

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

July 2014

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 our summer newsletter. Many thanks to those who have provided input especially Mike Lockyer our new SULG representative.

It will soon be conference time and I have been asked to remind you to get your registrations in asap. The early registration deadline is 14th July – extra costs after this date. Find out all about the conference on the website - <http://aurpo.org/> . Details of scientific program and regulatory update are given on page 4 under Membership News. As usual we aim for a practical and informative meeting of benefit to all our members – please take advantage of it and keep your CPD up to date.

We are grateful to Pycko Scientific for sponsoring this edition of the newsletter – please see below adverts for some new survey equipment that Bill Snooks has available.

Don't forget to make use of the STS monitors that AURPO have – contact me for details. Contributions for the next newsletter by end of November please.

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AURPO Certificate of Professional Development in Radiation Protection

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

The aim of the course is to assist those people wishing to attain greater knowledge and understanding of radiation protection matters and is a good grounding for a university RPO. The course is benchmarked against the HSE criteria for the 'Core of Knowledge' required for a Radiation Protection Adviser and the EA/SEPA syllabus for RWA accreditation.

- 9 month programme commencing September 2014
- Study by distance learning with online tutor support
- Available to those with relevant qualifications and work experience currently working in radiation protection or related fields.

Deadline for 2014/2015 course is 29th August 2014. Course commences 8th September 2014.

Course Fees for 2014/15 are £1600

For further information and an application form:

<http://www.strath.ac.uk/cll/cpd/healthsafety/radiationprotection>

or

Tel 0141 548 4828 email: scosh@strath.ac.uk

PRESIDENT'S REPORT

We are only 2 months away from the AGM and Annual Conference and you should all have received the information and registration forms. Please send your registration form back as soon as possible. Once again I am looking forward to seeing as many members as possible at East Midlands Conference Centre in Nottingham in September 1st – 2nd.

If you are new members, please do consider attending the Annual Conference. You will find that we are all speaking the same language of Radiation Protection, to keep our people safe and how to ensure that we stay on the right side of the regulators. We discuss and share the same problems. It would be nice to welcome new members to the conference.

The Scientific & Technical Committee has finalised the Scientific Programme and once again this promises to have very interesting sessions.

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

I can confirm that 2015 the Annual Conference will be in Eastbourne and will be organised by one of the AURPO regional groups - the AURPO London and South East group.

We are looking for a volunteer with a venue in which to host the Annual Conference from 2016 and beyond. Please think if you have such a place to offer.

I am sure you always find the AURPO Newsletter, produced by Trevor Moseley, very useful and it is highly regarded by many outside AURPO. We are very grateful to him for all his efforts and would ask that you please help him by submitting news items. It does need the input from you, the members, and by sharing your experiences and information you can help other members. Please contact Trevor if you can assist in any way.

See you in Nottingham

Sonia Nuttall
27th June 2014



2014 Annual Conference
1st - 2nd September
East Midlands Conference Centre
Nottingham

Still time to register - <http://aurpo.org/images/conferences/2014/delegateregistration.pdf>

**Association of
University
Radiation
Protection
Officers**



***53rd Annual General Meeting of the Association of University Radiation
Protection Officers (AURPO)***

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

16.00 hrs on Monday 1st September 2014

in the East Midlands Conference Centre, Nottingham

Any motions, duly proposed and seconded, must be received, by the Honorary Secretary, by 8th August 2014. All papers pertaining to the meeting will be available at the meeting.

Nominations are invited for the positions of President, Secretary and Treasurer and for membership of the Executive Committee of the AURPO.

All nominations, duly proposed and seconded, must be agreed by the nominee and must be received by the Honorary Secretary by 8th August 2014.

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

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MEMBERSHIP NEWS

Access for International Members on SRP Website

Access to the International Committee section of the SRP website is now available to all *International members*, but you have to log in. For those with SRP /dual membership, nothing should be different, providing you have previously registered and created a password. For those who are not SRP members, a new IM access category has been created. **You will need to log on with your email address and then click 'forgot password'**. You will then be sent a link to set up your password. Once you are logged in on your MySRP page please click Committees. Once there you only have the choice of International Committee. If you click on this you will see the same as the SRP members. If you have any problems please email - unity.stuart@srp-uk.org

New Members

Ms Lindsey Bobrowski	AURORA
Mrs Jane Ghosh	Cambridge
Dr John Hughes	Manchester
Dr Luis Leon Vintro	UC Dublin
Dr Neil Lloyd	Southampton
Mr Keith Ryan	Samten Consulting/ Roehampton
Ms Julie Sales	Cambridge
Dr Paul Sharp	QinetiQ
Dr Guillaume Zoppi	Northumbria

