Ionising Radiation Policy

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DEFINITION
Ionising Radiation: (IR) Ionising Radiation is radiation that has enough energy to cause ionisation in matter. Examples are alpha particles, beta particles, gamma rays, X-rays and neutrons. When these radiations pass through the tissues of the body they have sufficient energy to damage DNA.

This document describes Loughborough University policy for ensuring the safety of staff, students and visitors who are exposed to sources of ionising radiation. It explains how protection against Ionising Radiation is managed within the University. There is a commitment by the Senior Management of the University to ensure that procedures and protocols are in operation such that all statutory duties are discharged and radiation doses are as low as reasonably practicable. It is the duty of all employees, students, visitors and contractors to comply with all aspects of this University Health and safety policy that are relevant and appropriate.
1. Policy

It is the intention of Loughborough University to ensure that the well-being of staff, students and visitors is protected from the potentially harmful effects of Ionising Radiation.
All work carried out on campus involving the use of Ionising Radiation must comply with the Ionising Radiation Regulations 1999, implemented and enforced by the HSE. The Regulations require that the University establish a suitable management structure to maintain radiation safety. The University has established a radiation safety committee, radiation safety officers and University Local Rules to enable it to fulfil its statutory obligations. (See Section 2) (Copies of the Local Rules are available from the Radiation Protection Officer).

The holding and disposal of radioactive material is controlled by the Environmental Permitting Regulations 2010 (2011) and all work undertaken at Loughborough University must comply with this Act.

The general duties in the Health & Safety at Work etc Act 1974, and the requirements of the Management of Health & Safety at Work Regulations 2002 (as amended) also apply, and require, amongst other things, that risk assessments are carried out and appropriate measures to control exposure are put in place.

All exposures involving the use of medical X-rays will comply with the Ionising Radiations (Medical Exposure) Regulations 2000 (Amended 2006) implemented and enforced by the Department of Health. The University Ethical Advisory Committee will make scrutinise risk assessments and make judgement on exposures in this category.

All work involving the use of ionising radiation must be justified (ICRP60) No practice shall be adopted unless its use produces sufficient benefit to the exposed individual or to society to offset the radiation detriment it causes.

Justification at this University will be based on the prior risk assessments made on a procedure, balanced against the need for academic freedom and will be monitored by the University Ethical Advisory Committee. In all cases the policy of the University will be to optimises practices to ensure that radiation dose is as low as reasonably practicable (ALARP)

The main legislation relevant to this subject is:

The Ionising Radiations Regulations 1999;
The Environmental Permitting (England & Wales) Regulations 2010;
The Environmental Permitting (England & Wales) Amendment Regulations 2011;
The Justification of Practices Involving Ionising Regulations 2004
The Ionising Radiation Medical Exposure) Regulations 2000 (Amended 2006)

2. PROCEDURES / GUIDANCE

2.1 Responsibilities of the Dean of School

Responsibility for the University policy on Ionising Radiation and The Local Rules of the University within a school lies with the Dean of that particular School. The Dean of School should be satisfied that all relevant staff within their area of responsibility is aware of the University requirements. The Dean of School shall nominate a suitably qualified and trained
member of school/departmental staff to manage radiation safety on a daily basis. (Radiation Protection Supervisor, see section 2.5). The nominated RPS(s) shall be formally appointed in writing by the Chief Operating Officer.

2.2 Radiation Protection Advisor

LU has appointed a Radiation Protection Advisor, under the terms of the Ionising Radiations Regulations 1999, The RPA, who is an external consultant, shall advise the University on all aspects of the use of ionising radiations and radioactive substances relating to the health and safety of workers, including the designation of workers and the classification of controlled areas.

2.3 Radiation Protection Officer

The Radiation Protection Officer, a member of University staff (supported by the authority of both the Radiological Sub-committee and the University Council) is responsible for the overall management of ionising radiation health and safety. He/she will perform most of the routine work of the Radiological Sub-committee and should attend all its meetings. He/she is also responsible for liaison with external bodies such as the Health and Safety Executive and The Environment Agency in connection with the University's permits for work with ionising radiation. The RPO is required to attend professional RPS external training courses and refresher training every four years. RPO should also enhance training by attending regular workshops, training courses designed for RPO/RPA positions.

2.4 Radiation Protection Sub-Committee

The Radiological Protection Sub-Committee is a sub-committee of the Health, Safety & Environment Committee and has been established to provide specialist advice on health and safety in the radiological field and to ensure compliance with legislative requirements. Terms of reference Appendix B

2.5 Radiation Protection Supervisors

Schools within which ionising radiations are used are expected to nominate Radiation Protection Supervisors to manage radiation safety within the School/department. Persons appointed to the role of RPS should be sufficiently competent through experience and/or qualification to carry out the role. Radiation Protection Supervisors will be appointed in writing by the Chief Operating Officer and attend the meetings of the Radiological Sub-Committee.

