



31. Radiation

31.1 Compliance with legislation

The legislation covering radiation safety is the Ionising Radiation Regulations. The Radiation Protection Unit (RPU) ensures that procedures and processes are in place in the University to ensure compliance. Environmental matters, such as waste management, are regulated by the Radioactive Substances Act - see section 31.15 Compliance with the requirements of the Radioactive Substances Act (RSA).

31.2 Liaison with Enforcement Authorities

The University Radiation Protection Adviser (URPA) is the normal point of liaison with enforcing authorities in relation to radiation safety, for example the Health and Safety Executive, and all contact and correspondence with these authorities should be reported to the URPA. For contact regarding environmental matters, see section 31.15.1 Liaison with the Scottish Environment Protection Agency (SEPA).

31.3 Organisation

Within the Schools which use ionising radiation, one or more Radiation Protection Supervisors (RPS) are appointed to be responsible for monitoring the extent of radiation work, and compliance with safe working practices and the appropriate legislative requirements. The duties of the RPS and arrangements for appointment are outlined in Radiation Protection Code of Practice RP/CoP001 [insert link here]. The area covered by an RPS varies according to local arrangements, and is usually based around a campus, building or part thereof, rather than on School/departmental lines. The names of the RPSs are included in the relevant Local Rules (see below), and are also published on the Radiation Protection Unit's website at <http://www.ed.ac.uk/schools-departments/health-safety/radiation-protection/supervisors/rps-contacts>.

An equivalent appointment is made for those Schools using hazardous lasers, known as the Departmental Laser Supervisor (DLS). The duties of the DLS are outlined in Code of Practice RP/CoP101 [insert link here] and their names are included in the relevant Laser Local Rules and published on the Radiation Protection Unit's website at <http://www.ed.ac.uk/schools-departments/health-safety/radiation-protection/supervisors/sls-contacts>.

Professional advice on both ionising and non-ionising radiation safety is available to all staff, students and visitors to the University by the accredited University Radiation Protection Adviser. The URPA also acts as the Radioactive Waste Adviser for the application of the Radioactive Substances Act.

The Health and Safety Department's Occupational Health Unit (OHU) arranges access to a Doctor who is appointed by the Health and Safety

Executive for the provision of appropriate health surveillance and advice under the Ionising Radiations Regulations. Access to him/her is arranged via the OHU. Further details can be found in Radiation Protection Code of Practice RP/CoP015 on classified workers - http://www.docs.csg.ed.ac.uk/Safety/rpu/cop/RP_COP015.pdf

Where work involves the administration of a radiation dose to a human for medical purposes, the University has an arrangement with NHS Lothian for the provision of a Medical Physics Expert, in accordance with the Ionising Radiation (Medical Exposure) Regulations. NHS Lothian also arranges the provision of Certificate holders under the Medicines (Administration of Radioactive Substance) Regulations, as amended. Justification of a human radiation exposure for research purposes is considered through the NHS Health Research Authority.

31.4 Justification and authorisation

All persons wishing to work with ionising radiation sources or hazardous lasers without immediate supervision have to formally request authorisation, using a standard Health and Safety Department template known as a Proposed Scheme of Work Form. The arrangements for this are outlined in Radiation Protection Code of Practice RP/CoP007 - http://www.docs.csg.ed.ac.uk/Safety/rpu/cop/RP_CoP007.pdf.

31.5 Risk assessments

The arrangements for radiation risk assessments are outlined in Radiation Protection Code of Practice RP/CoP019 - http://www.docs.csg.ed.ac.uk/Safety/rpu/cop/RP_COP019.pdf.

31.6 Instruction, information and training

All University personnel intending to work with ionising radiation or hazardous lasers have to be adequately trained, by completing a suitable and sufficient training course at either the University of Edinburgh or elsewhere.

The arrangements for the provision of suitable and sufficient information, instruction and training are outlined in Radiation Protection Code of Practice RP/CoP008 - http://www.docs.csg.ed.ac.uk/Safety/rpu/cop/RP_COP008.pdf.

31.7 Supervision

Suitable and sufficient day-to-day supervision of ionising, non-ionising radiation and laser work is arranged by the research groups' line managers; RPSs do not provide supervision of radiation workers. It is for the line manager to determine what is an appropriate degree of supervision, although immediate supervision to a high degree is always required for undergraduates or other inexperienced individuals working with radioactive material or hazardous lasers.

31.8 Control measures

Appropriate control measures are identified and recorded either in the ionising radiation or hazardous laser generic risk assessments, or in the additional specific risk assessments attached to the returned Proposed Scheme of Work

forms. Control measures for other sources of non-ionising radiation are identified and recorded in the risk assessments prepared at School level. The implementation of these measures is undertaken by the relevant School.

The maintenance of control measures is arranged by the Schools, except for the periodic testing of radiation monitors and the integrity of sealed sources, which is undertaken by the RPU. Some sealed sources leakage testing is also carried out by service contractors.

31.9 New facilities and equipment

Where new facilities are proposed that will involve new or modified radiation sources, consultation with the URPA is arranged by the Estates Department. In the case of the acquisition of new equipment containing radiation sources, either the relevant School or the Procurement Department arranges consultation with the URPA.

31.10 Personal dosimetry

Guidance on the arrangements for personal dosimetry, including internal dosimetry, can be found in Radiation Protection Code of Practice RP/CoP018 [insert link here].

