



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

December 2013

AURPO NEWSLETTER

Editor T.J.Moseley

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(NB one form for members another for affiliates)

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EDITOR'S INTRODUCTION

Welcome to the December edition of the Newsletter and a Happy Christmas and New Year to all our readers.

Unfortunately I was unable to make the Edinburgh Conference – and missed a great event by all accounts - but I managed to get some reports for you with help from Chris Bull, David Plumb and Brian Heaton (see page 6).

I must apologise to Ralph Whitcher (CLEAPPS) as I discussed an article with him back in the Spring on the revised L93 document and then forgot to publish it! – update in this issue on page 21.

STC are working up a program for next September's conference. At the moment it looks like we will be having a regulatory update on the Monday afternoon covering RWA (radioactive Waste Advisor), BSS (implementation of new Basic Safety Standard), EMF (implementation of new EU Directive) and possibly a laser standards update. The main scientific program will be on risk and risk management. An outline program will be ready for the next newsletter. If members have ideas or topic areas that they feel we have overlooked, or they would like to see covered in future scientific meetings all ideas or suggestions will be gratefully received by Mike Sobanski at Cardiff (sobanski@cf.ac.uk)

PS Don't forget to renew your subscription –see reminder from Treasurer from page 31

Expect Spring edition of newsletter for just before Easter – contributions by end of March please.

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MEMBERSHIP NEWS

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

Toby Garrud	RPS Group
Mark Harrup	The Maynard Centre
Jim Hunter	UEA
Malwina Niemczyk	Cancer Research UK
Christopher Richardson	Bedford Hospital
Allan Seini	Ranger Uranium Mine, Australia

And the following Affiliate Member:-

Robert McGeary	L2 Business Consulting Ltd
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New Life Members

Citation – Brian Heaton



Brian grew up in Colne, Lancashire and attended the local grammar school where he developed his interests in science, rugby and hill walking/climbing. He went on to study at UMIST where he gained a B.Sc. (Hon) in Physics before embarking on an M.Sc. course in Radiological Health and Safety at Salford and then a Ph.D. at Aberdeen.

He moved to Aberdeen in 1970 as a lecturer in the Biomedical Physics Department at Aberdeen University. Whilst in post, he completed his PhD on the Measurement of Radioactive Effluent in a Coastal Environment. He became Head of the Radiation Protection Section and a Senior Lecturer in the University within an active research group. The section was also responsible for advising the hospitals in the Grampian Region and was actively involved in the Radiologist training program. Through this work he was involved for several years with the Royal College of Radiologists and was awarded honorary membership of the College for his services to their examination board. His joint book with Philip Dendy on the Physics of Radiology is now in its 3rd edition.

He has been an RPA since they were invented.....when all that was required in those days was a letter from a friend saying what a good chap you were. You did have to reciprocate and write a similar letter for him but that took a lot less time than producing a portfolio!

He took semi retirement from the University in 2001 and set up a consultancy company, Aberdeen Radiation Protection Services. He went back to the University role for several years as joint head of the Radiation Protection Section for NHS Grampian in 2005.

Aberdeen Radiation Protection Services now employs 6 RPAs/trainee RPAs and works widely in West Africa, South America and the Middle East. Although primarily working in the oil and gas sector, Brian still acts as an external RPA to an ancient Scottish University and periodically gets asked to undertake small projects by the NHS.

He is a long standing member of AURPO and has been a member of the Scientific & Technical Committee for many years acting as chairman for the years when Trevor needed a rest from doing it. He is also very keen to support young persons coming into Radiation Protection and was a founder member of the group, along with Trevor Moseley and Kevin Connor, that set up the Strathclyde Course and is still a Tutor and course organiser for the course.

Brian has headed up many development and research projects over the years and has a raft of publications to his name.

Outside of work, Brian has many interests, particularly those which feed his passion for hill walking and climbing. He has one more munro to do (Ben Nevis) then he will have climbed them all – 282 in total. He walked the Inca Trail 2 yrs ago and last year white water rafted through the Grand Canyon. For his next adventure, he is planning a trek to the base camp of Everest! Together with his busy work schedule which often takes him overseas, all of this leaves him very little time for other activities and we are told he has spent the last nine years renovating a cottage.

Brian has devoted much time and expertise to AURPO over the years and is a very worthy recipient of this life membership award.

Citation – John Makepeace



After studying 'A' level Physics, John joined the National Physical Laboratory in 1970 as Scientific Assistant. Whilst at NPL, John continued to further his education and gained a HNC Physics from Kingston Polytechnic in 1974 with a Distinction in Applied Physics. He then went on to obtain a HNC Endorsement in Atomic & Nuclear Physics from Guildford Technical College in 1975.

His career at NPL developed gaining several promotions over the years and in 1992 he undertook the NRPB Post Graduate Radiological Protection Course before gaining an SRP/IPEM Certificate of Competence to Practice and Advise in Radiation Protection. He was Head of Radioactivity Section. His early practical work at NPL included radioactive source preparation techniques and measurement, maintenance of national standards for radioactive gases, absolute radionuclide standardisation, neutron activation analysis and gamma-ray spectrometry.

Today John holds an RPA2000 Certificate of Competence and is appointed Radiation Protection Adviser for NPL as a member of their Corporate Assurance Team. He is Head of their Health Physics Unit and is also appointed as RPA to many schools and colleges of Further Education. He is the joint author of numerous publications, mainly related to radiological standardisation, measurement and survey.

John joined AURPO in 1998 and after some persuasion (*involving several pints of beer!*), joined the AURPO Executive as an Observer in 2004. He became a full member of the Executive in 2005 (*well he must have liked it!*) and in 2007 took on his current role of Honorary Secretary to the Association. As Honorary Secretary, John has a range of duties to fulfil including the unenviable task of chasing up reports from all of the AURPO committees....a rather thankless task but which he does very conscientiously and with great success. He has also represented AURPO on the SRP International Committee from 2006 – 2008 and is a member of SRP.

John has been the Corporate Social Responsibility Champion for NPL for the past ten years and devotes a significant proportion of his time in the organisation of many events aimed at raising money for charity such as the Annual Charity Walk, Charity Golf Days, book sales and other one-off charity activities.

Outside of work, John is a keen golfer and keeper of Ben and Bernie, his two golden retrievers who he often takes on long walks....to the pub!

Later this month, John has entered the Memory Walk in aid of the Alzheimer's Society, a charity very close to his own heart having lost his Father to the disease. It's a ten mile walk....and incidentally he has never walked ten miles in his life.....maybe Brian could give him some tips! *And a plug from me....if anybody would like to sponsor John, please see us later for details!!*

It gives me great pleasure to commend John as a very worthy recipient of this life membership award.

Christine Edwards MBE
AURPO Executive Committee

PRESIDENT'S REPORT



Once again, this year we had a splendid annual conference in Edinburgh. My thanks go to Colin Farmery, Mark Green and the team at the University of Edinburgh for their excellent organisation and for facilitating such a memorable event. I would like to thank all of our members who attended as without your support there wouldn't be any conference. My sincere thanks also go to all our Affiliate members for their unfailing and generous support each year.

This year, the AGM was very well attended. I was very pleased to be able to congratulate one of our distinguished members, Christine Edwards, on receiving the MBE for Services to Higher Education and to also present awards to two new Life Members, Brian Heaton and John Makepeace.

Next year, having taken on board feedback from members on the burden of being away from the workplace and ever increasing work commitments, we have decided to move the conference to the beginning of the week in order to minimise disruption. This will also be the first time that the AURPO Executive has had to organise an annual conference at a commercial venue.

As the venue for next year is in the Midlands, which is well served by public transport links, we will start the conference on the Monday lunchtime to allow delegates the opportunity to travel on Monday morning and we will finish on the Tuesday night with the Conference Dinner as usual. This means that delegates attending the full programme could be back at their desks by Wednesday lunchtime! Please make a note in your diaries now - **AURPO Annual Conference 1st – 2nd September 2014 at the East Midlands Conference Centre, University Park, Nottingham.**

The following year in 2015, we will hold the conference in Eastbourne and further details of this event will be announced in the near future.

