



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

December 2009

AURPO NEWSLETTER

Editor T.J.Moseley

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EDITOR'S INTRODUCTION

Welcome to the Christmas 2009 edition of the AURPO Newsletter. I wish you all a merry Christmas and I'll try not to upset too many with this edition!

We had a great conference in Leicester this year and we have a lot to look forward to at Cambridge in 2010. Full details of the last conference and the forthcoming one are in this edition.

Most of the news these days seems to be coming from the EA with EPR2010 on its way and the new EO not too far behind (*hopefully*) –see the SULG report for all the details. I had high hopes for EPR – ‘risk based and proportionate regulation’ or so we were promised. But the chance of at last getting a level playing field that truly looked at radiation risks seems to be passing us by. The non-nuclear RSR OPRA scheme that was the basis of the recent charging consultation was a disgrace. It was neither risk based or proportionate just a ranking of existing licences in order of regulatory effort. No attempt was made to assess the environmental risk posed by the activities being regulated and yet two of its stated aims were to – ‘develop a common approach to the assessment of risk’ and to ‘target resources at activities that pose the greatest risks to the environment’. We are still trying to knock some sense into this scheme and get it on to a sounder footing. If only the EA would take a step back and have an objective view at what they are proposing because it is so out of touch with the principles of EPR and the REPs.

A few years ago there was talk of more self regulation for small users especially where environmental impacts showed outcomes less than 10uSv/y to the critical group (*and don't forget these were using EIAs based upon very cautious assumptions*). But what has happened since. New management conditions have been written in to all authorisations and registrations requiring an even more bureaucratic approach to the management of work with radioactive materials and these have been imposed irrespective of the level of environmental impact. Whatever happened to <10uSv/y being of no regulatory concern or at least subject to only ‘light touch’ regulation? I mention this because it has been brought to my attention that some EA inspectors have been getting very pedantic about seeing that all the ‘t’s are crossed and the ‘I’s dotted in relation to the long list of management conditions in authorisations. For example, records of stock usage and waste produced may be immaculate, all materials are correctly labelled and securely stored but it could be argued a few records need improving - result – you get a ‘**Warning Letter**’ sent to your CEO threatening enforcement action if things are not improved. What’s this all about? Why is there a need for this heavy-handed approach? Why not a discussed and agreed way forward? I read on and all becomes clear when the inspector states – ‘*we have recorded this non-compliance in our classification compliance system*’. So, we can all expect a lot of these ‘warning letters’ in future as nit-picking inspectors rack up a score against us for implementation of the ‘subsistence charge multiplier’. (*You had better have a closer read at the non-nuclear RSR Opra and charging schemes*).

Whatever happened to the Government’s Better Regulation Initiative or has the EA got away with just paying lip service to it? It looks like HSE are now the good guys with their new more helpful approach.

Anyway, enough of my rantings, I have to get this published! Wishing you all a happy, prosperous and enforcement free 2010. Get your news in to me for the next edition by the end of March 2010.

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PRESIDENT'S REPORT

I would like to thank John Scott who bravely took on the task of Local Organiser at short notice and delivered a splendid AURPO Annual Conference in September. Once again STC made the programme interesting and informative for our members and there were many updates on what is going on in the EA and HSE.

At the conference I was very pleased to give an Honorary Membership to Kevin Connor. This award is the President's Personal Award to a past member who, in his time with AURPO, was very active serving the Association in many aspects of its activities. Kevin was involved in so many ways, helping to improve AURPO. It was a pleasure to honour him at the AURPO Annual Conference and I have included Kevin's citation in this newsletter edition.

I was also honoured to receive the Life Membership Award from AURPO. I don't think I would have done anything differently as far as my being involved in the Association business is concerned. I have been doing it for so many years. When I first joined AURPO and went to my first Annual Conference I found that everyone welcomed me, and it was the friendliest atmosphere I have ever experienced. I had a great time trying to remember everyone's names and which organisation they came from. Everyone was so kind to a newcomer like me. The feeling of uncertainty and fear, that I felt before I went, had been replaced by the sense of belonging; I had such a wonderful time. Since then I always try to ensure that new members who attend the conference have the same kind of welcome that I had.

In the past year we have had many new members but we were sorry that we have also lost quite a number of members due to retirement. It is good to see that the proportion of female members of the association has increased, and this year in Leicester we had 25% female members attended the conference. This year we had a very high number of new members attending the conference and I have received very positive feedback on what they thought of their first AURPO conference.

I am pleased to welcome Dudley Ibbett who answered my plea for help with Association affairs. Dudley will come on to the Executive Committee as an observer. I hope he won't feel it is too daunting and may, in the future, allow us to put his name forward to become a full member of the Executive Committee.

David Plumb and Libby Yates are busy working to get everything in place for the 2010 Annual Conference at Downing College, University of Cambridge. You will see a little more detail in this issue and an announcement on Hasnet-Rad will follow in the near future.

I can confirm that we will celebrate our 50th Anniversary in Newcastle in 2011. Also, we have accepted an offer to host the conference in 2012 from the University of Central Lancashire.

That just leaves me to wish you the Season's Greetings and a Happy New Year.

Sonia Nuttall
10/12/09

AURPO Life Membership Award

Somchairuk (Sonia) Nuttall
De Montfort University

AGM – University of Leicester 2009

Sonia started her academic life in Bangkok Thailand attending a Convent School before progressing to University.

She began her career working at the Office of Atomic Energy for Peace (OAEP) after she graduated from Chulalongkorn University, the oldest and most prestigious University in Thailand. Sonia was presented with her BSc Honours degree by King Rama IX.

The Office of Atomic Energy for Peace based in Bangkok, [Thailand](#) was established in 1961. The OAEP operates a 2-[megawatt](#) nuclear research reactor of the type [TRIGA](#) Mark III, built by [General Atomics](#) and is the office which serves as the main authority for nuclear research in Thailand. The OAEP employs approximately 400 people. It has recently changed its name to The Office of Atoms for Peace (OAP). The research topics and services provided at the OAP include [radioisotope](#) production, gamma radiography, neutron activation analysis, neutron radiography, and [gemstone irradiation](#). The role of the OAEP/OAP is encompassed within the EA, HSE and HPA - Radiation Protection Division in the UK.

The OAEP was recently divided into two separate entities: the original OAP, which will oversee nuclear and radiation regulations nationally, and the new [Thailand Institute of Nuclear Technology](#) (TINT), which will conduct peaceful nuclear research and offer services to the public.

Whilst working at the OAEP, Sonia took two years off to study for her Masters Degree abroad. She was accepted at Karlsruhe University, Germany, in the Faculty of Chemistry, but fate led her to choose to come to Leicester instead and whilst she was in Leicester she met her future husband, Peter. During her time at the OAEP in Bangkok, Sonia was involved in many projects ranging from neutron activation analysis, carbon dating and food irradiation (including tasting many irradiated foods in her time such as strawberries and onions). Sonia was retired from the OAEP after 10 years service whilst she was the Team Leader for a team which specialised in Neutron Activation Analysis.

Following her retirement from OAEP, Sonia got married and moved to the UK where she worked for Heating Elements in Leicester, Leicester University and finally taking up the post of Radiation Protection Officer at the Scraptoft Campus, De Montfort University and later as University Radiation Protection Advisor.

Sonia has also taught Thai Cookery at Guthlaxton Grammar School, worked as a Project Manager for the EU, made cakes for a shop and carried out various consultancy RPA contracts e.g. Exeter University.

I asked her why she was called Somchairuk and she told me that in Thai it means 'as the heart wished'. After having had three sons, her mother wanted a daughter to complete her family.

Sonia joined AURPO in 1993 and soon became actively involved in the Association businesses. She took over the role of Honorary Treasurer in October 2000 and was later nominated for the position of AURPO President at the AGM in 2005. Sonia has served as AURPO representative on the SRP Qualification and Professional Standards Committee which produced the guidance for certification and recertification of RPA2000 applicants.

Sonia's hobbies include gardening, cooking, golf, badminton, kayaking and participating in the University share saving club. She also dotes on her little Shih Tzu dog called Lucy.

Christine Edwards
AURPO
September 2009



Kevin Connor and Sonia Nuttall with their awards after the conference dinner at Leicester September 2009

AURPO Honorary Membership Award

**Kevin Connor
(past member of AURPO)**

AGM – University of Leicester 2009

Kevin joined the Hannah Research Institute in the early 1980's as a Scientific Officer. He became a member of AURPO in 1986 and took up his role on the Executive Committee a few years later. He was to stay on the Executive Committee for many, many years.

