy, Process, Technical Services and RSR Inspection with Bob Russ back in the Chair. It was a good meeting with positive developments in many areas. The following items caught my attention. On the question of HASS financial provisions, Chris Englefield is making arrangements to meet with HEFCE and hopes to make progress on this matter over the summer.

Accessing information relating to RSR matters on EA website is perhaps not always as straightforward as it should be. Peter Merrill of EA is trying to see what he can do to improve things. It should be noted that EA pages themselves may all be subsumed within Direct.gov as the Government may want everything under the one umbrella. If members bookmark the best page to start from for non-nuclear matters they should find things quicker and easier, so use –

http://www.environment-agency.gov.uk/business/sectors/32481.aspx

Exemption order guidance – still awaiting Schools guidance (Peter Brember) and NORM guidance (Adam Stackhouse SEPA). Both these should be completed before the next meeting in December. All exemption order guidance can be found at –

http://www.environment-agency.gov.uk/business/sectors/133736.aspx

Note the UK Strategy for the Management of Solid Non-Nuclear Low Level Waste which was published by DECC on 12th March 2012. The document can be found at –

http://www.decc.gov.uk/en/content/cms/meeting_energy/nuclear/radioactivity/waste/low/low.aspx

It presents evidence relating to potential doses to the public from LLW and VLLW disposals which should be reassuring. It supports VLLW disposal of wastes exempt under EPR2010. However it does not mention any transport issues and conflicts with the Transport Regulations could present a barrier to fully utilising VLLW disposal options.

Shortages of Mo99/Tc-99m are forecast to continue for the foreseeable future.

There has been some confusion over whether, having missed the 31/03/2010 deadline, people would be charged a partial surrender fee if they wished to have VLLW removed from a permit and operate under the Exemption Order. EA can confirm that removal of VLLW provisions should be handled as a ‘fee-free’ administrative variation. The EA also sought to reassure people that they would not be prosecuted for a minor breach of an exemption condition as nowadays enforcement response is proportionate and starts with a warning for low-level non-compliances.

Issues arising from the current irradiator survey were brought up. This is all part of RRRS Project (Reducing Risks from Radioactive Sources). There is only a limited number of models where there are security concerns. No list will be provided but The EA team looking at this know who has got what and are in the course of visiting people to undertake security reviews. Equipment that is found to be in high security areas is unlikely to be required to have additional physical security devices attached. The EA team have been asked to phone people before the end of June to let them know if they are likely to be affected. If you have not had a call, you should have nothing to be concerned about. The Agency should have some funding to assist with either disposals or modifications to machines and a substantial funding subsidy of at least 50% was suggested.

David Rowe of ONR (RMT) gave his update on inspections of small user transport operations (a review of typical findings was published in last newsletter). He reported that standards were improving and the number of non-compliance/visit was reducing with some people even getting no non-compliances! They just have a team of 2 doing small user visits, so likelihood of a visit, especially for a university, is pretty slim. They hope that by publicising findings of inspections will draw peoples attention to what they should be doing. He still had concerns that not enough users were using a DGSA. Currently considering proposals for motor-bike couriers to distribute radionuclides in London during the Olympics. He reported on an upsurge of contaminated (Co-60)steel consumer products coming in to the country from India and China.

With pressure coming from ourselves, CLEAPPS and EA regarding the conflicts between the Exemption Order waste provisions and the Transport Regulations, ONR have finally agreed to look at these problems with the possibility of an Authorisation for transport within the UK being the most likely outcome (a Derogation requires approval of all member states). Nick Barton (ONR) to run a project on this with help from HPA. A simple statement that wastes exempted under EPR2010 were not subject to the Transport Regulations would be the most straightforward and simple solution.

Safeguards Reporting – nuclear inventory. The Safeguards Office has been listening and has been very responsive in taking up our case in Europe for either exemption or simplified derogations for small non-nuclear users. Mike Beaman (Safeguards ONR) updated us as to action they have taken and how they think things can be progressed. Mike indicated that exemption was perhaps unlikely but an arrangement where all small users undertook a simplified reporting to the UK Safeguards Office, with the UK Safeguards Office reporting to EU on behalf of all small users, as being a possibility as this is what some other states do. Mike will develop proposals and consult with the small user community within the next 6 months.

I brought up the question of the treatment of ‘relevant liquids’ under the Exemption Order. Relevant liquids (for us - scint waste in mini-vials) can be treated as solid when considering what is out of scope, but there is no provision to consider them as solid when looking at VLLW. Some people have been disappointed with this as all the waste goes for incineration and the exposure pathways and outcomes are the same. Some small users would benefit from a relaxed interpretation here. EA to consider this further.

