

Health and Safety In Industry

2

Health and safety rules in industry are guided by the Health and Safety Executive (HSE). In the case of the nuclear industry, health and safety is regulated by a part of the HSE called the Nuclear Directorate (ND). The Directorate's main purpose is to make sure that those it regulates have no nuclear accidents. In other words, it does all it can to protect people and society from the hazards of the nuclear industry in the UK.

Sellafield Ltd is a company which manages two nuclear sites. The main work at both is to dismantle old nuclear plants which are now out of service. This includes dismantling the world's first commercial nuclear power station, Calder Hall, which opened in 1956 and worked for nearly fifty years. Sellafield Ltd also recycles used nuclear fuel and looks after the waste which remains after recycling.

AIM

The aim of this report is to give you a simple picture of the health and safety policies that the nuclear industry has developed, particularly in protecting its workforce from radioactivity. It is also intended to help you to imagine how some parts of the health and safety policy used at Sellafield would also work in such places as airports, building sites, and even schools.



WHAT IS SELLAFIELD?

Sellafield is a large industrial site on the Cumbrian coast where approximately 11,000 people work. Their jobs are directly or indirectly involved with nuclear power. About 7,500 of these people are employed in nuclear operations. The remainder are employed in other work such as administration, training, catering etc, which are essential for the day to day work of Sellafield.

HEALTH AND SAFETY AT SELLAFIELD

Sellafield Ltd runs the Sellafield site on behalf of the owners, the Nuclear Decommissioning Authority (NDA). The NDA believes that there is nothing more important than the protection of the environment and the health and safety of the workforce, contractors and the public on all their nuclear sites throughout the UK.

THE AIMS OF THE NDA AT SELLAFIELD INCLUDE:

- maintain high standards of nuclear safety
- eliminate injuries and ill-health at work and minimise radiation
- prevent incidents and provide effective emergency arrangements
- prevent pollution and minimise waste, ensure that radioactive and other waste is disposed of or stored safely
- ensure that our other activities, products and services meet the Environmental Health and Safety standards

RADIATION AND HEALTH AND SAFETY

Everything around us is radioactive: the rocks we walk on, the food that we eat, the air that we breathe, even our own bodies contain radioactive material and they emit radiation. There's radiation from the sky, the stars and the sun, and air stewardesses and pilots receive more of this cosmic radiation than an average Sellafield worker in his/her job.



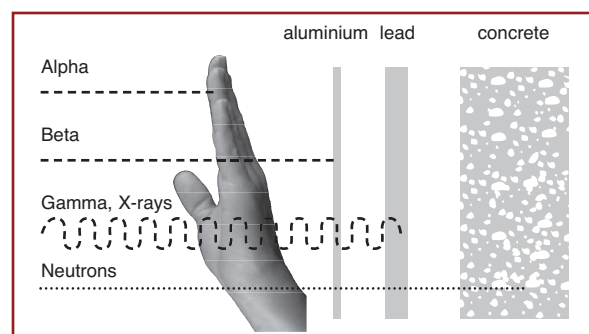
Radiation takes different forms and can be divided into **ionising** and **non-ionising** radiation. Non-ionising radiation is emitted from mobile phones, television signals and microwave ovens.

Ionising radiation is much different. It can cause harm, and great care must be taken when working with ionising radiation.

Ionising radiation can be either Alpha, Beta or Gamma and is emitted as either particles or waves. See diagram below. As well as being emitted naturally it can also be emitted from various materials used in nuclear power stations.



People working in (or visiting) nuclear plants such as Sellafield, some hospital departments, universities or other research facilities, where they could become exposed to radiation, wear film badges. These badges do not protect people from ionising radiation; the badges monitor and measure any radiation that workers or visitors in 'controlled' areas might have come into contact with.



At the end of the working day, staff in what are called 'controlled' areas (areas where there could be low-levels of radiation or contamination) need to monitor themselves. Changing rooms are fitted with walkthrough monitors for this purpose.

Electronic personal dosimeters are also used to measure radiation and tell people just how much they are receiving at work at Sellafield during each part of the working day.

Discharges of liquids from various processes on the Sellafield site (storing nuclear waste from nuclear power stations, for example) are well within limits set by the Government and by nuclear industry regulators. These are limits that are set to maximise safety for the workforce, the local community and the region.

Discharges of liquids from the Sellafield site by pipes into the sea are constantly measured to ensure that people and the environment are not harmed. If the radiation level that a worker might receive at Sellafield is combined with the natural radiation around Cumbria, it adds up to less than half the radiation that a person living in the South West of England will receive naturally.

High level radioactive nuclear waste

This is the most radioactive nuclear waste and is produced through re-cycling nuclear fuel that has been taken from a nuclear power station after it is no longer efficient. The waste is converted into granules and fixed in molten glass and stored.

Intermediate level radioactive nuclear waste

This waste is not as radioactive as high level nuclear waste but is still very radioactive. It includes, for example, metal casings from nuclear fuel elements. Intermediate level waste forms approximately 19 per cent of nuclear waste. The waste is sealed in cement in stainless steel drums and stored.

Low level radioactive nuclear waste

This is solid items exposed to radioactive material, not only in power stations but also in hospitals and some laboratories, eg protective gloves, clothing and equipment. Low level nuclear waste forms 80 per cent of nuclear waste, and most of it is packed into steel drums which are cemented into containers and stored in concrete vaults.

Only 1 per cent of nuclear waste is high level.

The Environmental health, safety and quality policy at Sellafield aims to have a fit and healthy workforce by:

- Eliminating ill-health at work
- Minimising radiation doses
- Encouraging employees to balance their work and home life
- Learning lessons from events, implement corrective actions and seek out and use good practice

The company also believes

- All accidents, incidents and occupational illness are preventable
- Safety is everyone's personal responsibility and it is delivered through personal ownership and action
- Managers are accountable for leading by example, clearly setting direction and demanding the highest standards
- Excellence in safety requires working together with our employees, contractors, suppliers and customers

QUOTES TO MAKE YOU THINK

'35% of reported accidents (in the workplace) are due to slips, trips and falls.'

(Royal Borough of Kensington and Chelsea Environmental Services)

'Companies with managers who are poorly trained in health and safety have eight times more accidents at work, according to new research.'

(BBC News)

'The number of workplace accidents and fatalities in Wigan has fallen by a third. But accident prevention chiefs are still calling for a "step change" in the industries still most affected, including construction and recycling. The Health and Safety Executive released statistics on workplace ill-health, injury and enforcement. They showed that there were 23 deaths in the North West and seven work-related deaths to members of the public last year, compared to 33 workers killed and seven work-related deaths to members of the public in the previous 12 months.'

(Wigan Today)

'Nearly 4,500 young people are seriously injured or killed at work every year, 20% more than five years ago, according to new research published today. One person aged under 25 dies every month in a workplace accident, while thousands more are forced to take at least three days off after being hurt or injured, according to the study by the TUC.'

(The Guardian)

'Inspectors should not be considered as nuisance or threats to business.....Countries with the best inspection systems are also the most competitive ones worldwide.'

(ILO)

'Accidents and work-related illnesses cost more than 1.3 million workers their lives every year, according to the International Labour Organisation (ILO). That is more than 3,300 work-related deaths a day. "Work is still more dangerous than it was 10 years ago," said ILO's workers activities director Manuel Simon Velasco.'

(BBC News)