Despite our best attempts, the AURPO Executive is still failing to persuade enough of our members to come forward with offers of help in running the Association's business. To ensure that AURPO continues to be at the forefront of its field, it is imperative that we get the assistance of more members. The matter lies firmly in your hands.....as they say, 'You can't clap loudly with just one hand, can you?' Any ideas or offers of help of any kind would be very much appreciated - after all, the Association belongs to all of its members!

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

Finally, I cannot finish this report without thanking all of my team, consisting of members of the Executive Committee and its working groups and the Scientific and Technical Committee who volunteer their precious time and effort in assisting with more technical aspects of the AURPO business.

I wish a Merry Christmas and a Happy New Year to you all.

Sonia Nuttall
27th November 2013

Edinburgh Conference 2013 - Meeting Report

Below are some abstracts from the presentations given at the conference. Where practical we have uploaded the presentations themselves on to the aurpo.org website – they can be accessed via the members section (*after log-in click on the far right dropdown window*).

Tuesday PM - 'A Fresh Approach'

Proceedings were started off by **Mark Bradley (Oxford University)** who gave an insight and **demonstration of interactive polling** using the *Turning Point* software that is used by the University of Oxford during its RPS training courses, using training scenarios loosely associated with laboratory clearance and decontamination. His overview follows :-

We've all stood in front of an audience and hoped for some kind of interaction. Some feedback to indicate that the sounds floating across the lecture theatre are being registered, understood and hopefully retained for future deployment in the workplace. You hope for some interaction to bring the session alive. A question? A challenge! Some banter! Rather than a passive collection of souls co-existing for a couple of hours merely to absorb sounds in order to tick a box in their departmental training schedule. There's only so much you can give, isn't there? Not really.

With some relatively inexpensive software and a review of how you present the information on your slides, you can produce very interactive sessions for any size of audience that don't allow people to stop thinking at any stage. Training sessions can also double as a test of every audience member's grasp of the subject, where a need for some confirmation of understanding is necessary. Results can be retained, scrutinised and even used to demonstrate compliance under regulatory scrutiny. Best of all though, it gives the delegates something to do with their hands during the session! It's a bit like 'ask the audience' in 'Who wants to be a Millionaire' but you can also get a score for each participant over a series of questions.

Dr David Coplestone (University of Sterling) gave us a presentation on **ERICA – Radiation Effects on Animals**. The presentation gave an update on recent developments.

Over the last 15 years there has been increasing recognition of the need to demonstrate that the environment is protected from authorised releases, and to better understand the potential consequences of accidental releases, of radioactive substances. There have been a number of recent developments at the international level with the ICRP system of radiological protection being expanded to incorporate protection the living components of the environment across all exposure situations. The IAEA Basic Safety Standards have also specified the need to protect "people and the environment". Furthermore there have been a number of assessment tools developed along with international collaborative efforts to produce radiation effects and radionuclide transfer databases for use within the tools.

There are a number of examples of assessments that have been conducted within different countries: for example The UK has a duty to comply with the EU Birds and Habitats Directives (Council Directives 79/409/EEC on the conservation of wild birds and 92/43/EEC on the conservation of natural habitats and wild flora and fauna) when planning and undertaking all of its

regulatory and operational activities. These European Directives were introduced into UK legislation by the Conservation (Natural Habitats & c.) Regulations 1994. These Directives established and protect a network of conservation areas across the EU called 'Natura 2000'. Natura 2000 is made up of sites designated as Special Areas of Conservation (SACs) and Special Protection Areas (SPAs).

Under the Habitats Regulations, the UK environment agencies have obligations to review relevant existing authorisations, permits, consents, licences and permissions (collectively referred to as permits) to ensure that no authorised activity or permission results in an adverse effect, either directly or indirectly, on the integrity of Natura 2000 sites. In addition, any new or varied permits must not have an adverse effect on the integrity of the Natura 2000 sites. This requirement applies equally to chemical and non-chemical stressors (such as water abstraction). Within the UK, it was decided that the review should also include the authorised discharges of radioactive substances to the environment.

Erlend Bolle (Correntium) gave an overview of measurements methods and intercomparison results of passive and active radon detectors. The focus was on long term measurements and studies of temporal variations of radon. 40 participants sent 18 detectors to the Bundesamt für Strahlenschutz test center. Two sets of 6 monitors were exposed to a known exposure of radon ranging from 180 to 2800 kBq m⁻³ h. The third set of detectors was used as a control to measure the exposure in transit. After exposure the detectors were returned to the parent organisation for measurement and then the results were returned for intercomparison. The canary digital radon detector manufactured by Correntium was shown to have high precision (small standard deviation in results) and a mean accuracy of approximately 10%. This compared well with the other passive and active detectors which typically showed an accuracy of ±20% but were less precise.

Dr Andrew McEwen (Quotient Research) gave a presentation on non-radioactive alternatives to radiological techniques. The direct analysis of tissue sections using matrix-assisted laser desorption ionization (MALDI) imaging mass spectrometry (IMS) is an emerging technology based on a surface sampling process. The technique allows analysis and visualization of endogenous proteins and peptides as well as exogenous molecular species, such as administered pharmaceuticals, within the same tissue section with high molecular specificity. MALDI imaging has been shown to provide data analogous to whole body autoradiography (WBA) providing highly selective analyte data. MALDI has also demonstrated its value in elucidating mechanisms of biotransformation as well as drug transport in tumors.

For MALDI to fulfil its full potential, quantitative MSI information is needed to complement safety and pharmacokinetic data, to help selection of compounds in early drug discovery, and to determine effective concentrations at the site of action.

The talk introduced the technique and discussed the challenges associated with quantification in MALDI imaging.

It should be noted though that in response to a question Andrew stated that the alternative techniques he talked about are many times more expensive than using radionuclides.

Wednesday AM – ‘How Clean is Clean?’

The keynote speaker this year was Helen Eadie (MSP). She gave an insight into the problems faced by a politician when dealing with issues of contaminated land (in her case Dalgety Bay) . Balancing the concerns of her constituents against the position of the regulators and the advice of scientists was not easy. She was very keen to express the view that full discussion as soon as possible between all interested parties was the best and easiest way to progress matters. Tragically Helen died last week following a very short illness.

Phil Fahey (Environment Agency) gave a presentation on the **EA expectations and guidance on decommissioning and surrender.**

In England and Wales the keeping and use of radioactive material and the accumulation and disposal of radioactive waste, is regulated under the Environmental Permitting Regulations 2010 (EPR2010).

When an operator wishes to stop using radioactive material or wishes to move from site they will usually submit an application to “surrender” their permits. In these cases, the operator will normally need to convince the Environment Agency that there is no radioactive legacy left on site before a surrender notice will be granted.

Sites which have a legacy of radioactive contamination from past practices often become suitable for development. The use of radioactive material and the disposal of radioactive waste may have taken place before regulations were in force. This may lead to developers and land owners having to deal with potential accumulation and disposal of radioactive waste from such practices. This will often mean requiring a permit.

This presentation outlined what the Environment Agency expects when operators come to surrender their permits. The presentation also gave an idea of what the Environment Agency’s interest is in surrender and decommissioning. It touched on the meaning of contaminated land and described some of the issues surrounding sites contaminated with radioactivity and how a strategy can be developed for remediation.

Adam Stackhouse (SEPA) gave a presentation on what the Environment Agencies expect when an area is decommissioned and a licence is partially or completely surrendered. He emphasised the need to ensure that contamination is removed from furnishings, floors, extractor systems, plumbing etc. It was emphasised that the agencies were focused on ensuring that organisations do not leave a legacy of radioactive contamination. The optimisation of potential exposure to the public was discussed. Decommissioning should aim to reduce current and future radioactive exposure to the public as low as reasonably achievable and should achieve a trivial dose below the threshold of 10µSv a year. It was suggested that the agencies should be involved in any major decommissioning project as soon as possible. This would ensure that mistakes were not made, that there were no misunderstandings as to what was required resulting in unexpected requirements or wasted efforts. It was also suggested that areas are decontaminated as soon after work had stopped as possible so that the workers knowledge of the area is fresh, records can be more easily located and contamination is less widely spread and easier to clear.

