



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

**April 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

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Welcome to our Spring issue – packed with news! Many thanks to our contributors who help to make the newsletter so successful. Libby Yates (Cambridge) is now looking after Books and Publications for me, Gus Zabierek (Birmingham) contributes with RPA 2000 and non-ionising issues, Liz Tate (Strathclyde) gives me news from north of the border. It's difficult for people to get to all the meetings and in this issue members also contributed with meetings reports: James Wallbank (Kings College) attended a WINS meeting; Louise Nicholson (Liverpool) attended a Transport stakeholder meeting; and Glenn Hardcastle (Aurora) gave me a report from a decommissioning meeting he organised. And I must not forget our President Sonia who keeps the Executive Committee organised and plans our conferences and keeps us informed of developments.

If you think you can help in any way with the Newsletter, Exec or STC (technical committee) please get involved. Deadline for summer issue is 27<sup>th</sup> June.

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## **AURPO Certificate of Professional Development in Radiation Protection**

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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 29<sup>th</sup> August 2014. Course commences 8<sup>th</sup> 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](mailto:scosh@strath.ac.uk)

## PRESIDENT'S REPORT

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We are well into 2014 and once again I am looking forward to seeing as many of you as possible at the AURPO Annual Conference later this year in September.

The annual conference, which this year is being organised by the AURPO Executive, will take place at the East Midlands Conference Centre in Nottingham on 1<sup>st</sup> – 2<sup>nd</sup> September 2014. We are now well beyond the planning stage and we eagerly await your participation. The facilities look excellent with accommodation in the newly opened conference hotel with all the expected comforts that this brings with it. The Scientific Programme which is being finalised, promises to hold some very interesting sessions under the general theme of 'Risk'. The Regulatory Update session on Monday afternoon is designed to inform you of any new developments and the social events arranged promise to have us all well entertained. You should all by now have received a registration form so get filling them in! There will be the usual exhibition of equipment and services relevant to our work and an entertaining social programme. We still have space to accommodate more exhibitors. We have also received some promises of sponsorship but would welcome any further offers to sponsor aspects of our conference.

The venue for our 2015 conference will be in Eastbourne and we are at the early stages of planning for this. It will be organised by the AURPO London and South East (L&SE) Regional group. Novel and original topics for the Scientific Programme are sometimes difficult to choose, so if you have any suggestions, do please let us know what you would like to hear about.

We are now also looking for offers to host annual conferences from 2016 onwards. It seems early to talk about 2016, but conference planning and booking of facilities needs to be done at least 2 - 3 years ahead. If anyone feels that they have suitable facilities at their organisation, do please let us know.

Peter Cole has informed me that he will resign from the AURPO Executive from 1<sup>st</sup> September 2014. This is very understandable as he prepares to take up his place as SRP President from early 2015. We wish him every success as he takes on this very demanding and time consuming role.

Thinking ahead to the future, I wish to remind all of you that in a short time we will be calling for nominations for membership of the Executive Committee and also the Scientific and Technical Committee (STC) who need more volunteers to assist with their work. We would be delighted to hear from you if you are interested in being involved with either the Executive Committee or the STC.

My best wishes to you all.

**Sonia Nuttall**  
**24 March 2014**

## MEMBERSHIP NEWS

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

Kay Green     British Geological Survey

## JOB VACANCY

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### Head of Radiation Safety and Radiological Protection Officer

The University of Manchester is seeking to appoint a full-time Head of Radiation Safety and RPO to replace the current incumbent, who retires in September. The post is available from 1st July 2014.

The postholder will manage a small central team of radiological technicians who ensure compliance with all aspects of legislation concerning ionising and non-ionising sources, as well as laser safety, along with some administrative support. The University has recently secured statutory Radiological Protection Adviser and Radiological Waste Adviser services from an external provider (Public Health England) and one aspect of this role will be management of contract provision. You will be responsible for key areas of radiation safety in the University, supported by external RPA/RWA advice, and will play a key role in supporting the work of the Radiation Safety Coordinating Group and its associated Advisory Groups.

Further details: <https://www.jobs.manchester.ac.uk/displayjob.aspx?jobid=7185>

Informal enquiries may be made to Dr David Barker, Director of Compliance & Risk  
Email: [david.barker@manchester.ac.uk](mailto:david.barker@manchester.ac.uk)

### 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!’ – TBC  
Justification of Practices – DECC speaker  
Laboratory risk assessment – TBC  
Environmental impact assessment – TBC

Tues PM     Risks from radium – Ciaran McDonnell, PHE  
Information security – TBC  
Risks of low level radiation – PHE speaker  
Transport overseas: sea, air and road – ONR speaker

### ***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](mailto: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)*

### **Rolls Royce facing prosecution re work with sealed sources**

Rolls Royce the engine and turbine maker, is facing criminal charges for allegedly failing to manage the risk of employees being exposed to a radioactive substance (sealed source used to check welds allegedly went missing). A joint prosecution is being brought by HSE and EA. First court hearing was in Feb 2014.

David Orr, HSE Inspector, said: “Having concluded our joint investigation with the Environment Agency into the incident we have decided there is sufficient evidence and it is in the public interest to bring criminal proceedings in this case.”

Further report on outcome to follow.

### **Review of new BSS 2013/59 Euratom**

The [new BSS](#) was passed on 5<sup>th</sup> December 2013 and published on 17<sup>th</sup> Jan 2014.

#### **Key points from the pre-amble:**

The BSS follows the recommendations of ICRP103 and is now a ‘situation based approach’ looking at existing situations, planned situations and emergency exposure situations. It also now covers all categories of exposure – occupational, public and medical. The following EU directives have therefore been repealed:-

- 96/29 – old BSS
- 89/618 – REPIR
- 90/641 - outside workers
- 97/43 – medical exposures

➤ 2003/122 – HASS

BSS now follows new guidance from ICRP on equivalent dose to eye and recent studies have indicated an increase in lung cancer risk where radon levels exceed 100Bq/m<sup>3</sup>. Radon is considered an 'existing exposure situation' but if doses are likely to exceed 6mSv/y then they need to be managed as a 'planned exposure situation'. Aircrew exposure is a 'planned exposure situation'.

There should be a graded approach to regulatory control. IAEA RS-G-1.7 2004 'Concepts of exclusion, exemption and clearance' should be used as the default exemption and clearance levels.

Provision for outside workers should be extended to cover work in supervised areas.

For 'emergency exposure situations' more detailed planning for emergencies is required.

### **Articles**

Outside scope of BSS – exposure to natural levels of background radiation at ground level or exposure of members of the public to cosmic radiation during flights (air or space) .

Article 4 covers an extensive list of definitions. Note 'Radiation Protection Expert' (RPE) is their term for RPA. (replaced 'qualified expert'). They have also introduced term 'Radiation Protection Officer' for someone competent for a particular practice could be equivalent to our RPS or university type RPO depending upon how HSE develop this concept. Accreditation is required for RPE but accreditation for RPOs is at the discretion of the national authority.

Article 5 covers general principles, justification, optimisation and limitation.

Article 6 covers the dose constraints to be made for optimisation.

Article 7 covers the use of reference levels for emergency and existing exposure situations.

Article 9 covers Dose Limits. Only change here is in respect of eye dose limit – now an equivalent dose limit of 20mSv for the lens of the eye (formerly 150mSv).

Article 10 covers protection of pregnant and nursing mothers – no change.

Article 11 covers doses to 16-18 year olds just reduction in lens of eye limit to 15mSv/y

Article 12 covers public limits. No change apart from dose to lens of eye limit down to 15mSv/y

Articles 14-18 cover training. Training should be documented and repeated at appropriate intervals. Possible requirement for recognition of RPO/RPS in future.

Articles 19-22 cover justification of practices.

Articles 23-30 covers licensing of practices etc. Under Article 29 and annex 9 additional information may be required for prior authorisation. This may affect use of machine sources currently governed by generic prior authorisation.