Outline Scientific Programme Nottingham Conf 1-3 September 2014

Monday PM – Regulatory update session

Introduction and Welcome from the Sherriff of Nottingham
Progress in implementing EMF directive – Arwell Barrett, HSE
RWA update – David Sutton, RPA2000
Update on BSS implementation – Rob Wellands, HSE
Implications of revised ICNIRP Limits and laser standards, John O’Hagan, PHE

Tues AM

Keynote address on ‘Risk!’ – Prof Nick Pidgeon, Cardiff
Justification of Practices – DECC speaker
Laboratory risk assessment – Alan Muir GSK
An Oxygen-15 supply for PET - safety and environmental considerations
– Graham Whish, Cambridge NHS Trust

Tues PM

Risks from radium – Ciaran McDonnell, PHE
Risks of Uranium/Thorium – Brian Heaton, Aberdeen
Risks of low level radiation –WHO Fukushima –W Zhang, PHE
Transport overseas: sea, air and road – Iain Davidson, ONR

HSE News

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)

Firm in court after worker suffered radiation burns

On 31st March 2014 a Hartlepool company was fined after one of its workers suffered radiation burns while carrying out tests on safety equipment.

The Redcar man, who asked not to be named, suffered severe tissue damage to the middle, ring and little fingers of his right hand in the incident at Mistras ETS Ltd on 19 September 2012.

He had to undergo surgery and his fingers remain numb, with occasional tingling, although he has now been able to return to work.

The incident was investigated by the Health and Safety Executive (HSE), which prosecuted his employers at Teesside Crown Court for serious safety failings.

The court heard the worker was employed at the Mistras ETS Ltd's Graythorpe Industrial Estate premises in Hartlepool, where the company provides industrial radiography services, including x-rays.

He had been working with x-ray equipment in a radiation bay – a designated area – when a separate team was asked to test safety equipment and warning beacons, which also required the use of the x-ray.

The other employees devised an ad hoc test method that involved turning off safety access controls and warning alarms for the radiography bays. During one test, the injured worker remained in a radiation bay, while the x-rays were energised.

He received radiation exposure to his fingertips, which exceeded the maximum dose allowed by law per year.

The HSE investigation found that the workers had not used the x-rays to test the safety equipment before, and that there were no procedures in place for them to carry out the tests safely. As a result they developed their own ad hoc method, which led to several important safety devices being switched off.

Mistras ETS Ltd, based at Dillington, Great Staughton, St Neots, Cambridgeshire, was fined £30,000 and ordered to pay £4,930 in costs after pleading guilty to breaching Section 2(1) of the Health and Safety at Work etc Act 1974. The company also admitted breaching Regulation 11(1) of the Ionising Radiation Regulations 1999, for which no separate penalty was imposed.

After the hearing, HSE inspector Paul Wilson, said:

“The level of x-ray radiation to which this worker was exposed was capable of causing serious ill-health, including the potential for death if the x-rays had hit vital organs of his body.

“This incident could have been easily prevented if Mistras ETS Ltd had ensured proper planning and control of the work. Deviation from agreed safety protocol had become commonplace and on this occasion an employee was exposed to dangerous levels of x-ray radiation because important safety devices had been turned off.

“Industrial radiography is a valuable tool for industry as a non-invasive way of ensuring the integrity of plant and equipment. When managed properly it is safe for those involved. However, where suitable precautions are not taken it can be very dangerous, with the potential for fatal consequences. “

HSE offers health and safety advice for those working with radiation on their website at:

<http://www.hse.gov.uk/radiation/>

British Standard 4094-1



BSI would like to know whether it is worth updating and correcting British Standard 4094-1. This is a compendium of information for calculating shielding thicknesses for gamma emitters. It was hugely popular but the rise of computer techniques may mean that it is no longer in use. We would appreciate your thoughts - please reply to peterhburgess@googlemail.com

EA, DEFRA & DECC MATTERS

Remember for information on radioactive substances regulation you should bookmark the following webpage - <https://www.gov.uk/government/collections/radioactive-substances-regulation-for-non-nuclear-sites>

You will find the latest DECC policy documents etc on radioactive substances use at - <https://www.gov.uk/government/policies/managing-the-use-and-disposal-of-radioactive-and-nuclear-substances-and-waste/supporting-pages/providing-monitoring-and-reviewing-the-regulatory-system-for-the-storage-use-and-transport-of-radioactive-substances>

SULG

The 42nd SULG meeting was on 19th June. The following are of interest:

EA matters

EA Environment and business-reducing risk from Radioactive Sources

The project to remove radioactive lightning preventers and orphan sources from scrapyards is now complete. The future management of scrapyard sources is under consideration and the Agency is looking at making a regulatory position statement. They wish to avoid a repeat build up of a waste legacy but to act on a co-operative basis ie not down the permitting route.

