

# AN INTERIM UK RESPONSE TO REVISED RISK ESTIMATES AND ICRP 60

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## ABSTRACT

Risk estimates were revised in 1987. Since then, regulators have been under pressure to reduce dose limits. The UK government would prefer to await incorporation of ICRP's revised recommendations in a revision of the European Basic Safety Standards Directive. Interim action has therefore been taken, in the form of issuing additional guidance with a quasi statutory status. The new guidance includes the introduction of an investigation if an individual worker's cumulative dose within five years reaches or exceeds 75 mSv, to focus attention on workers being exposed at higher levels of dose.

## BACKGROUND

The United Kingdom has had radiation protection legislation since the early 1960s, long before it joined the European Community. This legislation (Ref 1) only applied to the use of ionising radiation in factories however, licensed nuclear installations having radiological protection requirements written into their nuclear site licences; the remainder of users were covered by non-statutory guidance. Since joining the EC, the UK has fulfilled its obligation to implement the Euratom Basic Safety Standards Directive (Ref 2) by making the Ionising Radiations Regulations 1985 (Ref 3). These regulations extend radiation protection legislation to cover all uses and users of ionising radiation.

## CURRENT LEGISLATION

The Ionising Radiations Regulations 1985, reflecting the Basic Safety Standards Directive, incorporate not only dose limits but, perhaps more importantly, the requirement for exposure to be kept as low as reasonably practicable (the UK equivalent of as low as reasonably achievable). The regulations contain certain action levels, which are levels of cumulative dose within a calendar year at which investigations must be made as a check on whether exposure is being kept as low as reasonably practicable. The first of these is when an individual's dose reaches 15 mSv. The ensuing investigation focusses on the work practices associated with this dose and whether it would be reasonably practicable to improve them to reduce exposure. The second

practicable to improve them to reduce exposure. The second action level is when a worker receives a dose of 30 mSv within a calendar quarter, in which case the enforcing authority, the Health and Safety Executive, must be informed.

#### **DEVELOPMENTS SINCE 1987**

The statement issued by ICRP following its meeting in Como in 1987 (Ref 4) recognised that further information about the Japanese atomic bomb survivors indicated that estimates of risk had been under-stated and should be considered to be two or three times as high as had previously been thought. As a result they would completely review their earlier recommendations, issued in 1977 (Ref 5). The UK National Radiological Protection Board, whose remit includes the duty to advise Government about the acceptability of international recommendations and standards, issued interim guidance in November 1987 (Ref 6). This guidance said that this latest information meant, in their opinion, that it would be prudent for employers to seek to restrict the exposure of their workers to no more than an average of 15 mSv a year over a number of years.

The Health and Safety Commission reacted to this advice from the National Radiological Protection Board by asking their recently appointed Working Group on Ionising Radiation to consider what action might be taken in view of the changing situation. The Working Group's subsequent advice (Ref 7) was that there was no need to reduce dose limits in advance of renegotiation of the Basic Safety Standards Directive, principally because the effect of the requirement to keep exposure as low as reasonably practicable had generally been to keep actual doses well below dose limits. However, they recommended that further statutory guidance on restriction of dose should be issued. This should draw employers' attention to the need to take account of the revised risk estimates when deciding whether existing and future exposures were as low as reasonably practicable, additionally it should focus attention on workers who were being exposed at an average of 15 mSv or more a year.

Following formal consultation with bodies and people likely to be affected by, and therefore interested in, the proposals (a statutory requirement in the UK's framework legislation for health and safety (Ref 8), further guidance was approved and published.

#### **APPROVED CODE OF PRACTICE, PART 4**

An Approved Code of Practice has a semi-legal status which is formally explained as follows "Although a failure to observe any provision of the Code is not in itself an offence, that

failure may be taken by a Court in criminal proceedings as proof that a person has contravened a regulation to which the provision relates. In such a case however it will be open to that person to satisfy the Court that the regulation has been complied with in some other way." Three Parts of an Approved Code of Practice supporting the Ionising Radiations Regulations 1985 had already been published, Parts 1 and 2 in 1985 (Ref 9) and Part 3, specifically about occupational exposure to radon, in 1988 (Ref 10).

Part 4, published in 1990 (Ref 11), advises employers to take account of the revised estimates of risk from exposure to ionising radiation when making new decisions about whether exposure is as low as reasonably practicable; it also requires them to review earlier decisions that are still operative to see if they remain valid in the light of the new information. Additionally the Code introduces an investigation if an individual worker's cumulative dose reaches or exceeds 75 mSv within any consecutive five calendar years. Unlike that when 15 mSv is reached within one year, this new investigation should focus on the individual's past dose history and likely future exposure. The final decision as to whether any further action needs to be taken to reduce the worker's future exposure should only be taken after the worker has been consulted and counselled and the views of other relevant people, such as the Appointed Doctor (an approved medical practitioner) and trade union and safety representatives, have been taken into account.

## CONCLUSION

The issue of Approved Code of Practice Part 4 updates UK radiation protection to take account of revised risk estimates without changing dose limits. It also focusses attention on workers who have been receiving what is now seen as a relatively high level of dose in recent years, so that appropriate decisions to reduce their future incremental risk may be taken. This interim action will allow the UK to await revision of the Basic Safety Standards Directive before revising the dose limits and other provisions in our domestic legislation. The introduction of an investigation when 75 mSv or more is accumulated within five years is seen as compatible with ICRP '60 recommendations, in that it might quite properly be regarded as a generic constraint applicable to all users of ionising radiation.

## REFERENCES

- 1 The Ionising Radiations (Unsealed Radioactive Substances) Regulations 1968, SI 1968 No. 780, and The Ionising Radiations (Sealed Sources) Regulations 1969, SI 1969 No. 808.
- 2 80/836/Euratom: Council Directive of 15 July 1980 amending the Directives laying down the basic safety standards for the health protection of the general public and workers against the danger of ionizing radiation. OJ L-246 of 17/09/80 page 1. Subsequently amended by 84/467/Euratom (OJ L-265 of 05/10/84 page 4).
- 3 The Ionising Radiations Regulations 1985, SI 1985 No. 1333, HMSO London.
- 4 International Commission on Radiological Protection, Statement from 1987 Como meeting. Radiol. Prot. Bull. No. 85 Supplement (1987).
- 5 International Commission on Radiological Protection, Recommendations of the ICRP, ICRP Publication 26, Annals of the Vol. 1 No. 3 1977, Pergamon Press.
- 6 National Radiological Protection Board, Interim Guidance on the Implications of recent Revisions of Risk Estimates and the ICRP 1987 Como Statement. Chilton, NRPB-GS9 (1987) (London HMSO).
- 7 Working Group on Ionising Radiations, Report 1987-88, Health and Safety Commission. HSE.
- 8 Health and Safety at Work etc. Act 1974. HMSO London.
- 9 Approved Code of Practice, Parts 1 and 2. The protection of persons against ionising radiation arising from any work activity. The Ionising Radiations Regulations 1985. HMSO.
- 10 Approved Code of Practice, Part 3. Exposure to Radon. The Ionising Radiations Regulations 1985. HMSO.
- 11 Approved Code of Practice, Part 4. Dose limitation - restriction of exposure. Additional guidance on regulation 6 of the Ionising Radiations Regulations 1985. HMSO.