

# Ionising Radiation Policy

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## **1.0 Introduction**

- 1.1** Academies of the School Partnership Trust Academies (SPTA) use a variety of sources of ionising radiation within its teaching activities. This policy details the management arrangements and responsibilities for radiation safety for the SPTA.

## **2.0 Policy Statement**

- 2.1** It is the intention of SPTA and its academies 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 at SPTA academies involving the use of Ionising Radiation must comply with the Ionising Radiation Regulations 1999, implemented and enforced by the HSE. The Regulations require that SPTA establish a suitable management structure to maintain radiation safety. Each Academy will establish a Radiation Protection Adviser (RPA) and Radiation Protection Supervisors (RPS) to enable it to fulfil its statutory obligations.

The holding and disposal of radioactive material is controlled by the Radioactive Substances Act 1993 and all work undertaken at SPTA academies 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 1999 (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 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 SPTA will be based on the prior risk assessments made on a procedure, balanced against the need for academic freedom. In all cases the policy of the SPTA will be to optimise practices to ensure that radiation dose is as low as reasonably practicable (ALARP).

## **3.0 Legislation**

Management of Health and Safety at Work Regulations 1999  
Health and Safety at Work etc Act 1974  
The Ionising Radiations Regulations 1999  
The Radioactive Substances Act 1993  
The Justification of Practices Involving Ionising Regulations 2004

## **4.0 Procedures**

### **4.1 Justification**

All work with ionising radiation must be justified. Alternatives to the use of ionising radiation must always be considered and the risks and benefits assessed. If justified, the work - and the laboratories and areas used, including storage areas - must then be registered with the RPA using the appropriate forms. All staff, students and visitors working with ionising radiation must also be registered with the RPA.

#### 4.2 Training

All personnel involved in work with ionising radiation must be adequately trained and the training should be tailored to reflect the type and complexity of the work they will be undertaking. Radiation workers should familiarise themselves with all relevant local rules, and with the physical, chemical and biological properties of the radioactive materials, sealed sources and radiation generating equipment that they propose to use.

#### 4.3 Movement

The RPA must be informed of any changes of location or laboratory where radioisotopes are used. Radioisotopes may not be moved to any outside location before discussion with the RPS and the RPA.

#### 4.4 Storage and Disposal

The amount of all radioactive materials on site, including waste, must not exceed the limit set by the certificate of registration. Radioactive materials must be kept under conditions that present no hazard, particularly to non-radiation workers, and must be secure against theft or tampering.

#### 4.5 Monitoring and Record Keeping

All laboratories and workstations where work with open sources of radiation is carried out must be regularly monitored for contamination, with monitoring records kept available for inspection.

All workers have a duty to record accurately all disposals of radioactive materials. The RPA **MUST** be contacted before any disposal of radioactive materials is authorised. Disposal records should be sent to the RPA by the RPS each month; collated and checked against the limits set out in the Certificate of Authorisation; and included in an annual return to the Environment Agency.

An inventory of small sealed sources is kept by the RPS and RPA. These sources, used primarily for calibration and teaching, must be **checked for leak and contamination every two years**.

#### 4.6 Emergencies

All incidents involving radioisotopes must be reported immediately to the RPS and the RPA and an incident report form must then be completed and submitted to the RPA. Any loss or theft of radioactive material must also be reported immediately to the RPA who will investigate the matter and who will communicate the information externally as necessary. Where unsealed sources are involved, attempts should be made to contain and decontaminate any affected areas immediately.

On hearing a fire alarm the building should be evacuated immediately and no attempt should be made to rescue radioactive materials. The Fire Marshall and the RPA must be informed of the nature and location of any radioactive materials involved.

#### 4.7 Students below the age of 16

Students below the age of 16 **MUST** not normally be allowed to handle radioactive sources. Work at this level is largely restricted to teacher demonstrations. As generally with demonstrations, students should normally be kept at least 2 m away from the sources, partly to

reduce the risk of pilfering. However, suitably-responsible and well supervised students may use devices containing low-level radioactive sources in standard experiments, provided the sources are fully enclosed.

Contamination of the fingers must be prevented, particularly with radioactive rocks, which should be stored in suitable transparent containers. All sources, whatever their activity, must never be left unattended by the teacher in charge.

#### **4.8 Students aged 16 and above**

Students aged 16 and above may handle sealed sources in order to carry out standard investigations of the properties of ionising radiations. The teacher in charge must be satisfied that the students are sufficiently responsible, have received appropriate instruction and have seen and understood the appropriate sections of the Standard Operating Procedures. The teacher must closely supervise all work. The sources must be inspected for signs of damage as soon as they are returned to the teacher. All sources, whatever their activity must never be left unattended by the teacher in charge.

#### **4.9 Pregnant females and new mothers (staff or students)**

It is always important for a pregnant employee to inform her employer (SPTA) as soon as she is aware that she is pregnant, so that the employer may advise her of any special precautions or changes to working procedures. This applies equally to students who may be pregnant. The employer must carry out a risk assessment. In the context of this document the task is likely to be delegated to the RPS (Schools).

