



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

Jan 2009

**AURPO NEWSLETTER**

Editor T.J.Moseley

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## EDITOR'S INTRODUCTION

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Your editor can not believe his luck when he wins the prize draw of a portable DVD player from Landauer courtesy of Richard Bayliss at last year's conference at Liverpool. - I take back all I said previously about that lucky Marsden chap from UCL, although he gets cheekier with every SULG report I prise out of him!

My apologies for the late newsletter and If I've lost anything that people sent me to put in – I had a slight accident with my laptop in December and lost a lot of information that I've had to reassemble. – still that will teach me for not backing up things regularly enough.

It's good to see our affiliates providing us with lots of useful information and updates on their latest products and making a valuable contribution to our newsletter. Many thanks to all.

### **Leicester 16<sup>th</sup> and 17<sup>th</sup> September 2009**

We will be on a Wednesday and Thursday this year for a change, so will start on the Wednesday afternoon with some proffered papers (*see flyer on page 4 – see if your institution can put somebody forward*), followed by our usual regulatory update. Things have still to be finalised and a lot depends on developments in the next few weeks but the EO review will be coming to an end, EPP2 nearing implementation, new Transport Regs, Qualified Expert and a new BSS all possibly at a stage where reports would be useful – so plenty to choose from. The main scientific day this year on the Thursday will look to give RPAs and RPOs an update to their 'Core of Knowledge'. We have looked at topics that have not been covered recently and will draw up a program to cover most of the following:-

- Risk assessments and Local Rules
- Monitoring – calibration and testing and measuring uncertainties

- Biological monitoring
- Designation of areas and laboratory design
- Classification of workers, outside workers, working abroad and worker doses
- Practices – PET, veterinary uses of ionising radiations
- Lessons from radiation incidents

STC will next meet on 6<sup>th</sup> March to finalise the program, in the meantime if anyone has any suggestions to make please get in touch.

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](mailto:g.a.zabierek@bham.ac.uk)) who will get you started.

**Contributions for next issue by 19<sup>th</sup> June 2009 preferred format Word emailed to -**

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We were entertained in style by the Mersey Beatles on our social evening at Liverpool sponsored by Landauer Europe. Members let their hair down in more ways than one – but I won't embarrass anyone with the pictures! I just give you a reminder of the night itself with the 4 likely lads below.





# Association of University Radiation Protection Officers

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**Scientific Meeting  
Leicester 16<sup>th</sup> - 17<sup>th</sup> Sept 2009**

## **CALL FOR ABSTRACTS**

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This call is to scientists working in the life, earth and physical sciences (in particular, to M.Sc, Ph.D and post-doctoral students) to bring their ideas, research and scientific developments to the attention of the radiation community on the opening day of this annual conference. There are no restrictions on the subject area, although there should be some relevance to radiological protection and the uses of ionising and non-ionising radiations.

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- **Awards covering conference fees, travelling & subsistence will be available to successful candidates together with a prize of £250 awarded to the best student presentation.**
  - Authors should submit their abstract, details of their status and the name of their institution by the 31<sup>st</sup> March 2009 at the latest. Send submissions to Penny Giorgio – [p.giorgio@surrey.ac.uk](mailto:p.giorgio@surrey.ac.uk)
  - The abstracts will be judged by the AURPO Scientific and Technical Committee, and selected speakers notified by the 30<sup>th</sup> April.
  - Although a full written paper will not be required, authors must make a handout covering the salient points of the presentation available to the organisers by 31<sup>st</sup> July.
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***AURPO facilitates work with sources of ionising and non-ionising radiations in Universities and research institutions through the provision of scientific support and advice on radiation protection matters. See [www.aurpo.org](http://www.aurpo.org)***

## PRESIDENT'S REPORT

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We had a splendid conference in Liverpool this September. Both the update programme and the scientific programme were excellent. More of us professionals, it seems, are being involved more with non-ionising radiations where only ionising radiations once dominated our working lives.

We had two very good proffered papers presented. It was hard for the judges to make their decisions and I agreed that both of the presentations are worth the award. I am hoping next year we will have more proffered paper applications.

My thanks go to Peter Cole and his team at University of Liverpool for the unforgettable "down the memory lane" of annual conference this year. It was the first problem free and stress free year, and most enjoyable, since I have been involved in the Annual Conferences to be able to sit down to the Lectures full time on both days knowing that all will be well. Thank you once again Peter, Dick and Lorna.

The STC did a brilliant job in organising the scientific programme and speakers who were commanding and well recognised in their fields. Needless to say some were our own AURPO members. Well done to all.

The AGM was very well attended. This year AURPO awarded life membership to Christine Edwards. Christine, as past President and Secretary has held most positions within the AURPO Executive Committee and she is still actively helping out with AURPO business.



Christine Edwards, Univ of Central Lancashire, receives her Life membership award from President Sonia Nuttall.

At the AGM we also recognised a past member who was very active and came up with ideas which pushed AURPO forward. The award went to Kevin Connor who started the AURPO Certificate course, developed the AURPO Newsletter and expanded the Exhibitions at the Annual Conference, which still continue and flourish today. I hope Kevin can be with us next year in Leicester.

The AURPO Executive is still failing to persuade more members to come forward with offers of help in running the Association businesses. But this matter is in your hands, members. You can not clap with just one hand, can you? If you want the Association to continue to be at the forefront of its field, this will require the assistance of all members in the running of Association business. Any ideas or kind offers of help in any way will be very much appreciated. After all, the Association belongs to all of its members!

Next year the Annual Conference will be at University of Leicester on Wednesday 16<sup>th</sup> and Thursday 17<sup>th</sup> September 2009. Please note these dates in your diary now. John Scott is doing what he can to ensure another good conference will be had by all. We will go to University of Cambridge the following year on the 7<sup>th</sup> – 9<sup>th</sup> September 2010.

We congratulate SRP International Committee in securing the bid for IRPA13 in Glasgow 2012. AURPO as a partner society will play a significant part to ensure the success of IRPA13.

I am sure you always find the newsletter 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 input from you, the members. Please contact Trevor if you can help in any way.

I can not close this report before I thank all in my team, consisting of Officers, Executive members and Scientific and Technical Committee members who dedicate and volunteer their precious time and effort in helping with the AURPO businesses.

Happy New Year to you all.

**Sonia Nuttall**

## **OBITUARY – ELSIE MARTIN**

A former AURPO Honorary Life Member who was a pioneering female physicist who helped develop the atom bomb has died aged 94.

She loved botany, music and the arts but Elsie Martin's explosive passion was science. The diminutive Mrs Martin moved from being the only woman to graduate with a First in Physics from Cambridge to a pivotal role in developing the atomic bomb. Mrs Martin died last August in Winchester where she had lived for the last two years.

She was married to former Kent University Pro Vice-Chancellor Graham Martin and lived for 40 years in Kent at St Stephen's Hill in a house they built. Born in London in 1914 and raised in Cambridge she held a research post at the city's Cavendish Laboratory and then taught at Royal Holloway College, London.

After marrying Cavendish colleague Graham in 1943, Mrs Martin moved to Montreal with him to work on the Manhattan Project – the US led effort to beat Germany to the production of the nuclear bomb. The scientists developed atom bombs using uranium and plutonium and the first three were successfully tested at Alamogordo, New Mexico on July 16th 1945.

After the 2<sup>nd</sup> World War a research post at Durham University was followed by another at Kent University when she moved with Graham to the new campus in 1964.

Mrs Martin became Radiation Protection Officer and later a member of AURPO, serving on committees, writing several monographs and becoming an Honorary Life Member of the Association.

Elsie was happiest in the lab and in the garden. She did not like house work and had no taste for the formal occasions which were part of the spouse's life as Graham moved from Professor and Dean to Deputy Vice-Chancellor and then Pro Vice-Chancellor at Kent.

Mrs Martin a widow since 1989 is survived by her sons Peter and David, her sister Joyce Keith-Hill and 2 grandchildren. Her funeral was on the 2<sup>nd</sup> Sept in Hampshire when AURPO was holding its 47<sup>th</sup> Annual Conference in Liverpool. Lets hope she is an inspiration to all those who follow her.

## NEWS from HSE

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Radiation Protection News is back see - <http://www.hse.gov.uk/radiation/rpnews/index.htm>

You should sign up for the e-bulletin. The main two articles of interest to members that were published in September have been reproduced below.