Articles 31-34 covers responsibilities for occupational exposures of employers workers and trainees and the role of RPEs.

Article 35 is about the requirement for Local Rules –no change.

Article 36 – 38 is about categorisation of areas – no change. Signage should indicate type of area, nature of radiation and the inherent risks

Articles 39-44 covers monitoring - area and personnel. No change. Monitoring of workers in controlled areas and sufficient monitoring in supervised areas to demonstrate that areas are correctly designated.

Articles 45-50 covers medical supervision -no change.

Article 51- outside workers – rules now cover work in supervised areas as well as controlled (some requirements only apply to classified workers).

Article 53 relates to emergency occupational exposure (for emergency services). No guidance on limits previously given. New BSS states that levels may be set above 100mSv but not exceeding 500mSv. Emergency workers must be given comprehensive information about the risks and must take part voluntarily.

Article 54 deals with radon in workplaces and article 74 deals with radon in the home. Action level for both should be no higher than 300Bq/m<sup>3</sup>. (No action levels specified for radon in old BSS).

Articles 55-64 deal with medical exposures.

Articles 65-75 deal with public exposures.

Article 82 details the role of the RPE.

Article 83 details the role of the medical physics expert (MPE).

Article 84 details the role of the RPO. *(similar to what we require of RPSs but much further than what the HSE expect of RPSs)*

(detailed requirements and roles of RPE, MPE and RPO not previously specified)

Articles 85-91 cover the control of radioactive sources including HASS sources.

Articles 92-95 cover the control of orphan sources including financial provisions.

Articles 97-99 cover emergency exposure situations relate to the release of significant radioactive material that could lead to deterministic effects in offsite populations (thjese requirements replace the REPPIR reg requirements.

Articles 100 -103 deal with existing exposure situations that may not be easily dealt with – legacy materials contaminated land, radon etc. Programmes and strategies for dealing with these should be developed.

Articles 104 & 105 deal with inspections and enforcement.

Annex X1X to BSS correlates the articles of the current standard to those of the other directives that it has replaced.

## **Implementation**

National governments to have implemented BSS by 6<sup>th</sup> Feb 2018.

**T J Moseley, University of Sheffield**

## EA, DEFRA & DECC MATTERS

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### **Sellafield fined £700,000 after incorrect disposal of radioactive waste**

*Somehow I missed this before – or it wasn't on the net.*

Sellafield Limited was fined £700,000 and ordered to pay £72,635.34 in costs at Carlisle Crown Court on 14<sup>th</sup> June 2013 for sending several bags of radioactive waste to a landfill site in Cumbria. The bags should have been sent to a specialist facility that treats and stores low level radioactive waste. Sellafield admitted sending waste to landfill North West site and pleaded guilty at Workington Magistrates' Court to sending several bags of radioactive waste to the wrong facility.

Carlisle Crown Court heard that a number of significant management and operational failings at Sellafield Limited led to the incorrect disposal of the waste at the Lillyhall landfill site in Workington. This breached the conditions of Sellafield's environmental permit and the Carriage of Dangerous Goods and Use of Transportable Pressure Equipment Regulations.

Sellafield found the error was caused by the wrong configuration of a new monitor which passed the bags as 'general' waste making them exempt from strict disposal controls.

The Environment Agency and ONR carried out a thorough investigation and have taken action to minimise the chances of this type of incident happening again, including working together to ensure Sellafield makes further improvements to its leadership and management systems, the shortcomings of which were highlighted in this event.

The bags were retrieved from the landfill and returned to Sellafield for correct disposal. Extensive reassurance monitoring was carried out by a number of organisations, including the Environment Agency, Waste Recycling Group Limited (operators of the landfill at the time) and Sellafield Limited, which confirmed that there was no contamination left at the site or on the landfill equipment and no harm was caused to the environment or the public.

In summing up, the judge hearing the case recognised that the mistakes that were made indicated basic management failures and in this type of industry, it shouldn't be the case that lessons were learnt after the event.

Ian Parker, Nuclear Regulation Manager for the Environment Agency, said: "While this incident did not lead to any significant harm being caused to the public or to the environment, the failings by Sellafield Ltd that led to the incident were serious and we consider that on this occasion, Sellafield Limited fell well short of the high standards which we expect from them.

"For us, the most important thing is that Sellafield Ltd has learnt the lessons from this and put improvements in place to minimise the chances of this type of incident happening again."

Ian Barlow from the Office for Nuclear Regulation, said: "We require the nuclear industry to control its hazards and ensure it has effective procedures in place for transporting and disposing of all forms of radioactive material, including waste. That hasn't happened here: a failure in leadership and management resulted in the uncontrolled transport and disposal of low-level waste in the public domain.

"Our decision to prosecute [and the £700,000 fine imposed in court today] shows that this will not be tolerated.

"Where it is necessary to do so, ONR will not hesitate to take enforcement action to ensure the protection of people and society from the hazards of the nuclear industry."

## SCOTTISH REGIONAL AURPO GROUP

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The Scottish Regional AURPO group had its 4<sup>th</sup> meeting is on **19<sup>th</sup> 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.

The following items were discussed during our last meeting:

- **On-line radiation training.** Updates were given from members on their experiences with developing on-line radiation safety courses training. This included, sharing examples of quiz type questions; radiation practical type scenario situations; online refresher training; comparison of taught classes with online cases and the advantages and disadvantages of both.
- **Radon Assessments** - Updates on plans and progress with these was given by members.
- **SEPA** – Updates from members on issues of EO's, inspections and applications given.
- **Registration system & Management of radiation workers** – users shared their current practices for trying to maintain accurate records for radiation workers but it was acknowledged that this is difficult when there is reliance on user Departments and RPSs informing the RPO office of changes. In many cases it is by default (e.g. dosimetry no longer required) or via an annual update review sent to RPS to confirm on.
- **Arrangements for Classified Workers.** Some users have some classified workers and under Reg. 21(6b) of IRR99, there is a requirement *“when a classified person ceases to be employed by the employer, take all reasonable steps to provide to that person a copy of his termination record.”* The group discussed how they try to do this at present, but acknowledged that it is not always easy due to timing issues, e.g. notification of user leaving, time taken to receive termination does report from dosimetry provider etc.
- **HAZMAP / Fire Emergency Situations.** Users discussed what they had been doing with the Fire Service, in terms of planning for an emergency situation and in line with BS 9999:2008 Annex M – Operational information (emergency packs) for the fire and rescue service
- **Contingency / Incident Response Training.** Group members shared what they had been doing/were planning for this. These included performing a lab scenario incident with users or carrying out response training for security staff who may be the first ones that are informed of an incident or called to a location (e.g. fire, suspect package). One member had invested in some polling equipment from Turning Technologies – <http://www.turningtechnologies.com/tutorials> with a view to carryout some contingency / management training using this.

- **Radioactive Waste Advisers.** Potential problems with delays in reaccreditation of RWA's who gained their accreditation through "grandfather rights" was raised if they did not get their portfolio in before the 2016 for renewal. Fees are cheaper at present for those that apply early for their renewal.
- **Historical Artefacts & Geological or Museum Collections.** Issues surrounding the disposal of historical artefacts and users that are responsible for keeping geological specimens but not keen on taking on RPS roles. Colin Farrell advised the group that he was interested in building a small radioactive museum collection and if anyone had any items that they thought he might be interested in to contact him directly to discuss.
- **Handheld XRF Devices** - it was brought to the Group's attention by one member that a serious incident and fault with a handheld XRF device was currently being investigated by the HSE and that one of the faults with this particular piece of equipment may be due to a software design issue. The British Standard **BS EN 61508-1:2010** deals with the functional safety of electrical/electronic /programmable electronic safety-related equipment. It would be interesting to know if the XFR met this standard. Note the SRP have a guidance document on the safe use of hand held XRF analysers, but this does not cover software issues at all. Concerns were also raised regarding the angle of the emitted rays and that it was misleading because the rays were emitted at an angle even when the device was supposedly being held/pointed in a particular direction.
- **Radioactive & Hazardous Waste Disposal (e.g. uranium & thorium salts).** The group discussed and shared their experiences with the on-going problems of trying to dispose of uranium and thorium salts under the EO but then trying to comply with the Hazardous Waste (Special Waste) Regulations and get the waste contractor to accept it for disposal to landfill.
- **Date of Next Meeting:** February 2015, Univ. of Edinburgh

All interested members are welcome to attend. Please contact Paul Szawlowski ([pwss@st-andrews.ac.uk](mailto:pwss@st-andrews.ac.uk)).

