Field of dreams

European directives seeking to control the curvature of bananas are the stuff of legend. But the EC's proposals on EMFs could close down MRI scanners. Brian Tinham reports

Ever thought about EMFs – electromagnetic fields caused by everything from power lines to mobile phones and arc welding gear? If not, you should, because a little-reported European directive that seeks to restrict exposure of workers to EMFs came within a whisker of coming into force this April – and may yet in April 2012.

What's this about? The so-called 'Physical Agents (EMF) Directive (2004/40/EC) was conceived to limit workers' exposure to induced currents, caused by EMFs, which might have 'effects' on their bodies. Why should we care? Because substantial EMFs result from manufacturing processes, including metal drawing, welding, electrochemical processes, foundry operations, primary production of metals using electric arcs, non-destructive testing and HV (high voltage) switching.

They are already covered under the Health and Safety at Work Act 1974 and the Management of Health and Safety at Work Regulations 1999, but the new directive would mean even more red tape, risk assessments etc. It could also mean other risks to health. Last year, Ford in Belgium, anticipating the EMF directive, modified its spot welding equipment – only to find that the additional weight was causing back and shoulder problems.

Cut MRI scanners

Most importantly, though, since EMFs are also emitted by hospital MRI (magnetic resonance imaging) scanners, the directive nearly closed them down. Late last year, lobbying by organisations such as the UK's EEF, the manufacturers organisation, caused consternation at the EC and it was forced to postpone enaction for four years.

A clearly embarrassed Vladimír Špidla, EU commissioner for Employment, Social Affairs and Equal Opportunities, said at the time: "It was never the intention of this directive to impede MRI. Obviously, the commission recognises MRI as a technology offering clear benefits to patients, and continues to support MRI research financially. Postponement of the transposition will allow time to review the directive and amend those provisions which have been shown to be problematic."

It was vindication for EEF director of health, safety and the environment Gary Booton. "A few people like me have been banging on about this for years, but, for political reasons, the message – that additional EMF controls are unnecessary – went unheard. Only when the MRI issue became imminent did the argument gain acceptance." And he emphasises the irony of the EC's position – on the one hand funding MRI, yet, on the other, almost closing it down, while effectively forcing greater use of CT scanners, with big doses of ionising radiation.

'Radiation' is the operative word here, because it appears that some don't comprehend the difference between ionising radiation – clearly harmful – and non-ionising radiation – case unproven. Booton makes the point that we live with naturally occurring EMFs on planet earth. And he adds that HSE's own impact analysis indicates no health and safety benefits from the impending regulation.

Watch exposure

He believes there are parallels with the EC's optical radiation directive, which initially sought to control workers' exposure even to sunlight. That also adds little to managing risks from equipment, such as lasers, which are already tightly controlled. "We don't believe that law will save one case of over-exposure. It's just bureaucracy – stickers, more risk assessments and statements of the obvious."

Back on EMF, Booton says: "Prior to this amending directive, Brussels didn't want to hear the arguments, because they were following the ICNIRP (International Commission On Non Ionising Radiation Protection). It recommended guidelines under the precautionary principle, so that EMF exposures would be at levels that presented no environmental or biological effects – those 'effects' being presumed to be precursors to harm.

"There may be effects on biological systems in EMFs, but there's precious little evidence of harm. One of the ECs' new senior advisers put it like this: 'When you open the window, you're in a draft and that has a biological effect, but it won't harm you'. Now, take MRI: millions have benefited from scans with very large EMF exposure, so, if there were issues, we would expect to have seen an upturn in health problems by now – and it hasn't happened."

The immediate danger of this directive may have passed, but Booton insists that engineers mustn't forget it. "We need to persuade those with power of the folly of the policy. If we can get the skids under the EMF directive, we'll target the optical radiation directive next." PE

Pointers

- The Physical Agents (EMF) Directive (2004/40/EC) was conceived to limit workers' exposure to induced currents, caused by EMFs
- EMFs are caused by manufacturing processes, welding, electric arcs, NDT, mobile phones, power lines and MRI scanners
- MRI scanners could have been closed down, had the directive come into force
- The European Commission has delayed implementation by four years to April 2012 for a technical review