EA Strategic Review Response Programme

The SRRP is the strategic EA response to a number of government reviews over the last year. The organisation moved from a 3 to a 2 tier structure from April, and work delivered at Regions has been moved to a National or Area (16 areas) basis. Non-nuclear RSR continues to be delivered nationally from operational teams in 6 areas. No further reorganisation has occurred due to flood management activities consuming a lot of EA resource.

UK NORM waste strategy

The consultation period on this has ended and the strategy will be published this summer, led by the Scottish Government. The work is overseen by the Project Board, which includes government representatives, regulators, waste planners and industry. Matters for consideration include the implications of the revised Basic Safety Standard Directive for NORM waste regulation, and ensuring that the Waste Management Hierarchy is applied to the management of NORM wastes.

Regulatory Guidance and Govt UK

Review and revision of EA regulatory guidance has been delayed, and the non-nuclear content moved to gov.uk

<https://www.gov.uk/government/collections/radioactive-substances-regulation-for-non-nuclear-sites>

A current DEFRA consultation on the proposed format of future guidance on EPR10 is open for feedback until July 11th.

<https://www.gov.uk/government/collections/radioactive-substances-regulation-for-non-nuclear-sites>

There is currently a government-driven move towards 'smart' guidance which in practice seems to mean a lot less! This policy doesn't allow for spending on web documents and nobody seems to know if and when documents currently earmarked for rewriting will in fact be done. There is then a danger that useful guidance documents will end up being accessible only via the National Archive which then begs the question as to how the user will know whether their contents are still applicable/current. Of course there are those who feel there is too much guidance but I think they may be in the minority.

Inspections

Last year the EA inspected ~ 1500 sites nationally under RSR. In terms of permits they gave a breakdown of the frequency of inspection corresponding to different permit bands:

- C,D and H – annual
- G – biennial
- B – every 4 years
- New or transferred permits – within 12 months
- Breach higher than 4 – within 12 months

Information from inspections is shared with the HSE

ONR

ONR carried out 31 inspections in 2013-14 in the industrial/medical sectors, issuing one hospital with a notice of contravention and 3 improvement notices. Unfortunately the ongoing saga of the mismatch between the transport regulations regarding exempt waste under EPR10 remains unresolved, the likeliest outcome currently being an authorisation.

ONR left HSE on April 1st and one positive outcome of this separation is that there are now no fees for intervention for material breaches of the Transport Regulations (*fees used to be £124/hr*).

HSE

Since there are now only '2.5' specialist HSE radiation inspectors they only carry out reactive not pro-active inspections. Due to this shortfall 12 Factory Inspectors have been trained for site radiography inspections. They will be visiting head offices and carrying out field inspections; they will apparently be 'very robust' in enforcement!

There have been 2 recent radiography incidents, both of which involved the source getting stuck. In one case the cable snapped, which is unusual given their construction from high tensile steel; in this case it is thought inappropriate cable lubricant had been used. The second resulted from a mismatch between the source and its container.

ONR Safeguards

The SULG ONR Safeguards representative was unfortunately unable to make the meeting and there was no report delivered.

SEPA

The Regulatory Reform (Scotland) Act 2014 was described in some detail. This is a single regulatory framework replacing the current four main regimes, water, waste, IED/PPC and radioactive substances, and is likely to be implemented in 2016. There will be common procedures for application, variation, transfer, surrender etc and a common set of notices (enforcement, suspension etc.). RS activities are likely to be updated, and a new set of enforcement measures will be put in place. These are designed to be more flexible and proportionate, filling the gap between strongly worded letters and criminal prosecution. SEPA will be able to issue fixed and variable monetary fines and accept voluntary enforcement undertakings. These measures are anticipated to begin in summer 2015. Guidance to SEPA on the use of particular enforcement measures will be given by the Lord Advocate and SEPA will be obliged to comply with this advice. The increased flexibility of enforcement measures introduced by this Act does seem to me to be a step in the right direction.

Mike Lockyer, UCL

COMARE 15th Report: Radium contamination in the area around Dalgety Bay Expert assessment of radiation risk at Dalgety Bay published

COMARE has recommended that Scottish Government acts to ensure parts of a Fife beach, affected by radioactive contamination, are remediated as soon as possible.

The recommendation is one of a number made in a detailed report commissioned by Scottish Government into radium contamination in the area around Dalgety Bay, which has been published on the COMARE website.

The report also recommends;

- Radiation monitoring and radioactive object recovery work, presently undertaken by Ministry of Defence, should continue until remediation is undertaken – with oversight by the appropriate regulator.