Simon Clark (MOD) pointed out a problem he had with the Exemption Order in relation to the disposal of GTLSs and GTLDs (gaseous tritium light sources or devices) as the new EO indicated that only intact devices were exempt whereas under previous guidance intact or broken devices were exempt. EA indicated that it was not intended to exclude broken items from the EO.

A number of concerns were expressed about the workings of the Pollution Inventory – not being able to see returns, units not being displayed in reports, radionuclide coverage. The PI team are investigating some of these concerns (some have been reported on numerous occasions). Peter Merrill will look at issues relating to reporting of PET nuclide discharges.

In response to a question relating to the disposal of smoke detectors and the interaction of WEEE Regs(waste electrical components) EA stated the following:-
‘Regulatory guidance is still in draft and EA are discussing proposals with Fire Industries Association(FIA). In the interim users needing to dispose of them should send them to either of the following WEEE compliant, and preferred options: a supplier or a permitted disposal company. If this is not practicable then the exemption regime allows up to 5 units (40kBq each) disposal in 0.1m3 subject to a limit of 250/year.’ - i.e it is permitted to dispose of up to 5 without reference to

WEEE. One could of course remove the Am-241 foil (if one is competent to do so) and dispose of separately to avoid any conflict. (*ignoring the transport regs!)*

The EA assessment tool (spreadsheet EA use to perform environmental impact assessments) is available from EA inspectors but EA are reluctant to put it on their website. Ciaran McDonnell suggested that we should put it on the AURPO website and that we could put his spreadsheet on as well if we wished. EA would be happy with this as long as we stressed that EA would not be providing technical support for it. STC (AURPO Scientific and Technical Committee) will probably have to write a short guidance to assist with its use. I have all the spreadsheets now and hope to organise a page on our website shortly to take them.

Response to Consultation
Radioactive substances are now included within the scope of the Water Framework and Groundwater Daughter Directives.
Both the response document and the revised methodology can now be found on the JAGDAG pages of the website of the UK Technical Advisory Group (UKTAG); please see http://www.wfduk.org/stakeholders/response-consultation.

Book Review – An Introduction to Radiation Protection 6th Edition

This updated 6th edition now has 2 new young authors working on this text – Karen Beach (RPA for Research Sites Restoration) and our own Peter Cole (RPA at Liverpool).

The textbook has been extensively updated and all the information is very clearly presented. It has the added bonus of a companion website at – www.hodderplus.com/radiation protection . The website has a ppt presentation for each chapter and downloadable images from the book (*not all of these currently available- awaiting images and ppts for 7 of the chapters*). This makes the overall package extremely useful especially for someone looking to develop their own presentations. All this for a bargain list price £32.99 before any discounts Peter has managed to organise – see flyer on inside cover (*get your copy signed at conference!*).

New bits I've picked up on.

A new section (3.10) on international radiation symbols introduces the new graphic symbol for use with high activity sources to warn potential dismantlers that this is a 'deadly' source.

Deterministic effects are now called 'harmful tissue reactions' in line with new ICRP recommendations. There is an updated section on detriment, more information on radon and an updated section 6 on the 'System of Radiological Protection' including the 2007 ICRP recommendations. The new dose limit of 20mSv to the lens of the eye is included (April 2011 statement). 'Planned', emergency and existing exposure situations are described.

In Chapter 7 on radiation detection and measurement I thought direct ion storage and OSL (optically stimulated luminescence) would have got a mention – although OSL is covered briefly in Ch 8. Photographic effect is still in there – but perhaps not for much longer. Maintenance, testing and calibration of instruments has been moved into Ch 7 (previously Ch 15).

In Chapter 8 on the external radiation hazard the use of distance has been expanded to cover line and disc sources as well as the simple point source calculations.

In Chapter 9 on internal radiation hazard I noticed that reference man has put on weight (sign of the times) and is now 3kg heavier at 73kg. Biological monitoring has been renamed personal monitoring.

Chapter 10 was Ch15 in the previous edition and has just been renamed ‘Practical Health physics Techniques’.