Kevin started many ventures for AURPO, both whilst he was serving on the Executive Committee and also continuing long after he had retired from the role. Kevin could always be relied on for his original ideas. He was Editor of the AURPO Newsletter for a number of years until he persuaded Trevor to take over. He developed and grew the Trade Exhibition at each conference venue for many years and now the Exhibition has become a big part of the AURPO Annual Conference. There is no doubt that Kevin has made it a lucrative commercial venture for AURPO, but more than that it has become a very important opportunity for our Affiliates to meet with a wide spectrum of members from differing fields of radiation protection.

Kevin was co-author (with Iain McLintock) of the original Handbook No 14: Radiation Protection Handbook for Laboratory Workers and developed and founded the AURPO Certificate in Radiation Protection with Strathclyde University.

Outside of work, Kevin is a Colonel in the Territorial Army and after returning from Iraq where he had been on TA service, Kevin left the Hannah Institute and AURPO in 2004. He is now involved in the training of young people who are interested in pursuing a career in the TA.

I am very happy to honour Kevin with the award of "AURPO Honorary Member"

**Sonia Nuttall
AURPO President
14 October 2009**

Conference Report from Leicester 16-17 September 2009

Proceedings started on Wednesday afternoon with a welcome from University of Leicester Registrar Mr David Hall.

The first afternoon of our conference is also known as our ‘Professional Update Session’ and this year’s session was sponsored by the Health Protection Agency – Radiation protection Division. We had to have a little re-jig to proceedings as Lindsay Cairns (HSE) was unable to make the conference. She did however forward her presentation (on plans for the new BSS) which was distributed to members present and should along with other presentations eventually find its way on to the website. We hope to see Lindsay next year all being well.

We then moved on to the science, but had only one proffered paper this year and that was given by **Richard Burkett** from the **Health Protection Agency** with **Repeatability and Light Effects in LiF:Mg, Cu, P TLD cards**, an illuminating talk on his work on performance testing of thermo-luminescent dosimeters. In considering a second supplier of reusable TLDs compatible with existing readers, a small sample of Radcard TLDs was tested for light degradation and repeatability, and initial results encouragingly met with HPA’s performance requirements.

Chris Englefield (Environment Agency) began by promising to make our environment a better place by giving us an update on **EPP2 Implementation and Qualified Experts**. He provided a summary of key points on the new permitting system and process for “surrender” of permits and provided assurance that the intention was not to increase burden on institutions under the new scheme. The good news is that user guidance is being developed and we are encouraged to wait for RSR specific guidance. Chris finished with a few words about proposals on Qualified Experts. This has been on hold due to EPP2, but a formal consultation is due in December 2009, or perhaps early in the new year.

Allan Ashworth (DECC) began by thanking the hundreds of people who had so far contributed to the **Exemption Order Review** process, with particular thanks to Richard Harrison and Trevor Moseley. Allan set out the timetable and main features of the framework. Proposed changes to the Radioactive Substances Act and simplification of all of the existing exemption orders into one new exemption order have led to some difficulties but possible resolutions were also outlined. (*Further update and details can be found in SULG report.*)

Trevor Moseley (University of Sheffield) completed the afternoon’s presentations with a useful updated summary of the **CDG 2009, Practical Applications** of the transport regulations. Trevor highlighted some important details and provided practical suggestions on compliance as well as additional good practice recommendations. He covered: what was derogated; what was exempt; what you needed to do if you were just shipping excepted packages; what you needed to do for Type A packages and how you could deal with waste. He also covered the training that had to be given to people involved in the transport process and the compliance assurance required. He is currently working on updating the AURPO Transport Guidance Notes and did hope to have something completed by the end of 2009.

Reporter: Lisabeth Yates (University of Cambridge)

Thursday was the main Scientific Meeting with the theme this year being ‘Aspects of the Core of Knowledge – updating the RPO and RPA’. The day was sponsored by AMEC (decommissioning and RPA Services).

AM Session

Core of Knowledge, Brian Heaton (ARPS)

This talk was an overview of the history of the knowledge and suitability requirements of Radiation Protection Advisors both before and after RPA certification in 2000. The first guidelines on the knowledge and experience required of a suitably qualified expert were set out in annex 1 of a communication from the commission 98/c133/03. The RPA certification formalised this by requiring that RPA’s have a specified core of knowledge and to be able to demonstrate a suitable range of experience. To do this a candidate must submit a portfolio of their work to the RPA2000 assessors. The areas covered and the depth of knowledge required are based on guidance from the HSE. The syllabus of the AURPO/Strathclyde course which covers the core of knowledge required of an RPA was discussed. In the future the core of knowledge (and experience) may be expanded to include extra elements related to radioactive waste management. This additional knowledge would only be required by people who need to demonstrate that they are a ‘Qualified Expert’ under RSA93. This could be an add-on to the current RPA Certification or may be a stand alone scheme.

Risk Assessment, David Orr (HSE)

One of the most common reasons the HSE issue an enforcement notice relating to work with ionising radiation is the failure to carry out, and review, a suitable risk assessment. Guidance was given on how to conduct a risk assessment dealing with identification of hazards (including radon), assessment of risk trying to take into account various foreseeable accident scenarios, review of control measures, and finally implementation of any recommendations. The risk assessment needs to be regularly reviewed – record a date by which it should be reviewed. In producing a risk assessment use paras 44 & 45 of ACoP as a checklist because this is what your HSE inspector will do! Enforcement action is usually a result of failing to produce a suitable and sufficient risk assessment or failing to implement the findings of one – NB risk assessment should be carried out before work commences. Requirements for radon risk assessments often overlooked. Many more areas have now been declared ‘radon affected areas’ and require that all ground floor and below ground workplaces are assessed.

Uncertainties in Measurement, Jan McClure (HPA)

This talk aimed to emphasise that, in addition to the inherent error limitations of a meter, there may be additional, and significant, errors introduced by its operational use. For instance, for an analogue instrument there could be parallax errors. A number of other factors were identified; time averaging of a fluctuating signal, non linearity, energy response, directional dependence of reading. All these errors can give rise to a very large uncertainty in a single measure of up to 58%. For random uncertainties the error in a single measurement will be considerably higher than the error in the mean value of repeated measurements. For example repeated measurements from varying viewing angles will largely compensate for parallax. However repeated measurements will not reduce the effect of systematic error (always viewing same angle). In conclusion in order to determine if an instrument is fit for purpose a careful examination of errors in use as well as instrument uncertainty must be considered.

Biomonitoring and Internal Dose, Richard Bull (NUVIA)

Work with unsealed radioactive materials can give rise to internal exposure by ingestion, injection, absorption and inhalation. This exposure needs to be monitored and kept well within regulatory limits. Although it is not possible to measure internal exposure directly it can be inferred from indirect measurements on urine, faeces and exhaled air, and, when gamma emitters are involved, from measurements of the emissions from different parts of the body. To relate the activity of the excreta to the initial dose it is necessary to use a suitable "whole body" model which will predict, with knowledge of a number of input factors, what the initial dose was. The model discussed in this paper used the IAEA algorithm (series RS-G-12). The sampling frequency for regular monitoring is determined from knowledge of the minimum detectable level in the excreta and the required sensitivity to the initial dose. Several examples for common radioisotopes were given detailing the techniques used and how to work out the results. It was concluded that monthly urine samples can provide adequate sensitivity for H-3, C-14, soluble S-35 compounds and I-125 and should be within the capabilities of RPOs, though an Approved Dosimetry Service would be required where dose components may exceed 1mSv.

Laboratory Design Derek Lowe (University of Sheffield)

The talk outlined considerations in the design of a new laboratory space. Consideration was given to general safety features such as ease of cleaning (for cleaning/decontamination) running services in ducting to the ceiling, clear and wide walkways and rounding of bench corners. Special safety features relating to radioactive use that were discussed were the selection of the work surface and its design.

Other design factors that were discussed were the versatility of the space. A modular design (c frame benching) was described where under bench units can be freely moved to give either bench or desk spaces etc. this will ensure the space can be modified along with work requirements. This design also enabled flexible work heights for better ergonomic design.

AM Reporter: Dr Christine Bull (University of Sheffield)

PM Session

Practices - PET-CT, setting up a new facility in a research university, Simon Willis (RPA, Newcastle University)

Simon outlined the use of the combination of PET (positron emission tomography) and CT (computed tomography) imaging techniques within a single machine. The individual scans, which are taken virtually simultaneously, can be presented separately or as a single, overlapping, or "fused" image. The two techniques present different types of information about the human body (PET shows metabolic or chemical activity in the body; CT shows the body's anatomical structures).

Hazards are the X-rays from the CT scan and the gamma photons from the decay of the positron (each positron-electron annihilation generating 2 gamma photons – i.e. two 511 keV photons from F-18).