**Liz Tate, Strathclyde**

## Strategy for the Management of NORM Waste – a consultation

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A consultation on the strategy for the management of Naturally Occurring Radioactive Material (NORM) waste in the United Kingdom is being co-ordinated by the Scottish Government on behalf of all United Kingdom authorities. The consultation paper can be found at - <http://www.scotland.gov.uk/Publications/2014/02/8435>

Responses have to be made by 8<sup>th</sup> May to [NORMStrategy@scotland.gsi.gov.uk](mailto:NORMStrategy@scotland.gsi.gov.uk) . Responses can be made either directly or via Brian Heaton who is co-ordinating responses for AURPO – [b.heaton@aberdeenradiation.co.uk](mailto:b.heaton@aberdeenradiation.co.uk)

I had hoped that this document would address issues relating to the interaction of the various waste regulations to clarify things for stakeholders but it appears to have sidestepped these issues. In its aims it states that the regulatory framework should be clear, coherent and effective – and here from my perspective it has failed.

It states that the paper is just dealing with LLW wastes but I would have thought it would have mentioned what can be disposed of as VLLW especially when it declares that the scope of the strategy should cover all NORM wastes regardless of activity level and including liquid and gaseous as well as solids.

There was no mention of the landfill regulations, no mention of mirror wastes and no mention of the hazardous waste regulations. It hinted at other waste regulations in para 2.16 when it talked about waste not captured by radioactive substances regulation being 'out of scope' but that the provisions of other waste legislation would apply. In 2.17 it followed this up by stating that there was a graded approach to regulation of NORM and that some disposals could be carried out under the provisions of an exemption. No mention here was made of 'other waste legislation' implying that only the radioactive substances legislation (RSA93 or EPR2010) applied. This used to be the position for a few years when it was considered that because the exemptions were conditional it was considered that disposal under the exemptions still came under RSA93 and that the hazardous waste regs therefore did not apply. This document has done nothing to clarify this position as it appears to run counter to other statements that have been made by the Agencies on this matter. When are we going to get a clear unambiguous statement on whether 'exempt radioactive wastes' come under the hazardous waste regulations or not?

Dilution, treatment, conditioning of wastes – this is still a very grey area. 5.20 reminds us that we should not be diluting wastes solely to achieve a reduction in classification. However, under 5.26 and 5.27 when conditioning of wastes is considered the addition of cement or grout to make the waste safe to handle and transport is acceptable and it states that material may be added to treat the waste to make it less hazardous so that it meets the acceptance criteria of the accepting facility. So if you are concreting up your wastes for disposal is it OK to make sure that you fall outside the hazardous waste restrictions (0.1% U by wt) and thereby giving you more disposal options for your VLLW waste? 5

5.38-5.42 implies that waste producers do not have to inform waste management companies about the radioactive content of their wastes if they are disposing of exempt wastes – but this is a fallacy. If you are a responsible waste producer, using BAT, and want to dispose of your waste by burial then you have to inform the landfill operator what is in your waste. Now your problems really begin, because not only is there a radioactive content but you are claiming that the waste

does not fall within the hazardous waste restrictions and under the landfill regs this makes it 'mirror wastes' and there is a requirement on the landfill operator to sample the waste to confirm that it is in fact non-hazardous. So most landfill operators will not be interested unless you are dealing with one that takes VLLW and has an RPA that you can work through.

The paper covers most other issues associated with NORM disposal quite comprehensively but unfortunately not the ones I am particularly interested in..!

**T.J.Moseley, Univ of Sheffield**

## **TRANSPORT NEWS**

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ONR will become a public corporation on 1<sup>st</sup> April 2014. All email addresses within ONR will change from that date from @hse.gsi.gov.uk to @onr.gsi.gov.uk

Any old email addresses used will be automatically redirected for a transition period A new website will be established at - <http://www.onr.org.uk/>

ONR will continue to from its established locations in Bootle, Cheltenham and London.

A number of vacancies for nuclear specialists are being advertised on the current [ONR website](#).

### **Stakeholder Event 20/03/2014**

The presentations mainly related to ONR's work programs, how they are planning to manage their resources and their transition from civil service to Public Corporation status, so there wasn't a great deal that specifically related to us. Although one of the presentations did say that, once ADR15 has been put in place, there will be stability in the transport regulations for Class 7 until 2020.

**Louise Nicholson, Liverpool**



### **Aurora Workshop Radiological monitoring and decommissioning of redundant facilities Wednesday 22 January 2014 Harwell Oxford**

#### **Introduction**

On Wednesday 22<sup>nd</sup> January 2014 Aurora Health Physics Services Limited (Aurora) ran a workshop for its clients and key stakeholders. The workshop “Radiological monitoring and decommissioning of redundant facilities” was principally aimed at lifescience and research facilities.

#### **Aim**

The aim of the workshop was to give all participants a better understanding of the logistics, legalities (e.g. Health & Safety, Environmental, Commercial, Contractual, etc.) and operational systems and processes involved in decommissioning of redundant facilities.

The 94 delegates represented large public body and private radiopharmaceutical and medical research organisations. There was also a presence from academic establishments (including Universities), Regulators, and key organisations within the nuclear sector.

The Aurora Team and guest speakers provided knowledgeable and informative presentations, with the speakers reflecting their real experiences of large scale decommissioning projects. This enabled them to provide an open account of how their decommissioning projects have been managed, including an appreciation of the potential pitfalls and lessons to be learnt for any future projects.

#### **Presentations**

**Andrew McKerracher (Senior Director, Aptuit)** provided the first presentation of the workshop remotely (via Skype) from Scotland, as he couldn't be present on the day. Aptuit is a pharmaceutical services company that delivers Good Manufacturing Practice/Good Laboratory Practice compliant drug development solutions to its clients. Aptuit closed its research facilities in Edinburgh in December 2011. As part of the site closure, chemical, biological and radiochemical (<sup>3</sup>H, <sup>14</sup>C, and <sup>125</sup>I) materials were removed from all laboratory and manufacturing areas. These areas were subsequently cleaned and decontaminated. Aurora was recommended to Aptuit by other consultants to carry out the radiological monitoring and clearance works.

For the initial monitoring phase an extensive radiological survey and sampling regime was undertaken to establish the extent of contamination of work areas. The monitoring was performed throughout multi-storey laboratory buildings, internal ventilation and drainage systems, ventilation stacks, and external drains.

The subsequent decommissioning work involved dismantling and removal of fume cupboards together with their ventilation systems, contaminated laboratory fixtures and fittings and a number of internal drainage systems. All waste materials from decommissioning works were disposed of in accordance with Aptuit's Certificate of Authorisation granted by the Scottish Environment Protection Agency (SEPA).

Following removal of all waste materials, Aurora undertook validation surveys to confirm that the end point clearance criteria had been successfully achieved. Aurora provided a final report along with other documentation to Aptuit, which became essential documentation that could be forwarded to the landlord and prospective site buyers. The ability for Aptuit to be able to provide clear and demonstrable evidence that the site was clean of radiological contamination placed Aptuit in a position to successfully surrender its Certificate of Authorisation and leave the site without any radiological legacies.