### ***EC proposal to Recast the Basic Safety Standards (and other Euratom) Directives***

The European Commission (EC) intends to bring forward a formal proposal for a new Euratom Basic Safety Standard Directive which will be based on a recast and consolidation of 5 existing Directives, with a Recommendation also being taken into account. The EC is working closely on the recast with a Working Party (WP) of its Article 31 (A31) Group of Scientific Experts. The Working Party will work on the draft during 2008/09 with a view to completing a draft Directive by November 2009 and seeking an Opinion of the Group of Experts at that time. The EC is expected to then use its internal processes to issue a formal proposal for a Directive, which member states will then need to consider.

The Directives and the Recommendation to be recast (consolidated) are:

1. *Basic Safety Standards, Directive 96/29/Euratom*
2. *Medical Exposures, Directive 97/43/Euratom*
3. *Outside Workers, Directive 90/641/Euratom*
4. *Control of high activity sealed radioactive sources and orphan sources 2003/122/Euratom*
5. *Public Information Directive 89/618/Euratom*
6. *Radon, Commission Recommendation 90/143/Euratom*

The EC proposal will be informed by the International Atomic Energy Agency Basic Safety Standards, which are themselves being revised. It will also take account of the latest International Commission on Radiological Protection (ICRP) recommendations. The desire of the EC is that the proposal will increase regulatory consistency across the EU and ensure that newer Member States (MS) have effective regulatory frameworks.

Current Euratom Directives are implemented in the UK by a range of regulations enforced by HSE and other government departments. With respect to HSE's interests, the Ionising Radiations Regulations 1999 and Radiation (Emergency Preparedness and Public Information) Regulations 2001 are the main statutory instruments currently used.

HSE has convened a BSS Project Team that brings together policy, operational and technical experts to deliver this important work. The HSE team will work closely with colleagues across government and with other UK stakeholders, to ensure that their views are fully taken into account by the EC during the development of the proposal.

For further information email Kobina Lokko from the Specific Interventions (Ionising Radiation) policy team at HSE: [kobina.lokko@hse.gsi.gov.uk](mailto:kobina.lokko@hse.gsi.gov.uk).

## ***Work on ionising radiation equipment in hospitals***

### **Temporary handover of controlled areas**

On occasions when **original equipment suppliers or third party maintenance companies** carry out work on ionising radiation equipment in hospitals they may on occasion operate the equipment in a "maintenance mode" which allows the service engineer greater control over the operation of the equipment than would be available to the usual clinical operators. This may include the ability to override protection systems for the equipment (e.g. exposure limits) or for staff & others (e.g. safety features) which are normally enabled in routine clinical operation.

Like any other work in a controlled area this work must be subject to a suitable and sufficient prior risk assessment, local rules for radiation safety and supervision by a suitably trained Radiation Protection Supervisor (RPS). Unless other arrangements have been made then the hospital employer has this responsibility, together with a duty to co-operate with the service engineers' employer.

The Hospital RPS **may** not have suitable training to supervise maintenance or repair work in the controlled area. In addition, the Hospital employer **may** neither have sufficient expertise to write appropriate local rules, nor be able to carry out a suitable and sufficient risk assessment. An alternative to the Hospital employer acquiring sufficient information, and providing instruction and training to carry out these tasks directly may be to **temporarily** hand over the controlled area to visiting engineers for the duration of their work. To demonstrate compliance with IRR99 this must be done in a formal manner and should follow an exchange of information between the employers. [The duty under Regulation 15 to co-operate remains.] Such arrangements are already in place in many radiotherapy centres for the servicing of linear accelerators.

### **Handover of equipment**

HSE has published guidance on the hand over of equipment following servicing, maintenance or repair (PM77). HSE Specialist Inspectors will investigate the arrangements in place for handover of ionising radiation equipment during inspections of hospitals. The expected level of compliance would be for the hospital and service company (external or in-house) to have made suitable arrangements for informing the hospital of any repairs, adjustments or modification which might affect the output of the equipment or its radiation safety.

### **Reminder about Radon**

John Makepeace (NPL) reminds us that HSE require a workplace risk assessment for radon to be carried out for all basement and underground work areas, even in areas that are not regarded as radon affected. The following is a section from their webpage on this, for full details see - <http://www.hse.gov.uk/radiation/ionising/radon.htm>

### ***Legal requirements for workplaces – risk assessment***

Although the radon data used in production of the indicative atlas above comes from measurements in homes, the maps indicate the likely extent of the local radon hazard in all

buildings. The information in this atlas is therefore relevant to employers in assessing workplace risks. Under the Health and Safety at Work etc Act 1974, employers must, so far as is reasonably practicable, ensure the health and safety of employees and others who have access to their work environment. The Management of Health and Safety at Work Regulations 1999 require the assessment of health and safety risks and this should include radon if a workplace is located underground or in a radon Affected Area. For ground floor and underground workplaces this risk assessment should include radon measurements. In relation to above ground workplaces, employers may choose to consult the definitive HPA [radon dataset](#) online (as small fee is charged) to identify the Affected Areas status of a specific building, **or** take a conservative approach and undertake measurements in all premises located in a 1-km grid square that is shaded in the [indicative atlas](#). Measurements are not usually required in above ground workplaces located in the white areas of the indicative atlas.)

The Ionising Radiations Regulations 1999 (IRR99) come into effect where radon is present above the defined level of 400 Bq/m<sup>3</sup> and employers are required to take action to restrict resulting exposures. The HSE and Local Authorities are responsible for enforcing these regulations in particular types of workplace.

Risk assessment for radon should be carried out in relation to:

- all underground workplaces in the UK; and
- all workplaces located in radon Affected Areas.

## **BERR- Dept for Business, Enterprise and Regulatory Reform**

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This new Govt Department was very active last year in driving the 'Better Regulations Agenda'. They have published a number of codes and guidance for regulators that bring the interests of users to the fore and aim to ensure that regulations in future should be proportionate, consistent, transparent and targeted and that the regulators are accountable – see the 'Compliance Code for Regulators' – <http://www.berr.gov.uk/whatwedo/bre/index.html> This code essentially adopts the 'Hampton Principles' for better regulation. It came into force in April 2008. The Environment Agency have already acknowledged that they should be following it.

Following on from this BERR issued a Code of Practice on Guidance in July 2008. This outlined the 'golden rules of guidance' that our regulators should follow. Full details can be obtained at the web address given above. But as a taster for you - guidance should be: based on a good understanding of users; designed with input from users and representative bodies; organised from the user's way of working; easy for users to understand; issued in good time – 12 weeks before regulations come into effect; easy to access on web; reviewed and improved and kept up to date.

So we know what to expect from our regulators in future – regulators who are there to help us comply and will not obstruct valuable research work. We'll just have to keep them on their toes!

## AURPO Conference Liverpool September 2008

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### Tuesday Sept 2<sup>nd</sup> 2008 Afternoon session

The conference began with two technical papers from members of the University of Surrey Maria Maroulli spoke on the development and application of a UK primary standard for positron emitters in air. Increasing use of PET requires the production of positron emitting radionuclides which result in the release of airborne radioactivity. This can be monitored most accurately by detection in the exhaust ducting and the author discussed methods for calibrating these monitors to obtain more accurate measurements. This is not a regulatory requirement at present, but will allow cyclotron sites to improve their monitoring and record keeping.

Karen Southall has been working with HPA as part of her degree course and has researched the effect of backscatter on Personal Integrity Dosemeters (PID). The use of PIDs has increased rapidly in recent years particularly among the emergency services. Older instruments are based on GM tubes and measure dose, but newer solid state detectors provide a variety of measurements and alarm levels. Backscatter is caused by the human body and a water phantom was used to represent the human chest and the effect on readings was determined. Backscatter was found to provide a measurable contribution to the dose measured on a PID. At higher energies a generic figure could be applied to the PID tested, but at lower energy there was a greater variation between makes of PID and dosimeter specific figures would have to be applied.