Paul Day (SEPA) looked at the **radioactive contamination of Dalgety Bay.** Radioactive contamination has been detected since at least 1990 on parts of the foreshore at Dalgety Bay, Fife and on land adjacent to the foreshore and in garden land that was part of the former Donibristle

airfield. The contamination is from the long lived radionuclide radium-226 which together with its decay products can pose a significant hazard to human health via skin contact, ingestion, inhalation or external irradiation. Physically it is in the form of solid radioactive sources of various shapes and physical sizes. Since 1990, episodic monitoring at Dalgety Bay has continued to recover radioactive sources/items from the beach. In the past, there have also been a number of investigations and remediation work has been undertaken to reduce the hazards in residential gardens, the most recent of which was performed by the MoD. In 2011 SEPA found numerically more and more hazardous sources which resulted in SEPA concluding that if necessary parts of the site could be formally designated as Radioactive Contaminated Land which if it were designated would be the first such site in the UK.

Wednesday PM

Darren Bungay (Radiation Metrology Group, CRCE-PHE) gave a presentation on – **Monitoring of Decommissioning – experiences of de-licensing a ^{14}C and ^3H laboratory.** The first phase of the decommissioning was to gather together as much information as possible on the usage within the laboratory. This includes talking to staff and bringing together all available records of isotopes used, radioactive spills, waste pathways etc. As the contamination was likely to be from C-14 and H-3 monitors could not be used to survey the area. To determine the presence and magnitude of contamination across the laboratories it was necessary to take and test samples across the site. To ensure that an adequate number of samples were taken a grid of sample points was set out across all areas with finer grids used in areas where there had been known use of radionuclides. The drains and any ducting were also covered. This involved looking at samples from all surface types and also drilling into some of the structures (such as concrete) to obtain the depth profile of the contamination. How the samples were taken, labelled and stored was discussed with emphasis on ensuring that the samples were sufficiently large for repeat measurements, the precise location was recorded, that cross contamination was avoided and that the sample was taken and stored in such a way as to not affect the accuracy of the result. The survey was both time consuming and expensive. Dose assessments to the public of any remaining contamination was assessed.

Peter Burgess (Nuvia) and **David Plumb (Cambridge)** covered a presentation on **Decommissioning a legacy Chemistry facility at Cambridge.**

Abstract of presentation: Cambridge University had worked in the 1960s and 1970s with Pa-231, a decay product of U-235. The fume cupboards discharged into ventilation ducting made from asbestos cement. The university wished to refurbish the laboratory and the RPA had negotiated over many years with the Environment Agency to set up a project to remove the ducting both to reduce the radiological hazards and as part of a programme to remove unwanted circuits and upgrade the ventilation system to modern standards. Contamination levels were significant and low dose rates were measurable on the external surface. The aim was to be able to remove the ducting and treat it as asbestos waste, rather than to have to treat the debris as asbestos contaminated radioactive waste. The age of the contaminant was such that a large fraction of the decay chain had grown in, giving a mixture of alpha, beta and gamma emissions. The other problem was dealing with the soft waste produced during the dismantling process. This was monitored using simple equipment and it was possible to demonstrate that it could be disposed of with the rest of the waste under the relevant UK legislation.

Glenn Hardcastle (Aurora) gave a presentation on **Dealing with waste and interaction with other legislation.** The presentation focused on the decommissioning of laboratories or other areas which presented various chemical, biological and radiation hazards. The importance of keeping

adequately detailed records was emphasised as these records or local knowledge can considerably simplify the task. The decontamination of areas needs to be thorough and include all surfaces, storage areas, ducting and drains. Areas that have contained radioactive material have to be returned to radiation levels that are below regulatory concern and all waste needs to be appropriately disposed of. In returning the site to a safe condition all health and safety regulations need to be borne in mind including a wider awareness of control of asbestos, biohazards, working at height, confined spaces etc.

John Croft (HPA, retired) gave a presentation on **accidents and incidents** that he had been involved in. Over the years he has been involved in responding to, or investigating, a wide range of radiation accidents. The presentation provided a very personal view of some of the accidents, plus some of the quirky practicalities and experiences. Hopefully it provided a spectre of the last few decades with some lessons identified.

It included:-

- A radiography accident involving Tm-170 that caused significant contamination.
- Snapshots of experiences in Leeds during Chernobyl
- Goiania: scale and impact.
- An Irradiator accident in El Salvador – that went beyond the initial accident.
- A radiography accident in Cachabamba, Bolivia - exposed coach passengers.
- NAIR and accident databases (IRID and Othea)
- Developing HPA Emergency response arrangements and the Litvinenko incident.

Thanks to David Plumb (Cambridge), Chris Bull (Sheffield) and Brian Heaton for help in compiling this report.

HSE News

Latest position regarding the revision of radiation protection directives including BSS and outside workers directives can be found at –

<http://www.hse.gov.uk/aboutus/europe/euronews/dossiers/radiationprotect.htm>

Latest position re radon in the workplace including possibility of new 300 Bq/m³ action level for workplaces can be found in the following presentation –

http://ukradon.org/downloads/Forum/talk_2.pdf

When do I need to notify HSE?

If you intend to start work with ionising radiation for the first time you need to let HSE know **at least 28 days before** you start work. This is a requirement of the [Ionising Radiations Regulations 1999 \(IRR99\)](#). The Regulations may also require additional notifications for certain occurrences and work practices, such as carrying out site radiography.

Starting work with ionising radiation for the first time

If your work falls into any of the categories below, please click on the link to find out what you need to notify and to take you to the reporting form.

- If you are going to start work with ionising radiation for the first time, you are required to notify HSE at least 28 days before commencing work, unless your work falls into an exempt category. Details of the work that you do not need to tell HSE about can be found here (see [Work not required to be notified](#)).

Use form [IRR6 - Notification of ionising radiation activities](#) to notify HSE that you intend to start work with ionising radiation

Notifying changes to a previous notification

- Radiation employers need to inform HSE when the details of a previous notification are no longer correct, such as when:
 - the employer's details or those of their premises change
 - the source category changes
 - the source is to be used at a different premises

For example, if an original notification covered the use of an X-ray set but you decide to start using radioactive materials, you would need to notify this change to HSE.

Changes to a previous notification - use form [IRR6 - Notification of ionising radiation activities](#)

- Planning to undertake site radiography Site radiography contractors need to give HSE at least seven days advance notification of the proposed work. For further information on site radiography, click her to visit the industrial radiography web pages.

Site radiography, use form [IRR3 - Notification of intention to carry out site radiography](#)

Other notifications required under IRR99

Other reasons you may need to notify HSE under the IRR99 include:

- Nursing homes etc, when a patient has been given a radioactive medicinal product and are staying in, for example, a nursing home it is sufficient if notification is made by the nursing home as soon as practicable before the first instance of a patient arriving there.
- applications for individual prior authorisation to use electrical equipment intended to produce X-rays or use accelerators (other than electron microscopes) (see regulation 5)
- where a radiation employer suspects or has been informed that an overexposure has occurred (see regulation 25)
- notifications of certain occurrences such as losses, spillages or releases of certain quantities of radioactive substances (see regulation 30)
- where an employer suspects or has been informed that a person, while undergoing a medical exposure, was exposed to ionising radiation to a much greater extent than intended, as the result of a malfunction or defect in radiation equipment (see regulation 32(6))
- If you need to notify HSE or gain authorisation for any of these reasons please e-mail: irrnot@hse.gsi.gov.uk

(The above are extracts from the HSE's website on work with ionising radiations – check out - <http://www.hse.gov.uk/radiation/ionising/index.htm> for further information)

HSE Prosecution - NHS Trust fined after overexposure of radiologist

United Lincolnshire Hospitals NHS Trust has been fined after an interventional radiologist was exposed to significant amounts of ionizing radiation.

On 7th October Boston Magistrates' Court heard that an interventional radiologist working with a CT scanner at Pilgrim Hospital, Boston, received more than double the annual dose limit for skin exposure in just over three months.

As an interventional radiologist his work involved the insertion of biopsy needles into patients, which he carried out using the CT scanner operating in continuous "fluoroscopy" mode, giving "real time" x-ray images which he observed whilst standing next to the scanner.