The second presentation was given by **Phil Fahey (Technical Specialist, Radioactive Substances Regulation, Environment Agency)** on the environmental permit surrender process. The presentation focussed on what the Environment Agency (EA) expect from organisations as suitable and demonstrable evidence that their site is clean and free of contamination prior to any surrender being granted. The EA requires that sites, which have used radioactive materials, are decommissioned and cleaned up to a high standard of environmental protection so that they can be suitable for beneficial uses. Any remediation that is carried should provide the best options for subsequent disposal of radioactive waste.

Sites which may require permit surrender include those which currently hold permits (such as hospitals, universities, biopharmaceutical organisations etc.) and those which may have had a permit in the past and have legacy issues (e.g. historical uses of <sup>226</sup>Ra, NORM, Thorium, old laboratories, and Ministry of Defence activities).

When surrendering a permit the EA requires operators to ensure that they are not leaving behind a radioactive legacy; they return the site to a satisfactory state having removed all material and waste. Where information is not available as to the state of a site before being occupied by the permit holder, the EA expects operators to remediate so that any remaining radioactive materials are out of scope of the Regulations; or to remediate to an agreed site background level; or to remediate to such a level that any remaining radioactivity would not give a dose to the public of more than 10 µSv/yr. At all stages the application of Best Available Techniques (BAT) is essential.

Phil suggested that a suitable desk study is imperative to ensuring that a decommissioning project is successful. The study should include advice from a suitable Radiation Protection Adviser (RPA), Radioactive Waste Adviser (RWA), competent people, and other experts, such as contractors. The key message conveyed was to involve the regulators at this early stage and seek advice. This could help avoid delays at a later stage. Phil summarised a list of key documents/reports that the EA would expect to be produced and available during a decommissioning project:

- Initial radiological report/plan
- Remediation strategy
- Sampling/surveying strategy, including groundwater sampling
- Interim report depending on surveys and monitoring
- Update of strategy including BAT options
- Implementation of BAT, and written Standard Operating Procedures
- Final radiological clearance report

As a final note Phil mentioned that other hazards should also be considered when radiological decommissioning work is being planned, such as biological and chemical contamination.

The third presentation was given by **Alan Muir (RPA/RWA from GlaxoSmithKline)** on avoiding the pitfalls when surrendering environmental permits. In his position of RPA/RWA, Alan has had to oversee a number of very large decommissioning projects and eventual surrender of permits at the GSK sites at Beckenham, Frythe, and Harlow between 2010 and 2013. Aurora was involved in all three projects. A phased approach was applied to all projects, which included desk studies, surveys, decontamination, and decommissioning, with reviews after each main project stage.

Alan explained that decisions must be made at an early stage as to the scope of any radiological works, including timescales, budgets, availability of key staff, and waste disposal requirements. All these things have a knock on effect on the surrender process. Availability of relevant information relating to previous radiological works can have an impact on the scope of radiological works. Relevant information will include the following: previous environmental permits, disposal records, contamination monitoring records, incident reports, survey/audit records, and regulatory correspondence.

For the GSK projects contamination monitoring took a three stage approach: (i) review of in-house routine records; (ii) in-house final monitoring; and (iii) independent reassurance monitoring and agreed decontamination/decommissioning by Aurora. Alan expressed the importance in ensuring that drains (within buildings and external) be surveyed. It is also important to monitor areas that are not routinely monitored, such as for fume cupboards: extracts, back plates, roof extracts, and bends in trunking.

Seeking assistance early from the EA was highly recommended to ascertain exactly what they would expect before approving any surrender. Having the Inspector visit the site also helps to create good communications with the Regulator. Before the surrender application forms are completed, Alan recommended that the local Inspector should be contacted to ensure that he/she is happy with the information about to be provided.

**Sharon Morrison (Pfizer at Sandwich)** provided a presentation on the radiological decommissioning works carried out between 2012 and 2013 (Aurora was involved in the works). The Pfizer site in Sandwich was one of the largest radiopharmaceutical research sites in the UK. It was decided that the site would undergo consolidation so that the majority of the site buildings were closed down and eventually demolished. The site had historical uses of unsealed and sealed radioactive material. There was also an incinerator on the premises.

The initial phase of the works took place between May and December 2011. This phase involved the exit of staff from the Pfizer site that were not essential to the radiological works. The EA were involved at this stage so that they were aware of the future works. Pfizer carried out sampling and direct monitoring looking for radioactive contamination, and where found carried out its own clean up processes. Radioactive stock was consolidated and disposed of (unsealed and sealed). The EA was provided with a detailed decommissioning proposal for the Phase 1 and 2 works.

During the period January to March 2012 the Phase 1 survey was carried out and this involved sampling and direct monitoring by Aurora to verify the results of the monitoring carried out previously. The results from the Phase 1 monitoring were reviewed with the local EA Inspector, who was also provided with a detailed proposal for the Phase 2 remediation works.

From April to June 2012 remediation works were carried out to remove  $^3\text{H}$  and  $^{14}\text{C}$  contamination in laboratories and other work areas. This removal involved cleaning, further sampling, dismantling of equipment, and then disposal. Following the completion of Phase 2, Aurora reported the results of the radiological works and this formed part of the surrender application documentation for the site environmental permits. Final site permit surrender was confirmed in March 2013. The site was sold to Discovery Park Limited and is now a multi-tenanted site.

**Simon Rice (Senior Safety Co-ordinator, MRC)** provided a presentation on the recent decommissioning of the MRC Laboratory of Molecular Biology (LMB) in Cambridge.

The LMB building (which had been opened in 1962) was to be vacated, decommissioned and released to the University of Cambridge. The works began in May 2012 and was finalised in December 2013.

Aurora was the lead contractor for the clean up and decommissioning works. This project presented different challenges to those described by other speakers during the day. In most cases the site occupier had the ability to carry out extensive prior work in the form of reviews of safety documentation. However, the work at LMB made this difficult due to the history and complexities of the site. Compared to other similar sized projects there was little radioactive waste generated during the decommissioning. Instead there were greater issues with the cataloguing and disposal of chemical and biological materials.

Even though there was little or no radioactive contamination found it was essential for MRC to be able to demonstrate that the site was effectively clean so that partial permit surrender could be achieved.

The penultimate presentation of the workshop was provided by **Craig Morrissey and Jon Taylor (RPA and RWA, Aurora)** on the radiological monitoring and waste management during the decommissioning of redundant laboratories.

Aurora has successfully completed a number of large scale decommissioning projects. This has given Aurora a unique perspective on the wide range of complex challenges that can arise when undertaking projects. The presentation was designed to allow the delegates to interact and partake in the discussion. Both speakers emphasised the need for communication with all parties including Regulators before and then at all phases of the project. Before any project begins a project scope/brief is essential that clearly outlines the scope and end points of the project, phased approaches to be taken, Health & Safety requirements, resourcing, appointments, timescales, finances, and review points.

Once surveys are under way the initial phase should include visual inspections and direct/indirect monitoring of offices, laboratories, ventilation extract systems, and drainage systems. Dependent on the size and complexity of the facility (including historical use) the number of samples required to provide a comprehensive survey can be thousands. When the results of contamination monitoring have been obtained, discussions can be held with the Regulators as to the outcome.

The decommissioning phase will not likely require as many samples as the initial phase of monitoring and will instead be on dealing with the areas of contamination that have previously been found. Once waste is accumulated it can be disposed of via identified routes. The final phase of works involves visual inspections, removal of warning signs, disposal of non-radioactive waste, and final reporting. Further reassurance sampling may also be carried out. The final report is essential as it is demonstrable evidence that the works have been completed.

The final presentation of the workshop was provided by **Paul Atyeo (Research Sites Restoration Ltd)**. RSRL are responsible for the decommissioning and eventual surrender of areas of the Harwell nuclear site. Paul's presentation provided a useful and thoughtful comparison of the scale of decommissioning projects in relation to the nuclear and non-nuclear facilities.