The AURPO committee found it difficult to separate these two well presented papers and so it was decided to make an award to both Maria Marouilli and Karen Southall

#### Incorporating RSA into EPP2 Steve Chandler DEFRA

Work is well underway to modernise RSA93 by incorporating it into the Environmental Permitting Project (EPP). It is hoped that this will result in "Better Regulation" (though I was a little alarmed that this slide was accompanied by a picture of what definitely looked like students receiving their exam results and I hope we are not going to have to get a GCSE in EPP). Much of RSA93 will remain such as basic definitions of radioactive materials and waste, but individual licences will be replaced by standard generic permits for low impact work with simplified procedures for waste transfer. Licences will no longer contain route specific transfer and waste can go to any holder of an appropriate permit. The regs will require the disposer of the waste to inform the local authority of the origin of the waste.

There will be more public consultation on licences and it is intended that guidance should be available three months before the regs come into force. The target date is October 2009 with consultation due to start before the end of 2008.

Exemption Order review is also proceeding with the preferences being for Option 5 from the consultation consisting of 2 EO with all the details appearing in the schedules. There are some problems with making this a UK-wide regulation, but it is hoped that consultation will take place next spring with the new EO appearing in April 2010.

#### Security for radioactive Materials DC Kevin Frost Liverpool CTSA

DC Kevin Frost ran through the security measures that will be familiar to anyone with a HASS. He emphasised that the threat level in the UK has been rated as severe (highly likely to occur) for the last 3 years and terrorists were prepared to wait for some time for the right moment to launch an attack. He talked about the various security measures such as physical security, alarms, CCTV and vetting and pointed out why they are important. In Merseyside the CTSA is looking to carry out visits in conjunction with the EA to reduce the burden on the source holders and they did try to apply a consistent standard with flexibility where possible.

In particular the CTSA should be involved with new builds and refurbishments as soon as possible to get security standards correct from the outset.

#### Safeguards Regulations Trevor Moseley

Trevor stepped in for Lawrence Johnson of the HSE Safeguards Office who was unfortunately unable to attend the conference. Nuclear Safeguards require that all nuclear materials are not diverted from their declared civil uses. For holders of large quantities there is a full reporting system, but small users can apply for a derogation and only need to supply an annual report after initial registration. Many small users are not involved in the Safeguards system and only get drawn in after they have received uranium or thorium compounds from someone who reports this in their returns. Apparently initial registration can be a little daunting, but is not too onerous after that. In addition there is a further protocol in the UK that requires all nuclear fuel cycle R&D activities to be declared and examples of such projects in UK universities include separation of nuclear materials from wastes and irradiation damage to reactor components.

*Reporter - Vivienne Spackman IAH, Pirbright*

### **Wednesday 3<sup>rd</sup> September (AM session)**

The morning started as usual wet and humid but the tough AURPO members who walked fearlessly across the fore court to the lecture theatre were greeted by Mark Bradley (University of Oxford), chairing the morning session that was enjoyable and very informative.

#### **Keynote Presentation – A Guide to the Artificial Optical Radiation Directive - John O’Hagan (HPA)**

The Optical Radiation Directive 2006/25/EC published by the European Commission states the necessary health and safety requirements that must be in place to minimize risk of exposure to optical radiation. Member states must bring into the national legislation to implement the Directive by 27 April 2010.

The directive covers risks of non-coherent radiation and lasers. It was originally published in 1993 as part of the “Physical Agents Directive” that covered noise, vibration and non-ionising electromagnetic radiation. It was soon divided into various sections; noise and vibration are covered by national legislation and EMF directive is in progress. A draft optical directive was produced by the Irish Presidency in July 2004. John reviewed the development (or lack) of it over the past few years with some amusing anecdotal accounts of its relevance to various occupations.

The commission has decided that there should be a practical guide to help employers and managers to understand the technical provisions of the optical directive. Risk assessment and management responsibilities are already covered by the Management of Health and Safety at Work. Identifying sources that are likely or unlikely to exceed exposure limits based on ED<sub>50</sub> are included in the guidance to reduce impact on universities and small employees.

The Radiation Protection Division of the HPA has been contracted by the EC to produce a draft of the practical guide and you could have a copy by contacting John and having your say before end of September 2008 ([john.ohagan@hpa.org.uk](mailto:john.ohagan@hpa.org.uk)).

## **Development in Laser Standards – Gus Zabierek, University of Birmingham**

National and International standards covering optical radiation have existed for a long time. For example International Electrotechnical Commission (IEC) is a leading organization that prepares and publishes International Standards for all electrical, electronic and related technologies. IEC TC 76 deals with optical radiation safety, lasers and other IEC publications provide guidance on manufacturing requirements of non-laser optical radiation. For a full list of IEC publications visit <http://www.iec.ch/>.

British standards have developed over many years and the latest version BS EN 60825-1:2007 encompasses a range of standards for manufacturers of lasers and laser products. Gus has written guidance on the BS standard and the full text of it is at - [http://www.aurpo.org/docs/AURPO\\_GN7\\_Lasers\\_0107.pdf](http://www.aurpo.org/docs/AURPO_GN7_Lasers_0107.pdf)

There is a lack of suitable training materials on laser safety, Outdated Southampton video is still the most useful material. It is generally accepted that there is no need for routine ophthalmic surveillance, but there is a need for having a contingency plan in place to deal with accidental exposure within 24 hours.

The presentation was concluded by a recap of the present laser classification and the current 60825 related documents.

## **UV Hazard Awareness, Detection and Measurement – Graham Hart (Independent RPA)**

A comprehensive review of artificially produced UV compared with natural solar radiation was presented. Artificial sources of UV are incorporated and used in a wide variety of products and practices; from banking to medical and scientific investigations. They are now used extensively in medical phototherapy and beauty treatment. Some sources are relatively harmless despite an intense glow, whereas a variety of hazards could be associated with others.

Hazards of solar radiation are most marked among outside workers (occupational exposure) and sun bathers. The effects could be acute or chronic damaging the skin and/or the eyes. There has been a large increase in the incidence of skin cancer over the last 30 years that has been attributed to over exposure to solar radiation. The damage is related to skin type and the length of exposure and the greatest protection is afforded by a change in behaviour and limiting exposure time.

A review of UV detection methods and the parameters used illustrated the difficulties associated with UV measurements and the need for specific calibration. In summary the best methods of protection are: time, distance and shielding.

## **RF Radiation Sources – Risk Assessments, Measurements and Control Measures – Raj Bungler (AURORA)**

Microwave ovens; surveillance equipment and telecommunication masts are just a few sources of RF at the University environment. A number of health effects have been related to RF fields, but there has been no conclusive evidence for such observations. The mast has gained most publicity but to get any measurable dose you have to climb it and get very close.

A number of studies initiated by public concern have shown that the Inverse Square Law holds true and exposure values are negligible. Near field measurements are very difficult as the electric and magnetic fields have to be assessed separately.

The presentation concluded with a practical risk assessment. In most cases information from mast supplier showed that measurements were well below the reference level. Shielding and access restrictions to an area followed by administrative controls were considered the most suitable risk management tools.

### **NMR University Equipment Hazard and Risk Assessments – Peter Cole (Liverpool)**

Nuclear Magnetic Resonance (NMR) spectroscopy is a powerful and theoretically complex analytical tool. In addition to the hazards associated with the magnetic and radiofrequency fields (RF), asphyxiation due to gas leak, cryogenic damage and electric shocks are the other risks that must be considered and controlled.

The greatest hazard to people is the static magnetic field. This field with its ferromagnetic properties can attract metallic objects: scissors, tools and even gas cylinders. It causes disturbance of biological implants (surgical clips and foreign bodies) and interferes with the bioelectrical devices (pacemakers). It corrupts magnetically stored data (floppy disks, bank cards) and degrades any nearby ferrous materials (cars).

Control measures are based on shielding and access control, stray magnetic fields around the magnet room and the surrounding area must be assessed making sure that the 5 gauss is inside the room. Warning signs must be posted and comprehensive patient questionnaires have to be strictly monitored. Contingency plans have to be in place and training should be provided for all concerned.