The scanner, which the trust had bought in 2009, was used by a number of other consultants for the same purpose but they used the conventional "step and shoot" method which required them to leave the room when the CT scanner was generating x-rays.

However, when the interventional radiologist arrived at the hospital in August 2011 he favoured the fluoroscopy mode, operating the x-rays for periods of up to 30 seconds at a time. Moreover, whilst inserting the biopsy needles he placed his hands directly in the main x-ray beam, resulting in an overexposure of radiation to his hands.

An investigation by the Health and Safety Executive (HSE) found that the Trust had never carried out a risk assessment for the CT scanner operating in the fluoroscopy mode so a safe system of

work was not developed. In addition, managers were aware that this technique was being carried out but did not ensure proper procedures were followed.

United Lincolnshire Hospitals NHS Trust, of Greetwell Road, Lincoln, pleaded guilty to breaching Regulations 7(1) and 11 of the Ionising Radiations Regulations 1999 and was fined a total of £30,000 and ordered to pay costs of £15,128.

Speaking after the hearing HSE inspector Judith McNulty-Green said:

"The regulations require exposures to ionising radiation to be kept as low as is reasonably practicable. In addition there are dose limits which should never be exceeded. In this case the dose to the radiologist's hands was twice the relevant legal dose limit.

"As United Lincolnshire Hospitals NHS trust failed to assess the risk of this machine operating in continuous mode it led to the interventional radiologist being exposed to radiation for far longer and to a much greater extent than should have been allowed."

EA, DEFRA & DECC MATTERS

EA Small Users Liaison Group (SULG) No.41 Meeting Report

SULG met on 4th December for another useful meeting with our regulators. I attended the last meeting and have identified below some points of potentially wider interest to AURPO members. David Nicholson provided an Environment & Business update report.

Reducing Risk from Radioactive Sources Project

The EA are working with scrapyards to intercept orphan sources and securing their safe disposal in the future. Funding for the future is being discussed with Government and other UK agencies to try to ensure a legacy does not build up again. The scheme is it only covers England at present.

Strategic Review Response Programme (SRRP)

A number of Government reviews over the last 12 months have implications for how the EA operates. SRRP concerns how the Agency responds to these reviews, including defining a new corporate plan and making sure they can still achieve their goals (in England). Staff numbers are likely to reduce from 11,400 to 9,700 by October 2014. Work currently delivered at Regions will move either to a 'National Once' or Areas basis. Doing more things 'nationally once' aims to improve efficiency. The proposals will develop further. It is not anticipated that this will have a significant impact on RSR regulation, but this is not yet certain. There is no proposal from those concerned with RSR regulation to change how they do business

Review of Excretion Factors

The EA have been reviewing the use of excretion factors, used in radiological assessments for hospital sites, with a group of external partners. The EA have decided that it is appropriate to include in the permitted releases from a hospital ***all the activity*** excreted by the patient, including that which occurs after they have left the hospital premises. Revised excretion factors have been circulated to the IPEM working party and the Radiation Protection and Nuclear Medicine Special Interest Groups, with a deadline of 20th December for comments. Once agreed, the new excretion factors should be used when hospitals apply for a variation or for a new permit and in making future pollution inventory returns in relation to new permits. I enquired as to whether regulators will be

pushing users into applying for variations once excretion factors have been agreed, the EA stated that this would not immediately be the case. A BNMS report is being drafted for their own members.

Development of UK NORM waste strategy

UK Government and the Devolved Administrations are working toward a strategy for the management of wastes containing Naturally Occurring Radioactive Materials (NORM). The aim of the Strategy is to ensure that there are safe, sustainable and resilient NORM waste management arrangements in place in the UK. The strategy also aims to address the implications of the revised Basic Safety Standards Directive and the need to ensure that the Waste Management Hierarchy is applied in the management of NORM waste. The NORM strategy is not just limited to major NORM waste producers such as the oil and gas industry but will also cover wastes arising from the use of uranium and thorium compounds in the academic/research 'sector'.

Colin Mackie (DECC) presented a report on the status of the UK LLW/NORM strategy. Collation of information on current and foreseeable NORM waste arisings has already been conducted (you may recall a survey of the wider AURPO membership on HASNET). Consultation starts in January 2014 and will include a workshop for interested parties to attend (expected on 25 February in Manchester). The consultation will focus on:

- Changing international requirements.
- Application of policy to NORM import/export.
- Clarity on dose criteria/limits/constraints.
- The regulatory position on averaging and characterisation; conditioning and recovery.
- Emerging 'NORM sectors' e.g. shale.

The aim is for the strategy to be published in June 2014.

Peter Merrill provided a Technical Services update.

EA Guidance Documents and *gov.uk*

The Government's position with regard to the publication of EA RSR guidance has shifted considerably and a moratorium on issuing external guidance is now in-force (understood presently to be a temporary hold). Revised U & Th guidance and Schools EO guidance together with information on the interaction of EPR2010 and the Hazardous Waste Regulations was anticipated. However, Government contractors are currently reviewing web content before deciding what type of material and in what format it can be provided on gov.uk. Gov.uk is expected to merge the websites of all government departments and most Agencies and public bodies, including the EA's, by April next year. Work on the anticipated guidance will continue but how or when it will be published is not yet known. There is some feeling that current guidance '*is likely to change significantly*' (and might even be in the form of 'web-text' rather than downloadable files).

Discussions are ongoing regarding dissemination of other forms of information. This includes cyclotron BAT 'How to Comply' guidance developed through the EA Cyclotron Inspectors Group to assist inspectors in making permitting decisions and in regulating users. In the meantime, one route for provision of information might be on a case by case basis on visits to individual sites.

Regulatory burdens

The Government is looking closely at the regulatory burdens and the information demands placed on its 'customers'. This includes permit application processes. The EA have been requested to develop 'intelligent' application forms (information and guidance shown is tailored, semi-automatically, to the specific circumstances of each customer). Also, the EA will shortly be writing

to permit holders to introduce changes that will reduce the quantity of data required by some non-nuclear operators for the pollution inventory and to specify the need for RWAs.

Security

Institutions concerned will be contacted by their regulators individually to arrange visits on site to confirm the improvements being sought are being made or are completed following on from the previous phase of the improvement scheme.

David Nicholson presented a paper on the non-nuclear customer satisfaction survey most recently performed by the Agency through Blue Marble research (the market research consultancy). Snippets of interest;

Overall conclusions;

- 47% of customers felt that radioactive substances regulation (RSR) had improved versus 4% of customers who felt it had worsened.
- The survey found the highest levels of satisfaction with inspectors versus the lowest levels of satisfaction with the website.
- 65% agree that RSR is proportionate to risk.
- 67% agree that RSR rules are clear.

In need of improvement;

- Consistency of approach to RSR activities.
- The EA website.
- Promptness in issue of the RASCAR.

When asked about how customers found out about changes to RSR regulation;

- 56% from their RPA/RWA.
- 41% from the regulator.
- 18% from the SRP.
- 14% from SULG.
- 8% from HASNET-RAD.
- 15% other (possibly the AURPO... although this was not identified as a specific option on the question set!)

Finally, only 18% of respondents are aware of SULG. 52% have no idea who their representatives on SULG are...

ONR Matters

The SULG ONR Transport representative was unfortunately unable to make the meeting. There was discussion as to the ONR position on the request to allow an exemption (either derogation or authorisation) from the transport regulations for items exempt under EPR2010. A report from Public Health England was published on this subject (CRCE-EA-5-2013). Although some attendees questioned some of the authors' reasoning, attendees thought that the report was in support of an authorisation to allow transport of exempt VLLW materials (solid waste and small sealed sources) as exempt under CDG2009. However it was suggested that the ONR had concluded that the report did not support an exemption for all sources. In the absence of an ONR representative, this issue could not be taken further at this meeting; however the chair did still offer his support for an exemption given the effort already expended on the EPR2010 exemption regime.

The SULG ONR Safeguards representative was unfortunately unable to make the meeting. A submitted report indicated that Safeguards had met with Euratom inspectors in September 2013 and

positive discussions on the road to agreeing a more suitable safeguards approach for small holders of ‘nuclear material’ took place. ONR are running a trial of proposed reporting arrangements to see if they could work in practice. This is very much still an ongoing story.

