RISK INSIGHTS

Crendon Insurance Brokers

Managing Electromagnetic Fields at Work

As an employer, you may need to manage the risk of electromagnetic fields (EMF) in your workplace—even if you work in an innocuous office building. An EMF is a field of force consisting of both electric and magnetic components, created by the motion of an electric charge. EMFs are produced whenever a piece of electrical or electronic equipment is used and are present in virtually all workplaces. If the EMFs in your workplace are of a high intensity, you may need to take action to make sure your workers are protected from any adverse effects.

Employers should comply with the Control of Electromagnetic Fields at Work Regulations (CEMFAW), which came into effect July 2016. The CEMFAW Regulations introduce EMF limits, explain the effects of EMFs, provide details of the safety conditions that must be met, and describe exceptions for when the sensory-effect exposure limit values (ELVs) can be exceeded.

Risks and Effects of EMF Exposure at Work

Exposure to high levels of EMFs can give rise to effects that may be irritating or unpleasant, causing sensory and health effects. The effects that occur depend on the frequency range and the intensity of the EMFs to which a worker is exposed:

Static electric and static magnetic fields (0 - 1 Hz) are created by MRI scanners, electrochemical processes, nuclear magnetic resonance spectrometers, electromagnetic lifting cranes and electric vehicles. Indirect effects include uncontrolled attraction of ferromagnetic objects (the risk of injury from objects in a large static magnetic field being attracted to magnets in the workplace and hitting anyone in the way).

Low frequency magnetic and electric fields (1 Hz - 10 MHz) are created by high voltage power lines, production and distribution of electricity, welding, electrical arc furnaces, industrial induction heating, AM radio, electric handheld tools, electric vehicles and magnetic resonance imaging. Indirect effects include interference with active implanted medical devices (AIMDs), passive implanted medical devices (PIMDs) or body-worn medical devices (BWMDs); electric shocks and possible initiation of electro-explosive devices. Sensory effects include nausea, vertigo, a metallic taste in the mouth and flickering sensations (magnetophosphenes). Health effects include nerve stimulation, tingling, muscle contraction and heart arrhythmia.

If the EMFs in your workplace are of a high intensity, you may need to take action to make sure your workers are protected from any adverse effects.

Intermediate frequency fields (100 kHz - 10 MHz) are created by military and research radio frequency systems, surgical diathermy, AM radio and anti-theft devices. The effects are the same as the effects for low and high frequency magnetic and electric fields.

High frequency fields (100 kHz - 300 GHz) are created by MRI, broadcasting and TV aerials, radar and radio transmitters, diathermy, dielectric heating and anti-theft systems. Indirect effects include interference with AIMDs, PIMDs or BWMDs; electric shocks and causing electro-explosive devices to initiate. Sensory effects are auditory, such as perception of clicks or buzzing.

Health effects include thermal stress and heating effects leading to a rise in core body temperature or localised limb heating.

CEMFAW Employer Responsibilities

The majority of employers will not need to take any additional action to reduce the risk from EMFs as they are already at safe levels in most workplaces. Where employees may be exposed to higher levels of EMFs, the levels and associated risks should already be assessed and managed under the Management of Health and Safety at Work Regulations 1999 (MHSW).

You should also be aware that you have responsibilities under MHSW regulation 11 to cooperate and coordinate with other employers to ensure the health and safety of all of your employees. This includes considering the safety of others who are not directly employed by you, but who are working on-site, such as contractors. The responsibilities for such staff will depend on who, if anyone, is employing them.

The CEMFAW Regulations require employers to adhere to the following responsibilities:

- Assess the levels of EMFs to which your employees may be exposed.
- Ensure that exposure is below a set of ELVs.
- When appropriate, devise and implement an action plan to ensure compliance with the exposure limits.
- When appropriate, assess the risks of employees' exposure and eliminate or minimise those risks. You must make sure you take employees at particular risk into account, such as expectant mothers and workers with AIMDs, PIMDs or BWMDs.
- Provide information and training on the particular risks posed to employees by EMFs in the workplace and details of any action you are taking to remove or control them. This information should also be made available to their safety representatives, as appropriate.
- Take action if employees are exposed to EMFs in excess of the ELVs.
- Provide health surveillance or medical examinations, as appropriate.