The Harwell site is a 113-hectare nuclear site located on the Harwell Oxford Science Campus. The site was originally a Royal Air Force airfield in WWII and became the first significant nuclear site in 1946. The United Kingdom Atomic Energy Authority operated until early 1990's and then decommissioning commenced and the site was subsequently licensed in 1990. Decommissioning is currently being carried under a programme run by the Nuclear Decommissioning Authority.

One hundred of 160 facilities have now been decommissioned, with approximately 1 million square feet of facility footprint removed. This equates to approximately 20% of site area now being de-licensed.

Paul provided details of the following activities carried out by RSRL at Harwell:

- Active drains decommissioning in which 12 km of trade level active drain has been decommissioned by in-situ cleaning and survey.

- Groundwater and unsaturated zone remediation, where groundwater pollution by chemicals was discovered in early 1990's. The source has now been removed and the unsaturated zone has since been treated using a thermally enhanced vapour extraction method.
- Solid ILW recovery and repacking complex, which has been created to handle ILW, accumulated across the site. Here waste is processed.

The long-term focus of the site is to complete all planned remediation works. The ILW store will remain on site until a national facility has been created to which the ILW can be relocated.

### **Outcomes and lessons learnt**

The workshop allowed Aurora clients and stakeholders the ability to liaise with their peers from other organisations to share best practice regarding decommissioning. It also gave delegates direct access to Aurora's RPAs/RWAs to discuss their own decommissioning projects, some of which have had long standing historical issues with radioactive material and contamination.

The Environment Agency was also present at the Workshop, both represented by delegates and by speakers. This gave the opportunity for delegates to gain an understanding of what an enforcing authority requires before, during, and after decommissioning projects so that the surrender process for environmental permits is completed in a satisfactory and compliant manner.

All presentations focussed on specific issues relating to projects and shared common learning points in relation to the remediation and decommissioning of redundant facilities. These included:

- Radiological decommissioning should be considered as a main work stream in its own right on any site closure programme, and should highlight personnel, skills, and resources required to complete all activities.
- Ensuring that decommissioning meets all Health & Safety, legal, and commercial requirements so that site owners are in a defensible position before leaving site. This information can be forwarded on to future site occupiers/landlords to ensure that no future issues are raised.
- Plan decommissioning projects early so that adequate and spare resourcing is identified before work begins.
- Expect the unexpected as often on decommissioning projects the unforeseen can occur.
- Understand the scope and boundaries of the project before work begins, it's appropriate to utilise a phased approach at every stage of the works.
- Involve the Regulators at an early stage so that they are clear about what you intend to achieve, and approve all documentation beforehand.
- Keep Regulators updated during the project works.
- Ensure all documentation: remediation strategy, waste management plans, BAT assessments etc. are appropriate and reviewed at all stages.
- Make sure that all final reports and records are robust, legible so that they provide demonstrable evidence that the site is clean of radioactive material and contamination.

### **Thanks**

The Aurora Team would like to thank all participants at the workshop on 22 January 2014 at Harwell. Special thanks are given to all speakers who provided useful input to what was a very successful event.

Copies of the presentations can be found on the following link:

<http://www.aurorahp.co.uk/workshop.html>

**Raj Bunger & Glenn Hardcastle, Aurora**

## News from NPL – Ionising Radiation Modelling

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### How can NPL help you?

At NPL we routinely use mathematical modelling techniques to underpin our world-leading expertise in ionising radiation measurements. This gives us a wealth of experience in Monte Carlo simulation codes and finite element calculations, and enables us to offer a combination of modelling and measurement to suit a particular application. Bringing both approaches to bear on a problem allows each to validate the other and provides unmatched confidence in the outcome.

### Consultancies

NPL welcomes enquiries regarding consultation or collaboration in problems where modelling may be able to provide a solution. Typical areas include the design of detectors, shielding, or irradiators, and validation/optimisation work for existing designs or facilities.

As the UK's National Measurement Institute, we are also able to offer high-quality measurements using our state-of-the-art facilities as part of the model validation process, or provide advice on measurement techniques. NPL offers many services based on dosimetry measurements traceable to the UK National Standards.

### Monte Carlo modelling

The application of Monte Carlo methods is one of the most important techniques that NPL's scientists use in calculating the effects of ionising radiation and optimising radiation measurements.

A Monte Carlo calculation provides a realistic simulation of radiation transport, i.e. the scattering and absorption processes undergone by ionising radiation (photons, electrons, neutrons, protons, light ions, etc.) as it passes through different materials and geometries.

We use a wide variety of radiation transport codes, including EGSnrc, GEANT4, FLUKA, MCNP, MCNPX and PTRAN, to model a range of applications across many technical areas. NPL is independent of the providers of these codes so we are able to select the most appropriate code or codes for a particular problem.

Many of the simulations take advantage of the NPL distributed computing grid that makes use of the spare capacity of hundreds of desktop computers across the site. This enables us to carry out, in a matter of hours, simulations that would take days or weeks on a single machine, significantly reducing the turnaround time.

### Applications

- **Radiation shielding design and evaluation** to ensure adequate shielding
- **Radiotherapy standards and research work** for both reference conditions and small-field work, and in geometries such as for brachytherapy, and in molecular radiotherapy.
- **Industrial radiation processing** such as medical device irradiations with electron beams or gamma-rays from cobalt-60.
- **Neutron spectrometer responses** to allow the incident neutron spectrum to be deduced from the measured pulse height distribution.
- **Neutron dosimeter responses** to predict the performance of radiation protection instrumentation in typical workplace fields

- **Radioactive waste assays**, calculating the response of Germanium detectors to gamma radiation from sources in low-level waste drums

### **Analytical and numerical modelling**

Other modelling techniques also play an essential role. Finite element analysis is used extensively in the design of radiation detectors, for example to model the transfer of heat in calorimeters, or to calculate the electric fields within ion chambers or gas counters.

### **Training and Conferences**

At NPL we are committed to the dissemination of knowledge and technical information. We have hosted many UK Monte Carlo User Group (MCNEG) meetings and international workshops on Monte Carlo codes and training courses on the EGS system.

For more information please contact Mark Bailey or David Shipley at NPL. See - <http://www.npl.co.uk/irmodelling/>

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## **NEWS FROM PHE (HPA- Radiation Protection Division)**

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Note the Environmental Radon Newsletter can now be found at the new website -

<http://www.ukradon.org/information/newsletter>

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/>

Latest documents published are as follows:-

- **PHE-CRCE-007 - PHE Landfill Modelling System**  
This report describes each of the component models of the Landfill Modelling System, and their verification and validation, discusses their operation together as an integrated system and outlines various options for further developing and improving the system.  
Added/updated: 6 February 2014
- **PHE-CRCE-006 - Survey into the radiological impact of the normal transport of radioactive material by air**  
In 2012 the ONR requested PHE to undertake a third survey into the radiological impact of the transport of radioactive material by air; this report describes the results of the survey and makes a comparison with those of the previous surveys to identify trends.  
Added/updated: 30 January 2014
- **PHE-CRCE-005 - Environmental radioactivity surveillance programme: results for 2012**  
This report is the latest of a series in which the results of Public Health England's Environmental Radioactivity Surveillance Programme are presented. It contains the measurement data for the year 2012.  
Added/updated: 27 January 2014
- **PHE-CRCE-004 - 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: 27 January 2014

- **PHE-CRCE-003 - 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: 27 January 2014

- **PHE-CRCE-002 - 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: 27 January 2014

- **PHE-CRCE-001 - 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: 27 January 2014

## **WINS “Security by Design” Workshop Stockholm Jan 2014**

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**Report by James Wallbank, Kings College**

I’ll start off by borrowing a leaf out of Alan Muir’s book...

“Personal thoughts & opinions, do not necessarily reflect those of my employer Kings College London.”