Chapter 11 covers radiation protection in the nuclear industry and the schematic for a magnox reactor has been replaced with one for a boiling water reactor. A fuller description of the nuclear fuel cycle has replaced the section on fuel reprocessing and decommissioning is now incorporated into Chapter 12 on waste and decommissioning. Transport of radioactive materials gets a mention at the end of Ch12 but is this the right place for it? As it has been put in the waste section I would have thought there would be a mention of the Transfrontier Shipment of Radioactive Waste Regs (1993 SI No.3031) and also the EU transfrontier shipment of radioactive materials regs and the EA group that look after this. The main transport regs do get a mention in Ch 17.7 – perhaps all aspects of transport could have been covered here.

In Chapter 13 non-nuclear practices (excluding medicine) have been brought together here and expanded upon. Chapter 14 then deals with radiation protection in Medicine which has been updated with more information on imaging.

There is a new Chapter 15 on risk assessments which is very helpful. However, people should not forget that in a small user context that the risk of the work may be extremely low and a simpler, generic approach may be all that is required. It would have been useful to have the reference for Table 15.1 which is not given.

To round things off and show it is bang up to date Chapter 16 on radiological incidents includes a report on the 2011 Fukushima accident. The final 2 chapters then cover legislation and the organisation of radiation protection. One little typo I picked up on was that in Table 3.1 on radiation weighting factors it still had ‘5’ for protons instead of ‘2’.

So, I’ve perhaps been a bit picky, but overall I think it’s a very good book and well worth a purchase – well done Peter for your contribution.

Trevor Moseley
RPA University of Sheffield

13th International Congress of the IRPA, Glasgow 2012

Living with Radiation – Engaging with Society

The International Congress of IRPA is held every 4 years and in May 2012 it was 'hosted' by the United Kingdom delegation with Glasgow as the chosen city. The venue was the Glasgow Scottish Exhibition Centre, locally known as the Armadillo. Located on the bank of the Clyde it is only a short train journey from the centre of Glasgow. Although the more active of us chose to walk a very useful transport pass was provided by the organisers.

To mark the occasion, the IRPA13 International Congress Organising Committee worked with local tartan designer Ingles Buchan to design a celebratory tartan based on the 1990 Glasgow City of Culture tartan which uses the corporate colours of the 2012 Congress plus a white on blue representing the Saltire – the national flag of the host country, Scotland.

Almost 1500 scientific delegates (around 30% from Universities/Research/Teaching) attended from 77 different countries, together with over 60 Exhibition stands and 5 pods on recruitment and education, making this Congress the world's largest ever gathering of radiation protection experience and expertise.

There was a week full of events starting on the Sunday morning with the Associate Societies Forum followed by an evening welcome event and then it was straight into the bit we were all there for…..a superbly organised set of grouped lectures in various topic groups over 5 days.

Topics for discussion and learning ranged from Small Users to Nuclear Installations, Medical & University to the events surrounding Fukushima Dai-ichi. All in, there were 9 Symposia designed to add more content to presentation, 38 technical sessions, 220 oral presentations and 1180 posters presented in 4 sessions, providing more than enough CPD opportunities.

A full set of abstracts and programme of events can be downloaded from the IRPA13 website at:
http://www.irpa13glasgow.com/

The main theme of the Congress was 'Living with Radiation – Engaging with Society' and what better way to announce this than to invite 1200 14/15 year old children (young adults) from schools across Scotland to attend an exhibition of their very own. This was a fantastic event with plenty of input from a number of AURPO members. Even pupils from the Isle of Benbecula in the Outer Hebrides made it to the event which included demonstrations from SEPA on how to lose a smoke detector in a bucket of sand, Monty's collection of everyday radioactive items, contamination detection simulations and of course the John Dunster lecture which was more than enough to keep the interest up.

Professor Peter Marsden entertained the young people (including a good number of IRPA delegates!) with the 2nd John Dunster Memorial Lecture ably assisted by Pete Cole and Mark Green (all 3 AURPO members!) In this he traced the Importance of Radiation in Medicine with some interesting interactive demonstrations and imaging footage. A video of this lecture will become available soon via the SRP website.

IRPA 13 was also the first IRPA International Congress to feature a competition for papers presented by young radiation protection professionals. Eighteen candidates, with the support of their Associate Societies, submitted papers. An international panel of experts (including our very own Peter Cole) judged the papers with the 1st, 2nd and 3rd place winners taking home prizes of £ 1,000, £ 500, and £ 250 respectively. However, the big winners were IRPA and the radiation protection profession. By all accounts, the judges led by Executive Council Member, Alfred Hefner, Austria, enjoyed the competition as much as the participants!

As a new venture for IRPA, there were 3 live webcasts and 4 sessions available as podcasts together with an emphasis on digitalisation and encouraged use of laptops, tablets and I phones etc. There was even an app to assist individuals in tailoring their own programmes!