- Children should not dig on the beach and that this warning is added to existing warning signs posted at the site.
- A list of similar sites around the UK which are potentially contaminated by radium is compiled for evaluation of risks and, if appropriate, remediation.
- Further research on radiation skin doses.

COMARE chairman Alex Elliott said: “In 2011 Scottish Government asked COMARE to produce a report on the risks posed to the public by radium contamination at Dalgety Bay, and then to examine the incidence of potentially related cancers.

“This report covers the history of the site, the type and extent of the contamination, the recent investigations and the incidence of cancer in the area. The report also considers the implications for other similarly contaminated sites.

“COMARE believes that it is very unlikely that the excess cases of liver cancer or of non-Hodgkin lymphoma during 2000-2009, or of non-malignant skin cancer during 1975-2002 which have been reported in local residents, are due to the presence of radium.”

The report also concludes that the radium contamination detected at Dalgety Bay appears to have arisen as a result of residual materials from dial-painting work and/or from destruction of radioactively painted aircraft instruments undertaken on, or near, the site during and after the Second World War. As no records exist on the amount of radioactivity brought onto the site it is not possible to determine how much radioactive material is left and how radioactive that remaining material is.

Prof Elliott said: “The combination of erosion of coastal land by the sea and, to a much lesser extent, soil erosion by surface water results in a dynamic and changing environment for the release of radioactive sources.

“The committee acknowledges that without remediation it could be expected that this erosion will continue long-term and may result in a wider dispersion of sources. Based on data from SEPA, the University of Stirling and PHE, taken in conjunction with data from the habits survey, COMARE has concluded that the sources present at Dalgety Bay pose a potential risk to public health – and as such steps should be taken as soon as possible to remediate the affected areas.”

News from Affiliates

NEWS from ACB

Cyclamen cranks up detection rates

Operating 24 hours a day in the search for gamma and neutron signatures Operation Cyclamen, the UK Government's counter-terrorism strategy for detecting dirty bombs at sea ports and other ports of entry, has also been preventing the importation of illicit and unknown radiological substances.

The import of contaminated goods is a massive headache for all concerned, particularly those responsible for the products, such as the manufacturers or retailers. Not only can it result in product recalls but can be a huge PR disaster if handled incorrectly. An incremental benefit to the UK from Cyclamen is that it detects the radioactive goods at the earliest stage of import, minimising potential costs and damage to company reputation.



Cyclamen's primary objective is to protect the UK from dirty bombs, not to audit the supply chain for UK companies. As a result, the Government does not bear the cost for any detections. What's more material does not belong to Cyclamen unless formally seized by the Government; therefore, the onus is always on the owner or importer to pick up the bill.

This is a complicated regulatory and commercial matter, which is where a company like ACB can help to manage the process correctly, comply with regulation and reduce frustrations in what is a stressful situation.

Products or materials detected tend to be in large volumes, with a mix of low specific activity isotopes,

typically Co-60, Cs-137 and Ir-192. Surface contamination when it occurs can create further major headaches. Costs from a detection are varied, but can be substantial. Returning goods to the country of origin is complex (often impossible), involving international agencies, IMDG, IATA and CAA regulations and long timescales. Additionally, almost all shipping lines do not carry Class 7 goods. In contrast, a UK disposal tends to be quick, lower cost and covers virtually any material.

ACB has been involved with Cyclamen both directly and on the sidelines, managing detected materials for over 10 years. In our experience, speed is essential to keep costs down. Without exception, every time a client has tried to keep the process in-house it has cost them a great deal more than allowing professional organisations to manage the project.

Our team of experts are highly trained to not only analyse and identify the problem, but package, transport and dispose of the materials while adhering to regulations and managing the regulators. In addition we have in-house capabilities to effectively deal with the problem.



The above is an extract from the latest ACB Newsletter. You can sign up to the newsletter by visiting the ACB website at - <http://www.acb.co.uk/>

NEWS FROM PHE (HPA- Radiation Protection Division)

Ultraviolet radiation measurements from a string of monitors right across the UK, can now be viewed online.



Radiation experts at Public Health England's Centre for Radiation, Chemical and Environmental Hazards (CRCE) have been measuring ultraviolet radiation (UV) at a number of sites since 1990.

Now it has launched public access to regularly updated data from the monitors, from Camborne in Cornwall to Lerwick in the Shetland Islands. The information can be viewed from the [Defra website](#).

Dr John O'Hagan, head of laser and optical radiation dosimetry at CRCE, said:

When the sun starts to shine many of us rush outside and enjoy some warmth which is good.

Some sun exposure does most of us good. But it's worth remembering that exposure to the sun brings exposure to ultraviolet radiation - which can have some nasty effects.

