

RP COP016 – RESEARCH WORK INVOLVING IONISING RADIATION SOURCES OUTSIDE THE UK

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1. Scope

This Code of Practice concerns University personnel who work, or visit external organisations, **outside of the UK** for the purpose of carrying out research; where such research involves work with and/or exposure to ionising radiations.

Examples of work with ionising radiations outside the UK falling under this Code of Practice might be:

- Work at Particle Accelerator based Facilities such as the European Organization for Nuclear Research (CERN), Relativistic Heavy Ion Collider (RHIC) or similar type facility;
- Work at Nuclear-reactor based facilities such as Institut Laue–Langevin (ILL) or similar;
- Work with sealed sources that may or may not have been provided by the University of Edinburgh;
- Work with unsealed radioactive material.

This Code of Practice outlines the legal position and explains the University's safety arrangements for persons working with ionising radiations outside the UK.

For work with ionising radiations in the UK **ONLY**, researchers should wear dosimeters provided by the University's nominated supplier, Public Health England (formerly the HPA); this includes work with Neutron sources in the UK. Where researchers carry out work with ionising radiations both inside **AND** outside the UK then they should wear the dosimeter supplied for their work outside the UK for **ALL** their work with ionising radiations.

2. Introduction

Some University researchers undertake research involving specialist radiation sources or generators located at other sites, often outside of the UK. Examples are establishments such as CERN near Geneva, ILL near Grenoble and Argonne National Laboratory near Chicago. There may also be researchers who carry out work with sealed sources or work with Unsealed Radioactive Material outside of the UK.

For work involving ionising radiations outside the UK, whether it is with a nuclear reactor, particle accelerator, sealed source or unsealed radioactive material, the University may have little or no control or influence over what radiation safety procedures, or training arrangements, are in place. The UK Law governing ionising radiations does not extend to areas outside the UK; nevertheless, the University remains morally and legally responsible for the safety of its researchers and must provide them with suitable Information, Instruction and Training to avoid them being unnecessarily exposed to ionising radiation. The University is still what is termed in UK law as the “radiation employer”.

For work at external organisations it is clear that the University cannot dictate the radiation safety procedures adopted and it has to expect the researcher to comply with the safety procedures and training requirements established by the host organisation.

3. A note on Classified Workers

It is the University’s responsibility to arrange classification of its personnel, even where the personnel only work with radiation at another establishment. Further information on classified radiation workers, and whether you need to be classified or not, can be found in Health and Safety Dept. Radiation Protection Code of Practice RP/CoP015. If you think you may need to be classified, the Radiation Protection Supervisor (RPS) and the University’s Occupational Health Dept. must be informed **as soon as possible**. Classification cannot be arranged very quickly. **Researchers must not make classification arrangements themselves.**

4. Proposed Scheme of Work Arrangements

Anyone wishing to work with radiation or radioactivity outside the UK must still complete an appropriate Proposed Scheme of Work (PSoW) form. A PSoW form, covering work with ionising radiation from sources at other organisations, both inside AND outside the UK, can be found in the Tools & Forms section of the Radiation Protection Unit website:

<http://www.ed.ac.uk/schools-departments/health-safety/radiation-protection/tools-forms/tools> .

The PSoW is intended to ensure that the work can be undertaken in relative safety and in compliance with specific radiation safety legislation.

One PSoW form must be completed for **each person** who wishes to undertake work. More than one isotope or experimental procedure/facility can be put onto one form. On completion, the form must be handed to the RPS for signature. He/she will send it to the Radiation Protection Unit (RPU) who will approve it and return it with any comments. The RPS will return a copy to the proposer.

5. Dosimetry arrangements for work at other organisations

Whilst the University cannot dictate the radiation safety procedures for work with ionising radiations outside the UK, it can readily make an assessment of the potential dose received by researchers through personal dosimetry. This will help to ensure that doses are being restricted pursuant to international limits. Therefore:

- **All researchers carrying out work with ionising radiations outside the UK should wear an appropriate dosimeter supplied by their department unless otherwise stated on the PSoW. At sites where dosimeters are not required by the host organisation, researchers DO NOT need to wear their University supplied dosimeter (if they have one).**
- **The dosimeter(s) supplied by the University has to determine the researcher's annual dose, not just the dose they received from the host's site. In the case of undergraduates, real-time dose monitoring may be advised by the RPA/RPU on the PSoW form and a real-time dosimeter will be provided by the RPU for this purpose**
- **Dosimeters should be worn at all times during 'work with ionising radiations' outside the UK. For work at external organisations this would be at the point of entry to the site or, for sites that issue their own dosimetry, at the point where the site issues their own dosimeter.**
- **Each dosimeter must be worn for a maximum of three months (the "wear period"), unless either required otherwise by the host organisation, or on the advice of the University RPA, or if the wearer is classified.**
- **At the end of a wear period the dosimeter should be exchanged for a new one. Typically this is administered by the RPS or nominee who ensures that the worn dosimeter is returned for reading. Even if a site outside the UK is only visited once per year, a continuous supply of dosimeters must be maintained; dosimeters should only stop being supplied if work with ionising radiation is to cease completely.**
- **If you know your work with radiation is to cease then inform the RPS or nominee who will arrange to cancel any future dosimeters.**
- **Researchers must not make any dosimetry arrangements themselves.**

Many external organisations, acting as responsible employers, will wish to demonstrate that they are restricting radiation doses from visiting persons on their site(s). The easiest way for them to demonstrate this is to carry out personal dose monitoring. In this case, external or host organisations will supply

their own dosimeter which **you must wear in addition to** the University supplied dosimeter(s). Depending on the site visited the host site may issue either real-time dosimeters or passive dosimeters. The host's dosimeter will only measure the dose at their site(s) and it remains their property. In many cases, the host site does not report the results of the wearer's dosimeter to the wearer's home institution.