There were some very interesting lectures and talks and I took the opportunity to brush up my knowledge following lectures on Iodine treatment contamination and waste issues, design of facilities, patient doses and neutron monitoring.

On Tuesday the main theme was 'Engaging with Society'. This involved a series of lectures on communicating risk. It would appear that when under pressure we lose about 4 years worth of education and we start talking gibberish. The outcome of the talks indicated that preparation is required and that we should be able to communicate risk in 27 words, using 3 key messages and in 9 seconds – should make for some nice short training sessions!

Christine attended the General Assembly as part of the 14 strong UK delegation with the usual standard items for discussion and voting processes. Roger Coates from the UK was elected as Vice-President of the Executive Council for the next four years so we can rest assured that going forward the UK views will be ably represented at the highest level. The next IRPA International Congress will be held in South Africa in 2016 and a strong bid was put forward for the 2020 Congress by the Korean Society.

Just so that you don't feel that the event was 9 to 5 lectures there were the occasional social events to whet our palate. The SRP annual dinner, A Scottish evening ceilidh, a night off, an evening hosted by the Korean Society and the grand Gala Dinner with 900 sit down guests. A couple of members of the AURPO Exec were spotted enjoying themselves!

Since its foundation, the International Radiation Protection Association (IRPA) has grown to become the international voice of the profession of radiological protection. Did you know that as a member of AURPO you are a member of IRPA? You should tick the IRPA membership box on your AURPO registration form. You can only be a member of IRPA through one of the membership bodies (AURPO, IPEM or SRP) and if you tick more than one, chances are we lose out on that vote. So make your vote count and chose IRPA membership via AURPO!!

For further information on IRPA, visit the website at: http://www.irpa.net/

And the Scores from the English Judge are …

The IRPA 13 Young Professionals Award – a Judge's Perspective

The world in a week – that's what it felt like to serve as a judge for the first-ever IRPA Young Professionals Prize. I was one of 10 judges from as many countries, and I attended the young professionals' presentations during the IRPA 13 Congress in Glasgow. I had to listen carefully to each presentation and consider the presenters' content and delivery. Then, working with my fellow judges, we had to choose just three young professionals to receive cash prizes. Our job was very difficult as all 18 nominees were excellent.

Presenters were nominated by their sponsoring radiation protection societies on the basis of the papers they submitted describing their research. The SRP's nominee was Izzy Styles (of Sellafield Ltd) whose work on "Skin dose assessments using Varskin 3" was chosen to represent Great Britain in the competition.

We judges had prepared by obtaining and reading all 18 papers before the congress began. Then on Sunday evening, just after the opening reception, we met to discuss our approach in judging. Our instructions were to consider the quality of the underpinning work being presented, the quality of the written paper, and the quality of the presentation itself.

I was in awe of my fellow judges as they were a distinguished group. Led by IRPA Executive Council member Alfred Hefner (Austria), the group included Ana Maria Bomben (Argentina, also an IRPA Executive Council member), Kun Woo Cho (South Korea), Eduardo Gallego (Spain, also an IRPA Executive Council member), Klaus Henrichs (Germany), Gert Liebenberg (South Africa), Klas Rosen (Sweden), Catherine Roy (France) and Linnea Wahl (USA). Leaders in their home radiation protection societies and representing a wide variety of expertise (many of them are university professors), this group was well prepared to assess the scientific papers presented.

While the judging was intense, we did have moments of relaxation. One such period was at the Young Professionals Reception on Monday evening. Here, the young presenters mingled with IRPA leaders such as Ken Kase and Renate Czarwinski; enjoying nibbles and drinks in a non-competitive atmosphere.

During the week, we judges did our best to attend each presentation, adjusting to schedule complications. This was quite a feat in itself, given that some papers were concurrent, others were back-to-back in distant locations, and many were rearranged within the session at the last minute.

The Judges: (from left to right) – Pete Cole (England), Klaus Henrichs (Germany), Klas Rosen (Sweden), Linnea Wahl (USA), Alfred Hefner (Austria), Catherine Roy (France), Kun Woo Cho (South Korea), and Eduardo Gallego (Spain). Absent from photo are Ana Maria Bomben (Argentina) and Gert Liebenberg (South Africa)

By Thursday afternoon, all nominees had completed their presentations.

It was decision time.