Back in the December 2011 Newsletter, Brian Heaton provided an eye opening report on a WINS Workshop on High Activity Source Security. I was lucky enough to attend the WINS Workshop on Security by Design, at the head quarters of Eleckta in Stockholm.

As Brian explained a couple of years ago, the World Institute for Nuclear Security (WINS) is a relatively independent body, set up with the idea of sharing knowledge to help improve security of nuclear and high activity materials so that they are secure from unauthorised access, theft,

sabotage and diversion and cannot be utilised for terrorist or other nefarious purposes. They manage this by providing an international forum for those responsible for nuclear security to share and promote the implementation of best security practices.

As for the venue, Stockholm in January can easily be described as fresh, it being -9C when I landed. Surprisingly, they experienced a mini heat wave during the few days of the Workshop, with temperatures soaring to -1C. Stockholm is a beautiful city, sort of a cross between Edinburgh and Amsterdam, while the host Eleckta were very accommodating and the Swedes particularly friendly.

As for my reasons for attending, well obviously work related... although I will not confirm or deny the existence of high activity sources within my establishment.. Personally though, I have been dismayed by the apparent obsession of NaCTSO, and certain partners within the EA, with the concept that a threat to the security of high activity sources will appear as hostile persons with sledgehammers and SDS drills attempting to 'smash their way in'... and therefore requiring more/bigger/stronger doors to save the day... which in my opinion is an absolutely ridiculous idea, and a waste of money!

Expecting to bump heads with a respected member of the EA over this issue, I was pleasantly surprised when it appeared that we both have the same idea as to where and how an actual threat would emerge from and how we all should focus our efforts at securing such sources.

Satisfying for both of us was that the whole approach to high activity source security in the USA and a few others, is now focussed on the real threat... that of an 'insider'. For clarity, the insider threat is that of an authorised user who is coerced or subverted to access or provide access to a high activity source by bypassing all the external physical security measures and detection systems (which NaCTSO believe are the answer).

The Department of Energy via the National Nuclear Security Authority had setup the Global Threat Reduction Initiative to address the issue of source security within the US. They have been working closely with Sandia National Laboratories to develop 'hardening kits' to better secure high activity source units in situ, and generate security designs to discuss with manufacturers... admittedly all aimed at the units most commonly found in the USA. They are now at the stage where in the next couple of years the vast majority of units in the USA will be secure, and so they are ready to turn their attention elsewhere and bring their wealth of knowledge and experience to aid other countries in securing their high activity sources.

Hopefully, the UK will come to it's senses and realise that the American approach makes far more sense than the one proposed by NaCTSO. While we are likely to receive no funding help, like that offered in the US, at least the cost of 'hardening units' would be money well spent. Unfortunately, those who have already gone to the expense of upgrading the physical security of their secure rooms, may be reluctant to spend even more to secure the source container itself.

As a final note, I would recommend that anyone who hasn't yet joined WINS, to join.

## IRPA Congress 2014

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The provisional program is available online, please check our website:

<http://www.irpa2014europe.com>

As official carrier to the IRPA 2014 in Geneva, Swiss International Air Lines offers you the best booking flexibility together with Swiss product and service quality, all at a significantly discounted price. Codes for your flight booking will be provided at the end of the registration process.

Hotels are available ranging from one to five stars. A selection of hotels with negotiated prices are available for booking during the registration process (Follow [this link](#) to be informed about the different locations of the hotels selected).

During the check-in, your hotel will be pleased to offer a free public transport ticket during all your stay in Geneva.

The Congress Dinner will be organized in "Swiss Style" including some local entertainment. There will be, however, ample time to enjoy the meal and for conversation. Since the venue can only supply seats for up to 500 people, the number of participants will be limited. Registration for the Congress Dinner is required and will be handled on a first-come-first-served basis.

The congress will allow the participants to visit CERN. There will be two possibilities, one on Monday morning before the opening ceremony and one on Friday afternoon after closure of the congress. Bus transfer will be organized for the participants. Due to the limited space, participants will be asked to register in advance for the excursions. Registration will be handled on a first-come-first-served basis and available during the registration process.

Other excursions in or around Geneva will be available on-site at the registration desk.

We remain at your disposal for further questions and look forward to welcoming you to Geneva!

Best regards,

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## **RPA 2000 and RWA Certification.**

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### **The RPA 2000 dilemma**

In April 2013, RPA 2000 advised the environment agencies of a serious logistical problem regarding Radioactive Waste Advisers (RWAs) in that the RWA Approval Board decided to have all 785 Grandfather Certificates expire on the same day, i.e., the end of June 2016. RPA 2000 advised that it felt it would be very difficult, if not impossible, to assess the competence of so many people in such a short period of time. A meeting of a number of representatives from both sides was held during September 2013 and the RPA 2000 representatives re-iterated RPA 2000's dilemma. On the 1<sup>st</sup> October 2013, a paper describing the numbers of applications was submitted to the environment agencies in support of RPA 2000 dilemma.

RPA 2000 is bringing in its own deadline of 31<sup>st</sup> December 2014, as the date after which it could not guarantee any satisfactory applications being completed in time for the expiry of certificates.

Thus:-

- For applications received by not later than 31<sup>st</sup> December 2014, RPA 2000 will guarantee, as far as it can, to complete the assessment process by not later than 30<sup>th</sup> June 2016 (provided sufficient information is provided with the initial application for the assessor to make a full assessment without requesting further evidence).
- For applications received after 31<sup>st</sup> December 2014, RPA 2000 regrets that it cannot guarantee completing the assessment of the application before 30<sup>th</sup> June 2016. However, it will make every endeavour to complete as many assessments as possible before that date.

If assessments are not completed by the end of June 2016, the status of individuals as RWAs will cease and Operators engaging the services of that RWA are likely to become non-compliant.

This problem is exacerbated by environment agencies ceasing to allow suitable certificated RPAs to be consulted by permit holders through a recent change in permit conditions; consultation can only be with a RWA.

RPA 2000 is continuing to discuss the issue with the environment agencies with a view to identifying an agreed way forward. However, for the purpose of portfolio assembly and submission, it should be assumed that the current timescales and requirements are unlikely to change.

### **Current situation regarding RWA applications**

The Environment Agencies have issued 785 RWA Grandfather Rights (GR) certificates. All GFR Certificates expire on 30<sup>th</sup> June 2016.

The environment agencies initially expected that, of those, 540 will wish to apply for a full RPA2000 Certificate of Competence to be an RWA. RPA 2000 therefore was advised to expect some 540 applications between the issue of GFR certificates and June 2016.

To date RPA 2000 has received a small number of applications.

Several factors affect the ability for RPA 2000 to satisfy applicants and deal with applications. The two that have the most impact are:

- a) The time at which applications arrive.
- b) The cut-off date, which is the date that RPA 2000 declares applications have to be in by, and after which RPA2000 will not be able to guarantee that assessments of *adequately prepared applications* will be completed by the deadline of June 2016.

RPA2000 have no control over the former but can determine the latter. RPA2000 have to guard against accepting applications that they will not be able to process by the deadline of June 2016. The cut off has been chosen as 31<sup>st</sup> December 2014

### **IPEM guidance**

IPEM has issued a note in their Newsletter summarising the current position with respect to RWA Certificates and applications. In their note they advised IPEM members who have RWA grandfather rights to prioritise completion and submission of their RWA applications. If there are one or more RWA certificate holders in a Trust or Health Board, RPA2000 recommend prioritisation be given to one of those certificate holders submitting an application as soon as possible. This would help to ensure that all Trusts or Health Boards have at least one RWA by June 2016, to ensure that they are able to discharge their responsibilities under EPR or the Radioactive Substances Act.

### **AUPRO guidance**

If you are currently a RWA, in order to guarantee RPA 2000 processing of your application by 30 June 2016 you need to consider applying for a RPA 2000 RWA certificate as soon as you are able but, in any case, by not later than 31 December 2014.