Exemptions

The CEMFAW Regulations allow the sensory-effect ELVs to be exceeded when certain safety conditions are met. In addition, exemptions to the exposure limits apply in the following circumstances:

- For any activity in respect of which a suitable and sufficient alternative exposure limitation system is in place and where the activity is carried out in any of the following ways:
    - By a person acting in the capacity of a member of either Her Majesty's armed forces or a visiting force
    - By any civilian working with such a person
    - On any premises or part of premises under the control of the Secretary of State for the purposes of the Ministry of Defence or the service authorities of a visiting force
- During the development, testing, installation, use and maintenance of, or research related to, MRI equipment for patients in the health sector, where the following is true:
    - The exposure of employees above the ELV is at the lowest level reasonably practicable.
    - Employees are protected against the health effects and safety risks arising from their exposure to EMFs.
- If HSE has issued an exemption for your work activity, and you meet the exemption conditions.

Best Practises for Managing EMF Risk

Employees at Low Risk

Some sources of EMFs are so low that, other than assessing exposure, employers will not need to do anything further to comply with the CEMFAW

Regulations unless one or both of the following statements are true:

- Your workforce has employees at particular risk.
- You have five or more employees, which means you will have to make a record of your findings.

Such sources include wireless communications, office equipment, alarm systems and overhead electrical lines (click here and navigate to page 9 for a longer yet non-exhaustive list of low EMF sources).

Employees at Particular Risk
You must give special consideration to the safety of employees at particular risk, even if you are in compliance with the exposure limits. An employee is at particular risk if he or she meets either of the following two requirements:

- The employee has declared a condition to his or her employer, which may lead to a higher susceptibility to the potential effects of exposure to EMFs. This includes expectant mothers who have informed you of their condition and workers who have declared the use of AIMDs, PIMDs or BWMDs.
- The employee works in close proximity to electro-explosive devices, explosive materials or flammable atmospheres.

Having employees in your workforce who are at particular risk does not necessarily mean that your workplace is more hazardous to them. However, it does mean that you will have to assess for and address specific additional risks.

Risk Assessments and What to Include

You must determine whether or not the exposure of employees to EMFs exceeds the ELVs. In order to determine that specific ELVs are not exceeded, you can assess exposure against the action levels (ALs) according to the CEMFAW Regulations schedule.

Your assessment may take into account information that is already available, including the following:

- Information included in the CEMFAW Regulations guidance
- Evidence from your own workplace, including records of reports of any ill-health effects experienced by employees
- Emission information and other safety-related data provided by the manufacturer or distributor of equipment used in your workplace or any place where employees will be working
- Sector or industry standards and guidelines

When an Action Plan is Necessary

Employers must devise and implement an action plan to ensure compliance with the exposure limits unless either of the following are true:

- The exposure assessment shows that the ELVs are not exceeded.
- The exposure limits are only exceeded during either of the following work activities:
    - Work activities where the applicable safety conditions stated in the schedule to the CEMFAW Regulations are met
    - Work activities covered by the MRI or military exemption
    - Work activities exempted from the exposure limits by the HSE

If you need to produce an action plan, it must include consideration of the following:

- Other working methods that entail less exposure to EMFs
- The choice of equipment emitting less intense EMFs, taking account of the work to be done
- Technical and/or organisational measures that limit the duration and/or intensity of emission of EMFs, including, where necessary, the use of interlocks, screening or similar health protection

mechanisms. In many situations ELVs are only exceeded if the employee is close to the EMF source. This can be remedied by moving the employee further away from the EMF source or by installing screening (you should note that screening may not be effective for low-frequency work activities).

- The use of signage, access controls and floor markings. If areas are already suitably restricted for other reasons, cannot be entered accidentally, and if workers in the areas are informed of the risks arising from EMF exposure, signs may not be required.
- Where there is exposure to electric fields, measures and procedures to manage spark discharges and contact currents through technical means and through the training of workers
- Appropriate maintenance of equipment and design of workplaces
- Selecting equipment that emits less intense EMFs when replacing or hiring equipment
- Providing personal protective equipment (eg, insulating shoes, gloves and other protective clothing) where appropriate

You may wish to involve your trade union safety representatives or other worker representatives when deciding risk control measures.

If a work activity is exempt from the limits, a formal action plan is not needed, but you will still need to ensure that exposure is as low as reasonably practicable. You may find it helpful to record how you are achieving this, but this is not a requirement.

For more information on ensuring workplace safety and compliance, contact the insurance professionals at **Crendon Insurance Brokers Ltd** today.