We had our notes and we had transferred them to our scoring sheets. From these sheets, Catharine and Alfred tallied the results; and the three winners emerged from the data. Jad Farad of France, Olaf Marzocchi sponsored by the German-Swiss society, and Nataly Shagina of Russia were declared the winners, but it was a close run thing and all the nominees presented work that was of a very high standard.

At the congress's closing ceremony on Friday, Alfred called the three winners to the stage to receive their prizes. Then, in keeping with the concept that all the nominees were indeed winners, the rest of the young professionals came to the podium to be congratulated for their accomplishments.

The importance of acknowledging young professionals early in their career, and the need to provide them the opportunities to present their ideas and hone their research skills is paramount. The IRPA 13 Congress saw the beginning of a tradition that will be continued at future meetings.

As a judge, I gained a new appreciation for the quality of work being done by young radiation protection professionals.

Pete Cole – (based on an article by Linnea Wahl)

Transport Matters

ONR regulates….the transport of non-nuclear materials

The latest in our series highlighting the varied responsibilities of the Office for Nuclear Regulation looks at the transport of radioactive materials by non-nuclear organisations.

David Rowe, a transport inspector at ONR, explains how he helps to regulate the transport of radioactive materials within the medical environment. ***(This article is taken from an ONR e-bulletin available through the HSE e-bulletin service– have you signed up yet?)***

Every day, courier companies and hospitals across Britain transport radiopharmaceuticals which are used in the treatment of medical conditions. These products contain, for example, iodine to treat thyroid problems and technetium for the diagnosis of various diseases. The levels of radioactivity in these materials are such that the organisations transporting them must do so in compliance with the Carriage of Dangerous Goods (CDG) Regulations and the European ADR Agreement on the carriage of dangerous goods by road, enforced in Great Britain by ONR.

What does ONR require?

We require consignors and carriers of radioactive material to demonstrate, through their systems and procedures, how they comply with the regulations in terms of, for example, the packaging, radiation protection, the vehicle, driver training and emergency arrangements.

Liquid radiopharmaceutical materials, when transported to and from hospitals, are usually contained in vials, packaged in what appear to be small suitcases, but which are in fact dedicated 'Type A' packages: these packages have to undergo tests to ensure that they can withstand various physical impacts and occurrences such as extreme weather conditions. Any organisation using one of these packages must be able to present evidence to ONR, to demonstrate that it complies with the test requirements, and must show that it is being correctly marked and labelled, and that the radiation level from the package is being accurately assessed for specific consignments. In addition, on each journey, as well as having photo identification and emergency arrangements, the driver must be able to show that all of the necessary equipment is in the vehicle to deal with an emergency.

Where there is evidence of an organisation not complying with the regulations, we explain what is required, then agree on how the issues can be rectified and establish a timescale for corrective action.

Investigating incidents

Transport incidents in the non-nuclear sector are varied and mostly minor, but organisations must have contingency arrangements in place in case of, for example, a vehicle fire or a serious road traffic accident. If such an incident should occur, the consignor and the carrier of the material have a duty to notify ONR. We will then advise them about their legal responsibilities, prevent further transport of the package until we are satisfied that it still complies with the regulations, ensure that any transport after the incident is carried out in accordance with the regulations and take enforcement action if necessary.

Working with industry

Along with inspections, we provide advice on transporting radioactive material, answer queries on the regulations and give presentations on regulatory matters at seminars and conferences. ONR also provides guidance notes to the non-nuclear sector, which you can find on our website.

There are, on average, around half a million movements of radioactive material by road in this country every year, and many of these are pharmaceuticals with a very short decay time (half-life), measured in days, hours or even minutes. By working with the non-nuclear sector in the ways described above, ONR seeks to ensure that these materials arrive at their destination on time, without compromising safety.

Find out more about the transport of radioactive material

NEWS FROM HPA- Radiation Protection Division

Recent publications that are of relevance are listed below.

- **HPA-CRCE-034 - Doses to Patients from Radiographic and Fluoroscopic X-ray Imaging Procedures in the UK – 2010 Review**

This report is the fourth in a series of five-yearly reviews of the National Patient Dose database, and analyses the information collected during the period January 2006 to December 2010.

- **HPA-CRCE-033 - Results of the 2011 HPA Intercomparison of Passive Radon Detectors**

In total, 34 laboratories from 13 countries, took part in the 2011 HPA Intercomparison.

- **HPA-CRCE-032 - The Measurement of X-Ray Beam Size from Dental Panoramic Radiography Equipment**

This report describes a quick and accurate automated method using digitised images for the measurement of the dimensions of panoramic X-ray beams.