Doses to patients can be about 10mSv from the X-rays **and** 10mSv from the PET isotope. To prepare for 4 patients in a single morning the staff might need to handle 5GBq of material. The staff dose from a single preparation could be 11µSv, which extrapolates to an annual dose of about 10mSv for a single staff member conducting 4 preps a day, five days a week for 46 weeks a year. (The Newcastle group were operating only 1 day a week and so classified

worker status did not arise, and Simon was not aware of any other similar PET workers being classified.)

Thus significant shielding (on workstations, aprons and screens, for syringes and waste) is necessary for the staff operating the facility. Additional management issues to achieve doses ALARA to staff are: practice techniques, rotating staff, good radiotherapy planning, distance, time and personal monitoring. (Additional syringe shielding using Perspex shields may not introduce gamma attenuation but it can increase distance from source.)

Facility requirements include a shielded patient preparation suite to include toilet and two rest areas and, ideally, 2 scan halls.

To avoid high activities being transported a local cyclotron facility is needed to supply isotopes (half-life of F-18 is less than 2 hours). Simon recommended no more travel time than a half-life of the relevant isotope. The RSA registration should take account of a delivery arriving early!

He then went on to describe the problems they had to overcome when adapting an existing MRI facility to accommodate PET work.

Regulatory issues needing particular consideration are;

- Risk assessments (use of PET compounds, X-rays and sealed calibration sources) – IRR99 Reg 7
- Training – IRR99 Reg 14
- Cooperation between employers (e.g. if the radiographers are not in your employ) – IRR99 Reg 15
- Designation of areas (consider temporary designation) to take account of cleaners – IRR99 Reg 16
- Local Rules – IRR99 Reg 17
- Medical exposures – IRR99 Reg 32 and IR(ME)R 2000
- Consulting with HSE (prior notification – IRR99 Reg 6) and EA – RSA93 considerations.

This was a very useful talk about an expanding area of work that some of us are getting involved in.

Practices – Veterinary use of Ionising Radiation, Dr Peter Cole (RPA, University of Liverpool).

Peter entertained us with tales of his experiences of working with large and small animals in animal hospitals, veterinary practices and Chester Zoo. He outlined work involving diagnostic radiography, nuclear medicine (gamma scintigraphy), sealed source brachytherapy (including source retrieval from a large pile of dung) and teletherapy.

He highlighted the differences between working with elephants and people and the image depicted on his slide showing brachytherapy source retrieval from inside the rear end of an elephant is one I will carry with me for a long time. I suspect the elephant remembers the experience as well.

Large X-ray doses are needed for some X-ray procedures (150kV, 250 mAs for a horse pelvis) and scatter can be significant even at lower energy exposures. The need to manually hold either film cassettes or animals imposes other dose considerations for the RPA and RPS. Badge dosimeters on wrists and body may be appropriate.

It may not be acceptable to sedate large animals in particular, and so assessments need to take account of the physical hazards of handling uncooperative and strong beasts with unpredictable behaviour.

Although IR(ME)R 2000 and IRR99 Reg 32 (equipment for medical exposure) are not relevant, these IRR99 Regulations are;

- 31 (manufacturers' duties) - if advised by the RPA a critical examination of IR generating equipment should be carried out to include checks of warning devices, engineering controls, scatter doses and tube leakage, and
- 10 - maintenance of controls and safety features is carried out at suitable intervals.

Peter recounted his sense of satisfaction when, after his advice was ignored during the design stage of construction of a Linac facility, a retrofit of a nib wall was necessary to reduce the dose from scattered radiation from 80 to 1.2 μSv per hour.

Peter is the only person I'm acquainted with who would be able to navigate around Chester Zoo by reference to the locations of the animals. If he is not a Master of Arts I suspect he could legitimately claim the title MA in his capacity as Master of Anecdotes.

The UK Health Protection Agency's response to the Po-210 incident in London 2006. Phil Tattersall (HPA-RPD).

Phil detailed the fascinating account of the response to this unprecedented, but macabre, incident which resulted in the death of Alexander Litvinenko from Po-210 poisoning.

(For a timeline on the incident refer to <http://news.bbc.co.uk/1/hi/uk/6179074.stm>, P.J.)

Phil outlined the properties of polonium-210. As an alpha particle emitter it poses no significant external hazard but once taken into the body will pose a very significant internal hazard. Po-210 has a radiochemical half-life of 138 days and a biological half-life in humans of about 50 days. To give an annual dose limit (20 mSv) about 80kBq by ingestion, or 9kBq by inhalation, would be required.

Mr Litvinenko is believed to have ingested about 1GBq. Consequently he died 22 days after the poisoning incident.

The HPA initially identified Mr Litvinenko's home and the hospitals he was admitted to as primary sources of Po-210 contact for others who might have become contaminated. Their initial monitoring of the hospitals was completed within a matter of hours and, subsequently, the team had their first interaction with the police investigation.

The initial HPA assessment was that an intake of 20mSv from secondary contamination was unlikely, but could not be excluded.

The source material was likely to be a greater potential hazard to others and the point that the compound is difficult to contain was of relevance to the police investigation of the incident.

The HPA regarded their response as an intervention, not a practice, and, for over a week, they operated a 24 hours a day, 7 days a week, operation to identify, and assess, individuals who might have been exposed to contamination at sites identified from the police investigation.

The teams needed a rapid response to

- monitor areas,
- identify significant contamination,
- remediate these if possible or restrict access to areas (close them) and
- record and report their results.

A dynamic risk assessment led the HPA to ascertain the risk to the monitoring teams was tolerable. High traffic food preparation areas were a particular problem to monitor as a thin layer of water will attenuate alpha particles.

All mobile contamination (including soft furnishings) was removed, if possible.

A reference level for remediation or clearance was needed and a cautious assessment resulted in a recommendation (not a limit) of 10 Bq cm^{-1} .

Any residual contamination was found to be low and, generally, fixed, although environmental monitoring was only able to indicate what was there up to 3 weeks previously.

Personnel monitoring was done by urine analysis (relatively straightforward by alpha spectrometry), firstly on tens of individuals (staff at hospitals and sushi bar and friends/family) then hundreds as other locations were identified.

The results (mBq) were then converted to effective dose (mSv) and a tiered table of dose assessment from urine was established;

- Cat 1 <30 mBq dl⁻¹ urine (below reporting threshold – BRT)
- Cat 2 dose <1mSv
- Cat 3a dose 1 to 6mSv

Results for 990 UK personnel who were followed up	
Those offered urine test	779
Available results	738
Cat 1 (BRL)	601
Cat 2 (<1mSv)	85
Cat 3a (1 to 6mSv)	35
Cat 3b (>6mSv)	17

In conclusion Phil outlined the UK and HPA response plans as being flexible and adaptable in view of this unprecedented incident. The HPA realised they needed to work to the rhythm generated by external organisations, that you can never overestimate the resources that will

be necessary at all levels, the vital need for data recording and logging, and communications. It was also apparent that the developing police investigation provided sensitive information which was difficult to separate from information for the public domain.

He acknowledged that the investigation brought parts of the HPA together. In total there were about 70 people involved in the monitoring teams, the instruments (mainly DP6 range probes) worked well but that confidentiality aspects of affected people (are they ‘patients’?) hampered the process somewhat.

Sources of information;

1. The link <http://www.hpa.org.uk/polonium/default.htm> that Phil provided does not work but this one provides the index page for polonium-210 on the HPA site - <http://www.hpa.org.uk/HPA/Topics/Radiation/UnderstandingRadiation/1204619486699/>
2. <http://www.londonprepared.gov.uk/londonplans/litvinenko/>
3. The link <http://www.ukresilience.info/> that Phil provided reroutes to the UK Resilience home page <http://www.cabinetoffice.gov.uk/ukresilience.aspx>

Arrangements for looking after sealed sources, and age-related degradation.

Ralph Whitcher (Health and Safety Manager and RPA, West Sussex County Council).

Ralph outlined the potential problem of mostly aging (>40 years old) unencapsulated foil-type sealed sources in UK schools. The EA Surplus Source Disposal Scheme did provide a disposal route for ‘end-of-life’ sources, but there was little evidence to base a judgement on what constituted the life of such sources.

Ralph estimates there could be 18,000 to 20,000 such sealed sources in the 3,500 UK secondary schools.

Paragraph 482 of the ACoP to IRR99 (referring to Reg 27(2)) mentions ‘recommended working life’ (RWL) and that the condition of the source should be reviewed at the end of the RWL, and a time-limited extension is permissible. If there is no RWL then review after 5 years or ask the RPA.

Ralph undertook a study to examine the condition of a relatively large sample (250 sources from 41 establishments) of types commonly in use.

The study aimed to determine;

1. if there were signs of foil integrity failure
2. if there were any patterns to failures, particularly age-related and
3. if evidence could be provided to extend their use, or not.