The table below shows specific dosimetry arrangements for work with various sources of ionising radiations outside the UK:

	Work at Particle accelerator and/or nuclear-based facilities	Work with Sealed Sources outside UK	Work with Unsealed Sources outside UK
Possible radiations encountered	<ul style="list-style-type: none"> • Photon (X & Gamma) • Beta • Neutron • Heavy ion 	<ul style="list-style-type: none"> • Photon (X & Gamma) • Beta • Neutron 	<ul style="list-style-type: none"> • Photon (X & Gamma) • Beta • Alpha
Appropriate Dosimeter(s)	1 x whole-body Beta, Gamma, X & Neutron dosimeter	1 x whole-body Beta, Gamma, X & Neutron dosimeter	<p><i>Whole-body dosimeter:</i> Usually not required for work with unsealed material</p> <p><i>Extremity dosimeter:</i> May be required for work with high-energy beta emitters. Recommended dosimeter is supplied by HPA.</p>
Are there any specific University Radiation Protection Codes of Practice covering this work?	No.	Yes. RP/CoP007	Yes. RP/CoP006

6. Indicative Costs

Dosemeters are to be supplied by the relevant School, Unit or Research Group as part of the University's general Health and Safety obligations; therefore the cost of the dosimeters is borne by the individual School, Unit or Research Group.

The Radiation Protection Unit has set up a contract with a dosimetry services provider for supplying dosimeters for work with ionising radiations outside the UK. A typical 'all-in-one' Whole body Beta, Gamma, X & Neutron dosimeter should cost approximately £70 per wearer per year (Prices at June 2013 and based on a wearer having a 13-week wear period (i.e. per Quarterly replacement)). Contact the RPU for details.

7. Transport Arrangements for Dosimeters

As dosimeters are supplied with the intention of monitoring the dose received during **work** with ionising radiations then it is important that they are not irradiated during transport; this includes airport scanners. As this CoP covers work outside the UK then it is recommended that dosimeters are carried on the wearer's person when travelling, or in hand luggage. It is preferable that security personnel **do not** put the dosimeters through the Xray scanners however, if they insist on doing this, then the dose is sufficiently small that it should not affect the efficacy of the dosimeter.

8. Training Arrangements

For particle accelerator and nuclear-based facilities it is likely that the host organisations will require visiting researchers to carry out some form of on-site training when they visit for the first time or if they require refresher training. This is likely to cover local arrangements and may include radiation safety related procedures. It is expected that researchers follow these established procedures when on the host's site. Researchers can always seek further advice from the University Radiation Protection Unit on any radiation safety related procedures at these sites if required.

9. Medical Examination Arrangements

Some external organisations may insist that visiting workers have a valid medical examination or medical certificate to allow them to work on their site.

NB: This should not be confused with the medical examination done as part of the medical surveillance by a Health and Safety Executive (HSE) appointed doctor for a Classified Radiation worker.

The Medical Examination required for entry to these sites, eg CERN, is likely intended to show that the researcher is fit to work with the equipment on their site. This can therefore be carried out by a qualified Occupational Health Physician. The University's Occupational Health (OH) Unit can arrange for the examination to be carried out by an appropriate Occupational Health Physician, however, research staff must give adequate notice to the OH Unit, as due to

Physician availability it can take a number of weeks/months to organise an appointment.

When contacting the OH Unit you should tell them that you require a medical for working with ionising radiations **but NOT** a medical for being a Classified Worker. The Unit's contact details are below:

Occupational Health Unit
Health and Safety Department
The University of Edinburgh
Drummond Street Annexe
Drummond Street
Edinburgh
EH8 9XP

Work: +44 (0)131 650 8190

Fax: +44 (0)131 650 9149

Email: Occupational.Health@ed.ac.uk

An appropriate Medical Certificate of Fitness, or a site-specific certificate (if details of what needs to be included in the certificate are provided), is provided. The OH Unit can also arrange a recall, if requested, for those persons visiting establishments long-term or often.

NB: UoE undergraduates, who may require a medical for their work with ionising radiation outside the UK, should contact the OH Unit to discuss the options for medical examination available to them.

10. Further Information

Further advice on dosimetry and classification can be obtained from the Radiation Protection Unit of the Health and Safety Department, radiation@ed.ac.uk. There is a Code of Practice, RP CoP015, relating to Classified Workers.

Further advice on health surveillance aspects can be obtained from the Occupational Health Unit.