The morning session concluded at 12.35

*Reporter: Iran Adil-Smith – Brunel University*

### **Wednesday 3<sup>rd</sup> September (PM session)**

Mike Sobanski introduced the afternoon programme which comprised five sessions looking at emergency responses from several points of view. The first session of the afternoon, The National Arrangements for Incidents involving Radioactivity (NAIR), was presented by Duncan Cox of the Health Protection Agency. In his presentation, Duncan reviewed why we need NAIR, how it works, who is involved and what their roles are. The objectives of NAIR are to provide a response to a radioactivity incident which could cause a public hazard where no radiation expert is available, or exceptionally, if a response is required because the emergency plan is inadequate. The police can invoke NAIR whenever they require radiation protection assistance. NAIR can call upon a number of radiation experts, eg from the nuclear industry and nuclear medicine, to give advice to control radiation doses to the emergency services and the public. The radiation experts are voluntary and unpaid. NAIR provides a national 'long stop' but it was not intended to support premises where it would be expected that emergency response plans exist, eg at a nuclear installation or non-nuclear premises where radioactive materials are used regularly, nor to respond to a terrorism incident. Duncan made an observation that recently emergency services tend to 'press the terrorism button' rather than 'pressing the NAIR button'. The stages of response were explained; in stage 1 a single radiation expert is available with limited resources, eg a medical physicist from a nearby hospital. In stage 2, a small team of experts can be called on; these will be better equipped and can cope with relatively large scale recovery. Duncan made it clear that no

emergency plan should involve any reliance on a NAIR response. Towards the end of his presentation, Duncan gave interesting examples of NAIR responses, including the 'suspect coffee powder' example demonstrating one should never underestimate the extent to which people can show a complete lack of common-sense.

Terry Kelly from the UKAEA gave the second afternoon presentation. This was on Radsafe, this is a consortium of organisations that offer assistance to its members and emergency services in the event of a transport incident involving radioactive materials. The members are: British Energy, British Nuclear Group, GE Healthcare Imperial College, Ministry of Defence, Rolls Royce, Safeguard International, UKAEA, Urenco and Westinghouse. Although the Ministry of Defence (MoD) is one of the Radsafe members, the Radsafe plan excludes MoD convoys such as movement of nuclear weapons. Terry outlined how the Radsafe plan was developed, combining a number of existing emergency plans under one plan (these were the Nuclear Industries Road and Rail Emergency Plan, the Irradiated Fuel Transport Flask Emergency Plan and the Scottish Nuclear Limited Irradiated Fuel Transport Flask Emergency Plan). The presentation went on to explain the operation of Radsafe. There were three levels of response. Level 1 is the notification and communication service by providing generic radiological protection advice provided by the Civil Nuclear Constabulary Force Communications Centre (based at Culham, Oxfordshire). Level 2 is the provision of radiological advice and support at the incident by the level 2 responding site. Level 3 is the consignment owner response and clean-up. Terry listed the Radsafe incidents and explained that strictly, most did not qualify as a Radsafe response incident. He highlighted the scaremongering of the newspapers regarding the Dungeness Flask incident in 2002 and he outlined the Torness derailment in 2001 that caused an unnecessary closure of the East Coast main line rail.

Dave Hanlon of Oxfordshire Fire and Rescue Service (FRS) gave a presentation on the fire service response to radiation incidents. This was interesting to learn of the view from the emergency service side and it helped delegates to gain an understanding of how FRS operations are conducted, and consequently how the premises radiation specialists could assist the FRS at an emergency incident. In his presentation, Dave explained what FRS officers will be familiar with and what equipment likely to be available to them when they attend an emergency. This included dosimeters and survey meters which were reintroduced because of terrorist concerns. The tactics for all radiation incidents were summarised and the types of incident were categorised by the questions: fire or not, severe impact (eg building collapse), any persons involved, sealed or unsealed sources, and sources shielded or unshielded? The presentation summarised what might be expected from the premises radioactivity specialist. There was an emphasis on the importance of providing the right information to the FRS in way they can understand, eg. avoiding jargon, and confirming with them they have understood. It is also important that any advice the radiation specialist gives should not contradict the FRS operational procedures and the radiation specialist should not try to run the incident response. The FRS use a dynamic risk assessment approach to the emergency response, and they will risk their lives in a controlled way to save 'saveable' lives, but less so to save property, and not at all if lives and property is already lost. Sometimes a fire may be left to burn itself out under control if there are no lives to be saved. Dave highlighted some examples of incidents that also included the concerns for environmental protection in their emergency response.

After the break, the afternoon programme continued with a presentation from Gareth Thomas of the HSE on reports from fire incidents. Gareth focussed on two incidents, one particularly of interest to universities and research establishments with radiochemical laboratories. This incident was an explosion of organic solvent in a 'spark-free' fridge in a radiochemical

laboratory. It happened at 8.30 in the morning when a worker removed a bottle of solvent from the fridge and closed the fridge door. A short while after there was an explosion that blew off the fridge door and caused a major fire that engulfed the radiochemical lab. The building was evacuated and the fire and rescue service attended and quickly put out the fire. Fortunately there was no loss of life, but the extent of the fire and the heated air distribution system released large amounts of soot throughout the building causing considerable contamination by C-14 and H-3. The contamination would have been much worse if a manifold containing TBq of H-3 had been damaged. Unfortunately, the extent of the contamination meant that a decontamination programme was not feasible and the building had demolished and disposed of as contaminated waste, causing a catastrophic loss of the business and huge clean-up cost. Gareth gave a warning that the term 'spark-free' relating to fridges was not defined by any standard and it was not clear if it meant the removal of other ignition hazards such as fan motors. The second fire report was about the total loss, in 2007, of a warehouse near Gloucester containing about 275,000 smoke detectors (the warehouse had authorisation to store up to 500,000). In total there was roughly 10 GBq of Am-241 distributed around the warehouse. The emergency services decided to allow the warehouse to burn out in a controlled way to reduce groundwater contamination. The radiation experts from the nearby nuclear power station and from the HPA attended and took measurements of activity from samples. No activity was measured in the air or ground deposits off site. The ensuing clean-up operation was costly and complex, particularly as the building structure after the fire was unstable. To make the site safe after the fire required security fencing, 24 hour security guards, continuous air monitoring, front and rear entrance protected from the wind, the contaminated area on the forecourt covered by tarpaulin, and radiological assessments on site. Gareth flagged the lessons various audiences should learn, but also pointed out that one thing in common with the fires was he had undertaken an inspection at each site not long before.

The last presentation of the afternoon was given by Alan Muir from GlaxoSmithKline (GSK) explaining the view of emergency plans from the viewpoint of research-based pharmaceutical organisations. Alan described the typical arrangements in GSK pharmaceutical labs, the types of unsealed radionuclides likely to be used and that most sealed sources are contained within equipment that is used. In emergency plans, Alan made it clear that that security also plays an important role in any planning. As part of the plans, there was access to the in-house RPA, and first aiders and the emergency response team were trained in response to radiological incidents. Alan explained the other considerations in emergency planning such as business reputation, business continuity and the local regulatory and emergency services. Emergency plans and related information at GSK were located at the security lodges so they could be accessed without entering the building where the emergency was located. The plans included details of radioactive sources 'down to fridge level', not just building level. The importance of liaison with the emergency services was emphasised, and this can involve three sets of briefings with the fire and rescue service because they have a three shift system. Alan gave a brief rundown on the testing of GSK's plans including 'Hot Hands' and 'Glow-Worm' exercises, and the importance of training RPSs and others so that they can cover for absent colleagues in an emergency. 'Glow-Worm' was a scenario in which a scientist and engineer were injured and contaminated with C-14 and H-3 from a delay tank. Some aspects of the scenario were tackled as a desktop exercise and it was hoped to extend this to an operational exercise. Alan concluded with some final thoughts that included working with emergency services to changing attitudes and the need to convince them about issue of contamination (or they will invoke fully their own chemical, biological, radiological and nuclear plans), and that it was well worth 'small users' having a bash at large scale emergency exercises.

The afternoon ended with questions to the presenters chaired by Mike Sobanski, but owing to other commitments only two were available. The session extended into useful sharing of information by delegates on the arrangements for emergencies; several delegates outlined the ways in which their arrangements made sure that information would be available to the RPO etc. by keeping copies of the emergency plans and contact numbers at several locations, not just at the laboratory buildings.

The meeting ended at 17.30.

Reporter –Ralph Whitcher

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## NEWS from DEFRA and EA

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Lord Chris Smith, Environment Agency Chairman, has announced the appointment of Dr Paul Leinster CBE as the new Chief Executive of the Environment Agency. Dr Leinster joined the Environment Agency in 1998 and has been acting Chief Executive since May 2008. He had previously held the roles of Director of Environmental Protection and Director of Operations. He has over 30 years' experience working in the health, safety and environment field, in both the public and private sectors.