Source holders included

- cup type (Griffin & George, Philip Harris, Panax and Nicholson)
- slide mounted (Labgear)
- collimated (Panax 333kBq Sr-90)

It was impossible to determine the dates of manufacture of many of the sources because they are rarely uniquely identifiable, records can be erroneous and school mergers and inheritances muddy the water.

Visual inspection is an obvious first choice for testing.

Ralph's presentation included excellent close-up images of sources taken either with a hired videoscope (Olympus Iplex) or a Nikon 8 Mpixel digital camera with a 3cm macro lens and remote control.

He found it difficult to capture images of the foils in the Panax sources, and dirty or dusty sources hampered inspections.

His images included ones of corrosion from a leaking Pa-234 source, loose foil in a cup-type holder (described as a common fault) as well as sources in apparently good condition.

Ralph pointed out that storage containers also needed consideration, and that lead shielding is susceptible to corrosion accelerated by ethanoic (acetic) acid released by hardwood storage boxes.

A suitable leak test (as required by IRR99 Reg 27(3)) was based on ISO 9978 and involved rolled-up cellulose acetate filter discs dampened with ethanol, wiped over grille and around the cup (no attempt is made to contact the foil) and scintillation counting or other appropriate counting method.

Ralph highlighted potential false-positive leak test results from Ra-226 sources. He reminded us that the decay products include Pb-210 and this solid residue can lead to apparent source leakage.

He concluded that the Labgear slide sources are prone to age-related failure, there was no evidence to extend the working life and he recommended that all those he examined were disposed. He did acknowledge a small sample size (8) of this type of source.

He did determine there was evidence to extend the working life of cup-type holders if

- the source was in good condition, judged by close-up visual inspection (remotely observed) and no detectable leakage
- regular checks are performed
- sources are kept free from dirt and dust, and
- source receptacles are well maintained.

Ralph also concluded that failure is more likely from abuse than age!

Finally, he pointed out that

- none of the activities on the contaminated wipes from leaking sources he tested would have failed the ISO 9978 test
- radium-226 sources need special attention due to solid radioactive decay products
- modern foils of strontium/yttrium-90 are anodised and it is as yet unknown how they will perform beyond their RWL
- educational establishments need reminding that sealed sources do not last forever!

In answering questions Ralph has concerns that schools are now free to procure their own sealed sources and that some manufacturers do not provide sufficient data.

This was a very interesting and informative talk from a hands-on RPA. It highlights an area often overlooked by users of more beefy radioactive sources.

PM Reporter: Peter Jewell, University of Bath

AURPO Conference 2010 – University of Cambridge



The annual AURPO conference for 2010, will be held on September 7th and 8th, at the University of Cambridge. All accommodation and conference facilities will be at Downing College (*above*), located in a magnificent setting on the immediate perimeter of the central historic area of the City of Cambridge. The Conference will begin at 2 pm on the Tuesday 7th, in the new Howard Theatre, followed by the AGM. On Tuesday evening we will visit some of the galleries of the nearby Fitzwilliam Museum for food, wine and music. The Conference will continue at 9 am on Wednesday and continues through the day until approximately 4.30 pm. Wednesday evening features the Annual Conference Dinner which will be held in the recently superbly restored main Hall at Downing. Subject to demand, two optional social events are planned for the Thursday morning – a one hour ‘chauffeur punt’ trip along the scenic ‘backs’ of the Cambridge colleges maybe followed by individual tuition in the noble art of punting, or alternatively, a trip to the Duxford site of the Imperial War Museum – without doubt Europe’s premier aircraft museum – and much more besides! For those who wish to stay longer than the conference days, some further suggestions of where to visit and where to stay will be posted on the AURPO website in the New Year, together with much more information about the Conference, the College, and the University.



The theme of the scientific meeting and outline program has been provided by the Scientific and Technical Committee and is detailed below.

Wednesday 8th –Main Day Theme - ‘Management of Waste and Radioactive Substances Use’.

The following topics are likely to be covered – mainly Environment Agency matters:-

1. Management Conditions under EPR2010 Permits and the ‘Duty of Care’.
2. The use of BAT in the non-nuclear sector .
3. Management of waste and decay storage – practical experience.
4. Management of sealed sources – cradle to grave.
5. Critical group dose assessments for small users.
6. Management of records – computerised record systems.
7. Designation of Areas.
8. Using the new EO Regime in the non-nuclear sector.

Other ideas depending on developments –
Developing Standard Permits for Radioactive Substances Use.
Non-nuclear RSR OPRA based risk assessment.

Tuesday Afternoon 7th Sept – Professional Update – HSE related matters

1. BSS update
2. Artificial Optical Radiation Regulations – what it means for users in medicine, research and teaching
3. HSE take on enforcement of the CDG Regs and their interpretation of the need for a DGSA and any other current HSE issues .
4. Radon Measurement Techniques

The University of Cambridge was founded in 1209 and this year celebrates its 800th Anniversary. From humble beginnings to one of the world’s leading education and research centres, its teaching and research facilities, and the residential Colleges, many of which border the river Cam (above), are widely distributed across the City.

Downing College, was founded in 1800 and currently has over 650 students. The College has a unique setting, located in a magnificent parkland campus, and is constructed in neo-classical style conveying a sense of elegance and spaciousness with graceful columned porticos and delicate yellow and pink stone.

The Conference and accommodation facilities are amongst the best in Cambridge, and the location and facilities will ensure a relaxing but efficient environment for the AURPO Conference in 2010.



Conference Organisers: David Plumb and Libby Yates

NEWS from HSE

Don't forget HSE ACOP on IRR99 is now available as a free download online at:-

<http://www.hse.gov.uk/pubns/books/1121.htm>

Radiation Protection News is also online these days. Details of the last one issued were in the last AURPO Newsletter and details can be found online at HSE webpage -

<http://www.hse.gov.uk/radiation/rpnews/rpnews300309.htm>

How to notify HSE

Notification to HSE can be made:

- **By e-mail** to: irrnot@hse.gsi.gov.uk
- **In writing** to: HSE, Ionising Radiations Notifications, Phoenix House, 23-25 Cantelupe Road, East Grinstead, West Sussex, RH19 3BE

Full details about notifications can be found on the HSE website at -

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

Nuclear Safeguards Reporting for UK 'Small Users'

It will soon be time for people to do their annual returns relating to Uranium and Thorium holdings to the Safeguards Office. NB there was an article on this in the last newsletter (July 09). All reports and correspondence should be sent via the HSE (UKSO) at 7th Floor North Wing, Rose Court, 2 Southwark Bridge, London SE1 9HS.

For further information contact: Minder.Louie@hse.gsi.gov.uk. Tel. no 0207 717 6817 or view the website - <http://www.hse.gov.uk/nuclear/safeguards/index.htm>

Physical Agents (Optical Radiation) Directive

The Optical Radiation Directive was published in the Official Journal of the European Communities on 27 April 2006 (Ref: L114) under the title of "Directive 2006/25/EC on the minimum health and safety requirements regarding the exposure of workers to the risks arising from physical agents (artificial optical radiation)".

The Directive has to be implemented by 27 April 2010 - see following web page for further details - <http://www.hse.gov.uk/radiation/nonionising/optical.htm>. Also see page 32 for article on this by Gus Zabierek who is co-ordinating the AURPO response to the consultation on the UK Regulations.

NEWS from DEFRA, DECC and EA

SULG 33rd Meeting 18th November 2009, London

Minutes of SULG meetings, once approved, can be obtained from the Technical Secretary to SULG, Amber Bannon (amber.bannon@environment-agency.gov.uk). A brief review with some additional comments is given below by the Editor.

RSR Policy Update.

1. EO Review – There was a great response to the consultative document with many people making good points, and, with the Government determined to see that industry will not be disadvantaged by the new regime, substantive changes are being made to the new EO. As a consequence of this there will be another consultation in early 2010 with the review completed by Spring 2011 at the latest. The new EO will therefore not be included in EPR2010 (the new Environmental Permitting Regulations that will encompass RSA93).
2. EPR 2010 – Implementation scheduled for April 2010. Existing EO suite will be referenced until new EO package is ready. Consultation on ‘core’ and ‘RSR’ guidance for EPR has been completed and these documents should be published in the new year.
3. RSR Environmental Principles have now been published and can be found at: <http://publications.environment-agency.gov.uk/pdf/GEHO0709BQSB-e-e.pdf>
4. BAT guidance has now been published and can be found at: <http://publications.environment-agency.gov.uk/pdf/GEHO0709BQSA-e-e.pdf>
5. Storage in transit of radioactive materials may become regulated by the Department for Transport (DfT) rather than the Environment Agency and therefore could be excluded from EO. However this has resources issues that need to be overcome by the DfT first.
6. Following feedback from members of SULG the authors of the UK guidance on Standardised Reporting have decided to specifically exclude the non-nuclear sector.