31.11 Undergraduates, visitors and contractors

Undergraduates are permitted to work with certain ionising and non-ionising radiation sources, with the appropriate degree of supervision. Their supervisor is responsible for completing an appropriate Proposed Scheme of Work form, and the URPA then advises on what are considered to be acceptable source and exposure conditions.

Since undergraduates are not normally exposed to ionising radiation in the course of their work, their annual dose is limited to 1 mSv. Entry into a radiation Controlled Area is therefore only permitted when the following conditions are met:

- I. the entry is for teaching or demonstration purposes;
- II. their potential annual radiation dose is restricted to the dose limits for members of the public;
- III. their attendance is closely supervised; and
- IV. the entry conditions are in writing, normally incorporated into the Local Rules.

Undergraduates are only permitted to work unsupervised with Class 1/1M, 2/2M and 3A/R lasers. Appropriate supervision must be applied for work with any other class of laser.

Visiting workers, who use radiation sources in the University, are required to work to the same arrangements as University staff, postgraduates and undergraduates.

Visitors to the University who are not, or cannot be, regarded in law as workers are limited to an annual dose of 1 mSv. It follows therefore that they are not

allowed into a radiation Controlled Area except in accordance with written arrangements. Such arrangements have to be specific, and are prepared after consultation with the URPA.

When contractors are carrying out work in University-controlled radiation laboratories, the contractor follows the general safety guidance note “Guidance for Maintenance Staff and Contractors working in laboratories”, which includes a permit-to-work scheme. The presence of Outside Workers, as defined in the Ionising Radiations Regulations, in University Controlled Areas is not anticipated. When a radiation designated area is required because of the contractors’ work, the URPA must be consulted by the University contact responsible for the administration of the contract.

31.12 University staff working at external Institutions

University staff, postgraduates and undergraduates undertaking work with radiation sources at external institutions are required to complete the appropriate Proposed Scheme of Work (PSoW) form. It is nevertheless assumed that they will work to the standards imposed by the host organisation. Appropriate personal dosimetry, as stated in the completed PSoW form, will nearly always be required. Further information on work at organisations outside the UK is available in Radiation Protection Code of Practice RP/CoP016 - http://www.docs.csg.ed.ac.uk/Safety/rpu/cop/RP_COP016.pdf

31.13 Transport of radioactive material outside of the University

Guidance on the transport of radioactive material is available in Radiation Protection Code of Practice RP/CoP017 - http://www.docs.csg.ed.ac.uk/Safety/rpu/cop/RP_COP017.pdf

31.14 Monitoring, review and audit

When changes are proposed that might affect the existing relevant ionising-radiation or laser risk assessment, new Proposed Scheme of Work forms have to be submitted. Personal radiation dosimetry data is used by the RPU to monitor exposure, and may prompt a review of control measures or how they are being applied. Ad hoc monitoring of work is also carried out by the RPSs, by both observation and reference to radiation and contamination monitoring records. The URPA carries out ad hoc inspection of radiation work, or when necessary, formal audits. The results of inspections and audits are reported to the Radiation Protection Committee (RPC). Personal doses in aggregate form are reported routinely to the RPC.

The RPSs monitor for changes in radiation facilities, and advise the RPU as appropriate.

Accidents involving radiation are reported using the standard University accident reporting system. Significant accidents and incidents, as judged by the URPA, are investigated by the RPU, and a report prepared and submitted to the appropriate line management and RPC. Incidents can be reported online using the form at <http://www.ed.ac.uk/schools-departments/health-safety/accident-reporting>. Potentially serious accidents should be reported to the Health and Safety Department via telephone and subsequently followed up by the submission of an online accident and incident form.

31.15 Compliance with the requirements of the Radioactive Substances Act (RSA)

In addition to the arrangements made for safe working with radioactive material, the University has to meet its obligations for the control of radioactive material and its disposal to the environment. These obligations are either formalised in campus-specific Certificates of Registration and Authorisation made under the Radioactive Substances Act, or standard conditions found in the Radioactive Substances Exemption (Scotland) Order. The URPA is the appointed Radioactive Waste Adviser for the University, and advises the University on compliance with the conditions. The URPA also prepares as necessary appropriate environmental radiation assessments.

Details of the University's arrangements for complying with the conditions of its Certificates are described in Radiation Protection Code of Practice RP/CoP012 - http://www.docs.csg.ed.ac.uk/Safety/rpu/cop/RP_COP012.pdf

31.15.1 Liaison with the Scottish Environment Protection Agency (SEPA)

The URPA is the normal point of liaison with the SEPA, who are the enforcing authority under the RSA, and all statutory notifications, reports and applications are undertaken by the RPU. All contact and correspondence with this authority must be reported to the URPA.

31.16 Decommissioning

When a research group leaves a laboratory or a building which is being emptied for refurbishment or vacated, the research group or School must undertake a thorough decommissioning of the area, including the disposal of unused hazardous substances and cleaning of all surfaces. Full procedures for decommissioning radiation laboratories is available in Radiation Protection Code of Practice RP/CoP012 - http://www.docs.csg.ed.ac.uk/Safety/rpu/cop/RP_COP012.pdf.

Extract from Health and Safety Policy – Framework: Arrangements
([http://www.docs.csg.ed.ac.uk/Safety/Policy/Framework -](http://www.docs.csg.ed.ac.uk/Safety/Policy/Framework_-_Arrangements.pdf)
[Arrangements.pdf](http://www.docs.csg.ed.ac.uk/Safety/Policy/Framework_-_Arrangements.pdf) dated 22/10/2018