



November 2004

RADIATION PROTECTION NEWSLETTER

To all our RPA customers:

We would first of all like to thank all of our customers for their continued use of NDT MainCal's services. The latter part of 2004 has been a growth period for our business, due in part to our recognition by the HSE as an RPA body, but also because of recommendations from some of you, for which we are very grateful.

A particular area of interest has been our 'tailor-made' radiation safety training courses. For many busy companies this has proved to be a very useful training solution, avoiding the need to send staff away for extended formal courses and examinations. If you have a requirement for radiation safety training at any level, please contact us for further information.

We look forward to further growth in 2005, but of course our commitment is to maintain a high standard of service to our existing clients. This newsletter is part of that service, and we hope you find some of the information useful.

Radiography of 'Transportable' Items

In recent months, the HSE have given a high profile to the issue of when it is 'reasonably practicable' to transport an item to a purpose-built radiography enclosure. (IRR 99 Regulation 8(2), ACOP Paragraph 79). While there are obvious cases where 'site' radiography is unavoidable, the HSE believe that there are a significant number of instances where proper planning and less cost-cutting will permit items to be transported to a suitable fixed facility, therefore decreasing the risk of unnecessary exposure to individuals. The gist of their directive is that if it can be transported, it should be.

As an RPA, we perceive that in most cases it is the desire of radiography companies to comply fully with this requirement; it is their customers who need to be better 'educated' so that they allow for the additional time and cost involved. The HSE have been talking to a number of organisations that regularly bring in NDT companies for radiography, but there is still some way to go. We have enclosed with this newsletter a copy of an article written by the HSE on the subject, which we urge you read.

Our recommendation is that on receipt of a request for site radiography involving items that may be considered 'transportable', the radiography company should explain very clearly to their client the legal implications of falling foul of this requirement. The HSE would consider an organisation that knowingly pressured an NDT contractor to 'cut corners' to be a party to any contravention, and may be liable for legal action in addition to the company doing the radiography.

Prior Notification of Site Radiography

As you are fully aware, the regulations require 7 days notice to be given to the HSE for all site radiography. This includes 'open shop' work within a building. A number of issues have come to our attention regarding this and we think it is appropriate to share some feedback with you:

- The notification must be *submitted* to the HSE East Grinstead office on a *normal working day*. This has implications for week-end and bank holiday work, because more than seven days notice will be required.
- Difficulties arise in some sectors such as production and fabrication, where 7 days ahead it is very difficult to pin the radiography requirement down to an exact date and time. There may also be requirements for a 'rolling' programme of radiography over a period of weeks or months. The HSE have been in discussion with the industry to resolve some of these issues. In some cases it may be possible to put a 7-day notice in but then adjust it at shorter notice (as long as it is not adjusted to less than 7 days from the initial notification). Our advice is to speak to the HSE East Grinstead office *before* notifying this type of work. If necessary, ask them for the telephone number of the radiation specialist inspector for your region and discuss the matter with him/her.
- The purpose of the 7-day notification is to allow the HSE time to plan an inspection visit, should they choose to do so. There have been a number of recent cases where radiography has been delayed or cancelled without informing the HSE, thus the inspector has made a wasted journey. There have been other cases where an incorrect date or time has inadvertently been given on the notification form. In one reported instance, radiographers deliberately turned up early on site, so that the work was done by the time the HSE inspector arrived! Obviously this is an isolated example, but it is worth noting that the HSE see deliberate abuse of the 7-day notification system as 'obstructing an inspector in the course of his duty', which carries a legal penalty if proven. For all involved in site radiography, we recommend the following: 1) Ensure the 7-day notice is accurately completed; 2) Ensure that any changes or cancellations are notified. If the requirements are followed it not only keeps things legal, but helps to build a good relationship with the HSE.

Controlled Areas

When site radiography takes place, it is frequently the case that an entire building is locked up and designated a controlled area with only the radiographers allowed inside. For this to be acceptable, the following conditions must be met:

- It must be established with certainty that the dose rate outside the building will not exceed 7.5 $\mu\text{Sv/h}$ at any time, for all exposure parameters.
- There must be a *clearly defined* area *inside the building* where the dose rate will be less than 7.5 $\mu\text{Sv/h}$, so that radiographers can retreat to this area during exposures. This area may need to be marked out with barriers.

Radiation Monitors

It is a requirement of IRR99 that all radiation monitors used for surveys are suitable for the nature of the radiation involved. It is further stipulated that the RPA should be consulted regarding this. In practice this means that the type of radiation source and energy levels must be considered when choosing a monitor. For example, a device that may be suitable for use with Gamma radiography on site is unlikely to be appropriate for checking leakage from an X-ray enclosure. It is also recommended that the monitor scale should read in $\mu\text{Sv/h}$. Some older monitors do not comply with this. Monitoring is a very important factor in radiation protection, and radiation employers are urged not to 'penny pinch' in this respect. The cost of an accidental exposure of an employee or other person will be much greater than a decent radiation monitor.

Incidents Involving Radioactive Sources

Thankfully these are few and far between, but this is no excuse for complacency. Any organisation using radioactive sealed sources must have suitable contingency plans in place to deal with reasonably foreseeable incidents, such as the source becoming detached from the projection cable or getting jammed in the guide tube. All radiographers should be properly trained so that they understand their role in such an emergency, what action they should take and how to get help. Contingency plans should be practised on a regular basis.

Emphasis should also be placed on *prevention* of such incidents, by regularly checking the equipment. The condition of source containers, wind-out cables, projection tubes and pigtail connectors should be closely monitored, following the manufacturer's guidance wherever possible.

We will be looking carefully at this aspect of radiation protection as we make our advisory visits, and offering to provide assistance and further training where necessary.

Radon Gas in the Workplace

Radon 222 is a naturally occurring radioactive gas. It is a product of Uranium, which is present in small quantities in most soils and rocks. The HSE regard Radon 222 in the workplace as a controllable source since exposures are primarily due to human activities, i.e. the building entraps Radon gas that is naturally liberated from the ground below. Where present in the atmosphere, Radon is usually breathed in and out. Radon has a long half-life; the most significant risk is from the 'daughters' of the isotope (the term used to describe the various atomic configurations of Radon 222 produced during its natural decay process). These 'daughters' can attach themselves to airborne particles which stick in the lungs. The 'daughters' emit Alpha particles, which can result in a radiation dose to the lung cells and therefore an increased risk of cancer.

The NRPB have estimated that over 100,000 premises may have concentrations of Radon gas above 1200 Bq/m³, which could lead to an annual dose of above 6 mSv in a year. The 'trigger' level for action is 400 Bq/m³. The HSE expects employers who may be affected to recognise the hazard and adopt a protection strategy. This has been given the acronym 'AFIRM', i.e.

- **Assess** Likelihood of significant exposure
- **Find** places with high levels
- **Reduce** the risk where high levels are found
- **Maintain** remedial effect

The geology of the area in which a building is situated is of great importance when considering the risk from Radon gas. Surveys have shown that premises in Cornwall, Devon, Northamptonshire, Derbyshire, Somerset, and parts of the Grampian and Highlands regions of Scotland are more likely to have high indoor Radon levels. Other smaller areas are also affected. Maps, which we have purchased, have been produced for the UK indicating all areas of high risk. Further information is contained in a free information leaflet that may be downloaded from the HSE website at www.hse.gov.uk/pubns/indg210.pdf

If you would like to discuss completing a Radon risk assessment please contact us.

Our very best wishes to all of our customers



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