Sometimes you can feel the heat from the sun on the skin but when it's windy or cloudy people may think they're less at risk – but that's not true. UV can still be high and if you are over-exposed your skin can burn which is not only painful but can increase your risk of skin cancer.

The 9 UV monitors around the country record hourly updates of the level of UV measured and they are then posted on Defra's UK-AIR website.

Over exposure to UV can lead to sunburn, which is a sign of skin damage and also premature skin ageing.

Dr O'Hagan said:

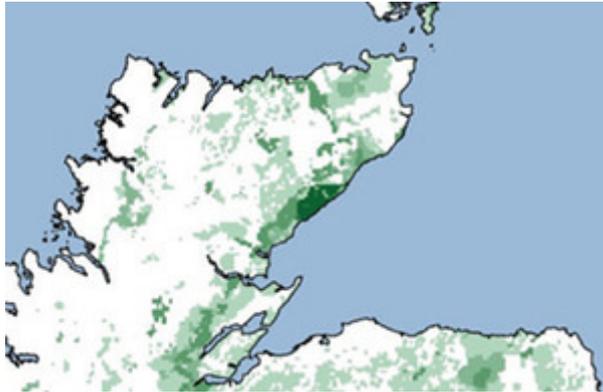
For many years the Met Office has provided us with invaluable forecasts of likely levels of UV.

But having all this equipment set up and a website means we can provide live measurements. Not only will this provide any visitors to the webpages with current information on UV, but tracking the data over years allows us to look at trends that may be due to climate change. It also helps when we have occasional low-ozone events in the stratosphere that increase the levels of UV reaching the ground.

With this tool people can check the UV levels online and be sure they're taking appropriate steps for the level of risk – and enjoy the sun.

Radon tests available soon for 2,000 homes across central Scotland

The radioactive gas occurs naturally and is present in all buildings all over the UK. It cannot be seen, smelled or tasted - but each year is believed to lead to over 1,000 lung cancer deaths.



Radon map of N Scotland

For years radiation scientists have been running radon awareness and testing campaigns in Scotland and soon around 2,000 households will receive letters offering them a free test, in a project funded run by experts at Public Health England and the Scottish Government.

Public Health England is the official adviser to all arms of the UK Government, including the devolved administrations, on the health effects of radiation.

In 2011 we produced a map, with the British Geological Survey, which identified areas of Scotland's central belt with a higher than previously thought potential for high levels of radon, said Neil McColl, head of radon at PHE's Centre for Radiation, Chemicals and Environmental Hazards (CRCE).

This was because for the first time it combined our historic measurements with geology data to give us a clearer picture of the potential risks in each area. Because of the findings of that work we are writing, in the coming weeks, to around 2,000 households to offer a free radon test. These households are across the City of Edinburgh, Mid Lothian, East Lothian, Falkirk, West Lothian, East Renfrewshire, South Lanarkshire.

Domestic radon testing involves placing 2 plastic detectors, about the size of a biscuit, in key positions around the home. After 3 months the detectors are posted to PHE where they are analysed and the radon level is calculated. If levels are high scientists will recommend householders take steps to reduce levels with local advice sessions planned to help provide to give them the information needed.

Mr McColl added:

We would expect that less than 1 in 10 of those who test will actually have high radon levels – but it's only by testing that people will know if they need to take steps to protect their health.

For more information about radon visit ukradon.org

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

Note they come under ‘Environment’ and not ‘Radiation’ if you are looking at the HPA webpages. Latest documents published are as follows:-

- **PHE-CRCE-009: Review of the potential public health impacts of exposures to chemical and radioactive pollutants as a result of shale gas extraction**
There have been no significant changes to the findings in the draft report, PHE-CRCE-002, which was published for comment in October 2013.
Added/updated: 25 June 2014
- **PHE-CRCE-010: Estimating Local Mortality Burdens associated with Particulate Air Pollution**
This report presents estimates of the size of this effect on mortality in local authority areas in the UK, building upon the attributable fractions reported as an indicator in the public health outcomes framework for England.
Added/updated: 9 April 2014
- **PHE-CRCE-008 Experimental Studies on the Uptake of Technetium-99 to Terrestrial Crops**
The aim of this small-scale experimental study was to provide further evidence that the generic assumption made on the difference between soil to crop TF values for non-reduced and reduced forms of technetium is valid. The study was also designed to establish likely time periods over which the chemical reduction of technetium takes place and to provide additional soil to crop TF values for use in UK based radiological assessments.
Added/updated: 27 March 2014

Meetings and Training Courses

BIR event: Linking orthopaedics and radiology II - the plain film revisited: the upper limb

22 September 2014 British Dental Association, London

This one day meeting will provide attendees with an understanding of the value and methods of measurement in orthopaedic radiology of the upper limb and provide clear linkage between radiographic measurement and orthopaedic practice. Delegates will leave the meeting with the knowledge to describe key radiographic measurement methods for shoulder, elbow, wrist and hand and how to link these with orthopaedic decision-making.