The intent is to prepare sector guidance on the preparation of RWA applications. RPA 2000 has

issued a Statement i.e. ref. *RPA2000 Statement Feb14v1.0* dated 7<sup>th</sup> February 2014 (Annex A), [Applications for RWA Certification from holders of the UK Environment Agencies' \(EAs'\) Grandfather Rights \(GR\) recognition certificates to act as RWAs.](#)

[RPA 2000 Fees for 2014](#) can be found on the RPA 2000 webpage.

**G A Zabierek**  
**5<sup>th</sup> March 2014**

## Annex A

### RPA 2000 Statement

#### **Applications for RWA Certification from holders of the UK Environment Agencies' (EAs') Grandfather Rights (GR) recognition certificates to act as RWAs**

##### **Background**

There are 785 holders of the EAs' GR certificates of recognition to act as RWAs and expectations are that some 500 of these holders are likely to seek ongoing certification from RPA 2000. All GR certificates expire on 30 June 2016 and need to be replaced by RPA 2000 RWA certificates of competence by that date.

The RPA 2000 RWA certification scheme was launched on 1 January 2013 and expectations were that very few applications would be submitted during the first year of operation. To date there have been less than 5 applications for RWA certification from either new applicants or holders of GR certificates. The consequence is that a workload of around 500 assessments for initial certification will fall on RPA 2000 over a 2.5 year period. The Board has concluded that currently it does not have the resources to manage such a workload and has drawn up an Operational Plan aimed to achieve the best result available to it.

One component of this plan is to encourage as many early applications as possible, hopefully preventing a surge of applications as the 2016 deadline approaches.

##### **Submission timescales and fees**

The following measures have been put in place:

- Applications from GR holders received by no later than 31 December 2014 will benefit from a reduced fee of half the current RPA 2000 application fee for an initial certification, namely:
  - £125 from 1 January to 31 December 2014.
- Applications received after 31 December 2014 will pay the full RPA 2000 application fee for initial certification.
- For applications received by not later than 31 December 2014, RPA 2000 will guarantee to complete the assessment process by not later than 30 June 2016 (provided sufficient information is provided with the initial application for the assessor to make a full assessment without requesting further evidence).
- For applications received after 31 December 2014, RPA 2000 regrets that it cannot guarantee completing the assessment of the application before 30 June 2016. However, it will make every endeavour to complete as many assessments as possible before that date.

## **Implications of submission after 31 December 2014**

Please note that if you, and too many other people, delay your applications until after 31 December 2014 then you run the risk of having no valid RWA certificate as from 1 July 2016. While RPA 2000 will do all it can to avoid this happening, we regret that we are unable to give you any guarantee that we will be able to complete your assessment by that date. Should that happen you will be advised to contact the UK EAs to seek advice as to whether or not you are able to continue to operate as an RWA.

In order to guarantee the processing of your application by 30 June 2016, and to spread out the demand on our limited number of assessors, RPA 2000 is asking for your co-operation in **applying for your RPA 2000 RWA certificate as soon as you are able but, in any case, by not later than 31 December 2014.**

## **Additional information**

Three further points are relevant:

- (i) As is current practice, all RPA 2000 RWA certificates of competence will be prepared as soon as the assessment is completed and will be valid for a period of 5 years from the date of issue.
- (ii) New\* applicants are not subject to any of the special measures described in this Statement. Their applications for RPA 2000 RWA certificates will be treated in accordance with the RPA 2000 Operating Procedures (Document G1) and in particular the normal timescales will apply. [\* i.e. Applicants who have never held a GR certificate from the EAs].
- (iii) Holders of GR certificates from the EAs are not permitted to follow the new applicant route to obtain an RWA certificate from RPA 2000. Separate application forms are available and the correct form should be used. The use of an incorrect form will simply mean that it will be returned to you, but we would hold your portfolio pending receipt of the correct application form.

**Richard Paynter**  
**Secretary to RPA 2000 Board.**

**9 February 2014**

## Meetings and Training Courses

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### **Radiation Protection Training Course organised by ICR at the Royal Marsden**

This popular course (now in its 21<sup>st</sup> year) is being run between Monday 19<sup>th</sup> – Friday 23<sup>rd</sup> May 2014. A link to the course webpage is here:

[http://www.icr.ac.uk/research/research\\_divisions/Radiotherapy\\_and\\_Imaging/Training\\_Courses/Radiation\\_Protection/index.shtml](http://www.icr.ac.uk/research/research_divisions/Radiotherapy_and_Imaging/Training_Courses/Radiation_Protection/index.shtml)

From the webpage you can download a pdf copy of the registration form. Please Note: Closing date for early registrations – at a discounted price – is 4<sup>th</sup> April 2014. We are already approaching half the full capacity for numbers attending the course.

**Jim Thurston, Royal Marsden Hospital**

### **Training courses at NPL**

Understanding & evaluating measurement uncertainty will be held on 29-30 April at NPL, Teddington. For more information follow the link below -

<http://www.npl.co.uk/commercial-services/products-and-services/training/training-courses/understanding-and-evaluating-measurement-uncertainty/>

A training day on Dosimetry for advanced radiotherapy techniques will be held on 13<sup>th</sup> May at NPL Teddington. For more information follow the link below –

<http://www.npl.co.uk/events/13-may-2014-dart-training>

A one day workshop to provide awareness of the current BS and European Laser Safety Standards and their respective implications will be held on 15<sup>th</sup> May at NPL, Teddington. For more information follow the link below –

<http://www.npl.co.uk/commercial-services/products-and-services/training/training-courses/laser-safety-workshop/>

### **BIR event: Optimisation in CT**

The meeting on Optimisation in CT will be held on 18<sup>th</sup> June 2014 at Royal Society of Edinburgh.

A CPD focused meeting designed to provide diagnostic radiology and radiation protection physicists and radiographers with an update on CT dosimetry, CT image quality analysis and the development of fit for purpose CT protocols. To Book online visit:

<https://membersarea.bir.org.uk/multievents/layout5.asp>

Programme can be found at - <http://www.bir.org.uk/media/128679/programme.pdf>

## **BIR event: Management and radiology**

This meeting on management in radiology gives a guide to current and future management issues in radiology. It is being held on 2<sup>nd</sup> May 2014 at –

Stewart House,  
32 Russell Square,  
London, WC1B 5DN

A one day course covering the main management issues within imaging departments. Covered topics include workflow; outsourcing; teleradiology; project management and building business cases; managing change; appraisal/ revalidation and how to answer management questions in interviews.

For further information and to book click [here](#) .

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## **BOOKS AND PUBLICATIONS**

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### **IEC 62709 ed1.0 (2014-02)**

Radiation protection instrumentation - Security screening of humans - Measuring the imaging performance of X-ray systems

[ICS code 13.280](#)

### **ICNIRP guidelines**

**Guidelines for Limiting Exposure to Electric Fields Induced by Movement of the Human Body in a Static Magnetic Field and by Time-Varying Magnetic Fields Below 1 Hz** — International Commission on Non-Ionizing Radiation Protection

<http://icnirp.de/>

### **Health Physics February 2014 issue**

**Volume 106 Number 2 SPECIAL ISSUE: The 49<sup>th</sup> Annual Meeting of the National Council on Radiation Protection and Measurements Radiation Dose and the Impacts on Exposed Populations**

*Includes the following lecture transcripts:*

**Lauriston S. Taylor Lecture on Radiation Protection and Measurements: When Does Risk Assessment Get Fuzzy?** — John E. Till

**Tenth Warren K. Sinclair Keynote Address: The Fukushima Nuclear Power Plant Accident and Comprehensive Health Risk Management** — Shunichi Yamashita

*Includes the following Papers:*

**Radiation-Exposed Populations: Who, Why, and How to Study** — Steven L. Simon and Martha S. Linet

**Radiation Impacts on Human Health: Certain, Fuzzy, and Unknown** — Roy E. Shore

**Emotional Consequences of Nuclear Power Plant Disasters** — Evelyn J. Bromet

**Radiation Dose and the Impacts on Exposed Populations: Overview Session Q&A** — James Cassata

**Exposed Medical Staff: Challenges, Available Tools, and Opportunities for Improvement** — Lawrence T. Dauer

**Impact on the Japanese Atomic Bomb Survivors of Radiation Received From the Bombs** — Harry M. Cullings

**Analysis of Cancer Risks in Populations near Nuclear Facilities: Phase I. A Report by the National Academies Nuclear and Radiation Studies Board** — Daniel O. Stram

**Nuclear Reactor Accidents: Exposures and Health Effects among Members of the Public** — Maureen Hatch

**Implications of Radiation Dose and Exposed Populations on Radiation Protection in the 21<sup>st</sup> Century** — John D. Boice Jr.

