



May 2006

RADIATION PROTECTION NEWSLETTER

To all our RPA customers:

2006 is proving to be another good year so far for the radiation protection division of our business. Several new organisations have appointed us, and there is continuing expansion of our training services. Of course this is only possible because of you, our customers. Some of you have been with us now for over eight years, so once again thanks for your support! We've tried to include something of interest to you all in this newsletter; we hope you find it useful.

HASS update

By now, most of you who are affected will have either applied for, or obtained your revised HASS registration from the Environment Agency. Inevitably there have been some issues raised; here are a few things we've come across:

- **Training:** There is a requirement in the regulations for a 'competent supervisor' to manage the keeping and use of HASS. This would typically be an RPS, although others may be involved. Appropriate training is needed for these individuals, so we have developed a training course that draws together all the requirements from RSA 1993, HASS 2005 and IRR 1999 that relate to the keeping of radioactive material. Also included is a section on UK Safeguards (Euratom) requirements for reporting depleted uranium source containers. The course can be delivered on our customer's premises or we can train up to three people at our facility here in New Mills. Further details of the course can be found on our website.
- **Reporting to the Environment Agency:** The easiest way is to use an electronic version of the HASS record form, which can be downloaded from the EA website. There is a link to the download page on our website. If you use the Microsoft Excel version of the form, you can save all the information and easily amend the form when the source is returned. Note that you should send a HASS record for *all* the HASS ('new' and 'existing') that you hold *as soon as you receive your license*. This tells the Agency what you are currently keeping. You then send new records for new sources and amended records for sources that you are returning. Confused? ... then *book somebody on our HASS training course!!*
- **Guidance:** The guidance notes for HASS are currently at Issue 3. You must be in possession of this document. The Agency doesn't tell you when they update the guidance so you need to check the website regularly. There's a link on our website.

Dropped or damaged dosimeters

Even when we make every effort to look after our TLD or film badge, accidents happen! Dosimeters get damaged (often as a result of a spin in the washing machine) or worse still are dropped in a radiation area and exposed. If not handled properly, these incidents can turn in to an administrative nightmare. Here are some tips to avoid this:

- Employees must *always* report immediately to the responsible person in the organisation anything that could have resulted in an inaccurate dosimeter reading. If they don't, the dosimeter will be processed as usual and the dose recorded on it will be added to their dose record. If the recorded dose turns out to be abnormal then a lot of unnecessary time and paperwork will be involved in carrying out an investigation and getting the dose removed from the record.
- It is wise to obtain a brief written statement from the person reporting the problem. This is in everyone's interests.
- The responsible person should send the dosimeter in question to the dosimetry service immediately, along with a letter explaining that the dose recorded on the dosimeter has not been received by the wearer and should not be added to their dose record.
- Include in your letter a brief summary of what has occurred. Provide an estimate of the dose that should be attributed to the wearer. As your RPA we can help you with this.
- Ensure that you clearly identify the dosimeter in question and that you separate it from any others that you may be returning at the time.
- If you have issued the wearer with a temporary replacement dosimeter, provide its serial number to the dosimetry service.
- The dosimetry service will process the affected dosimeter separately, and provided that the recorded dose is commensurate with what has occurred, they should be happy to enter your estimated figure on the wearer's dose record.
- If in doubt, talk to the dosimetry service. They will help you to deal with the problem in an acceptable manner.

Controlled area or not?

The issue of whether a fully interlocked, alarmed and shielded X-ray exposure room should be designated as a 'controlled area' has been the subject of a great deal of debate.

It seems that this might be due, in part, to the misconception that only a classified worker should enter a controlled area. Companies that (for good reasons) don't classify their radiographers have therefore avoided designating controlled areas.

Another practical issue is that people other than radiographers often need to enter an exposure room (obviously, while the X-ray set is off) to deliver and collect items for test. It has been assumed that designating the room as a controlled area would invoke some complicated and unmanageable procedures to permit this.

Firstly, it should be understood that classification and controlled areas are quite separate things. A controlled area may be designated on the basis of the radiation dose that could be received, but should also be designated *where 'special procedures' are necessary* to restrict exposure. Classification is necessary if it is likely that a person may receive 3/10 of their annual dose limit (which equates to 6 mSv for most radiation employees). It follows that all site radiographers, and anyone who may need to enter a controlled area *when there is the possibility of a source of radiation being energised or exposed*, should be classified.