Impact of the proposed BSS Directive

Simon Clark presented a comprehensive paper on the new EU Basic Safety Standards Directive, which has been in negotiation for the past 5 years. It is now finalised and publication is expected imminently. It brings together and consolidates five existing Euratom Directives, and incorporates the latest radiation protection standards including the 2007 recommendations of the ICRP and IAEA standards given in RS-G-1.7. Key points follow;

- Radiation doses are to be considered in the context of “*planned*”, “*existing*”, or “*emergency*” exposure situations.
- The principle of *optimising* is to be applied to *equivalent doses* as well.
- There are reduced annual dose limits for the *lens of the eye* (down to 20mSv).
- **Radon** in the workplace is to be considered as an existing exposure situation but is to be managed as a planned exposure situation. Dose limits for radiation workers are to take into account the contribution from radon.
- Protection of the environment is considered in the context of long-term human health (impact assessments will not yet have to consider non-human biota).
- **Non-medical imaging exposures** are required to be justified in the same way as medical exposures.
- Holders of *individual X-ray sets* may be required to **notify** the HSE.
- Consideration of existing public exposure situations are included such that radon and gamma emitting nuclides in building materials will need to be assessed.
- The UK will have 4 years to implement the BSS into national legislation. The HSE are the lead for implementation. Once it is clear what legislative gaps exist and where change is needed, a decision will be made on whether existing legislation is to be revised or replaced. Existing legislation could even be collated into a single statutory instrument.

An Inspector is for Life, not just for Christmas

Customer feedback and findings from the Hampton review (2005) suggested that inspectors sometimes lacked the necessary technical understanding in sectors they regulated, leading to inconsistency. Well-established schemes exist for placement of officers in regulated sectors such as the waste industry and in various government departments and regional agencies. No such scheme exists for small users. Schemes involve the work placement of inspectors in a host organisation outside the geographical boundary of their own compliance area with subsistence costs met by the regulator for periods of around a couple of weeks. Confidentiality agreements would be signed by both parties to the agreement. Hosts would need to offer a mentor, facilities and feedback. What happens if they discover a breach? No information would be sent to the inspector regulating the host, however the placement officer can escalate it if necessary to their own line-manager. David Nicholson is seeking to establish a formal mechanism for a ‘small user placement network’ through the professional societies. Further details of the scheme will be provided by the EA and a future newsletter piece was offered.

Members items

Richard Harrison (AURPO representative) spoke in relation to timely accreditation of RWAs. Those members who became RWAs through the EA grandfather rights scheme will need to go for re-accreditation before the deadline in June 2016. Although accreditation was originally envisaged not to be overly burdensome on those acting as RWAs, the position has now changed in that submission of a portfolio of evidence similar to that required by RPAs will now be required. This will obviously cause problems with so many people expected to go for re-accreditation through

submission of portfolios to RPA2000 at the same time, because competent assessors are limited and logjams are anticipated. Thus some RWAs may technically no longer be able to offer waste advice if the processing of their application is delayed. To forestall this, RPA2000 have introduced a tiered payment scheme where the closer your application is to the deadline, the more you pay with AURPO members charges rising from £100 (2013) to £480 (2016), to tempt you to submit early (members who pay their own way might want to visit <http://www.rpa2000.org.uk/fees>). The possibility of ‘phasing’ in the deadline was discussed. The EA did not see that there was any room for manoeuvre in that the charging scheme is the phased mechanism.

**Dr Mike Sobanski (AURPO Wales representative)
Cardiff University**

HASS –Financial Provision

Mike Sobanski has been involved in a meeting with Chris Englefield and the Finance officer from HEFCE looking at HASS financial provision in the university sector. HEFCE could not provide the guarantee for universities that was being requested but the idea was mooted of cross-institutional guarantees, where 2 or more universities got together to guarantee each others holdings. The EA indicated that this would probably be acceptable (they would need to consult their lawyers to confirm). They are just waiting now for somebody to put something forward.

NEWS from Affiliates –RADMAN

RPS course for work with laboratory radiochemicals – 29th & 30th Jan

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. (15 places maximum)

What is covered?

- ◆ 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

How to register?

All course details plus e-booking are found at:

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

NEWS FROM PHE (HPA- Radiation Protection Division)

The latest Environmental Radon Newsletter issued in November can be found at -

http://www.hpa.org.uk/Publications/Radiation/Newsletters/newsletter_Radon/

topics covered include: new free Scottish testing program; information on action levels and target levels; measuring radon in large buildings and current radon projects.

New updated leaflet published by PHE on information for the public re nuclear emergencies –

<http://www.hpa.org.uk/Publications/Radiation/MiscellaneousRadiationPublications/rad007miscpubEmergenciesPublicInformation/>

HPA-CRCE series of documents has now been superceded by PHE-CRCE series. These documents can be found at – <http://www.hpa.org.uk/Publications/Environment/PHECRCEReportSeries/>

Latest documents published are as follows:-

- **Determination of neutron dose rates for the PHE neutron facility**
This report details the design and construction of the neutron laboratory, the traceability of the neutron dose rates, derivation of the scatter correction and an uncertainty budget associated with the dose rates used during the calibration or irradiation.
Added/updated: 28 November 2013
- **Comparison of National Physical Laboratory and Public Health England lead equivalence values determined for a number of vinyl materials over a range of X-ray energies**
This report details a comparison of the determination of lead equivalence and attenuation factor measurements carried out by Public Health England (previously by the Health Protection Agency) and the National Physical Laboratory on a variety of identical samples of differing thicknesses of vinyl materials.
Added/updated: 19 November 2013
- **Review of the potential public health impacts of exposures to chemical and radioactive pollutants as a result of the shale gas extraction**
Public Health England (PHE) have reviewed the literature on the potential public health impacts of exposures to chemical and radioactive pollutants as a result of shale gas extraction. The currently available evidence indicates that the potential risks to public health in the vicinity of shale gas extraction sites are low if shale gas extraction is properly run and regulated.
Added/updated: 30 October 2013
- **Results of the 2012 HPA intercomparison of passive radon detectors**
In total, 35 laboratories from 13 countries, took part in the 2012 HPA intercomparison of passive radon detectors. Some laboratories submitted more than one set of detectors, so 42 sets of detectors were exposed together in the radon chamber. Results for 41 sets were reported by 34 laboratories.
Added/updated: 3 September 2013

TRANSPORT NEWS

ONR-Radioactive Materials Transport section held a stakeholder update meeting in Bootle on 23rd September. They informed us of what they had been up to in the past year and what they had planned for the future. For some operations they will have to go down the cost recovery route but this should not affect small users. We had an update on the ADR – only minor changes – some transport security thresholds have changed for high consequence dangerous goods – should effect radiography source users only. Our ONR point of contact for small user issues is just to use class7 email address – class7@hse.gsi.gov.uk

Iain Davidson about the non-nuclear survey and future inspection plans. Future inspection plans will be prioritised by risk (if you didn't return their survey you automatically were given a high risk rating!). They had plans to do 30 inspections of small users (Medical, NDT and Research) before end of March 2014 so are likely to pick on a few universities this time round (Oxford and Newcastle already visited). They should not be heavy handed though. A look at management systems and compliance issues will be their first priority with an aim to educate people and improve compliance before resorting to enforcement action. Previously the three main non-compliance issues have been –

- Inadequate procedures for dealing with emergencies
- No testing of procedures
- Lack of security awareness training

Nick Barton covered the disparities between transport exemptions and the exemptions under EPR2010 (VLLW in particular). ONR had commissioned a report from PHE (former HPA/NRPB) to see if a derogation/authorisation was feasible to extend the transport exemptions to exempt radioactive waste that could go as VLLW. (*I have a copy of the report in question - CRCE-EA-5-2013 and people can get a copy off me if they would like one.*)

They had the follow requirements for determining whether a transport procedure could be exempt – doses to people involved had to be <10uSv/y for routine transport and <1mSv/y for accident scenarios. VLLW disposals of solid radioactive waste from small users would meet the criteria. But he reported that disposal of small sealed sources up to 200kBq would not. However, having read CRCE-EA-5-2013 I found that the reason for claiming that the disposal of small sealed sources would not meet the criteria was based upon a scenario where the waste closed sources were being collected by a specialist contractor – but as we all know this is not disposal as VLLW!!. If the VLLW disposal criteria had been properly applied in this review as in EA guidance –

'Limited amounts of solid radioactive waste can be disposed of conveniently and without causing environmental harm provided that it is mixed with large quantities of non-radioactive waste which are themselves being disposed of. We call such waste very low level waste (VLLW). Disposal of VLLW in this way is sometimes known as 'dustbin disposal'.

then the conclusions of the report should have been supportive for extension of the transport exemptions to cover all VLLW disposals including small sealed sources.