- **HPA-CRCE-031 - Human Biokinetics of Nasal Clearance by Particle Transport**

This report provides a comprehensive compilation of the data on extra-thoracic (ET) retention and ET clearance from a human volunteer study of nasal clearance conducted at HPA.

HPA Response to the 2012 AGNIR Report on the Health Effects from Radiofrequency Electromagnetic Fields

The Heath Protection Agency welcomes this comprehensive and critical review of scientific studies prepared by the independent Advisory Group on Non-ionising Radiation (AGNIR)

Radiation doses to patients from X-rays are continuing to fall, but there is still some variation in hospitals, an HPA study has found. (HPA News Release 13/06/2012)

For the past 25 years the Health Protection Agency and its predecessor body the National Radiological Protection Board, have been surveying radiation doses to individual patients from X-rays in hospitals and dental surgeries.

The latest survey, which does not include doses from CT scanning, covers 2006-10 and is published today on the HPA website. Each year about 15 per cent of the total radiation dose to the UK public comes from exposure to radiation used for medical diagnosis.

“The UK has led the way in reducing the radiation doses of patients undergoing medical x-ray procedures,” said Steve Ebdon-Jackson, head of the HPA’s medical radiation exposure department.

“This latest survey shows further reductions, even as new technology is adopted and examinations are developed to give even better diagnostic information. There remains, however, a variation in doses between hospitals for the same examinations but this is getting smaller. On average, comparing like for like examinations, radiation dose levels in x-ray departments are now half of those used in the 1980s.”

The team which carried out the survey compared representative X-ray doses to patients in 320 hospitals, (about a quarter of the total number of hospitals with diagnostic X-ray facilities), and more than 4,000 dental surgeries (about a third of the UK’s dental surgeries).

The HPA will publish an assessment of radiation doses from CT scanning later in the year.

Laser News

This should be Gus's section (Gus Zabierek) but he has been working hard updating our Laser Safety Guidance Notes which should be made available shortly – currently final draft under review.

NPL Laser Safety Videos

There is some news on the video/DVD front however. John Makepeace has worked tirelessly at NPL to obtain free access to the series of videos produced by NPL and funded by AWE (the Atomic Weapons Establishment) and the MOD (Ministry of Defence). These videos are freely available to academic establishments and hospitals.

The four videos cover:

- Laser Controlled Areas
- Laser Alignment
- Laser eyewear and filters
- Laser classification

Go to the following webpage, enter your details and download the videos.
http://www.npl.co.uk/optical-radiation-photonics/laser-safety-videos

I've not had chance to study them yet but they should be a useful modern addition to your current training aids and they are in a format that makes them easy to use on an intranet. If you use these please give full credit to the organisations that have kindly made this resource available to us.

University of Southampton interactive video

Southampton University have produced an interactive and adaptive hazard awareness training video – 'Laser Safety in the Research Lab'. This short interactive video does not replace the old Southampton video but rather compliments it as it tests the user in their hazard awareness. There is footage illustrating poor practice in the laser lab, from signage and labelling to use of goggles and not containing the beam within the confines of the optical bench.

Influenced by game play, it is designed to test, stimulate and maintain the interest of the player as they seek to identify all the hazards presented in the video by 'clicking' on them with the mouse. Much like a 'youtube' video clip, you can drag the play back if you think you've missed something and go through it again. When you've had enough you can see how you have scored and then go through the video again when all the faults will be highlighted, you will be told what was wrong and how it should have been put right. Don't expect to get a high score on the first pass!

I'm currently testing it out with some users at Sheffield before deciding whether to incorporate it into our training. It would be used after the new laser users had received their induction training but before they are quizzed by the Departmental Laser Safety Officer to check they are aware of the hazards in the lab. Used like that, even if there are a few shortcomings, it will be a useful discussion tool.

It may be a little too fast paced for some old hands which makes it difficult to catch all the errors even when you spot them! The scoring is just for the player to note as there is no record made of it for subsequent interrogation. It also comes with some example risk assessment training tools for use as part of a training package. For more information see -
http://www.lasertraining.org.uk/product.html

I hope to comeback with more feedback from our users and others for the next issue of the newsletter.

SURVEY OF DOSES IN EDUCATIONAL ESTABLISHMENTS

Below is a summary of the results from the last survey we undertook in 2002 on the doses to workers in higher educational establishments and research centres. The average annual dose is the whole body dose (depth dose) from the dosimeters used. I have also put the average data from the preceding 6 years in the table for comparison. As you can see the average dose is consistently below 0.1mSv/y.

