

Section 3b. Registered Radiation

Workers

All persons wishing to work with all types of ionising radiation are considered to be radiation workers and **must** be registered. All registered radiation workers are required to read the University's *Local rules for use of ionising radiations* and provide evidence to the DIRPS that they are familiar with them.

The only exception to this will be some undergraduate students who are undertaking directly supervised laboratory practicals for which a Scheme of Work has been approved.

3.1 Classified Workers

Radiation workers who might be exposed to levels of radiation, greater than 6mSv per year (in normal work or in a radiation accident, will be designated as Classified Workers. There are no Classified Workers registered (as at June 2022) and it is unlikely given the present work at Essex that there will be the need for such a registration.

3.2 Students

Students, including post-graduate students, may only work with ionising radiation under the supervision of an appropriate academic supervisor as detailed on the approved scheme of work. The supervisor shall be responsible for:

- assessing the fitness of the student to work with ionising radiation
- informing the student of the hazards associated with the work
- ensuring that the student is trained in the appropriate techniques

3.3 Registration

All persons who are required to register must submit an application on *Radiation workers registration form (Form 1)*. This form must be presented to the DIRPS who will then forward it to the UIRPO for final approval. A register of all registered workers is held by the UIRPO.

3.4 Training

Training is an essential prerequisite for all registered radiation workers. The responsibility to ensure that all persons who work with ionising radiation are competent rests ultimately with the Head of Department.

Training consists of the following separate components:

i) Safe Handling

All new workers are required to undergo appropriate training in the safe handling of the isotopes covered by their scheme of work. Where appropriate expertise is not available at the University it may be necessary for the Academic Supervisor to source and fund training from an external provider. Where an external training provider is used, a certificate to confirm satisfactory completion of the training course must be obtained and forwarded to the DIRPS.

ii) Experimental protocols

It is the responsibility of the Academic Supervisor to ensure that all persons who work on schemes registered in their name have received the appropriate training in terms of following detailed experimental protocols and taking all of the required precautions to minimise risk and environmental impact. The Academic Supervisor must be satisfied that after training the registered worker is competent to work with ionising radiation.

iii) Departmental systems

Prior to the commencement of experimental work, all workers will be trained in the correct systems used within their Department for the handling, storage, use and recording of radioisotopes. The DIRPS will also review the competence of everybody applying for registration and must be satisfied that the person is competent before work may commence.

iv) Legal and University requirements

Radiation workers should be familiar with the requirements of the Ionising Radiation Regulations 2017 and Environmental Permitting Regulations 2016, in so far as they relate to the work they will be doing. They also need to know the systems the University has in place in order to ensure compliance with legislative requirements. This can be achieved through reading the University's *Local rules for use of ionising radiation*.

v) Emergency and Contingency Plan

Radiation workers should be familiar with the Emergency and Contingency plan, so they can take effective action to protect themselves or others in the event of a radiation accident or incident. They must be able to initiate the contingency plan, if required by the plan.

Radiation workers will be required to complete and pass formal assessments as part of the training.

Radiation workers must complete the *Radiation workers training record (Form 3)* and forward it to the DIRPS along with copies of certificates demonstrating attendance at relevant courses. The DIRPS must satisfy his/herself that the radiation worker has met the required standards of competence, before signing Form 3 and forward it to the UIRPO along with copies of the certificates.

New radiation workers who have certificates to demonstrate previous training from an overseas institution will still need formal training to ensure they understand UK legislation and the University's Local Rules. However they can work with radiation whilst awaiting formal training provided that they:

- have read the University's Local Rules for Radiation and Emergency and Contingency Plan
- have been inducted on local procedures and successfully completed the *Radioisotope Room Assessment Quiz*.
- work under the supervision of a competent radiation worker.

Any registered radiation worker who fails to follow the approved procedures for working with ionising radiations may be de-registered and required to undertake additional training either within the University or by an external expert in radiation protection.

Anyone who undertakes formal training on the safe use of radiation, must undergo refresher training at least every 5 years. Earlier training may be necessary where there is evidence that the worker would benefit from refresher training (e.g. because they haven't worked with radiation for some time).

3.5 Visitors

Visiting Academics and Research Staff will be permitted to use ionising radiation only after they have been registered as a Visiting Radiation Worker by their host by completion of the *Ionising radiation visiting workers registration form (Form 2)* and the registration has been approved by the UIRPO. This registration process must have been completed before work starts.