The authors of the report were not entirely clear over what constituted VLLW these days and how it could be disposed of and that this has had an adverse effect on some of their conclusions. There were inaccuracies in how alpha waste should be treated as well as considering non VLLW disposal of small sealed sources. These failings have been pointed out to ONR-RMT by myself and Ralph Whitcher. There is no reason why ONR-RMT should not come forward with an Authorisation that would enable VLLW materials (solid waste and small sealed sources) to be transported as exempt materials. We await their response – hope has not entirely diminished!

Trevor Moseley, Sheffield

Managing Ionising Radiations and Radioactive Substances in Schools and Colleges - L93: 2013 Edition

CLEAPSS has issued a new edition of the document L93, Managing Ionising Radiations and Radioactive Substances in Schools and Colleges. (www.cleapss.org.uk/download/L93.pdf).

There are two main reasons for this revision. The first is the change to environmental legislation – this affected the disposal of waste radioactive materials from schools. The uncertainty caused by the archaic language and obsolete terminology of the 1963 Schools Exemption Order has now, thankfully, gone. The second is a change to the risk assessments because there is clear evidence that some types of aged radioactive source are beyond their working life, and a risk assessment cannot support using them in schools any longer. Consequently, the section on risk assessments and the section on disposal have undergone the most change.

Note that the Environment Agency's 2006 disposal guidance to schools as part of the Surplus Source Disposal Programme (which was extended to universities and other small users) is no longer valid and should not be used.

The model risk assessments have been colour coded with green framed items being readily available and looked on most favourably and some items with a double red border being recommended for disposal unless the school's RPA can make a good case for retention. The following have been recommended for disposal:

- Spinthariscopes
- Radioluminescent instruments (excluding timepieces)
- Labgear perspex slide sources
- Radon 220 (thoron) generators (powder version)
- U and Th compounds except uranyl nitrate

L93 has also been reorganised to some extent, as follows. The guide can be divided into four main parts:

- Part A (Chapters 1-5) About initially setting up the arrangements for using radioactive substances for practical work in the school or college, and periodically reviewing that the arrangements meet the legal requirements.
- Part B (Chapter 6) Practical guidance for all teachers and technicians who use or handle radioactive sources. It tells them what they need to know and do when carrying out practical work with ionising radiations.
- Part C (Chapter 7-15) Reference material and information for dealing with various incidents, disposing of and transporting sources. This section is written for the person who is responsible for the radioactive sources - the RPS (Schools).
- Part D (Chapter 16) Forms, checklists, letter templates, etc that they can copy, adapt and use.

The document may have minor revisions made later this year if the ONR Radioactive Materials Transport Team puts forward an authorisation or derogation to the transport regulations so that sealed sources up to 200 kBq can be disposed of by the grouting/dustbin route again. Currently, a mismatch between the exemption levels to the environmental regulations and transport by road regulations effectively block this route (See December's AURPO Newsletter, p14).

Ralph Whitcher
CLEAPSS

SCOTTISH REGION AURPO GROUP

The Scottish Regional AURPO group is having its 4th meeting is on **Wednesday 19th February 2014** at the University of Strathclyde, Glasgow. The group tries to meet once a year to discuss issues that we have a common interest in and to update each other in our experiences and progress in various areas. On occasions we have invited speakers attend and give us an update or presentation on a topic or area of interest (e.g. SEPA Inspector on the Radioactive Substances (Scotland) Exemption Order).

As an example, the following items were discussed during our last meeting:

1. on-line radiation training and RPS training courses;
2. the APUC waste tender scheme;
3. radon survey updates;
4. news from the Scottish Non-Nuclear Industries Liaison Group;
5. SEPA news – radioactive and hazardous waste disposal in relation to the Exemption Order, category of events guidance, Radioactive Waste Adviser applications, EO impact on users
6. HASS source financial provision;
7. Radioactive rock collections;
8. Fire service response to a building that contains radioactive materials;
9. Construction of a radioactive floor monitor using a crutch and monitor (we are an inventive lot!); and



10. Review of the Tracerco (Lab Logic) PED Monitor.

All interested members are welcome to attend. Please contact Paul Szawlowski (pwss@st-andrews.ac.uk) or Liz Tate (e.tate@strath.ac.uk) for further information and current items for discussion.

Medical Physics Expert Working Group – Request for Information

The Medical Physics Expert (MPE) Working Group has requested that AURPO finds out how many of its members carry out the role of an MPE and in which field/s of practice.

Also, if you are a member of one of the other professional societies as well as AURPO could you please say which? (This is aimed at avoiding “double accounting”)

This is important, so please take a couple of minutes to reply.

Please send your replies to: secretary@aurpo.org.uk or, if you prefer, send them to:

John Makepeace CRadP MSRP
AURPO Hon. Secretary
Corporate Assurance Team
National Physical Laboratory
Teddington, Middlesex
UK, TW11 0LW

New university teaching facility at NPL

St Mary's University College in Twickenham, London, has introduced a new Applied Physics degree, which will use a purpose-built teaching facility at the National Physical Laboratory (NPL).

The new teaching space is located in the main NPL building and comprises a teaching area with room for 40 students, a dark room, two stores and office facilities.



The first students began the Applied Physics course in September 2013. The degree programme is designed to support students in their future careers via a strong engagement with high technology companies at the cutting edge of research and development. The majority of the experimental and project work undertaken by the students will take place at NPL. The students and staff will have access to the NPL Library and staff restaurant, as well as the teaching area.

Andrew Hanson, NPL's Outreach Manager, said:

"St Mary's and NPL are within walking distance of one another and we are delighted to be able to offer this modern teaching facility for the practical sessions of the Applied Physics course. I would like to take this opportunity to welcome the lecturers Elisabetta Canetta and Dan Hilton, the St Mary's laboratory technicians and all the students to NPL."

More about the [St Mary's University College Applied Physics Degree](#)
For further details, please contact [Andrew Hanson](#)

EMF Directive – Implementation in the UK

An inaugural meeting of the EMF Implementation Working Group (IWG) took place on 30 September 2013. This stakeholder group will contribute to the production of UK guidance.

On June 29th, 2013, the European Commission repealed Directive 2004/40/EC and published Directive 2013/35/EU OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL on the minimum health and safety requirements regarding the exposure of workers to the risks arising from physical agents (electromagnetic fields).

The [directive can be viewed online](#) .

<http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2013:179:0001:0021:EN:pdf>

Member States have been given 3 years, up to 1st July 2016, to transpose the Directive into national law.

The timetable for the implementation process in the UK is given below.

29.6.13	Directive adopted
30.9.13	Implementation Working Group stakeholder meeting
2014/15	Consultation process
2.1.16	EU practical guide to be available
1.4.16	Latest date for UK practical guide to be available
1.7.16	Regulations come into force
1.7.16	Report back to EU commission that the transposition has been implemented

Additional background information and progress on the transposition of the Electromagnetic Field (EMF) Directive in the UK can accessed via [HSE's Euronews site](#).

Gus Zabierek, Birmingham

PHE are organising updates in the New Year as follows:-

30th Jan Leeds
14th Feb Chilton
25th March Glasgow

For further details see - <https://www.phe-protectionservices.org.uk/cms/article.php?article=950&course=87&details=true&site=NIR>

BOOKS AND PUBLICATIONS

SEPA - Guidance on decommissioning of non-nuclear facilities

http://www.sepa.org.uk/radioactive_substances/publications/doc.ashx?docid=78f67cc4-4af5-4591-a933-5cd4dda914eb&version=-1

SEPA - Guidance on Revoking Authorisations and Cancelling Registrations Granted under the Radioactive Substances Act 1993 Part I: Principles and Expectations

http://www.sepa.org.uk/radioactive_substances/doc.ashx?docid=3636d631-54aa-451b-93f9-8a60aa57a042&version=-1

Health Physics, Nov 2013, Vol105 No.5, p430-433

Radiological Protection of the Patient: An integral part of quality of care. Claire Cousins (Addenbrookes Hosp)

Health Physics, Nov2013, Vol105 No.5, p435-444

Efforts to optimise radiation protection in interventional fluoroscopy. Miller, Donald L.