YEAR	1990-1996	1997	1998	1999	2000	2001
No. of workers	Av 4002	4772	4617	4553	4267	4098
Average Annual Dose (mSv)	Av 0.063	0.044	0.047	0.047	0.048	0.063

HPA have been gathering data for the period 2002-2010 as they look to produce an updated review of population doses in the UK. They have asked us if we could provide data from our sector (education and research establishments) as we had provided previously.

I can now thank 31 Institutions who responded to this request

Sheffield, Loughborough, Bath, Newcastle, NPL, Aberystwyth, Aberdeen, Diamond Light, Cambridge,

Oxford, Manchester, Dundee, Warwick, Leicester, Kent, Inst Animal Health, UEA, deMontfort, Leeds,

Herriot-Watt, Liverpool, Cardiff, Herts, Sussex, Strathclyde, Reading, Belfast, Essex, Hull, Lancaster, Keele.

(*There were 7 for whom I just had data up to 2008 - which we had for the conference report on doses from Mike Sobanski in 2009 and one institution that just reported on the last 2 years.*)

Results of Dose Survey for 2002-2010

YEAR	2002	2003	2004	2005	2006	2007	2008	2009	2010
No. of workers	4437	4583	4198	3940	4034	3771	3611	3476	3052
Average Annual Dose (mSv)	0.018	0.012	0.015	0.016	0.019	0.011	0.013	0.014	0.031

NB All doses should have been reported above background

As you can see the average dose remains at a very low level and well under 0.1mSv. Most of the larger institutions reported a significant reduction in the number of badges issued in the last 10 years. One institution reported a reduction in badge issue from 1594 users in 2002 down to 636 users in 2010 and in another from 619 users in 2002 down to 187 in 2010.

All doses generally remain minimal or very low but in recent years there have been a few doses recorded by PET workers with the highest annual individual dose being 2.97mSv in the survey data. The highest dose recorded in the last survey came from a mysterious annual dose to an RPA at one university who recorded 6.09mSv in 2002 (mainly from one 2 month badge issue) !

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BOOKS AND PUBLICATIONS

Application of Radiotracer Techniques for Interwell Studies

IAEA Radiation Technology Series No. 3

The main purpose of interwell tracer tests in oil and geothermal reservoirs is to monitor qualitatively and quantitatively the injected fluid connections between injection and production wells and to provide important data for better understanding the reservoir geology in order to optimize the production strategy and thereby maximize the oil recovery or thermal energy production. Most of the information given by the radiotracer tests cannot be obtained by other means. Based on the key findings of an IAEA coordinated research project in this area, this publication describes the principles and the state-of-the-art of radiotracer techniques for interwell investigations, provides practical guidance on the design and implementation of tracer experiments as well as on the interpretation of the results.

STI/PUB/1539; 231 pp.; 2012; ISBN 978-92-0-125610-2; English; 54.00 Euro

The electronic version can be found at:

http://www-pub.iaea.org/books/IAEABooks/8658/Application-of-Radiotracer-Techniques-for-Interwell-Studies

Radiation Shielding for Diagnostic Radiology

Written by DG Sutton, CJ Martin, JR Williams and DJ Peet

The first report of the BIR working party on *Radiation Shielding for Diagnostic Radiology* was published in 2000 and has become the standard for shielding design in the UK. The second edition, like the first, is designed to be a compendium of information for radiation protection physicists involved in specification of shielding requirements for X-ray facilities. Central to the report are descriptions of possible methodologies for shielding different types of diagnostic X-ray rooms.

Fully revised and updated, this new edition builds on the work of the previous report. The initial chapters have been reworked, the chapter on building materials has been updated and the worked examples have been expanded considerably to the extent that individual chapters have been added to cover Radiographic, Fluoroscopic and CT facilities. Major changes have been made in the approach to the design of shielding for CT. A method for the quantification of tertiary scatter from ceilings and around open doorways has been included, as has consideration of the shielding requirements for radiation scattered from the highly filtered primary beams used in interventional radiology. The data on intra oral dental radiology has been revised and dental cone beam equipment is now considered. In this updated report, a chapter concerned with shielding for PET/ CT facilities has also been included with consideration being given not only to structural shielding but also to the impact of layout on doses to the individuals working within the facility.