### SULG 31<sup>st</sup> Meeting 2<sup>nd</sup> December 2008, London

Minutes of SULG meetings, once approved, can be obtained from the Technical Secretary to SULG, Amber Bannon ([amber.bannon@environment-agency.gov.uk](mailto:amber.bannon@environment-agency.gov.uk)). The following report is courtesy of Peter Marsden – prepared for the Thames Region in his own unique style!

#### **1. Exemption Order Review**

This UK wide programme is now focused on developing Option 5, replacing all current EOs with just two. The programme firstly addresses **exclusions** which will be described by amendments to Sections 1 and 2 of RSA93, with quantitative conditions probably coming from RP122. The second level of **unconditional exemption** will extend the content of s1 and s2 of RSA93 but there are no quantitative conditions proposed as yet. The upper tier of **conditional exemption** will combine Euratom BSS exemptions with conditions based on the type/use of the source (eg GTLDs). A mapping exercise will confirm whether the new regime will incorporate the existing EOs, but there is not an intention to construct a more restrictive regime.

There will be some government guidance on the regime (which will be consulted on) but the main practical guidance will come from regulators. Following a programme board meeting in December, there will be a workshop in Scotland on 30<sup>th</sup> January 2009 leading to a summer 2009 consultation and an April 2010 implementation. In England and Wales this all depends on progress with the EPP2 programme (see below).

#### **2. DEFRA to DECC**

The Department of Energy and Climate Change (DECC) is now responsible for radioactive waste management policy. DEFRA retain emergency preparedness CBRN functions. Concerns were raised that this indicates a government policy which is dominated by nuclear

sector needs, particularly as the section transferred from DEFRA is bolted on to the “Office of Nuclear Development”. The current head of the transferred section acknowledged this and assured small users that their interests would not be neglected.

### **3. Discharges Strategy and Statutory Guidance to EA**

The consultation outcome indicates overall support for these documents. Greater clarification is requested for the move from BPM to BAT, including consideration of costs and benefits. Concerns were also expressed regarding the reduction of the threshold for optimisation to 10µSv/yr. Final Statutory Guidance will be issued early in 2009, with the Discharges Strategy appearing by early summer 2009.

Linked to the Statutory Guidance to the EA is the adoption of BAT instead of BPM, and of the RSR Environmental Principles (REPs). These were up for consultation at the same time and the EA are now sifting through the responses. It is worth noting that the Statutory Guidance to the EA indicates that “operators who currently meet the requirements of BPM and BPEO will satisfy the current requirements of BAT”.

### **4. Environmental Permitting Programme**

This is now about 6 months behind schedule, and will not be implemented before April 2010. All RSR work has been completed and inserted into Schedule 22 (oh my, I feel a Transport regs moment coming on) of the draft EP regs. However, there remains considerable uncertainty as to how the regime will look and the EA are keen to seek users views on a number of aspects over the coming months. There may well be a dedicated email address set up for this soon. I’ll let you know.

Application forms will be completely revised, so the first chance for our input would be to let the EA know what is good, bad or missing from the current forms. EA do have boundaries within which they must operate, so don’t expect “what is your favourite colour?” to replace “please provide an environmental impact assessment for this discharge”.

The determination process (that bit where the EA chew on our applications and decide whether to give us a permit) will remain largely unchanged, but there is the slight issue that they will have to put all new applications, and significant variations, through public consultation, with adverts in the local press. No worries there then. As for the EIA bit, we all know that the EA use their own spreadsheet to check how good our assessments are, and we don’t have copies of that do we? (*currently selling better than the Bob Dylan bootleg tapes*). Well, our ownership of it may soon become legit as the EA are hopeful to make it available. *Killjoys – it’s akin to legalising cannabis. I never inhaled, by the way, so that just leaves the ingestion route...*

Hats off though, imagine the Fixed Condition Registration system being applied more broadly – if you can live within an electrified fence of conditions, your application is “standard” and it can go through as a no-brainer (ie done in Sheffield). This could be a huge benefit to many of us and be a proportionate approach to permitting. Open source holdings and waste authorisations should also blend together nicely. EA will consult on the format of these standard permits.

Each condition on a permit will have guidance indicating why it is there and what the regulator expects from the operator in order to comply with it. If you have views on the level of detail you would like to see, let the EA know. The documents relating to Fixed Condition Registrations give an indication of EA’s current thinking.

Enforcement probably won't change much, except that if we have a better idea of what is expected, it won't be quite so painful.

There will be requirements on operators wishing to surrender a permit – in effect we will need to make an application to do this.

As for costs, there is a move towards the cost being proportionate to the environmental risk.  
*That'll be free then?*

## **5. Qualified Experts**

There has been some delay on progress with this, but the horses are refreshed and saddled and raring to go. The nuclear johnnies are getting interested and the EA are planning a small tete-a-tete with them and us before issuing a consultative document.

The proposals should accommodate Europe's current thinking on Radiation Protection Experts.

## **6. Transport update**

The IAEA's TS-R-1 (2009) will be out early in the new year – more of a rearrangement of the 2005 regs rather than any substantive changes. This will come with schedules of 25 individual guidance documents, one for each UN number. The idea is you pick your material and then the relevant guide takes you through the regulations. Meanwhile, guidance on TS-R-1 (2005) is now available from IAEA (as TS-G-1.1 Rev.1).

All well and good, but we are no nearer getting a similar guide through the minefield for the UK's version.

You have probably received a questionnaire from DfT at the beginning of the month asking for details of your holdings of radioactive materials and arrangements for transporting it. Following a decent bit of sulging it transpires that their interest is in sealed sources and are trying to build up a hit list of big operators who need a good inspection. If you fall into the majority category of having a goodly number of sources, mostly open, and you don't routinely transport them, it should be sufficient to boast a "large inventory" on Q2, give no details of the sources, say you don't transport them and "N/A" the rest. It will help improve your invisibility rating if you answer "yes" to the final question on ADR security requirements. This will help ensure they stay away – if you ignore, or bin, the questionnaire, they'll probably send you another one, with 38 schedules attached.

## **7. Safeguards**

We had another visit from the HSE's Safeguards people. Perhaps a few of us didn't really grasp the message that our few grams of uranyl salts could be diverted into a nuclear weapons programme, so it was repeated with fewer syllables. All U, Pu and Th needs to be reported to the Euratom Safeguards team in Luxembourg via the HSE's Safeguards team (search on Safeguards from the HSE website). The only exemption we were told about was for materials from which the nuclear material is not recoverable. This includes your collection of fiestaware. Smaller operators can apply for a derogation which gets them out of a lot of the reporting requirements. Also, the Euratom guys have informally decided to turn a blind eye to schools and hospitals – but you are still supposed to tell them, otherwise how can they ignore you?

## **8. National Dose Assessment Working Group**

NDAWG are a group of brilliantly clever people who work out guidance and models for all sorts of scenarios relating to the passage of radioactivity through the environment in order to make our lives easier when calculating the impact of our discharges. One major concern of the group is that their guidance should be relevant to the non-nuclear user. At the moment it is very much geared towards the nuclear industry, so we should be telling them where they are going wrong, and what our needs are. I am the SULG representative on NDAWG, so please log on to [www.ndawg.org](http://www.ndawg.org), have a look at the published, draft, and planned guidance, and let me know what needs to be done. Thanks.

One suggestion has been made by an ARSAC working group that guidance should be given to hospitals in order to standardise the approaches taken to carrying out environmental impact assessments. This suggestion came to SULG, who are passing it on to NDAWG to see if it is within their remit.

## **9. Miscellaneous**

**Security:** There is no guidance available on the security of radiation related information on company intranets. The feeling of the Group was that, whilst it is acceptable to have local rules and procedures on the intranet, it would be unwise to include documents which identified or located your radioactive materials inventory. Unless you happen to be a government department, there is no legislation to enforce a level of security on your IT systems.

**Satisfaction:** EA have commissioned another customer satisfaction survey, to be carried out early next year. So if you are contacted by Test Research or Ipsos-Mori, you can rest assured that they are legitimate, and will not ask you for details of your holdings.

