

Ionising Radiations

Introduction

All reasonably practicable provisions will be made by Shropshire Council to protect any persons against risks to their health, safety and welfare arising out of, or in connection with work, medical or teaching activities.

Shropshire Council acknowledges that work involving the use of ionising radiation may have a detrimental effect on health, safety and welfare of persons exposed to them and relevant service areas will take all reasonably practical steps to minimise any risks arising from such work.

Ionising radiations are used widely in medicine, food processing, imaging, tracing chemical reactions, archaeological investigations, fire protection, electricity generation, the pharmaceutical industry and industrial processes including paper and steel making.

The arrangements for minimising the detrimental effects of ionising radiation are embodied in the local rules (safe system of work), as required by the Ionising Radiations Regulations 2017 (IRR17) and supporting literature which came into force January 2018.

Should any employees experience any problems resulting from work with radiation, they must inform a responsible person immediately and the service area will then investigate the circumstances and take remedial action.

Safe system of work

The use of ionising radiation covers a very broad range of applications. The content of local rules outlining the safe system of work depends on the complexity of the work with ionising radiations but should always contain:

- a description of procedure for, determining ionising radiation designated areas.
- where necessary, written systems of work to enable persons not designated for work involving ionising radiation to enter these areas.
- procedures for the control of access to these areas.
- contingency plans.

Local rules

The following are suggested contents for a local set of rules:

- Introduction - state that the local rules form part of the safety policy document, list relevant legislation and regulatory bodies and endorse the general duties required of all persons under the Health and Safety at Work Act.
- Designation of areas and persons involved in ionising radiation work. (Details of classified persons, radiation protection advisors, radiation protection supervisors, qualified persons).
- Administrative organisation and responsibilities.

- Basic principles and practices of radiation protection. Details of dose limits, dosimetry and medical surveillance, monitoring of controlled areas and investigations where personal dose limit is exceeded.
- Assessment of hazards and risks.
- General procedures and practices for working with ionising radiation. (Details of washing and changing facilities, personal protective equipment, information, instruction and training).
- Detailed work procedures for specific tasks.
- Accounting procedures and waste management.
- Storage, transport and movement of radioactive material.
- Contingency plans.
 - glossary of ionising radiation terms
 - duties of radiation protection advisor/supervisor, appointed doctor and other specialist person
 - written systems of work
 - model layouts of forms
 - bibliography.

The benefits from the use of ionising radiation must be considered alongside the detrimental effects it may have on persons exposed to them. If the risk in using ionising radiation is justified, then the risk must be minimised by:

- limiting the exposure of persons to 'as low as reasonably practicable'.
- monitoring personal exposure to ionising radiation to ensure no person exceeds their limit of exposure.
- having proper contingency arrangements to mitigate any loss of control of ionising radiation.

Record keeping

To satisfy the requirements of the Ionising Radiation Regulations 2017, the Radioactive Substances Act 1993 as amended (RSA) and transport legislation, records should be kept of the following:

- Notifications of work (notify HSE of the work, register the work, get consent for the work from the HSE) as required by regulation 5 of the IRR17 and, where appropriate, registration for the use of radioactive material (as required by RSA).
- Persons entering/leaving designated areas.
- Monitoring and survey results - including date, time, place and radiation level found (even if zero).
- Dose assessment - the employer should arrange to receive summaries of dose records at least once every three months. Records of radiation exposure will also be kept by an HSE approved dosimetry service for employees who are designated as classified persons under IRR17 regulation 9.
- Health records as required by IRR17.
- Instruction and training.
- Accounting for radioactive substances (as required by IRR17 and RSA).
- Authorisation for the accumulation and disposal of radioactive waste (in compliance with RSA).

- Transport and movement of radioactive substances.
- Occurrences, incidents and accident reports and investigations (these records will include notifications required by regulations 23, 26 and 31 of the IRR17).
- Maintenance of personal protective equipment.
- Performance, maintenance and modification of plant and equipment, including tests to detect leakage of radioactive substance from a sealed source.

Use in schools and colleges

In addition to the IRR17 the use and guidance of working with Ionising Radiations in schools and colleges, is provided by CLEAPSS Science Advisory Body in their guidance document L93 Managing Ionising Radiations and Radioactive Substances in Schools and Colleges.

Summary of statutory duties

There is a general duty under s.2 of the Health and Safety at Work Act to provide, safe systems of work and, therefore, protection of employees from radiation. This can be extended to persons other than employees under the requirements of s.3. Safe systems of work are endorsed in the Approved Code of Practice (L121) and guidance reflecting the revised 2017 Regulations.

It is therefore advisable in all cases to consult a Radiation Protection Advisor (RPA) prior to working with ionising radiation. N.B. Shropshire Council do not have a Radiation Protection Advisor. Therefore, an outside consultant or a specialist organisation e.g. National Radiological Protection Board will be required.

RPAs must hold a valid certificate of competence and be formally recognised as competent by the HSE, Most RPAs are qualified through the RPA2000 scheme and it is simple to verify an RPA has a current certificate by checking online (www.rpa2000.org.uk). Note that the law also requires the RPA to be 'suitable', so the employer needs to check the RPA has adequate experience and expertise in managing the particular ionisation radiation being used. Contact Shropshire Council Health and Safety Team if more information is required.

Furthermore, there is a requirement to monitor levels of ionising radiation and to assess the nature and magnitude of the radiation hazard to all persons in the event of a reasonably foreseeable occurrence, incident or accident. A more formal assessment is required for work with radioactive material above a specified quantity. Linked with these hazard assessments is the need to formulate contingency plans.

These assessments are precursors to the formulation of local rules as required by IRR17. These rules embody the safe systems of work and should form part of the organisation's safety policy document. In support of employers setting up safe systems of work, there are duties imposed upon them to appoint certain qualified persons, experts and approved services. The implementation of safe systems of work also involve the provision of information, instruction and training (reg.15). Where there is an interchange of employees, there is a duty for the employers to co-operate in the exchange of

information (reg. 16). A peripheral but important requirement is given in regulation 32, which is based on s.6 of HSWA and concerns the duties of designers, manufacturers, importers or suppliers of articles for use in work with ionising radiation.

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