Clearly a person who only works with a shielded X-ray exposure room with all the usual safety features would not necessarily need to be classified, as the engineering controls make any significant exposure highly unlikely.

However, even if classification is unnecessary, a safe exposure room may still require 'special procedures' to be followed to restrict exposure. For example, if there are designated target walls, and the X-ray tube is not mechanically restricted from pointing at a non-target wall, then the radiographer is following a 'special procedure' by ensuring that the tube is always correctly oriented. There may be requirements for collimators or additional shielding to be used for certain exposures. There could be a limit on the maximum KV used. It might even be argued that checking no one is in the room before closing the door is a 'special procedure'.

Having discussed this issue at some length with an HSE inspector, the conclusion seems to be that many X-ray exposure rooms will need to be designated as controlled areas, even when they are equipped with engineering controls.

So what about entry into the room by radiographers and others? The answer is more straightforward than many (including ourselves in the past) imagine. You simply designate the inside of the room as a controlled area, subject to a safe system of work. You then write down this safe system of work, which should be included or referenced in the local rules. The safe system can include who is allowed into the room and when, any restrictions on beam direction, KV etc. and if necessary a procedure for checking the room before shutting the door to commence an exposure. It might also be necessary to include an instruction to remove the keys from the X-ray set when unattended or when non-radiography personnel are in the room.

There are a few exceptions. If the enclosure cannot physically be entered, for example an X-ray cabinet, then provided that it is fully shielded and interlocked, and the beam direction cannot be altered so as to create an external radiation hazard, then designation should not be necessary. There may be instances where the enclosure can be entered, but engineering controls and the physical layout make it as good as impossible for any person to be exposed; designation may then not be necessary.

The issue really is; why *not* designate a controlled area? In view of the above there are very few reasons for not doing so. There are also distinct advantages. Having a controlled area invokes the need for local rules, written procedures and for an appointed RPS, things which are bound to create a better safety culture.

A 'controlled' area also does what it says on the tin, it gives the radiographer full control over access to the exposure room, which is often desirable.

So we will be discussing this issue with you when we make our visits over the coming months and hopefully working to achieve closer compliance with current HSE guidelines.

Food items in X-ray scanning machines

A number of our clients who operate X-ray security scanning machines have been asked questions, and even received complaints, about food items being passed through the machines.

Those of us 'in the know' about radiation may be inclined to find this rather amusing or even irritating, but one has to acknowledge that many people fear radiation and sincerely believe that all radiation can contaminate or damage whatever is exposed to it. To put their minds at rest, it is necessary to explain in 'layman's' terms what is going on inside an X-ray scanner.

Firstly they need to understand that X-rays behave in a similar way to visible light, and that just as no energy remains when turning the light off in a room, so there is nothing left when the X-ray exposure is terminated.

You could also explain that as an item passes through the scanner (in most cases on a conveyor belt) the exposure is very brief. You can even demonstrate this by showing them the duration of the red warning light. In addition, you might explain that the X-ray beam inside the machine shines through a very narrow slit and that only a few millimetres of an item are exposed at any instant as it passes this opening.

In reality, an item passing through a proprietary security scanner will receive a dose of only a few microsieverts. Of course, most people wouldn't know what a microsievert is, so you could put it in perspective by explaining that they and their food would be exposed to more radiation on an aircraft flying at altitude for a few hours, than they would passing through the scanner.

Finally, as far as food is concerned, high doses of radiation are actually used to sterilise food. So at the very worst, the radiation that food items receive while being scanned might kill a few micro organisms, but there are most definitely no health risks.

And after all that, they may still not believe you! Well, at least you tried!

Our very best wishes to all of our customers

A handwritten signature in black ink, appearing to read 'S. Wright' with a stylized flourish at the end.

Simon Wright
PRINCIPAL RPA

A handwritten signature in black ink, appearing to read 'S. Boocock' with a stylized flourish at the end.

Steve Boocock
ASSISTANT RPA