**Information management system:** this relates to moves to get applications done online. Progress has been made, benefiting the agencies, but the point has not yet been reached where we will begin to benefit. It is getting closer though.

**HASS:** Updated guidance is due out very shortly, so keep an eye on the EA website. This will include updated guidance to RSR staff on financial provision. Meanwhile you now have the option to make your annual HASS report on the anniversary of acquisition of the source, or on a single fixed date. The latter will be attractive to holders of multiple HASS.

**Fixed Condition Registrations:** the suite of documents supporting FCR has been updated to reflect some D-value changes.

**Trans-frontier shipments:** following consultation, the new Transfrontier Shipment of Radioactive Waste and Spent Fuel Regulations are likely to come into force on 25<sup>th</sup> December 2008. So send out those presents early. See - <http://www.defra.gov.uk/corporate/consult/radwaste-shipments/draft-regs-shipment-radwaste-spentfuel.pdf>

**Source Disposal:** The SSDP is going to be closed down this month, having successfully despatched 11,000 unwanted sources. The source handling facility at Windscale will remain closed until March 2009 for refurbishment. Meanwhile, EA and NDA have agreed an “affordable” route for high activity sources into Harwell.

**Next SULG: 4<sup>th</sup> June 2009.**

## Clearance Levels

An item not mentioned by Peter that I asked to be brought up, and was discussed, was on the question of clearance levels for lab decommissioning. The whole question of clearance levels will be addressed and probably brought into line with EU guidance on general clearance levels for practices (RP122, 2000) when the new Exemption Orders are produced and SOLA is replaced by something radionuclide specific. At the present time one needs to discuss clearance levels with your EA inspector as things will be dealt with on a case by case basis. The old EA guidance that refers to NRPB DL2 levels is really no longer valid. The nuclear industry have produced a useful document on clearance levels–

<http://www.cewg.safety-directors-forum.org/code/Uncontrolled-Issue-1.01-Nuclear-Industry-Code-of-Practice-Aug-2006.pdf>

and of particular interest to us is section 4.9 on ‘the requirement for surface clearance levels’. They have set their own clearance levels but acknowledge the need also to conform with SOLA. What this means in practice is that you consider not only the surface but the substrate and work out what the activity/g would be if you had to rip everything out. So for a high density resin benchtop with a density of approx  $1.5\text{g/cm}^3$  and 2cm thick, surface contamination would have to be  $< 1.2\text{Bq/cm}^2$  to get clearance. One would have to agree a reasonable area to average over ( $1\text{m}^2$  ?) and ensure that all readily removable non-fixed contamination has been removed. Others have used derived limits from Delacroix or have extrapolated their own from a re-consideration of DL2. Until some new formal guidance is developed be sure to consult with your EA Inspector before signing anything off.

## RAMTUC Transport Seminar 22<sup>nd</sup> October 2008

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Dick Beckley (Liverpool) was our roving reporter at this Transport meeting held at Warrington. Below he gives us a brief resumé of the proceedings.

### **EMERGENCY RESPONSE** (Peter Bentley, International Nuclear Services)

Peter described the organisation of an Incident Response Team and emphasised the importance of having Emergency Exercises to rehearse the team's response in event of an incident.

He also stressed the potential for camera phones to breach security at nuclear sites and advocated the banning of mobile phones at such locations.

### **TRANSFRONTIER SHIPPING** (Johan Langham, Studsvik UK Ltd)

John went through the procedure required for transfrontier shipping of radioactive material. Studsvik UK routinely transfer radioactive waste from nuclear sites in Britain to Sweden for recycling.

Current regulations covering transfrontier shipping of radioactive wastes are EU Directives 92/3/Euratom and 93/552/Euratom plus Transfrontier Shipping Radioactive Waste Regulations 1993.

These are being replaced by 2006/117/Euratom and 2008/312/Euratom, and the Transfrontier Shipping Radioactive Waste Regulations 2008 should be in law by 25<sup>th</sup> December 2008. The changes include a new definition of radioactive waste and apply to material exceeding the levels in 96/29/Euratom.

### **INSPECTION FEEDBACK** (Ian Barlow, Department for Transport)

Department for Transport are responsible for administering the regulations for safe transport of radioactive material. This includes Review and Assessment of transport actions, Inspection and Enforcement, Emergency Response.

DfT are now moving towards a Risk-based Intervention. More inspections in 2008 will be unannounced so vehicles could be stopped for inspection at anytime. They Audit the transport of material and undertake Incident Investigation (46 incidents in first 9 months of 2008) and apply Enforcement as necessary.

Duty Holders fall into one of three categories ; Large, Medium (which includes some manufacturers, most Universities and Hospitals, etc) and Small. In the 7 Audits, 45 Inspections and 46 Incidents so far in 2008 the Duty Holders in Large and Medium categories have the most significant omissions whilst Duty Holders in Small category have least significant. Omissions include Loss of Corporate Memory, Inadequate Procurement Control, Loss of Control of Management System and failures in Interface.

*NB DfT will probably be looking to visit some universities in 2009.*

### **SCHEDULES FOR CLASS 7** (David Rowe, Department for Transport)

TSR1 1996 included 14 schedules and included common schedules for excepted packages and for all other packages.

TSR1 2005 (publication date yet to be determined but hopefully by end of 2008) will have no common schedules but will have a schedule for each UN number.

Each schedule will have 8 Headings – General Provisions, Contents Limits for Packages, Contamination, Maximum Radiation Levels, Categories of Packages and Overpacks, Marking and Labelling, Requirements before shipment, Provision concerning transport operations. Some of the conditions may be duplicated in the separate schedules but all conditions for a

given UN number will be in one place instead of being divided between Common and Unique schedules.

There will be a Flow Chart to guide users to the correct UN number and they should then look up the schedule for that UN number and work through the requirements for that schedule. They can then be satisfied that they are compliant.

*It is expected that DfT will adopt these schedules as their guidance for radioactive transport in the forthcoming revised CDG Regs.*

#### **PACKAGE DESIGN** (Steve Whittingham, Department for Transport)

Steve illustrated how standard package designs were tested and approved using heat and drop tests.

#### **CARRIAGE OF DANGEROUS GOODS REGULATIONS 2009** (Caroline Billingham, Department for Transport)

CDG 2007 consolidated previous regulations and used direct referencing

Aim in 2009 is to break the two year cycle and, after CDG 2009, it is hoped to have no more domestic CDG regulations but to make reference to ADR/RID Regulations as the legal requirement. This will obviate the need for Government to amend a CDG regulation each time ADR/RID is revised thus it can react more proactively and quickly to change.

Caroline then illustrated the structure of CDG 2009 and its enforcement. She also pointed out that the responsibility for issuing 'Instructions in writing' to drivers was the responsibility of the Carrier and not the Consignor and showed a 4 page model document.

*You should find that CDG2009 will be greatly simplified compared with what has gone before as nearly all the cross referencing has been removed.*

#### **CARRIERS PERSPECTIVE** (Zachary Thole, Furness Plant Services Ltd)

Zachary gave the carrier's perspective of transporting radioactive material including the various items that have to be considered. These include Legislation and Regulations, Perception and Education, Compliance, Consignor Responsibilities, Security and Safety, Challenges.

He stressed the importance of education for the public (fearful of anything radioactive), personnel (ensuring they are aware of the material and how it should be handled), Customers (who may not be aware of their responsibilities in CDG Regs.).

The carrier has to keep up to date and ensure compliance with Regulations. It has to check that the consignor has fulfilled the duties of the consignor. It has to ensure security and safety of the material in transit including location of secure parking.

### **Transport Extra – the Questionnaire**

This questionnaire requesting information about all our sources was sent out in November by DfT to all and sundry. It was not well thought out, implied a compulsion to reply, when there was not any, and generally got people rather annoyed. I would be surprised if many people bothered returning it. I had a go at DfT when I saw it and I see from the SULG report that others had a go there as well. When I calmed down I drew up the questionnaire that DfT should have sent out and have sent it to them for comment. I have had no reply as yet but I may send it out on the mailbase in the near future if requested by DfT to do so.

## **NEWS FROM HPA- Radiation Protection Division**

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### **NEW NEUTRON MONITOR TESTING SYSTEM**

The Radiation Metrology Group of the HPA's Radiation Protection Division, based at Chilton in Oxfordshire, is shortly to commission a new neutron exposure facility. The new fully automated system replaces the current manual system, which has been in operation for several years.

