Exposure of workers to electromagnetic fields : proposal for a directive

Ten years after the Commission published its proposal on the protection of workers exposed to physical agents, the Council is carrying on addressing each individual agent separately. At the start of 2003, a Council working party began its scrutiny of a Danish Presidency proposal for a directive specifically addressing the exposure of workers to electromagnetic fields and waves in a range between 0 Hz and 300 GHz.

As far back as 1993, when the first proposal was tabled, the Social Affairs Council had already recognized the risks related to exposure of workers to non-ionizing radiation. The VDU Directive (90/270/EEC), for instance, requires that radiation "shall be reduced to negligible levels from the point of view of the protection of ... health", while the Pregnant Workers Directive (92/85/EEC) requires the employer's risk assessment to take into account non-ionizing radiation which may cause foetal lesions and/or are likely to disrupt placental attachment.

International standards

The International Commission on Radiological Protection (ICRP), a private scientific society founded in 1928, has had a specific working party addressing health problems caused by non-ionizing radiations since 1974. Under the impetus of the UNEP[1], the World Health Organization published a joint document with the ICNIRP[2] in 1993 setting out recommended exposure limits for the protection of workers and the general public (fields ranging from 300 Hz to 300 GHz). The current Commission proposal is based on their activities.

Since then, the ILO has published two sets of guidance (Nos 69 and 71) on protection for workers, and the ICNIRP adopted a new version of its recommendations in 1998. It aims to provide tools for limiting the time-weighted exposure of workers to all electrical, magnetic and electromagnetic fields (frequency up to 300 GHz).

None of these documents include values for the performance standards of products or equipment, or exposure measurement methods. In Europe, the Commission mandated CENELEC to draw up standards that address these failings, in particular under R&TTE (radio and telecommunications terminal equipment) Directive 1999/5/EC, and to ensure mutual recognition of their conformity. CENELEC's work programme also includes a standard for the working environment and a safety standard for induction furnaces under Low Voltage Directive 73/23/EEC. But as the LV Directive makes no reference to the safety and health of workers, it is at best a dubious legal basis for these mandates.

A mounting public debate

The public debate on the health effects of electromagnetic fields in the range of frequencies mentioned has gained unprecedented momentum with the growing number and range of electromagnetic field sources, like TV, radios, computers, mobile phones, microwave ovens, radar and industrial equipment (induction furnaces), medical display equipment, etc. The public debate has focused on telephones, high voltage power lines and speed control equipment, fuelled by suggestions in scientific reports that exposure to electromagnetic fields (at low doses) may be harmful to health, leading to cancer, reduced fertility and memory loss (non-thermal effects). This led the Council to adopt a Recommendation in 1999 on exposure of the general public to electromagnetic fields which includes the ICNIRP's recommended values.

In line with the Scientific Steering Committee's advice, the Commission and Council did not refer to the precautionary principle, and went with international values that do not explicitly allow for non-thermal effects. The Council nevertheless asked the Commission to prepare a report within five years - i.e., in 2004 - with a view to revision of the Recommendation in the light of current scientific research data, including relevant aspects of precaution. The Commission's recently-announced publication of a joint health assessment for very low frequencies with the WHO in 2003, and on the effects of radio frequencies in 2005, tie in with this.

In 2001, an IARC[3] scientific working group concluded that extremely low frequency magnetic fields were "possibly carcinogenic to humans" (IARC Group 2B). Limited data show a possible causal link with childhood leukemia. The working group also concluded that static magnetic or electrical fields

[1] United Nations Environment Programme.
[2] International Commission on Non-Ionizing Radiation Protection.
[3] International Agency for Research on Cancer (vol (80) 2002).

and extremely low frequency electrical fields could not be listed in "Group 3".

Protection for workers

The current debates in Council are awaiting the conclusions of the Commission/WHO assessment. All those concerned are champing at the bit : the equipment-using general public, but especially so telephone and electrical manufacturers and network operators. The latter are apt to believe that protection for workers is mainly built-into product design standards, forgetting about the employer's responsibilities in the workplace (work organization, choice and maintenance of equipment, worker information,...) and cumulative effects - workers may be exposed to multiple sources of radiation.

As a result, some Member States are trying to throw the principles of the Framework and individual directives - coverage for all exposed workers above a threshold value, duty to perform a risk assessment and apply the ALARA (as low as reasonably achievable) principle, right to medical surveillance and, above all specifying exactly which health risks are covered and not covered - open to question.

The WHO reference standards must form part of employers' obligations that define the employment relationship. Technical standards for measurement must enable them to discharge their obligations in easily achievable conditions and comply with the Directive's principles. But a procedure for checking the standards mandated by the Commission from the standards institutions is also required. Only on those terms will the new Directive mark a significant step towards controlling the sources and exposure to electromagnetic radiations. ■

Marc Sapir, TUTB