

Section 4. Schemes of Work and Prior Risk Assessment

Use of Ionising Radiation off campus

Anyone who wants to carry out work with ionising radiation must complete *Form 4: Application for an Approved Scheme of Work for Working with Ionising Radiations*. Form 4 serves the following purposes:

- 1. Approval to use ionising radiation:** All work involving ionising radiation **must** be reviewed by the DIRPS and then approved by the UIRPO before it is started. The UIRPO will consult with the University's Radiation Protection Adviser prior to giving approval and may stipulate certain conditions which must be met in order for approval to be given.
- 2. Radiation risk assessment:** Academic Supervisors are also required to undertake a radiation risk assessment (as required by the IRR 2017), to identify radiation risks and measures needed to control them. Control measures should reduce risks to as low as reasonably practicable (ALARP)
- 3. Best Available Techniques (BAT) Requirements:** The aim of BAT is to minimise radiation waste that is ultimately discharged to the environment. The key elements include:
 - **Justification:** that having considered alternative ways of achieving the same goals, it has been concluded that the use of ionising radiation is justified in terms of risks associated with a successful outcome.
 - **Optimisation:** the amount of radioactive material to be used or ordered is the minimum possible to conduct the work successfully.
 - **Disposal:** The best disposal options are used and the need to discharge into the environment is minimised and justified.

Further information on BAT can be found in the *Guidance on completing Form 4*.

- 4. Registered Radiation Workers:** Identification and registration of radiation workers for the scheme and ensuring they are competent. The RPA must be satisfied that any person working in accordance with an approved scheme will not be expected to receive a radiation dose greater than 6mSv per annum.

Academic Supervisors are therefore required to complete (or update) **Form 4** in the following circumstances:

- For each proposed new project;
- If there are any significant changes in the existing project which will affect the assessment, BPM justification, optimisation or waste stream
- Changes in experimental procedures
- Changes to registered radiation workers (NB: It is sufficient to re-submit Section 5 (page 6) of Form 4 when radiation workers change)

The scheme of work must give details of the principal features of the experimental protocols, as required by current legislation. Experiments in an approved scheme of work must be reviewed at least annually and the UIRPO and DIRPS must be advised of *all* changes in experimental procedures.

Academic Supervisors must also report annually to the UIRPO the persons who are working on the scheme and those persons who have ceased work on the scheme. The UIRPO will write to scheme supervisors in January of each year to request this information.

The UIRPO (in consultation with the RPA) will determine which registered workers will be issued with dosimeters, the type and change frequency.

A copy of the scheme of work must be displayed in the area in which the work will be carried out. Additional copies will be retained by the DIRPS and UIRPO.

Use of Ionising Radiations off campus

If a Group wishes to use ionising radiation off Campus, written details will be required to demonstrate how the group will comply with the Carriage of Dangerous Goods and Use of Transportable Pressure Equipment Regulations 2009 or in case of the use of a portable X-ray source, IRR17. In all cases the permission of the UIRPO is required

Working with Ionising Radiation at other Universities or Research Institutions

From time to time radiation workers will have occasion to work with ionising radiation at other universities or research institutions. In most cases the work will take place under written schemes of work raised by that institution.

University of Essex researchers working elsewhere are expected to adhere to the safe working practices and local rules of their host sites and to report unusual occurrences, instrument malfunctions and significant doses to both the host site and the Essex DIRPS and UIRPO.

Under no circumstances should radiation workers wear a badge issued by the University of Essex at another location, without the prior agreement of the UIRPO (on the advice of the RPA).