In the new facility, the neutron source is raised remotely from an under floor storage carousel. The instrument or dosimeter under test is positioned on a remotely operated trolley mounted on a tracking system; the source to monitor distance is changed to increase or decrease the dose rate.

The automated system greatly enhances efficiency and has resulted in a new pricing structure, allowing for a significant reduction in the costs of neutron monitor testing. Same day testing is also possible by prior arrangement.

All types of neutron monitor can be tested. All tests undertaken satisfy regulatory requirements and are performed in accordance with national measurement Good Practice Guide (GPG) 14. The calibration of the  $^{241}\text{Am}/\text{Be}$  neutron source is directly traceable to the UK primary standard at the National Physical Laboratory.

In addition to neutron monitor testing, special equipment has been designed for the large volume irradiation of both passive and active personal dose meters, e.g.: PADC and EPD.

### **ON-SITE CONTAMINATION MONITOR TESTING**

The Radiation Metrology Group also offers an on-site testing service for contamination monitors on customers' own premises at no additional charge. Monitors that perform satisfactorily are labelled and can then be returned to use immediately. Formal certificates follow by post, to allow for quality assurance checking.

Benefits include: Reduced administration and transport costs, minimum down time, same day turnaround and tests performed by experienced Qualified Persons. The service is available from Chilton, Leeds and Glasgow.

Simple repairs can be effected on site, including: Replacing detectors, replacing punctured foils and windows, repairing cable and connector faults, adjusting high voltage settings and replacing minor items such as feet, clips, caps, etc. For more complex repairs, we can organise the return of monitors to the manufacturer, if required.

In addition, dose rate monitors requiring testing can be collected or returned during the site visit, thus saving you time and money.

## **OTHER SERVICES**

In addition to neutron and contamination monitors, the Radiation Metrology Group has the capability to test a wide range of monitors, including: Dose rate and spectrometry devices and personal integrating dose meters, ranging from simple beepers to electronic personal dose meters.

The Radiation Metrology Group has a comprehensive range of test facilities at Chilton, which are traceable to the UK primary standards' laboratory. These include two Gamma facilities, an X-ray facility and the UK's only Beta dose rate facility; one of the Gamma facilities is UKAS accredited.

Assistance can be provided to manufacturers when developing new instrumentation. This can be followed up with type-testing, including environmental conditions.

Our staff have in-depth knowledge and experience of a wide range of radiation protection equipment. We have designed bespoke monitoring systems and undertake clearance surveys in support of de-licencing work. We also deliver effective instrumentation training courses to a wide range of delegates from a variety of industries and organisations.

## **FOR MORE INFORMATION**

To discuss your requirements, please contact Duncan McClure, Radiation Metrology Senior Commercial Group Leader, on 01235 822738 or [duncan.mcclure@hpa.org.uk](mailto:duncan.mcclure@hpa.org.uk)

## **Mortality and Cancer Risks for Radiation Workers**

The risk of developing cancer among radiation workers increases with the dose of ionising radiation they are exposed to, according to a study by the Health Protection Agency published today in the British Journal of Cancer \*. The observed cancer risks are consistent with the international scientific consensus on radiation protection.

The study also shows that overall mortality in the UK's 175,000 radiation workers is lower than that in the general population. This "healthy worker effect" has been observed in studies of many other occupational groups.

Dr Colin Muirhead from the Health Protection Agency said: "This is a continuation of a study started in 1976 and it provides reliable information on the health of people working with ionising radiation. The results confirm the cancer risk estimates observed in other studies even though, overall, radiation workers have lower cancer risks than the general population."

This study provides the most precise estimates to date of mortality and cancer risks following occupational radiation exposure and strengthens the scientific evidence for raised risks from these exposures. The cancer risk estimates are consistent with international radiation protection standards, both for leukaemia and for all other cancers combined.

Continued follow-up of these workers will be valuable in determining whether radiation-associated risks vary over time or by age, and enables the study of specific cancers and causes of death in more detail. The research will also make a useful contribution to wider national and international studies on the effects of occupational exposures to ionising radiation.

In a separate paper\*\* published at the same time, researchers at the Childhood Cancer Research Group at the University of Oxford and the Health Protection Agency have studied cancer in the children of female radiation workers. This study does not support an earlier finding of a raised risk of cancer. In a subgroup of women who worked with radiation during pregnancy, a weak statistical association was found between maternal radiation work and childhood cancer, but the evidence is limited by the small numbers involved and the result may be due to chance.

The two papers are published in the British Journal of Cancer and radiation workers and their representatives were informed of the results before publication.

**References** \* Muirhead CR, O'Hagan JA, Haylock RGE, Phillipson MA, Willcock T, Berridge GLC, Zhang W (2009) Mortality and cancer incidence following occupational radiation exposure: 3rd analysis of the National Registry for Radiation Workers. *British Journal of Cancer* (2009), Volume 100, Issue 1, pages 206-212.

\*\* Bunch KJ, Muirhead CR, Draper GJ, Hunter N, Kendall GM, O'Hagan JA, Phillipson MA, Vincent TJ, Zhang W. Cancer in the offspring of female radiation workers: a record linkage study. *British Journal of Cancer* (2009), Volume 100, Issue 1, pages 213-218.

*As in previous NRRW analyses, there was a strong healthy worker effect (HWE); overall mortality was 81% of that expected for the general population of England and Wales, having allowed for the effects of age and gender. Total cancer mortality was also reduced, being 84% of that in the general population. The HWE has been seen in many studies of workers, not only radiation workers, and is likely to reflect factors associated with the recruitment and retention of persons in work.*

## HEALTH PROTECTION MATTERS

### [Health Protection Matters - Autumn 2008](#)

The magazine of the Health protection Agency – issued November 2008.

Includes articles of interest on the following topics-

- Mobile phones – 10 years since the Stewart Report.
- Radiation doses from medical x-ray examinations in the UK – steady decreases in doses over past 20 years – new lower national reference doses.
- Radiation protection implications of the use of cone-beam CT systems in dental practice.
- Radon, tobacco and lung cancer – the significance of smoking cessation programmes - a study in Northamptonshire.

## **News from CLEAPSS from Ralph Whitcher**

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Local Authority schools in England are no longer required to apply to the Department for Children, Schools and Families (DCSF) for permission to obtain radioactive sources for science teaching. The DCSF has withdrawn its guidance AM 1/92 and it has repealed the associated regulation 7 of The Education (Schools and Further and Higher Education) Regulations 1989. The DCSF commissioned CLEAPSS (the School Science Service) to issue the 2008 edition of 'Managing Ionising Radiations and Radioactive Substances in Schools, etc L93' and this is now available on the Internet;

[www.cleapss.org.uk/download/L93.pdf](http://www.cleapss.org.uk/download/L93.pdf).

The parallel regulations relating to English institutions for further education remain in force and these institutions should apply to the Department for Innovation, Universities and Skills for permission to obtain radioactive sources.

The regulations for schools and FE institutions have not changed elsewhere in the UK. Schools in Scotland should follow the guidance from the Scottish Government Education Directorate (issued by the Scottish Schools Equipment Research Centre). Schools in Wales should follow the guidance from the Welsh Assembly Government Department for Children, Education, Lifelong Learning and Skills. Schools in Northern Ireland should follow the guidance from the Department of Education Northern Ireland (although this was issued well before IRR99 and is somewhat out-of-date).



### NEWS FROM LabLogic

#### Imperial College gets the Hidex 300SL LSC

by Elvir Zahirovic

When staff at Imperial College London needed to replace an aging liquid scintillation counter, they found that the new [Hidex 300SL](#) from LabLogic Systems gave them the latest technology at a competitive price.

The machine, which is being used primarily for counting tritiated samples and occasionally for  $^{14}\text{C}$ ,  $^{32}\text{P}$  and  $^{35}\text{S}$ , has already made a favourable impression with senior post-doctoral researcher Dr Percy Sumariwalla.

"Every laboratory worker knows that bench space is always at a premium, so one feature that we particularly like about the 300SL is its compact footprint - just 50cm by 60," he says. "We have also found both the software and the machine itself to be very user friendly; our staff needed minimum training from LabLogic in how to use it.