Health Physics, Nov2013, Vol105 No.5, p466-468

Reference Levels in the context of Fukushima and related lessons learned. Kazuo Sakai.

Health Physics: December 2013 - Volume 105 - Issue 6 - p 498-511

A Numerical Survey of Motion-induced Electric Fields Experienced by MRI Operators
Zilberti, Luca; Chiampi, Mario

Health Physics: December 2013 - Volume 105 - Issue 6 - p 534-539

How to estimate multislice CT effective dose more correctly.
Mikhail Zelikman, Sergey Kruchinin, and Viacheslav Burashov

IAEA Publications

Design, Development and Optimization of a Low-cost System for Digital Industrial Radiology

IAEA Radiation Technology Reports No. 2

Systems for digital industrial radiology are currently quite expensive and, therefore, often unaffordable for most of the institutes and non-destructive testing groups in developing Member States. This publication provides guidance on the development of such systems at a relatively lower cost. The aims are to facilitate the acquisition of state of the art digital technology, which has tremendous potential for enhancing the speed as well as the quality of radiographic inspection, in the long run ensuring the quality of industrial equipment and components.

STI/PUB/1561; 89 pp.; 69 figs; 2013; ISBN 978-92-0-129310-7, English, 40.00 Euro

Electronic version can be found:

<http://www-pub.iaea.org/books/IAEABooks/8837/Design-Development-and-Optimization-of-a-Low-cost-System-for-Digital-Industrial-Radiology>

Legal and Institutional Issues of Transportable Nuclear Power Plants: A Preliminary Study IAEA Nuclear Energy Series No. NG-T-3.5

A transportable nuclear power plant (TNPP) is a factory-manufactured, movable nuclear power plant, which when fuelled is capable of producing final energy products such as electricity and heat. Transportable nuclear power plants are not designed to operate during transportation. This publication highlights the potential benefits of TNPPs, describes the legal and institutional issues for their deployment in countries other than the country of origin, reveals challenges that might be faced in their deployment, and outlines pathways for resolution of the identified issues and challenges in the short and long terms. It is addressed to senior legal, regulatory and technical officers in Member States planning to embark on a nuclear power programme or to expand an existing one by considering the introduction of a TNPP.

STI/PUB/1624; 95 pp.; 6 figs; 2013; ISBN 978-92-0-144710-4, English, 33.00 Euro

Electronic version can be found:

<http://www-pub.iaea.org/books/IAEABooks/10516/Legal-and-Institutional-Issues-of-Transportable-Nuclear-Power-Plants-A-Preliminary-Study>

Measurement and Calculation of Radon Releases from NORM Residues Technical Reports Series No. 474

This publication provides a comprehensive overview of the prediction, measurement and monitoring of radon releases from NORM residues, including uranium mining and milling residues. It presents factors controlling radon emanation and exhalation from residue materials, repository cover characteristics, methods for predicting radon exhalation flux (including models and the required input parameters and variables), measurement methods for radon concentration in soil gas and for radon exhalation from a surface, and radon monitoring programmes. The publication also includes a case study of radon exhalation from uranium tailings pile at Jaduguda, India, and annexes presenting mathematical development of radon diffusion equations.

STI/DOC/010/474; 85 pp.; 25 figs; 2013; ISBN 978-92-0-142610-9, English, 34.00 Euro

Electronic version can be found:

<http://www-pub.iaea.org/books/IAEABooks/10369/Measurement-and-Calculation-of-Radon-Releases-from-NORM-Residues>

Body Composition Assessment from Birth to Two Years of Age IAEA Human Health Series No. 22

This publication was developed by an international group of experts as an integral part of the IAEA's efforts to contribute to the transfer of technology and capacity building in this field in order to assist Member States in their efforts to improve the nutrition and health of the most vulnerable population groups, infants and young children. The book provides practical information on the assessment of body composition from birth up to two years of age and is intended for nutritionists, paediatricians and other health professionals. The body composition assessment techniques included in this publication were selected as methodologies with the highest potential for standardization globally — based on considerations such as access to equipment, cost and the training needs of staff — and include stable isotope dilution for total body water assessment, as well as dual energy X ray absorptiometry and air displacement plethysmography. In addition, the importance of standardization of anthropometric measurements is highlighted in this book, as basic measurements of body weight and length are crucial for accurate body composition assessment.

STI/PUB/1550; 62 pp.; 21 fig.; 2013; ISBN 978-92-0-127710-7 , English, 36.00 Euro

Electronic version can be found:

<http://www-pub.iaea.org/books/IAEABooks/8856/Body-Composition-Assessment-from-Birth-to-Two-Years-of-Age>

Record and Verify Systems for Radiation Treatment of Cancer: Acceptance Testing, Commissioning and Quality Control

IAEA Human Health Reports No. 7

This publication serves as a useful guide for medical physicists in radiation oncology, radiation oncologists and radiation therapists, ensuring accuracy, safety and quality in radiation therapy. Record and verify systems (RVSs) were developed to reduce the risk of treatment errors in radiation oncology. These have recently evolved into complete radiotherapy information management systems that interface with imaging systems, treatment planning computers, and treatment delivery systems. To function as intended, RVSs must be subject to a comprehensive quality assurance (QA) programme. This publication provides practical guidelines for a comprehensive QA programme and its implementation. It describes the QA programme, including acceptance tests and the commissioning process that should be used in conjunction with the installation of a new RVS. It is also highlighted that some of the tests performed at installation must be repeated regularly as part of the periodic quality control checks.

STI/PUB/1607; 39 pp.; 1 fig.; 2013; ISBN 978-92-0-141710-7, English, 22.00 Euro

Electronic version can be found:

<http://www-pub.iaea.org/books/IAEABooks/8941/Record-and-Verify-Systems-for-Radiation-Treatment-of-Cancer-Acceptance-Testing-Commissioning-and-Quality-Control>

Roles and Responsibilities, and Education and Training Requirements for Clinically Qualified Medical Physicists

IAEA Human Health Series No. 25

This publication addresses the shortfall of well trained and clinically qualified medical physicists working in radiation medicine. The roles, responsibilities and clinical training requirements of medical physicists have not always been well defined or well understood by health care professionals, health authorities and regulatory agencies. To fill this gap, this publication provides recommendations for the academic education and clinical training of clinically qualified medical physicists, including recommendations for their accreditation certification and registration, along with continuous professional development. The goal is to establish criteria that support the harmonization of education and clinical training worldwide, as well as to promote the recognition of medical physics as a profession.

STI/PUB/1610; 71 pp.; 2 figs; 2013; ISBN 978-92-0-142010-7 , English, 32.00 Euro

Electronic version can be found:

<http://www-pub.iaea.org/books/IAEABooks/10437/Roles-and-Responsibilities-and-Education-and-Training-Requirements-for-Clinically-Qualified-Medical-Physicists>

SRP ANNOUNCEMENT

UK Young Professionals Award (YPA) – 2014

The Society for Radiological Protection announces the 2014 UK Young Professionals Award.

Entrants must present an 8-minute oral presentation of their research and/or development work in radiation protection in any field, including operational, at the SRP's Annual Conference in Southport, which takes place from 29th April to 1st May 2014.

Entrants are welcome from the SRP membership plus members of all SRP's UK Partner Societies (IPEM, BIR, AURPO, BNMS, RCR, and SCoR). The winner will be selected by a Judging Panel comprising representatives of all the Partner Societies.