To Book online visit:

<https://membersarea.bir.org.uk/multievents/displayEvent.asp?Type=Full&Code=5211>

Programme: http://www.bir.org.uk/media/149451/22_sept_linking_orthopaedics.pdf

SRP Annual Conference 2015



Planning is already underway for SRP's 2015 Annual Conference which is to be held at the Devonshire Park Centre in **Eastbourne** from **19th – 21st May**. Please reserve these dates in your diaries now

Radioactive Source Security Training Course



Due to high demand SRP will be running this course again in London on 17th September. The purpose of this training course is to give delegates a basic understanding of radioactive source security including why we need to keep radioactive sources secure, how we can keep radioactive sources secure and where we can get security advice from. Registration is open on the [SRP website](#).

ERA12: An International Symposium on Nuclear & Environmental Radiochemical Analysis

17-19 September 2014

Assembly Rooms, Bath, United Kingdom

Introduction

This Symposium provides an international forum for presentation of research in all aspects of nuclear and environmental radiochemistry.

This is the twelfth Environmental Radiochemical Analysis symposium (ERA12). The two and a half-day meeting is a well respected international conference and is part of the events program of the Radiochemistry Group of the Royal Society of Chemistry (RSC)

See -

<http://www.rsc.org/Membership/Networking/InterestGroups/Radiochemistry/ERA12/index.asp>

BOOKS AND PUBLICATIONS

New and revised standards

[Project IEC 60860 ed2.0 \(2014-03\)](#)

Radiation protection instrumentation – Warning equipment for criticality accidents

ICS code 13.280 SC 45B CHF 120.-

[IEC 62694 ed1.0 \(2014-03\)](#)

Radiation protection instrumentation - Backpack-type radiation detector (BRD) for the detection of illicit trafficking of radioactive material

ICS code 13.280 SC 45B CHF 280.-

[Project IEC 61005 ed3.0 \(2014-04\)](#)

Radiation protection instrumentation – Neutron ambient dose equivalent (rate) meters

ICS code 13.280 SC 45B CHF 375.-

[Project IEC 61577-2 ed2.0 \(2014-04\)](#)

Radiation protection instrumentation – Radon and radon decay product measuring instruments – Part 2: Specific requirements for ²²²Rn and ²²⁰Rn measuring instruments

ICS code 13.280 SC 45B CHF 225.-

[IEC 61331-1 ed2.0 \(2014-05\)](#)

Protective devices against diagnostic medical X-radiation - Part 1: Determination of attenuation properties of materials

ICS code 11.040.50 SC 62B CHF 150.-

[IEC 61331-2 ed2.0 \(2014-05\)](#)

Protective devices against diagnostic medical X-radiation - Part 2: Translucent protective plates

ICS code 11.040.50 SC 62B CHF 45.-

[IEC 61331-3 ed2.0 \(2014-05\)](#)

Protective devices against diagnostic medical X-radiation - Part 3: Protective clothing, eyewear and protective patient shields

ICS code 11.040.50 SC 62B CHF 170.-

ICRP Publications

Protection of the Environment under Different Exposure Situations ICRP Publication 124 Ann. ICRP 43(1), 2014 R.J. Pentreath, J. Lochard, C-M. Larsson, D.A. Cool, P. Strand, J. Simmonds, D. Copplestone, D. Oughton, E. Lazo

<http://www.icrp.org/publication.asp?id=ICRP%20Publication%20124>

Health Physics 2014

May issue includes

[Comparison of Winter Short-term and Annual Average Radon Measurements in Basements of a Radon-prone Region and Evaluation of Further Radon Testing Indicators](#): Barros, Nirmalla G.; Steck, Daniel J.; Field, R. William

[A Proposed Simple Model for Estimating Occupational Radiation Dose to Staff from Veterinary ¹⁸F-FDG Pet Procedures](#): Martinez, Nicole E.; Kraft, Susan L.; Johnson, Thomas E.