Training for RPS’s is mandatory and satisfied by attendance on suitable professional training courses with refresher training every four years and in house training by RPO.

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2.6 Appointed Doctor

The University will appoint a suitably qualified doctor as an "Appointed Doctor" under the requirements of The Ionising Radiations Regulation 1999. The HSE will be notified of the appointment.
3. **FURTHER READING**

- Health and Safety at Work Act, 1974;
- International Commission on Radiation Protection (ICRP 60)
- Ionising Radiations Regulations 1999
- IRR99 Approved Code of Practice
- Radioactive Substances Act 1993
- Environmental Permitting (England & Wales) Regulations 2010
- Environmental Permitting (England & Wales) Amendment Regulations 2011
- Local rules for the Protection of Persons Exposed to Ionising Radiation, Loughborough University (ask RPO for latest edition)
- Radiation Protection Handbook for Laboratory Workers (HHSC handbook 14)
APPENDIX A

Management guidance

The following University guidance forms part of the management policy for sources of IR:

No radioactive material or instruments capable of generating ionising radiation must be brought on to campus without the prior approval of the RPO
No radioactive material may be purchased without the written authorisation of the RPO
The University Local Rules for the Protection of Persons Exposed to Ionising Radiation must be adhered to at all times.

- Justification for the use of radioactive material must be considered to show an overall benefit.
- Risk assessments for the use of an ionising radiation must be prepared. They must be made by a competent person, be suitable and sufficient, reviewed as necessary and recorded by RPO.
- Occupational exposures to IR must be kept as low as reasonably practicable (ALARP) and must be within the statutory limits.
- All workers must fill in a radiation worker form and undertake suitable training before commencing work with ionising radiation.
- Female workers of reproductive capacity must consider the possible hazard arising from ionising radiation to the foetus in early pregnancy and inform the RPO as soon as pregnancy is suspected.
- Controlled and Supervised areas will be designated by the RPO for areas where sealed and unsealed sources and X-rays will be used.
- Operational protective measures such as administrative controls must be implemented as appropriate.
- If control of exposure cannot be achieved by any other means appropriate personal protective equipment must be worn.

New work, which significantly changes current working practices, will have to be notified to the HSE 28 days before the commencement of the work. Please contact RPO for advice.
Appendix B
Membership and terms of reference of the Radiological Protection Sub-Committee

The members of the committee shall consist of:

- The Radiation Protection Officer
- Radiation Protection Supervisors who shall be members of staff in Schools/Departments working with ionising radiations, nominated by their Dean of School and appointed by the University Chief Operating Officer
- The appointed Doctor or his/her representative
- The University Health and Safety Officer
- The Director of Works or his/her representative
- A secretary who shall be a member of the administrative staff of the University

The Chairman of the committee shall be elected by the members triennially or on the resignation of the previous chairman.

Terms of Reference

- The Radiological Protection Sub-Committee shall monitor health aspects and control of ionising radiations and radioactive materials within the University.
- It shall be responsible for establishing protocols and procedures for the management of radioactive materials and wastes under the terms of the University's Authorisation from the Environment Agency.
- The Sub-committee is responsible for drafting local rules for approval by Council and for ensuring that these regulations are enforced.
- Meetings are biannual with further meetings as necessary.
- It shall report to Council yearly through the Radiation Protection Officer.
Appendix C

Duties of Radiation Protection Supervisors

The Radiation Protection Supervisors will be responsible, in close collaboration with the Radiation Protection Officer, for day-to-day matters of safety and close supervision of radiation work within their own Schools/Departments. These include:

- Keeping a weekly register of all sealed radioactive sources kept permanently in the department together with a record of periodic leakage tests, which must be carried out at regular intervals not exceeding 24 months. Records relating to the whereabouts of each sealed source must be kept up-to-date on a daily basis.

- Keeping an up-to-date register of unsealed sources, their use and ultimate disposal.

- Sending, at intervals of not more than 1 month, a copy of the current sealed source register or registers and at intervals of not more than 1 month a copy of the unsealed source registers and waste disposal records to the Radiation Protection Officer.

- Carrying out and recording regular surveys for contamination where unsealed radioactive materials have been used and to audit the contamination monitoring carried out within their own laboratories.

- Carrying out and recording regular leakage surveys on equipment emitting ionising radiations at a frequency of not less than 6 months.

- In consultation with the Radiation Protection Officer, carrying out duties relating to the registration of radiation workers, administration of TLD or film badges and notification of termination of work together with other general measures controlling safety as laid down in the Local Rules. Exceptionally, in order to ensure the necessary close supervision, it may be necessary to appoint more than one Radiation Protection Supervisor within a School/Department.

- Ensuring suitable risk assessments are carried out on all new work involving the use of ionising radiation

- Making arrangements for the delivery of appropriate information and training to radiation workers in their area.

- Reporting any suspected loss or theft immediately to the Radiation Protection Officer

- Reporting any significant accidental exposures, breaches of the Local Rules or any other matters giving cause for concern to the RPO.