Visiting radiation workers must complete the Radiation workers training record (**Form 3**). Provided they have evidence of training within the last 5 years from another institution, they may undertake radiation work without attending the University's radiation course provided they:

- have read the University's Local Rules for Radiation and Emergency and Contingency Plan
- have been inducted on local procedures and successfully completed the *Radioisotope Room Assessment Quiz*.

- work under the supervision of a competent radiation worker.

The approval of the registration is at the discretion of the UIRPO, who may specify additional precautions.

The maximum registration period for visitors will normally be **8 weeks**. However this may be extended following review and approval by the DIRPS. Where such approval has been given the DIRPS must notify the UIRPO in writing, so that a note can be kept with the visiting workers registration form

Their host must be a registered radiation worker holding valid schemes of work.

The host will be responsible for ensuring that the Visitor works in accordance with the Local Rules.

3.6 Female Radiation Workers

Where work with radiation is to be carried out by women of childbearing age, the Scheme of Work must include an assessment of the risk to the unborn child or breastfeeding infant and control measures needed to protect it. Women of childbearing age must be informed of the risk and strongly advised to declare any pregnancy early.

3.7 Radiation and the Pregnant Worker

Once a radiation worker declares that she is pregnant or breastfeeding an individual assessment must be carried out, taking account of the scheme of work, to determine whether and what further precautions are needed. For instance, if certain tasks present a greater risk to the unborn child, they could be allocated to another worker. In such instances advice should be sought from the University's Radiation Protection Adviser (RPA). Note that the accumulated dose rate for the foetus must be kept as low as reasonably practicable and must not exceed 1mSv. Work with isotopically labelled precursors to macromolecules must also be kept to a minimum.

Any radiation worker who is planning a pregnancy or who becomes pregnant may wish to discuss the implications of their work on the pregnancy with the University's Occupational Health Adviser.

3.8 Personal Monitoring

Radiation workers may be required to use a dosimeter in the form of a "radiation badge". All workers must ensure that their badge is used in the correct manner.

These badges measure whole body radiation, smaller badges for measuring exposure of particular parts of the body (e.g. fingers) are also available from the UIRPO. Requests for such badges should be made to the UIRPO.

The badge should be inserted in the holder in such a way that the stamped number is visible through the slot in the holder and faces outwards towards the source of radiation.

Extremity finger badges must be worn as finger stool **under** the protective glove. Care must be taken when removing the glove to ensure that the extremity badge is not inadvertently discarded.

The badge must be used in this way during the *whole* of the exposure period, which is normally 12 weeks. The badge should be worn whenever the person is in an area where ionising radiation may be present. Badges should not be left in areas containing sources of ionising radiation. At the end of the exposure period badges must be returned promptly (within 2 weeks) to the UIRPO. The loss of badges must be reported immediately to the UIRPO.

Any person who persistently fails to return their badge promptly will be de-registered

Radiation workers should not under any circumstances wear a badge issued by University of Essex at another location without the prior agreement of the UIRPO or RPA.

Note: The HSE have advised that, “Employees who have been provided with a dosimeter by their employer to ensure compliance with Regulation 22 (1)-(3); Guidance Note 460 of the IRR17 have a duty to look after that dosimeter and return it for processing as required. Employees who persistently fail to wear, look after or return their dosimeters promptly are liable to enforcement action up to and including prosecution under Section 7 of the HSW Act 1974”.

3.8.1 Intervention Levels

It is known that spurious readings can occur and any reading below 0.2mSv will be discounted, any readings above this level will be investigated.

The UIRPO will review the personal dosimeter results on an annual basis, along with the results of any investigations into spurious readings.

3.9 Medical Surveillance

Under the Ionising Radiation Regulations medical surveillance is only required for Classified Workers. However should any radiation worker have medical concerns associated with their use of isotopes they should contact the University’s Occupational Health Adviser.

3.10 Maintenance and repair works

A Permit to Work (PtW) system is in operation for access to all laboratory areas. Maintenance staff and contractors are not permitted to access laboratory and radio-isotope storage areas without a valid PtW

signed by either the UIRPO, DIRPS or a person nominated by them. All areas where radioisotopes are handled MUST be thoroughly monitored before any maintenance or repair works are carried out.