June issue includes:

[The Accident at the Fukushima Daiichi Nuclear Power Plant in 2011](#): Tominaga, Takako; Hachiya, Misao; Tatsuzaki, Hideo; Akashi, Makoto

[Radiation Exposure Case Management After Incorporation of Radionuclides](#): Goulko, Guennadi; Dörr, Harald; Meineke, Viktor

July issue includes

[Strategy for a Rapid Radiological Screening Survey in Large Scale Radiation Accidents: A Lesson from an Individual Survey after the Fukushima Daiichi Nuclear Power Plant...](#): Ohba, Takashi; Miyazaki, Makoto; Sato, Hisashi; Hasegawa, Arifumi; Sakuma, Mitsuo; Yusa, Takeshi; Shishido, Fumio; Ohtsuru, Akira

August issue includes

[Predicting Induced Activity in the Havar Foils of the 18F Production Targets of a PET Cyclotron and Derived Radiological Risk](#): Martinez-Serrano, J. Javier; Diez de los Rios, Antonio

IAEA publications

[Schedules of Provisions of the IAEA Regulations for the Safe Transport of Radioactive Material \(2009 Edition\)](#)

IAEA Safety Standards Series No. TS-G-1.6 (Rev. 1)

This Safety Guide is issued in support of Regulations for the Safe Transport of Radioactive Material (IAEA Safety Standards Series No. TS-R-1, 2009 Edition). It lists the paragraph numbers of the Transport Regulations that are relevant for specified types of consignment, classified according to their UN numbers. It does not provide additional recommendations. The intended users are consignors and consignees, carriers, shippers, regulators, and end users involved in the transport of radioactive material. A person or organization intending to transport a particular type of consignment of radioactive material must meet requirements in all sections of the Transport Regulations. This Safety Guide aids users by providing a listing of the relevant requirements of the Transport Regulations for each type of radioactive material, package or shipment. Once a consignor has classified the radioactive material to be shipped, the appropriate UN number can be assigned and the paragraph numbers of the requirements that apply for the shipment can be found in the corresponding schedule.

STI/PUB/1614; 380 pp.; 3 figs.; 2014; ISBN: 978-92-0-192510-7, English, 40.00 Euro

Electronic version can be found:

<http://www-pub.iaea.org/books/IAEABooks/10416/Schedules-of-Provisions-of-the-IAEA-Regulations-for-the-Safe-Transport-of-Radioactive-Material-2009-Edition>

[Dosimetry in Diagnostic Radiology for Paediatric Patients](#)

IAEA Human Health Series No. 24

This publication draws on an IAEA coordinated research project and provides recommendations specific to measurement and interpretation of radiation dose to children as a result of undergoing diagnostic radiological examinations. It complements the work of *Dosimetry in Diagnostic Radiology: A Code of Practice* (Technical Report Series No. 457) and extends this work in methodologies for dosimetry in clinical environments to that required for non-adult patients. It includes dosimetry methodologies for general radiography, fluoroscopy and computer tomography for both phantom and patient measurements. Details are given on dose audit strategies that take into account the size of children and on how the results of such audits can be used to indicate or be related to diagnostic reference levels. The effects of radiation on non-adults are also reviewed, as are the factors involved in the management of paediatric dosage in the clinical setting.

STI/PUB/1609, 160 pp.; 14 figs.; 2014; ISBN:978-92-0-141910-1, English, 46.00 Euro

Electronic version can be found:

<http://www-pub.iaea.org/books/IAEABooks/8965/Dosimetry-in-Diagnostic-Radiology-for-Paediatric-Patients>

Near Surface Disposal Facilities for Radioactive Waste

IAEA Safety Standards Series No. SSG-29

This Safety Guide provides recommendations on how to meet safety requirements on the disposal of radioactive waste. It is concerned with the disposal of solid radioactive waste by emplacement in designated facilities at or near the land surface. The Safety Guide provides guidance on the development, operation and closure of, and on the regulatory control of, near surface disposal facilities, which are suitable for the disposal of very low level waste and low level waste. The Safety Guide provides guidance on a range of disposal methods, including the emplacement of solid radioactive waste in earthen trenches, in above ground engineered structures, in engineered structures just below the ground surface and in rock caverns, silos and tunnels excavated at depths of up to a few tens of metres underground. It is intended for use primarily by those involved with policy development for, with the regulatory control of, and with the development and operation of near surface disposal facilities.

STI/PUB/1637, 103 pp.; 5 figs.; 2014; ISBN:978-92-0-114313-6, English, 36.00 Euro

Electronic version can be found:

<http://www-pub.iaea.org/books/IAEABooks/10567/Near-Surface-Disposal-Facilities-for-Radioactive-Waste>

Lessons Learned from Environmental Remediation Programmes

IAEA Nuclear Energy Series No. NW-T-3.6

Environmental remediation, in the context of legacy sites, is being carried out in IAEA Member States at different paces. There is already significant experience and expertise present from around the world as nuclear and associated facilities are closed and move through the decommissioning and environmental remediation phases. Methodological approaches and remediation technologies have been developed to deal with different remediation situations and subsequently adapted to site specific conditions. They have also been further fine-tuned as they have been rolled out either on relatively small or large scale projects. This publication is intended to capture part of this experience and make it available to IAEA Member States, so that they can benefit from the existing knowledge when planning and implementing their remediation programmes.