"With regard to performance, the greatest improvement is that for the first time we can export data files via our network. Previously we had access to printed data only, and if we needed to analyse it further using other software packages we had to input the data manually. A further advantage is that the 300SL's output is in Excel format, which most people are already familiar with."

Imperial College has already benefited from another feature of the 300SL; it is the first commercially available instrument of its kind to use the absolute activity measurement method known as Triple to Double Coincidence Ratio (TDCR), which eliminates the labour associated with setting up a standard radioactivity source. In the long term this also avoids the safety issues and expense associated with disposal at the end of the counter's useful life.

Even with its 60mm detector shield, the 300SL weighs less than 100 kg. For added convenience, it uses unique trays that can accommodate the 7ml and 20ml vials used in the latest sample preparation instruments, such as liquid handling stations and cell harvesters.

[Click here to view the product brochure...](#)

#### LabLogic Systems Ltd

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phone: +44 114 266 7267

web: <http://www.lablogic.com>

## New developments in dosimetry by LANDAUER EUROPE

LANDAUER EUROPE has once again changed the shape of radiation dosimetry with the introduction of a portable reader, called microStar and a small dot dosemeter, called nanoDot.

### microStar

The microStar reader offers you new choices to measure clinical radiation doses such as in-vivo radiotherapy patient, to measure ionizing radiation exposure to protect employees or to monitor your work environment.

The system is a small portable reader, capable of analysing single-point dot measurements and multi-element dosemeters. It uses Optically Stimulated Luminescence (OSL) technology as used in LANDAUER's Luxel whole body dosemeters. Easy to set up, microStar is a "plug-in and operate" instrument just requiring an electrical supply. Reader maintenance can be carried out in-house.

microStar includes a dedicated PC with pre-loaded software. The microStar reader program enables the user to read out dosemeters, import data files, associate identification information to a dosemeter, and export data to formatted reports. Included are quality control and reader performance procedures and reporting to ensure the accuracy of dosimetry measurements.

### nanoDot

To address medical needs, LANDAUER EUROPE has developed a new detector, nanoDot. This new dosemeter has a single OSL element. Its small dimension allows it to be placed on more restricted areas such as the eyelid.

The nanoDot's benefits are: no angular, energy, dose rate or temperature dependence and a linear response up to 10 Gy.



> The microStar reader



> nanoDots

The microStar and the nanoDot are two recent examples of how LANDAUER EUROPE combines tradition of service, technical innovation, leadership, and integrity to help you work more easily, efficiently and confidently.

### **Contact information**

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Email: [richardbaylis@landauer.co.uk](mailto:richardbaylis@landauer.co.uk)

## **Government Rethink On Deregulation Of Cosmetic Lasers and IPLs**

In May this year I sent out an email informing you of the government proposal to deregulate the use of lasers and Intense Pulsed Lights (IPLs) used for non surgical cosmetic treatments, and outlining our concerns. Many people responded and asked that I keep them informed of the situation. Hence this update.

It was widely believed that following the publication of the Department of Health's consultation on deregulation (see -

[http://www.dh.gov.uk/en/Consultations/Liveconsultations/DH\\_083519](http://www.dh.gov.uk/en/Consultations/Liveconsultations/DH_083519) )

that the government would go ahead with the proposals despite widespread opposition and deep concern from experts in the field.

However, several weeks ago the following announcement appeared on the DoH website (see -

[http://www.dh.gov.uk/en/Consultations/Closedconsultations/DH\\_083519](http://www.dh.gov.uk/en/Consultations/Closedconsultations/DH_083519) - scroll down the page to find this quote) :

***'In the light of the complexity presented by the responses to the deregulation of laser and IPL machinery, the Department is giving further consideration to this aspect of the deregulatory proposals. The on-going careful analysis means that a decision regarding whether to proceed with deregulating laser and IPL machinery has not yet been made.'***

Although no further official announcement has been made, and the response to the consultation has yet to be published, we understand that the government is not intending to make any changes to the current regulatory scheme until April 2010.

Many organisations and individuals responded to the consultation, while some chose to write to their MPs. Whilst the final outcome remains uncertain it is clear that these responses have caused the government to rethink their proposals.

**Paul Tozer  
Lasernet Ltd**

## Our brand new website is just a click away

SRCL is the new name for White Rose Environmental and Sterile Technologies Group. Our brand new website ([www.srcl.com](http://www.srcl.com)) is now live and we want you to come and take a look!

The interactive site lets you explore all of our products and services at your leisure.

Take a look now and see what we do for thousand of public and private sector customers – including hospitals, doctors, dentist, vets and many more across the UK and Ireland.

Plus you can also sign-up to our mailing list so we can keep you updated throughout the year.

Questions, comments or quotes? Contact us using the simple online form and remember to keep checking back for new services, company updates and much more!



### The Environment

[Click here to see our latest enviromental initiatives.](#)



### Protect your business with Needle Clear

[Get rid of unwanted needles, syringes and sharp objects.](#)



### Improve waste tracking with BioTrack

[Manage your Duty of Care and drive segregation with BioTrack.](#)

## SUFFOLK RADIATION TECHNICAL SERVICES (SRTS) Ltd

SRTS has taken on a new consultant whom many of you will know as he organised the Oxford Conference in 2006, Niall Higbee. Niall will mainly be advising universities and colleges but has already been involved in work with ports, thorium-232, ex-government labs and schools. His experience will no doubt prove an asset to the company.

We have added a couple of new services to our portfolio. These include testing of instruments and issuing of EPDs. Further details can be found on the SRTS website:

[www.suffolkradiation.co.uk](http://www.suffolkradiation.co.uk)

The University of Cambridge is hosting the next X-ray Users RPS course on Wednesday 10<sup>th</sup> December (*Sorry too late for this one*). Enquiries for future events to -

Louise Sullivan on [srtsltd@aol.com](mailto:srtsltd@aol.com) or Tel: 01473 623527

We wish all our readers a successful 2009!

**R Monty Guest**

## BOOKS AND PUBLICATIONS

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Tritium Concentrations in Crops Fertilised with Contaminated Sewage Sludge - HPA-RPD-038

[http://www.hpa.org.uk/web/HPAwebFile/HPAweb\\_C/1215416653486](http://www.hpa.org.uk/web/HPAwebFile/HPAweb_C/1215416653486)

Handbook for Assessing the Impact of a Radiological Incident on Levels of Radioactivity in Drinking Water and Risks to Operatives at Water Treatment Works - HPA-RPD-040

[http://www.hpa.org.uk/web/HPAwebFile/HPAweb\\_C/1215762210590](http://www.hpa.org.uk/web/HPAwebFile/HPAweb_C/1215762210590)

Assessment of radioactive discharges to sewer by the non-nuclear industry in Scotland  
SEPA

[http://www.sepa.org.uk/pdf/radioactivity/publications/Nonnuclear\\_discharge\\_sewers.pdf](http://www.sepa.org.uk/pdf/radioactivity/publications/Nonnuclear_discharge_sewers.pdf)

Scottish Environment Protection Agency - Compliance Assessment Scheme

<http://www.sepa.org.uk/pdf/consultation/current/compliance/scheme.pdf>

HPA-RPD-042 - UK Recovery Handbook for Radiation Incidents: 2008

[http://www.hpa.org.uk/web/HPAwebFile/HPAweb\\_C/1215501689286](http://www.hpa.org.uk/web/HPAwebFile/HPAweb_C/1215501689286)

**John Scott, University of Leicester**



Association of  
UNIVERSITY  
RADIATION  
PROTECTION  
OFFICERS

## AURPO Subscription 2008-2009

### To all members

The annual subscription of **£20** (£10 for retired members) to the Association was due on the **1<sup>st</sup> July 2008**. Members who did not attend the Annual Conference in September 2008 and still have their subs to pay please return the tear-off slip below, together with your cheque made payable to AURPO, as soon as possible.

**Gillian Glazier**

**Honorary Treasurer**

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To: Mrs G C Glazier, Honorary Treasurer, AURPO

21 Viewland Road  
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 2008-2009 (1<sup>st</sup> July 2008 to 30<sup>th</sup> June 2009)**.

**I confirm my membership of IRPA through the Association.**

**Name:** .....

**Address:** .....

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**Telephone:** .....

**Fax:** .....

**Email:** .....

**Signed:** ..... **Date:** .....