Technical Services Update

Note the new name – this used to be called ‘Process’. The development partner that RSR Process were working with for some of their IT has withdrawn and this will slow down developments of their information systems.

Document development for EPR is progressing well. There is however little progress with ‘Qualified Experts’ but Chris Englefield is more optimistic for next year.

Proposed RSR charging scheme

The annual consultation on charges started on 22nd September and ends on 16th December. The RSR OPRA proposals have attracted comment, in particular in relation to the proposed definition of a high risk/complex site. The current intention is to define such sites as any facility which has 7 or more rooms where unsealed radioactive materials are used. This was viewed by a number of members of SULG as neither proportionate or risk based which are central tenets of the proposals. The Environment Agency agreed to consider an alternative definition based upon the site authorised disposal limit/annual reporting thresholds.

HASS Financial Provisions

The Environment Agency indicated that if HEFCE were prepared to offer financial provision assurance for Universities then they would look into accepting this. This would then work in a similar manner to the Department of Health's financial provision arrangements for non Foundation Trust Hospitals.

Combining Permits under EPR – What is permitted?

It had been indicated previously in discussions on EPR implementation that the new regulations would permit a company with the same activities on more than one site to combine permits into a single permit. The question was raised as to whether this was possible in relation to RSR permits. The ruling was that this combination of permits was only possible for ‘standard facilities’ covered by ‘standard rules permits’. This only affects Cat 5 Registrations for sealed sources, so if you have a number of these on different sites they can be combined.

DfT Report

Some Sentinel radiography equipment (techops 660) will be having its transport container certificates withdrawn by June 2013 (certs run out and are not going to be renewed by manufacturer). Sentinel will take the old equipment back if you are purchasing a new model.

David Rowe (DfT) went on to describe the small user audit programme that had been started in 2009. It is concentrating on the industrial and medical sectors. To date no improvement or prohibition notices have been issued as the DfT as it tries to educate and assist people to comply with CDG/ADR. To date the compliance has been patchy and the following were the main issues that had been highlighted in audits:-

- Emergency arrangements – not tested or prepared for
- Drivers – instructions in writing not present but example document provided in ADR 5.4.3.4
- Transport documents (consignment note) not correctly completed
- Transport security – lack of training and awareness by drivers
- Radiation protection programmes of poor quality
- Package labelling and marking – incomplete/incorrect
- Package and Special Form certs out of date
- Fire Ex – not enough of them
- References to out of date regulations in documents and Local Rules
- Instrument calibrations out of date
- Miscellaneous equipment – not all there
- DGSA – many organisations do not have one

On the question of fire extinguishers it was drawn to our attention that Authorisation 216 has been issued which states that it is not necessary to carry fire extinguishers when carrying any number of excepted packages. *This was issued in August 2009 but Road Derogation 3 (relating to FXs) is still in the list of Approved Derogations on the DfT website. It is not clear whether this is now going to be withdrawn.*

Another thing to note on transport is that Steve Whittingham has produced another newsletter for radioactive material users and it can be found at –

<http://www.dft.gov.uk/adobepdf/165226/460089/stakeholdernewsletter.pdf>

Finally on transport (*and at long last*) the Radioactive Material Transport team now has some dedicated emergency telephone numbers – please note these for your emergency arrangements for situations where there is a need to inform DfT of a transport incident/accident –

DAY -	020 7944 5749	
NIGHT -	020 7944 5999	and if all else fails –
SWICHBOARD –	020 7944 8300	

Climate Change - Flood risk

In future Agency inspectors will be looking for awareness of flood risk amongst small users and that they have taken reasonable and proportionate steps to assess and mitigate the effects of flooding.

Small User Member issues

- a) It was reported that the Institute of Physics and Engineering in Medicine were reviewing the excretion factors for commonly used radionuclides with an intention to publish the results in RASAG.
- b) It was indicated that non nuclear incineration ash would not be regulated as if it were High Volume - VLLW from the nuclear sector. It will either remain regulated as at present or fall within the revised exemption regime.

AOB

The Environment Agency reported that the annual survey of customer satisfaction would be undertaken by telephone between January and March 2010. No questions will be asked relating to sources held, only regarding the satisfaction of customers with the regulatory service that the Environment Agency delivers.

Follow-up from SULG

After repeated requests to EA that we should all be using, or at least have access to, the same models when it comes to carrying out environmental impact assessments the EA have finally agreed to release their in-house radiological assessment tool so that we can use these if necessary prior to making a new application –see the following details from the EA –

This tool was developed for our own internal use, although the underpinning science, including a user report, is published and freely available in the following documents:

1. **User Report** - Science Report SC030162 Initial Radiological Assessment Methodology – Part 1 User Report April 2006 (<http://publications.environment-agency.gov.uk/epages/eapublications.storefront> - search on ISBN Number 1844325423).
2. **Methods and data** - Science Report SC030162 Initial Radiological Assessment Methodology – Part 2 Methods and Input Data April 2006. (<http://publications.environment-agency.gov.uk/epages/eapublications.storefront> - search on ISBN Number 1844325431).

We have always taken the view that we should provide our management system documents, if requested, and this would apply to the initial radiological assessment spreadsheet tools. Hence, we intend to inform the Small Users Liaison Group that the non-nuclear industry, and those providing advice to prospective applicants, may request copies of the latest version of the spreadsheet tools from their Environment Agency regulatory officer. We also propose to include a statement in our forthcoming EPR guidance along the following lines:

"Guidance on initial radiological assessment is provided in the following reports.... The Environment Agency uses spreadsheet tools based on this initial radiological assessment methodology which we will use to determine your application. You may request copies of these spreadsheet tools from your Regulatory Officer".

The guidance will also offer some brief details about the use by others of this assessment tool.

You may be aware that the National Dose Assessment Working Group (see www.ndawg.org for details of membership, terms of reference etc) has started to compare the different models available for assessing the impact of discharges to sewer. This has showed some significant discrepancies, many of which may be due to errors or misunderstandings in the initial comparison exercise. NDAWG has established a small group to understand the true nature of these discrepancies and to recommend how to resolve them.

Please note that all requests for the latest spreadsheets are to be made through your local EA Regulatory Officer.

New UK Discharge Strategy Published

Statutory Guidance to the Environment Agency on the regulation of radioactive discharges into the environment has come into force following Parliamentary clearance. This publication is a strategic high-level document that provides formal guidance to the Environment Agency in England and Wales on the implementation of the 2009 Strategy for Radioactive Discharges that was published in July of this year. It mainly focuses on the change in England and Wales from the application of Best Practicable Means (BPM) and Best Practicable Environmental Options (BPEO) to Best Available Techniques (BAT) to prevent and eliminate marine pollution by radioactive substances. Alternative arrangements are in place by the Devolved Administrations of Scotland and Northern Ireland to help meet the aims of the UK Strategy.

An Impact Assessment is provided as an Annex to the Statutory Guidance. This sets out the intended effects of the UK Strategy and Statutory Guidance, and provides an estimate of potential costs and benefits arising from the change from BPM and BPEO to BAT in England and Wales.

Both the Statutory Guidance and the UK Strategy were the subject of a public consultation exercise in late Summer 2008.

The Statutory Guidance and the 2009 Strategy can be located on the DECC website at: http://www.decc.gov.uk/en/content/cms/what_we_do/uk_supply/energy_mix/nuclear/radioactivity/government/discharges/strategy/strategy.aspx

New EA Publications of Interest

The following documents were written primarily for use in the nuclear sector rather than for non-nuclear uses but they may still have some relevance for non-nuclear users and are likely to form the basis of any guidance specifically for the non-nuclear sector.

What are they?

Regulatory Environmental Principles (REPs)
Assessment of best available techniques (BAT)
and the report on the consultation.

Where can they be found?

<http://www.environment-agency.gov.uk/business/sectors/111010.aspx>

NEWS FROM HPA- Radiation Protection Division

HPA has been busy issuing reports this autumn in its HPA-RPD series and details of those issued since the last newsletter can be found below with links.