## **Health Physics March 2014 Issue**

*Includes the following Papers:*

**Activity Thresholds for Patient Instruction and Release for Positron Emission Tomography Radionuclides** — Matthew J. Williamson and Lawrence T. Dauer

**Optical Safety of Comparative Theater Projectors** — David H. Sliney, Casey Stack, David Schnuelle, and Jay Parkinson

**Estimating Radiation Absorbed Dose of Individuals Nearby <sup>131</sup>I-Treated Hyperthyroid Patients** — Songye Cui, Ling Jiao, Jian Tan, Guizhi Zhang, Haiying Zhang, Wei Long, Saijun Fan, and Wenyi Zhang

**Thyroid Cancer Study Among Ukrainian Children Exposed to Radiation After the Chernobyl Accident: Improved Estimates of the Thyroid Doses to the Cohort Members** — Ilya Likhtarov, Lina Kovgan, Sergii Masiuk, Mykola Talerko, Mykola Chepurny, Olga Ivanova, Valentina Gerasymenko, Zulfira Boyko, Paul Voillequé, Vladimir Drozdovitch, and André Bouville

### **OPERATIONAL TOPIC**

**Energy Dependent Chest Wall Thickness Equations for Male Lung Monitoring with Germanium Detectors** — D. Broggio, X. Lechaftois, O. Abline, B. Fleury, A. Vial, P. Corrèze, D. Franck, and V. Merzoug

### **ICNIRP GUIDELINES**

**Guidelines for Limiting Exposure to Electric Fields Induced by Movement of the Human Body in a Static Magnetic Field and by Time-Varying Magnetic Fields Below 1 Hz** — International Commission on Non-Ionizing Radiation Protection

## **Health Physics April 2014 Issue**

*Includes the following papers:*

**The Cumulative Risk of Multiple CT Exposures Using Two Different Methods** — Hildebrand Dijkstra, Jaap M. Groen, Fons A.H.H. Bongaerts, Eric J. van der Jagt, Truuske G.H. de Bock, and Marcel J.W. Greuter

**A New Understanding of Multiple-pulsed Laser-induced Retinal Injury Thresholds** — David J. Lund and David H. Sliney

## IAEA publications

### **International Conference on Nuclear Security: Enhancing Global Efforts**

#### **Proceedings Series**

This publication presents the proceedings of an international conference on nuclear security, which was convened at the IAEA's headquarters in Vienna, 1-5 July 2013, the first such conference to include ministerial level participation. The conference adopted a ministerial declaration and provided a forum where experiences and lessons learned could be discussed and ideas exchanged to identify emerging trends and to consider medium and long term objectives for international nuclear security efforts, as well as to inform the development of the IAEA's Nuclear Security Plan 2014-2017. The President's summary highlights the main conclusions and key issues, drawing on the reports from the main and technical sessions. The conference attracted more than 1300 registered participants from 125 Member States, 34 of which were represented at ministerial level, and 21 intergovernmental and non-governmental organizations. The attached CD-ROM contains the full conference programme, the list of conference participants, the national statements from the ministerial session and a selection of papers.

STI/PUB/1643; 119 pp.; 2014; ISBN: 978-92-0-101514-3, English, 90.00 Euro

Electronic version can be found:

<http://www-pub.iaea.org/books/IAEABooks/10663/International-Conference-on-Nuclear-Security-Enhancing-Global-Efforts>

### **Development of a Regulatory Inspection Programme for a New Nuclear Power Plant Project**

#### **Safety Reports Series No. 81**

This Safety Report provides general principles, guidance and technical rationale for regulatory inspections related to new nuclear power plant projects, and is based on the consideration of IAEA safety standards and experiences of Member States. This publication covers regulatory inspection during siting, design, construction and commissioning stages as well as the transition to operation. It takes into account approaches and practices of Member States recently involved in new nuclear facility projects, and it includes examples of Member States' regulatory inspection programmes and experiences.

STI/PUB/1636; 112 pp.; 3 figs.; 2014; ISBN: 978-92-0-113513-1, English, 35.00 Euro

Electronic version can be found:

<http://www-pub.iaea.org/books/IAEABooks/10573/Development-of-a-Regulatory-Inspection-Programme-for-a-New-Nuclear-Power-Plant-Project>

### **Applications of Research Reactors**

#### **IAEA Nuclear Energy Series No. NP-T-5.3**

This publication is a comprehensive study that reviews the current situation in a great number of applications of research reactors. It revises the contents of IAEA TECDOC-1234, The Applications of Research Reactors, giving detailed updates on each field of research reactor uses worldwide. Reactors of all sizes and capabilities can benefit from the sharing of current practices and research enabled via this updated version, which describes the requirements for practicing methods as diverse as neutron activation analysis, education and training, neutron scattering and neutron imaging, silicon doping and radioisotope production, material/fuel irradiation and testing, and some others. Many underutilized research reactors can learn how to diversify their technical capabilities, staff and potential commercial partners and users seeking research reactor services and products. The content of the publication has also been strengthened in terms of current issues

facing the vast majority of research reactors by including sections describing user and customer relations as well as strategic planning considerations.

STI/PUB/1627; 97 pp.; 31 figs.; 2014, ISBN: 978-92-0-145010-4; English, 32.00 Euro

Electronic version can be found:

<http://www-pub.iaea.org/books/IAEABooks/10491/Applications-of-Research-Reactors>

### **Quantitative Nuclear Medicine Imaging: Concepts, Requirements and Methods**

**IAEA Human Health Reports No. 9**

This publication reviews the current state of the art of image quantification and provides a solid background of tools and methods to medical physicists and other related professionals who are faced with quantification of radionuclide distribution in clinical practice. It describes and analyses the physical effects that degrade image quality and affect the accuracy of quantification, and describes methods to compensate for them in planar, single-photon emission computed tomography (SPECT) and positron emission tomography (PET) images.

STI/PUB/1605; 59 pp.; 23 figs.; 2014; ISBN:978-92-0-141510-3, English, 33.00 Euro

Electronic version can be found:

<http://www-pub.iaea.org/books/IAEABooks/10380/Quantitative-Nuclear-Medicine-Imaging-Concepts-Requirements-and-Methods>

### **Managing Human Performance to Improve Nuclear Facility Operation**

**IAEA Nuclear Energy Series No. NG-T-2.7**

The contribution of human performance to the occurrence of significant events and consequently to overall performance improvement in the nuclear field has been well documented. Nuclear industry experience shows that within nuclear power plants, 80% of significant events can be attributed to human error. Monitoring and continually improving human performance has now become one of the key challenges in the management of human resources for a nuclear facility. This publication provides practical guidance in this area and will assist Member States to review and improve the systems and process for improving human performance as a major contribution to sustaining and improving the performance of nuclear facilities.

STI/PUB/1623; 24 pp.; 2 figs.; 2014; ISBN:978-92-0-144610-7; English, 18.00 Euro

Electronic version can be found:

<http://www-pub.iaea.org/books/IAEABooks/10500/Managing-Human-Performance-to-Improve-Nuclear-Facility-Operation>

**Libby Yates, Cambridge**



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