Entrants will typically be within the first 10 years of their radiation protection career but the Judging Panel will have the ultimate decision as to the eligibility of any entrant.¹

The prize for the winner will be:

Part 1 – £500 and a prize certificate;

Part 2 – the 2014 winner will be invited to join a shortlist of two persons (nominally the winners of the UK YPA in 2014 and 2015) one of which will be chosen by the UK YPA judges to represent the UK in the Young Scientists and Professionals Award competition at the IRPA14 Congress in Cape Town in 2016 – with travel, accommodation and registration fees paid.²

Entrants of previous UK YPA competitions are welcome to enter again for the 2014 YPA. However, in addition to the other eligibility criteria, they must only submit work which has not been presented before at any other UK YPA competition.

The deadline for submitting an entry is Friday 28th March 2014.

See Rules below.

For further information and an entry form please contact:

Tessa Harris – admin@srp-uk.org or Tel: 01803 866743

Notes:

1. IRPA defines 'Young' as "Persons in the first 10 years of their careers in radiation protection. Such definition implies that young professionals will only exceed the mid-30s age in exceptional circumstances."

2. To qualify for Part 2 of the prize, the UK candidate will have to meet the eligibility and acceptability rules of the IRPA14 Young Scientists and Professionals Award at the time of IRPA14 in 2016. This includes complying with the IRPA definition of 'Young' (as highlighted in the previous note) for this competition in 2016, and the production of a written paper based on their work in addition to giving a presentation.

The 2014 UK Young Professionals Awards (YPA): Rules

Scope:

The UK YPA is for the best 8-minute oral presentation of a 'qualifying' entrant's research and/or development work in radiation protection in any field, including operational, at the SRP Annual Conference in Southport in April 2014.

Entry:

Entrants will typically be within the first 10 years of their radiation protection career¹

They must complete the application form and return it to the SRP Administrative Office before the deadline. For the 2014 award this is 28th March 2014. The deadline will ordinarily be one calendar month before the SRP Annual Conference.

Part of the entry form requires entrants to submit an 'abstract' summary of their proposed submission and successful applicants will be notified by 4th April 2014 as to whether or not their entry has been accepted.

PowerPoint slides to be used in the presentation and an updated summary (as appropriate) must be provided no later than one week before the meeting at which the presentation is to be given.

Conditions:

Entrants must give consent to allow their name and photograph in relation to the UK YPA to be used for SRP publications as well as publication of presentation slides and/or presentation summary.

Eligibility & exclusions:

Entrants must have some form of SRP membership or corresponding membership of one of the SRP's Partner Societies. These are: IPEM, AURPO, BNMS, BIR, RCR and SCoR.

A panel of judges will be convened that includes members of SRP Partner Societies.

The judges' decision on eligibility and acceptability of an abstract for presentation as part of the UK YPA will be final.

Each SRP Annual Conference will only be able to accept up to 10 UK YPA presentations. If more entries are received than slots available at the event, the judges shall decide which presentations shall be given in a first round of judging. The first round decision will be solely made on the basis of the abstract of the presentation provided on the entry form.

SRP EVENTS 2014

"Medical Radiation Equipment - Promoting Mutual Understanding and Co-operation"

Date: Tuesday 4th February, 2014

Venue: British Dental Association, 64 Wimpole Street, London, W1G 8YS

About this meeting

Ever got frustrated that a physicist won't explain what they are doing? Or that an engineer performs an update without explaining why? That no one hands over properly?

The SRP Medical Sector Committee is organising a meeting to improve communications between all those who work with equipment - Hospitals, Companies, and those who work within them.

Covering regulatory requirements, equipment installation, routine equipment use and maintenance, problems, and towards best practice. We aim to bring all those involved with equipment (staff, companies, regulators, etc) together to work to resolve some of the common issues that arise.

Supported by the Department of Health, the HSE and AXrEM, and with speakers from all different specialities and plenty of time for discussion, make sure you book the date in your diaries.

Book here

<https://www.srp-uk.org/event/25/medical-radiation-equipment-promoting-mutual-understanding-and-co-operation>

'Putting Together your First RPA Portfolio'

Date: 5th February 2014

Venue: British Dental Association, London

The SRP Rising Generations Group will be running the popular RPA 2000 Portfolio event once again on Wednesday 5th February 2014. The aim of the day is to give advice and support to anyone preparing their first RPA 2000 application.

The programme has been designed to provide useful information, hints and tips for people at all stages of the application process.

The morning session will provide an introduction to the RPA application process and information on what assessors are looking for in a portfolio.

The afternoon session aims to provide some more detailed advice with ideas for filling gaps in a portfolio and a 'problem clinic' workshop during which current RPAs can be asked for help or advice on a particular aspect of a portfolio. The full program will follow.

Click here to register

<https://www.srp-uk.org/event/26/putting-together-your-first-rpa-portfolio-event>

Annual Conference - "Radiological Protection GOALS" (Guidance, Operational Experience, ALARP, Legislation, Sustainability).

Date: 29th April - 1st May 2014

Venue: Southport Theatre and Convention Centre, Southport

Planning for the 2014 Annual Conference is well underway and will be held in Southport over three days from 29th April to 1st May 2014. It will incorporate parallel sessions, competitions, awards, the AGM, posters and presentations and the usual social programme. The theme of the meeting will be "Radiological Protection GOALS (Guidance, Operational Experience, ALARP, Legislation, Sustainability) which provides a broad theme reflecting the requests we have had from members for various event topics. This means there should be something of interest for everyone and it should provide a great opportunity for updating knowledge and sharing good practice.

Register now to take advantage of the early booking rate until 31st December 2013

Click here to Register

<http://www.srp-uk.org/event/18/annual-conference-2014>

Deadline for abstracts has been extended until the end of November - email unity.stuart@srp-uk.org for more information.

The event will also incorporate the usual competitions, awards, a full trade exhibition and the annual dinner.

Unity Stuart, SRP

NPL Training Event – Practical Course in Reference Dosimetry – 21st Jan

Aims & Objectives

- Develop a good fundamental, theoretical and practical understanding of all aspects of reference dosimetry for kV X-rays, photons, electrons and HDR brachytherapy sources
- Be familiar with the UK primary standards used in reference dosimetry
- Understand the current Codes of Practice for kV X-rays, High-energy photons and Electrons, and their application
- Be able to carry out basic metrology in reference dosimetry, including the application of correction factors and evaluation of uncertainties

Module Details

The course will consist of introductory lectures that cover:

- Basic quantities and units
- Overview of dosimetry and evaluation of uncertainties
- Practical advice on the handling and maintenance of secondary standard and field instruments with emphasis placed on recognising and dealing with measurement problems

And four separate practical sessions on:

- Dosimetry of kV X-rays, covering both in-air and in-water measurements
- High-energy photons (Co-60 gamma-rays and 4 MV to 19 MV X-rays)
- Electrons
- High-dose-rate (HDR) brachytherapy, including a session covering check source measurements

The practical sessions will cover all areas of measurement including basic metrology, estimating uncertainties and applying corrections. Contact for more information -

<http://www.npl.co.uk/commercial-services/products-and-services/training/contact/>



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AURPO Membership Subscription Form 2013 - 14

The annual subscription of £35 (£10 for retired members) to the Association is due on the 1st July 2013. 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, and send it to me at the address below with a covering note. If paying by other way, *regardless of the method*, or not renewing your membership, please complete the form and **e-mail it back to me, copying it to membership@aurpo.org.uk**.

*NB. Invoices will **not** be sent unless specifically requested. POs alone **are not** requests for an invoice and are considered for information only.*

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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

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**Please make your payment either by cheque payable to AURPO
or by BACS:**

Paying by BACS

Important : Please ensure that your **name**, or **the invoice number** is quoted on the **Remittance Advice** and that a **copy** is sent to the **Treasurer**, preferably by e-mail.

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Please send the cheque or remittance advice to:-

Mrs G.C.Glazier, Hon. Treasurer, 21, Viewland Road, Plumstead, London, SE18 1PE
treasurer@aurpo.org.uk



**Association of
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AURPO Affiliate Subscription Form 2013-14

The annual subscription of £125 to the Association was due on the 1st April 2013 Exhibitors 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.

Regardless of the method of payment, or you not renewing your affiliateship, please complete the form and e-mail it back to myself and copy Christine Edwards, membership@aurpo.org

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Thank you
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Honorary Treasurer

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