- [HPA-RPD-061 - Radon in Dwellings in Northern Ireland: 2009 Review and Atlas](#)

Added/updated: 24 November 2009

- [HPA-RPD-060 - Results of the 2007 Health Protection Agency Intercomparison of Passive Radon Detectors](#)

Added/updated: 26 November 2009

- [HPA-RPD-059 - Transfer of Radioactivity from Seaweed to Terrestrial Foods and Potential Radiation Exposures to Members of the Public](#)

Added/updated: 16 November 2009

- [HPA-RPD-058 - The Methodology for Assessing the Radiological Consequences of Routine Releases of Radionuclides to the Environment Used in PC-CREAM 08](#)

Added/updated: 6 November 2009

- [HPA-RPD-057 - Response to Comments Received during the Consultation on Proposed HPA Advice on the Application of ICRP's 2007 Recommendations to the UK](#)

Added/updated: 21 September 2009

- [HPA-RPD-056 - Radiological Consequences Resulting from Accidents and Incidents Involving the Transport of Radioactive Materials in the UK – 2008 Review](#)

Added/updated: 30 July 2009

Two new response statements have also been published on risks from tritium and on 'SAGE' - Stakeholder Advisory Group on Electromagnetic Fields.

- [HPA response statement on Review of risks from tritium by the independent Advisory Group on Ionising Radiation \(AGIR\)](#)

Added/updated: 19 November 2009

- [HPA Advice on the First Interim Assessment of SAGE](#)

Letter from Professor Pat Troop to the Rt Hon Dawn Primarolo, Minister of State for Public Health

Added/updated: 22 October 2009

Miscellaneous Publications since July containing a lot of updated information and protocols – *this is either a new section or something I seem to have overlooked in the past.*

- [Dose Assessment of Inhaled Radionuclides in Emergency Situations](#)

The Preparatory Action was intended to reach preliminary conclusions on the treatment needs for EU citizens in the event of a radiological accident or incident.

Added/updated: 17 August 2009

- [Health Risks from Radon](#)

Added/updated: 30 October 2009

- [IRID: Ionising Radiations Incident Database: First Review of Cases Reported and Operation of the Database](#)

Added/updated: 30 October 2009

- [European Advances in Radiological Protection: EC-NRPB Agreement of Association Project Co-ordinator Reports for 1996-99, Contract Number F14P-CT95000](#)

Added/updated: 30 October 2009

- [Royal Society Report on Depleted Uranium. Parts I and II](#)

Added/updated: 30 October 2009

- [Guidance on the Calculation, Presentation and Use of Collective Doses for Routine Discharges](#)

Added/updated: 30 October 2009

- [Locations of DNA Damage Response and Repair Genes in the Mouse and Correlation with Cancer Risk Modifiers](#)

Added/updated: 22 September 2009

- [Non-technical Summary - Locations of DNA Damage Response and Repair Genes in the Mouse and Correlation with Cancer Risk Modifiers](#)

Added/updated: 22 September 2009

- [National Protocol for Patient Dose Measurements in Diagnostic Radiology](#)

This protocol sets out nationally agreed methods for monitoring patient doses from routine x-ray examinations that can be easily carried out by radiographers with advice and assistance from medical physicists.

Added/updated: 2 October 2009

- [Diagnostic Medical Exposures: Advice on Exposure to Ionising Radiation During Pregnancy](#)

Added/updated: 2 October 2009

- [Guide to Dose Coefficients](#)

Added/updated: 30 October 2009

They seem to have been very busy with all these extra reports and do not seem to have published the Health Protection Matters journal since the Spring one. I do have for you though two press releases from HPA from their Autumn Conference at Warwick.

Still no basis for health effects from low level radiowaves, say biologists

Scientists probing concerns about health risks posed by mobile phones and their base stations, have discounted a theory suggesting low power radiowaves interact with living cells.

If the research had found evidence that the signal interacted with cells it would have been a major breakthrough in the understanding of how radiowaves, similar to those used by mobile phones, could lead to health effects.

Gemma Yarwood, a cell and molecular biologist at the Health Protection Agency, presented the findings at the HPA's annual conference at the University of Warwick.

"While we cannot rule out the possibility of health effects from mobile phones, at least we can feel confident that they could not occur in this way," she said.

The research involved the testing of a theoretical interaction mechanism suggesting that living cells possess nonlinear electrical properties. If they did, then there would be evidence of 'frequency doubling', whereby cells exposed at one frequency would generate a signal at double that frequency. The cells would, in effect, be acting as radio receivers.

Scientists from the HPA's Centre for Radiation, Chemical and Environmental Hazards, Radiation Effects Department, carefully tested 500 samples of 17 different kinds of cell using very sensitive equipment.

But the researchers, who were funded by the Mobile Telecommunications and Health Research programme and who worked with colleagues from the Universities of Bradford and Maryland, found no evidence of nonlinearity. If they had found evidence of this interaction it may have paved the way to understanding how such signals could cause health effects.

Gemma concluded: "Public concerns about health risks mean that the search for a biological interaction mechanism should continue."

- The available evidence to date suggests that exposures to radiation from mobile phones which are below ICNIRP (International Commission on Non-Ionizing Radiation Protection) guidelines does not cause adverse health effects to the general population. HPA recommends a precautionary approach to mobile phone technologies until more detailed and scientifically robust information on any health effects is available.

Pioneering technology will detect DNA damage to radiation incident victims

TOOLS are being developed for rapid detection of cell damage in victims of radiation and nuclear incidents. For years scientists have struggled to find quick ways of assessing the extent of radiation damage, at a cellular level, in those involved in radiological and nuclear incidents. Because of this bottleneck choosing the right treatment for people caught up in such incidents, but who are not suffering visible medical effects, can be slow.

Now scientists from the Health Protection Agency, the University of Oxford and the Gray Cancer Institute are in the process of creating devices which would look for evidence of radiation damage, specifically breaks in DNA strands, in blood cells and deliver results fast. Scientists behind the technology believe it could play a vital role in speeding up frontline treatment. Details of the emerging technology were revealed during a lecture at the Health Protection Agency's annual conference at the University of Warwick.

“If there was a major radiological or nuclear event the hospitals in this country could be overwhelmed,” said Dr Kai Rothkamm, head of Cytogenetics & Biomarkers at the HPA.

“This work is about enabling scientists to carry out accurate and rapid analysis of samples so that clinicians can then use the information in treatment – as well as reassuring those who are not affected.”

Current methods involve scientists taking blood samples, culturing white blood cells for two days, and analysing them to detect chromosomal abnormalities. But it is a slow and complex process. Existing UK lab facilities could handle about 100 samples in a week.

The new technology being worked on could test about 30 blood samples in an hour for exposure to critically high levels of radiation. If more time was available for analysis, it could also detect radiation down to the level of just a few millisieverts (mSv) although only if used within a few hours after the exposure. The average person in the UK is exposed to 2.2mSv of radiation from natural sources every year.

The estimate of the radiation dose received by the patient would then allow frontline medics to determine what kind of treatment would be best.

For now the research team behind the technology has prototype devices and is developing software for testing. But it's hoped when complete the equipment could fit inside a suitcase.

NEWS from AFFILIATES



NEWS FROM LabLogic

Buy a counter, get a free monitor

Until the end of the year, LabLogic is offering a free [Geiger Muller radiation contamination monitor](#) complete with source calibration certificate with all orders for its Triathler portable LSC / luminometer / gamma counter.

The [Triathler](#) is a robust and compact single-well counter with simple one button operation, ideal for analyzing batches of around two dozen samples. It can accept all vial sizes, from Eppendorf tubes up to 20 ml capacity, and over the years has proved itself as an indispensable portable monitoring device for many Radiation Protection professionals and research scientists



Buy 4 radiation monitors get a free replacement probe

Anyone who buys four or more Rad Monitor radiation contamination monitors from LabLogic before the end of 2009 will receive a replacement probe completely free of charge.

"Rad Monitors are exceptionally robust, but probes inevitably get damaged sooner or later because of day- to-day wear and tear," says LabLogic sales executive Scott Baker. "The cost of replacing a probe runs into three figures, so this offer gives a worthwhile discount on the cost of buying the new monitors."

There are three Geiger Muller-based Rad Monitors available for detection of 14C, 32P, 33P and 35S: the general-purpose [GM1](#), with a 28.5mm (1.125 inches) tube detector; the [GM2](#), which has a larger end window (45mm / 1.75 inches); and the [GM2-P](#) for monitoring surfaces, with a pancake probe and a large diameter GM tube.

Completing the range is the high-sensitivity, sodium iodide crystal-based [SD10](#), which has a scintillation probe for detecting X-Rays as well as Gamma emitters such as I-125 and Tc-99m.

RPS Training with RADMAN

RPS courses for those supervising work with laboratory radiochemicals

The next 2-day residential course, be held on 27th and 28th January in Macclesfield, covers:

- ◆ The typical inventory of radiotracers in research, their properties and relative hazards
- ◆ Statutory controls on handling, use and waste management
- ◆ Management systems for source accounting
- ◆ Experimental risk assessments
- ◆ Evening syndicate work involving lab-scale accidents
- ◆ The biological basis for dose limitation
- ◆ Management of incidents in the lab
- ◆ RPS duties and monitoring routines

The course is aimed at both new RPSs and RPS refresher, with particular emphasis on practical management of radiological protection in the lab, ensuring regulatory compliance and a clear understanding of the RPS role. Delegates attend from pharmaceutical/ biotech companies, research institutes and universities (15 places maximum).