The book is priced at £30 (plus postage and packaging) and can be ordered online at http://www.birjournals.org/site/books/shielding.xhtml or by e-mail - publications@bir.org.uk

ICRP Publication 117 Radiological Protection in Fluoroscopically Guided Procedures outside the Imaging Department

ICRP Publication 117
Ann ICRP 40(6), 2010

M.M. Rehani, O. Ciraj-Bjelac, E. Vaño, D.L. Miller, S. Walsh, B.D. Giordano, J. Persliden

Abstract - An increasing number of medical specialists are using fluoroscopy outside imaging departments, but there has been general neglect of radiological protection coverage of fluoroscopy machines used outside imaging departments. Lack of radiological protection training of those working with fluoroscopy outside imaging departments can increase the radiation risk to workers1 and patients. Procedures such as endovascular aneurysm repair, renal angioplasty, iliac angioplasty, ureteric stent placement, therapeutic endoscopic retrograde cholangio-pancreatography, and bile duct stenting and drainage have the potential to impart skin doses exceeding 1 Gy. Although tissue reactions among patients and workers from fluoroscopy procedures have, to date, only been reported in interventional radiology and cardiology, the level of fluoroscopy use outside imaging departments creates potential for such injuries.

A brief account of the health effects of ionising radiation and protection principles is presented in Section 2. Section 3 deals with general aspects of the protection of workers and patients that are common to all, whereas specific aspects are covered in Section 4 for vascular surgery, urology, orthopaedic surgery, obstetrics and gynaecology, gastroenterology and hepatobiliary system, and anaesthetics and pain management. Although sentinel lymph node biopsy involves the use of radio-isotopic methods rather than fluoroscopy, performance of this procedure in operating theatres is covered in this report as it is unlikely that this topic will be addressed in another ICRP publication in coming years. Information on radiation dose levels to patients and workers, and dose management is presented for each speciality.

Issues connected with pregnant patients and pregnant workers are covered in Section 5. Although ICRP has recently published a report on training, specific needs for the target groups in terms of orientation of training, competency of those who conduct and assess specialists, and guidelines on the curriculum are provided in Section 6.

This report emphasises that patient dose monitoring is essential whenever fluoroscopy is used.

It is recommended that manufacturers should develop systems to indicate patient dose indices with the possibility of producing patient dose reports that can be transferred to the hospital network, and shielding screens that can be effectively used for the protection of workers using fluoroscopy machines in operating theatres without hindering the clinical task.

Recommended reference format for citations
ICRP, 2010. Radiological Protection in Fluoroscopically Guided Procedures outside the Imaging Department. ICRP Publication 117. Ann. ICRP 40(6)

http://www.icrp.org/publication.asp?id=ICRP%20Publication%20117

http://www.icrp.org

Neutron Generators for Analytical Purposes

IAEA Radiation Technology Reports No. 1

This publication addresses recent developments in neutron generator (NG) technology. It presents information on compact instruments with high neutron yield to be used for neutron activation analysis (NAA) and prompt gamma neutron activation analysis in combination with high count rate spectrometers. Traditional NGs have been shown to be effective for applications including borehole logging, homeland security, nuclear medicine and the on-line analysis of aluminium, coal and cement. Pulsed fast thermal neutron analysis, as well as tagged and timed neutron analysis, are additional techniques which can be applied using NG. Furthermore, NG can effectively be used for elemental analysis and is also effective for analysis of hidden materials by neutron radiography. Useful guidelines for developing NG based research laboratories are also provided in this publication.

STI/PUB/1535; 145 pp., 74 figs; 2012; ISBN 978-92-0-125110-7; English; 41.00 Euro

The electronic version can be found:

http://www-pub.iaea.org/books/IAEABooks/8505/Neutron-Generators-for-Analytical-Purposes

Radiotherapy in Palliative Cancer Care: Development and Implementation

IAEA Human Health Reports No. 2

Palliative care is increasingly recognized as an important component of quality care for cancer patients. Improving access to, and availability and quality of, comprehensive palliative care in cancer treatment is an important and ongoing global challenge. This publication focuses on radiotherapy as a major tool and gives summaries of current approaches in palliative radiotherapy and care. It describes the steps needed to enhance access to and quality of care, and to incorporate palliative radiotherapy and palliative care within an integrated multidisciplinary approach. It is hoped that this publication will be a resource for administrators, specialists and teachers working to improve the management of palliative care and radiotherapy for patients.

STI/PUB/1388; 53 pp.,2 figs; 2012; ISBN 978-92-0-109009-6; English; 16.00 Euro

The electronic version can be found:

http://www-pub.iaea.org/books/IAEABooks/8128/Radiotherapy-in-Palliative-Cancer-Care-Development-and-Implementation

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