STI/PUB/1630, 51 pp.; 2014; ISBN:978-92-0-145310-5, English, 27.00 Euro

Electronic version can be found:

<http://www-pub.iaea.org/books/IAEABooks/10509/Lessons-Learned-from-Environmental-Remediation-Programmes>

Safety Reassessment for Research Reactors in the Light of the Accident at the Fukushima Daiichi Nuclear Power Plant

Safety Reports Series No. 80

This publication provides guidance for all steps in performing safety reassessments for research reactors in the light of the feedback from the Fukushima – Daiichi accident. Although it primarily focuses on operating research reactors, the guidance provided by this publication also applies to research reactors that are in the design and construction phases or in an extended shutdown state. It is not intended to replace or supersede any of the requirements or guidance provided by the relevant IAEA Safety Standards, including those on safety analysis, evaluation of seismic and external hazards, and emergency preparedness and response for research reactors. However, this Safety Report should be used in close conjunction with these Safety Standards, whereby the main users will be operating organizations, regulatory bodies, design organizations and other entities involved in the safety of research reactors.

STI/PUB/1615; 33 pp.; 2014; ISBN: 978-92-0-100814-5, English, 20.00 Euro

Electronic version can be found:

<http://www-pub.iaea.org/books/IAEABooks/10522/Safety-Reassessment-for-Research-Reactors-in-the-Light-of-the-Accident-at-the-Fukushima-Daiichi-Nuclear-Power-Plant>

The Environmental Behaviour of Radium: Revised Edition

Technical Reports Series No. 476

This publication aims to provide IAEA Member States with information for use in the radiological assessment of accidental releases and routine discharges of radium in the environment. It covers radium behaviour in the terrestrial,

freshwater and marine environments. The information presented is relevant to the transfer of radionuclides through food chains to both humans and non-human biota. The corresponding remedial options and regulating aspects are also within the scope of this publication. Additionally, applications of radium isotopes to environmental issues are discussed in order to alert readers to studies that use radium isotopes as tracers of environmental processes. The information could also serve as a basis for remediation planning and identification of optimal remediation strategies in areas contaminated by radium.

STI/DOC/010/476; 267 pp.; 39 fig.; 2014; ISBN: 978-92-0-143310-7, English, 52.00 Euro

Electronic version can be found:

<http://www-pub.iaea.org/books/IAEABooks/10478/The-Environmental-Behaviour-of-Radium-Revised-Edition>

PET/CT Atlas on Quality Control and Image Artefacts

IAEA Human Health Series No. 27

Positron emission tomography/computed tomography (PET/CT), as any other imaging modality, is acceptable for routine clinical and research applications only if technical pitfalls can be avoided. Artefacts from incorrect or sub-optimal acquisition procedures should be recognized and, if possible, corrected retrospectively and the resulting image information interpreted correctly, which entails an appreciation of variants of the represented image information. This publication provides guidance on the physics and technical aspects behind PET and PET/CT image distortions. Cases are presented to provide nuclear medicine and radiology professionals with an assortment of examples of possible image distortions and errors in order to support a correct image interpretation. Nearly 70 typical PET and PET/CT cases, comprising image sets and cases, have been collected in this volume, all catalogued and augmented with explanations as to the causes of, and solutions to, each individual image problem. The atlas will prove useful to physicists, physicians, technologists, and service engineers in the clinical field.

STI/PUB/1642, 89 pp.; 101 figs.; 2014; ISBN: 978-92-0-101014-8, English, 60.00 Euro

Electronic version can be found:

<http://www-pub.iaea.org/books/IAEABooks/10424/PET-CT-Atlas-on-Quality-Control-and-Image-Artefacts>

Libby Yates, Cambridge

New Radiation Safety DVD

The Radiation Safety Training DVD that I produced for Trinity College is complete and I am very happy with the finished product. I believe it is the College's intention to market it in electronic and DVD formats at a reasonable cost however it will take another few months to go through the appropriate administrative hoops with our marketing department etc. I am about to start a three year career break from Trinity College (to concentrate on my family and my RPA business work for a while) but I wanted to update you all before I go. I will still be linked into this site (Hasnet-Rad) and once the DVD is ready to be marketed I will post again on this site and let you know who to contact if you want to get a copy to preview. In the meantime, I have passed the contact details of those who already expressed an interest in the DVD to my colleagues here in the College Safety Office.

Many thanks and best wishes,

Dr. Elaine Doorly, Trinity College, Dublin