All course details plus e-booking to be found at:

www.radman.co.uk/training/radiation-protection-courses-LRC2a.aspx

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Bollington
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Tel: (01625) 576000
Fax: (01625) 576001
Website: www.radman.co.uk

News from Pycko

Bill has a number of Xmas offers for you. Here are just a sample of what you could treat yourself to :-

A Mini 900 with MC 70A GM.
Mini 900 reads in uSv/hr.
1/2 scale to 1uSv/hr.
So all about reading around bgd.
Good condition sell at 2/3rds list price.

A ludlum model 19 has 1x1 Nal built in.
Nice and sensitive.
In a robust case.
Reading in uSv/hr.
Very good condition.
Price is £700.00

A ludlum model 5 has 2 internally compensated GM's. In a robust case.
OK condition.
Reading in uSv/hr.
Price is £500.00

A ludlum model 3 survey meter reading in uSv/hr.
With Ludlum 44-6 beta / gamma probe.
OK condition.
Price is £400.00

Contact Bill Snooks for more offers and further details – b.snooks@pycko.freeserve.co.uk

News from PerkinElmer

DSB Active Network became the new courier for radiochemical distribution from PerkinElmer in the UK on 1st September 2009.

One of the major advantages the DSB Active Network offers is a track and trace facility which provides live proof of delivery and estimated time of arrival information. In addition safety and regulatory compliance issues are of paramount importance for this type of delivery service, and DSB have been fully audited by Department for Transport, the HSE, Environment Agency and NaCTSO.

The network has been able to prove to the above Regulatory bodies that all drivers are fully trained ADR drivers with trained warehouse personnel totally compliant and conversant with all the Regulations. A professional Dangerous Goods Safety Adviser is employed to regularly audit and assist in maintenance of correct systems of work, in addition to an RPA to ensure all staff adhere to ALARP principles. All depots have on site RPS cover, and sites at Didcot and Rawenstall have Environment Agency Authorization for storage of certain materials.

As you may be aware PerkinElmer have now acquired the remaining RAD Catalogue from GE/Amersham and will continue along with the new couriers DSB to provide a first class efficient service to customers. They also have in stock the complete range of Radiation Safety equipment from GE/Amersham to complement some they already supply.

Images and on-line ordering will be available soon but for now details are available below:-

Radiation Safety Shield, Gamma Catalog # RPP-GS15LC £1,330.00

Large fixed 45° degree angle shield with a curved base for use with Gamma radioisotopes. The fixed 45° angle shields provide clear, non-distorted vision reducing light images and shadows, especially when the user is in a standing position.

Radiation Safety Shield, Beta (45° Angle) Catalog # RPP-S45L £182.00

Large Fixed 45 degree angle shield with a flat base for use with Beta radioisotopes. The 45 degree angle provides clear non distorted vision reducing light images and shadows, especially when the user is in a standing position

Radiation Safety Shield, Beta (15° Angle) Catalog # RPP-S15LC £141.00

Large fixed 15° angle shield with a curved base for use with Beta radioisotopes. The shield provides clear, non-distorted vision, reducing light images and shadows especially when the user is in a seated position.

Radiation Storage Box, Gamma (Large) Catalog # RPP-GB14 £1,460.00

Large storage box with hinged lids for Gamma radiation protection.

Radiation Storage Box, Gamma (Medium) Catalog # RPP-GB6 £740.00

Medium Storage Box with hinged lid, for Gamma radiation protection.

Radiation Storage Box, Beta (Medium) Catalog # RPP-B6 £139.00

Medium Storage Box with hinged lid, for Beta radiation protection

Safety Tray (Extra Large) Catalog # RPP-TY11354 £121.00

External dimensions 113 x 54cm, Internal dimensions 100 x 42cm The rigid PVC base features specially designed stabilizing edges and rounded corners for easy cleaning.

Safety Tray (Large) Catalog # RPP-TY6854 £ 96.00

External dimensions, 68 x 54cm, Internal dimensions 56.5 x 42.5cm. The rigid PVC base features specially designed stabilizing edges and rounded corners for easy cleaning.

Safety Tray Liners (Extra Large) package of 25 Catalog # RPP-TL11354 £177.00

External Dimension 113 x 54cm, Internal dimension 100 x 42cm – package of 25 Unlike disposable paper bench protectors, tray liners are reusable. Additionally, the liner's non-porous surface allows valuable samples to be retrieved - something which is clearly not possible with absorbent paper protectors. For use with Safety Tray (Extra Large) Catalog # RPP-11354

Safety Tray Liners (Large) package of 25 Catalog # RPP-TL7046 £148.00

External Dimensions 70 x 46cm, Internal dimensions 57 x 35cm – package of 25. Unlike disposable paper bench protectors, tray liners are reusable. Additionally, the liner's non-porous surface allows valuable samples to be retrieved - something which is clearly not possible with absorbent paper protectors. For use with Safety Tray (Large) Catalog # RPP-TY6854

Radiation Waste Bin, Beta Catalog # RPP-B12 £107.00

Capacity, 1 liter. Covered Radiation Waste Bin for Beta Radiation. For use with Radiation Waste Bags (package of 25) Catalog # RPP-BAG17

Radiation Waste Bags (package of 25) Catalog # RPP-BAG17 £59.00

Dimensions, 120 x 120 x 120mm. Heavy-duty, double heat-sealed 500 gauge polyethylene with double sting neck pull with radiation label. Package of 25. For use with Radiation Waste Bin, Beta RPPB12



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HSE Consultative Document CD227 - Control of Artificial Optical Radiation at Work Regulations

The European [Physical Agents \(Artificial Optical Radiation\) Directive](#) was published in the Official Journal of the European Communities on 27 April 2006 (Ref: L114). The Directive requires each Member State to bring into force laws, regulations and administrative provisions necessary to comply with this Directive by 27 April 2010.

In preparation for and to support implementation of the Directive within Member States, the EC commissioned and funded the Radiation Division, Health Protection Agency (HPA) to produce a non-binding guide. The [Non-binding guide](#) to the Artificial Optical Radiation Directive 2006/25/EC is freely available as a pdf download. The guide includes many different worked examples and is very comprehensive; it should be read in conjunction with Directive 2006/25/EC (the Directive) and the Framework Directive 89/391/EEC. It is primarily intended to assist employers (in particular small and medium-sized enterprises).

Following on from publication of the non-binding guide, the Health and Safety Executive (HSE) have now published a consultative document on the legislation to implement the Directive ([CD227](#)). HSE is seeking views on any aspect of the consultation but in particular if the guidance is of value in identifying whether employers are affected, the extent to which they be affected (intentionally or unintentionally) and whether all issues have been covered.

The proposed Statutory Instrument (covering UK) will be the *Control of Artificial Optical Radiation at Work Regulations 2010* (made under the Health and Safety at Work etc Act 1974) and will come into force on 27 April 2010. Employers are required to ensure that any risks of adverse health effects to the eyes or skin of employees as a result of exposure to artificial optical radiation identified in revised risk assessments are eliminated or reduced to a minimum. The new regulations very much parallel the hierarchy of the Management at Work Regulations 1999 and will require a review of any applicable assessments made under these. If appropriate and necessary, a revision is required to be made and appropriate actions taken including the update of 'Information and training' provided.

Health surveillance and medical examinations are included within the Regulations but these are specifically related to adverse health effects to the skin of employees as a result of exposure to artificial optical radiation. Eye examinations and adverse health effects leading to well documented occupationally acquired conditions, such as cataracts and photokeratitis (arc eye), appear to have been excluded from this scope.

At first sight the proposed regulations appear quite straight forward. However, the issue with most will be how much effort is required to show compliance with the regulations and to what extent can employers apply generic risk assessments to particular applications. By HSE's own admission in the consultative document *'There are very few cases of ill health or major injury arising from exposure to artificial optical radiation officially reported to HSE under the Reporting of Injuries, Diseases and Dangerous Occurrences Regulations 1995. However HSE is aware of anecdotal evidence of exposures resulting in short term, acute eye conditions (for example arc eye in welders) as well as skin burns (for example from UV fluorescence in research)'*. HSE estimates that the new Regulations could result in the prevention of between 5 - 200 cases of minor injury each year.

Annex B to the Consultative Document is the proposed HSE leaflet 'Intense Light at Work Guidance for employers on the proposed Control of Artificial Optical Radiation at Work Regulations 2010'. The leaflet gives examples of the sources of light that can cause harm and the activities where these are used and what should be done to manage the risks.

HSE are seeking responses to the consultative document and have included a number of questions in a proforma response template which can be [downloaded or completed on-line](#). The questions posed are given below:

Questions HSE are asking in response to CD227 - Control of Artificial Optical Radiation at Work Regulations

Question 1 - Does the guidance in Annex B help you to identify those sources of light in your workplace that are safe and require no further assessment? If no, what additional sources should be listed as safe or what sources are you unclear or concerned about?

Question 2 - Does the guidance in Annex B help you identify those particularly intense sources of lighting in your workplace that are hazardous? If no, what additional sources should be listed as potentially hazardous or what sources are you unclear or concerned about?

Question 3 - Is the filter in Regulation 3 clear in helping you decide whether or not you will need to do more? If no, what extra would you like to see?

Question 4 - Does the guidance in Annex B help you understand what you should already be doing to protect workers' eyes and skin? If no, what areas would you like to see covered in additional guidance?

Question 5 - Does the guidance in Annex B help you to understand what more you need to do if you are not already protecting your workers' eyes and skin? If yes, please give further details.

Question 6 - Do you think the assumptions used to calculate the costs for familiarisation, risk assessment and control in the impact assessment in Annex C look reasonable? If no, please give further details.

Question 7 - Are there any costs or benefits which are not detailed in the impact assessment in Annex C which you think we need to consider? If yes, please give further details.

Question 8 - Are there any further comments you would like to make on the issues raised in this consultation that you have not already responded to in this questionnaire?

Question 9 - Is there anything you particularly liked or disliked about this questionnaire? Please provide your comments.

If responding directly to the HSE, responses to CD 227 should be addressed as detailed on their CD webpage <http://www.hse.gov.uk/consult/condocs/cd227.htm> by 5 February 2010.

AURPO Members can send their own responses to the HSE if they wish. The intention is to submit a response on behalf of AURPO and therefore your input is required to make this a representative response. We ask that you (or the appropriate person in your Institution) look at the Consultative Document and the particular questions asked by the HSE and send a copy of your response to Gus Zabierek, e-mail: g.a.zabierek@bham.ac.uk.

So is the guidance of value on identifying whether employers are affected, the extent to which they be affected (intentionally or unintentionally) and whether any issues have not been covered?

PLEASE SEND YOUR COMMENTS OR RESPONSES to Gus Zabierek, e-mail: g.a.zabierek@bham.ac.uk by 23rd January 2010 or sooner so that a collated response can be made on behalf of AURPO by the HSE deadline.

IRPA 2012 NEWS

Message from Roger Coates, Congress President and Chair of the Organising Committee of IRPA13 (*taken from IRPA13 website - <http://www.irpa13glasgow.com/>*)

The Society for Radiological Protection (SRP) is very pleased to announce the success of the bid to host the next International Radiation Protection Association (IRPA) Congress which will be held at the Scottish Exhibition and Conference Centre (SECC), Glasgow, 13 – 18 May 2012.

International delegates voted during the 2008 IRPA General Assembly in Buenos Aires for the UK to host IRPA13 in 2012. The SRP bid, which had the support and involvement of our UK partner societies involved in radiological issues in medicine and academia, was widely supported by IRPA Associate Society delegates.

As Congress President and IRPA Vice President for Congress Affairs I will chair the Organising Committee (ICOC). The members of the former Bid Team, Bobby Corbett, Neil Lewis, Rachel Smith and Chris Perks, form the core of the Organising Committee, and other key appointments have been made from the experience within the SRP: Geoff Webb, George Sallit, Colin Partington and Sheila Liddle.

Ted Lazo (Nuclear Energy Agency) has been appointed by IRPA to Chair the International Congress Programme Committee (ICPC). He will be supported by Rachel Smith (UK Health Protection Agency) as Secretary of the ICPC. A Core Group of 20 members have been appointed to guide the development of the programme.

We are very honoured to be hosting the next IRPA Congress in Glasgow. We thank all those who supported us during our bid stage and especially those IRPA delegates who voted for us. We very much look forward to welcoming our colleagues to Glasgow for an excellent Congress in 2012, and in particular to delivering on our Congress theme - Living with Radiation – Engaging with Society.

SRP were supported in their bid by their local partners in Glasgow who include, Glasgow City Marketing Bureau, the SECC and our Professional Congress Organiser, Congrex UK.

We will be updating this website (<http://www.irpa13glasgow.com/>) in the coming months to provide further details of the plans and arrangements for IRPA13 so please visit on a regular basis. Again many thanks for your support to date and very much look forward to welcoming you to Glasgow in 2012 for what we are sure will be an exceptional IRPA Congress.

Roger Coates

BOOKS AND PUBLICATIONS

Selection of recent publications from IAEA – all available as free downloads from –
<http://www-pub.iaea.org/MTCD/publications/ResultsNew.asp?p=1>

Borehole Disposal Facilities for Radioactive Waste Safety Guide

IAEA Safety Standards Series No. SSG-1

STI/PUB/1418, 100 pp.; 2 figures; 2009
ISBN 978-92-0-109109-3, English. 32.00 Euro

Regulations for the Safe Transport of Radioactive Material, 2009 Edition Safety Requirements

IAEA Safety Standards Series No. TS-R-1

STI/PUB/1384, 156 pp.; 2009
ISBN 978-92-0-511609-9, Chinese. 54.00 Euro. Date of Issue: 12 November 2009.

Quality Assurance Programme for Screen-film Mammography

IAEA Human Health Series No. 2

STI/PUB/1381, 221 pp.; 91 figures; 2009
ISBN 978-92-0-101609-6, English. 55.00 Euro

Release of Patients After Radionuclide Therapy

Safety Reports Series No. 63

STI/PUB/1417, 77 pp.; 1 figures; 2009
ISBN 978-92-0-108909-0, English. 28.00 Euro. Date of Issue: 4 December 2009.

E-Learning Tools for First Response to a Radiological Emergency

Emergency Preparedness and Response

EPR-First Responders/E-Learning (2009), 2009, English, CD-ROM. Date of Issue: 24 June 2009.

A HPA publication that Trevor missed!

Application of the 2007 Recommendations of the ICRP to the UK – HPA - RCE 12

http://www.hpa.org.uk/web/HPAwebFile/HPAweb_C/1246519364845

EA/SEPA publications

Radioactive Substances Regulation: Assessment of Best Available Techniques (BAT)

<http://publications.environment-agency.gov.uk/pdf/GEHO0709BQSA-e-e.pdf>

Radioactivity in Food and the Environment, 2008 – RIFE 14

http://www.sepa.org.uk/radioactive_substances/rs_publications/idoc.ashx?docid=6a9f01c6-44a2-4a3a-8d2b-8787907170d1&version=-1

Of topical interest with regard to CT doses in USA

NCRP Report No. 160, Ionizing Radiation Exposure of the population of the United States, Medical Exposure - are we doing less with more, and is there a role for Health Physicists
Health Physics, Vol. 97, No. 1, July 2009

In 2006 the effective dose per individual in the US from medical exposure was 3mSv.

Other articles of interest

Richard Wakeford

Radiation in the workplace – a review of studies of the risks of occupational exposure to ionising radiation

Journal of Radiological Protection, Vol. 29, No. 2A, June 2009

Jean-Claude Nenot

Radiation accidents over the last 60 years

Journal of Radiological Protection, Vol. 29, No. 3, September 2009

John Scott, University of Leicester

SNIPPETTS

X-rays 'top scientific invention'. The public has voted the x-ray machine as the best invention over the Apollo 10 space capsule and Stephenson's rocket.

Nearly 10,000 people named it as the clear winner for having made the greatest impact on the past, present and future. (*reported by Mark Ramsey*)

It's a good job they did the survey before the latest scare stories came out in the press about high doses from CT scans in the States. It's worth having a look at the NCRP report referenced above. Because of the much greater use of CT in the States, often through 'self referrals', the per capita dose from medical exposures is 10 x greater than that in the UK.



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AURPO Subscription Form 2009-2010

To all Members

The annual subscription of £25 (£10 for retired members) to the Association is due on the 1st July 2009. Members who attend the Annual Conference in September may pay the subscription fee at the time of registration.

Please fill in the form below. If paying by cheque make it payable to AURPO, attach it to this page and send it to me at the address below.

If paying by other way, *regardless of the method*, or not renewing your membership, please complete the form below and **e-mail it back to me**.

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Please note that it is now a condition of membership that all subscriptions must be paid by **30th September**, but unless paying via the Conference, please pay as early as possible, any time from now on.

Thank you

Gillian Glazier

Honorary Treasurer

(NB full contact details on page 1)