Provided the standard operating procedures are followed nobody handling radioactive materials in academies will receive an additional dose anywhere near the limits laid down by the regulations, even the lower limit for women during pregnancy.

A pregnant female or a new mother may continue to carry out normal procedures with sealed sources. However, if she is still concerned over the risk to her (unborn) child, it would be advisable to ask another person to carry out the work on her behalf.

Unnecessary stress is likely to be far more harmful than the radiation.

In order to eliminate the already very low risk of contamination, pregnant females and new mothers will not carry out leak tests, contamination checks or work with unsealed sources [e.g. dealing with spills of radioactive substances, preparing protactinium or radon-220 (thoron) generators, etc.].

### **5.0 Responsibilities and Compliance**

#### **5.1 Academy Principal**

- Shall have overall responsibility for ensuring compliance with Health and Safety legislation.
- Shall ensure that a Radiation Protection Adviser is appointed in line with the Ionising Radiation Regulations 1999.
- Shall ensure that sufficient Radiation Protection Supervisors are appointed in line with the Ionising Radiation Regulations 1999.
- Will be responsible for formally appointing Radiation Protection Supervisors in writing.

## 5.2 Radiation Protection Advisor

Each SPTA Academy that holds radioactive sources will require an ‘at a distance’ service, provided by the SPTA H&S consultant, who will go into academies to provide a local audit / oversight function, but with advice being provided by the qualified RPA at a distance. This service will advise the Academy 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.

As an integral part of this service annual audits on the storage and use of ionising radiation sources will be carried out by the H&S consultant with support from academy staff.

## 5.3 Curriculum Leaders/Head of Department

- Implementation of the STPA policy on Ionising Radiation and The Local Rules of the Academy within a department lies with the relevant Curriculum Leader/Head of Department.
- The Curriculum Leader/ Head of Department should be satisfied that all relevant staff within their area of responsibility are aware of the Academy requirements.
- If required, the Head of Department may nominate a suitably qualified and trained member of departmental staff to manage radiation safety on a daily basis, and act as a Radiation Protection Supervisor.

## 5.4 Health and Safety Coordinator

- Shall ensure that the operational aspects of the IRR99 are being implemented in line with the Radiation Protection Advisers advice.
- Shall liaise with the Radiation Protection Adviser to ensure all advice is acted upon.
- Shall liaise with the Radiation Protection Supervisors to discuss all advice provided by the Radiation Protection Adviser.

## 5.5 Radiation Protection Supervisors

The Academy Radiation Supervisors will be responsible, in close collaboration with the Radiation Protection Adviser, for day-to-day matters of safety and close supervision of radiation work within their own 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;
- Carrying out and recording regular surveys for contamination where unsealed radioactive materials have been used;
- Ensuring suitable risk assessments are carried out on all new work involving the use of ionising radiation;
- Ensuring all teachers and technicians (especially new ones) who need to handle or use sources are appropriately trained;
- Ensuring that the radioactive sources are all accounted for and kept secure;
- Ensuring that equipment is maintained in good working order;

- Ensuring regular monitoring is carried out on radioactive sources, their containers and stores;
- Ensuring that all records required are accurate, up-to-date and kept secure;
- Knowing what to do in an emergency

## 6.0 Training

SPTA recognises that training is required for staff in order to comply with the Ionising Radiation Regulations 1999.

### 6.1 Radiation Protection Adviser Training

Only competent contractors will be employed to provide the Radiation Protection Adviser service.

In accordance with the Ionising Radiations Regulations, 1999 (IRR99) SPTA Academies will appoint and consult suitable Radiation Protection Advisers (RPAs) who hold a valid certificate of competence from an Assessing Body recognised by the HSE.

### 6.2 Radiation Supervisor Training

**All Radiation Protection Supervisors will attend a CLEAPPS Radiation Protection Supervisors course.**

This will be organised by their Curriculum Leader/ Head of Department or the Health and Safety Coordinator.

Records will be kept of attendance.

### 6.3 Teacher Training

- The qualifications required to handle radioactive sources are generally those of teachers appointed to permanent positions on the science staff, although some basic radiation protection training may be needed and this can be provided.
- Trainees, some temporary staff, or those for whom science is a secondary subject, may not be suitably qualified. If they are to handle sources, they must be supervised by a teacher who is qualified, until the RPS considers that they have gained sufficient knowledge and experience.
- The RPS will compile a list of teachers (and support staff) authorised to handle/use radioactive sources and ensure it is kept up to date. This should be kept in the Science department Health and Safety File.

## 7.0 Reference / Guidance

- The Ionising Radiation Regulations 1999. <http://www.opsi.gov.uk/si/si1999/19993232.htm>
- Ionising Radiations Regulations 1999 Approved code of practice and guidance. L121 ISBN 9780717617463
- CLEAPSS guide L93 Managing Ionising Radiations and Radioactive Substances in Schools
- CLEAPSS leaflet PS46A, Radiation Protection in School Science: Guidance for Employers - Information for local authorities
- CLEAPSS Leaflet PS46B Radiation Protection in School Science: Guidance for Employers - Information for independent schools & colleges (including foundation & voluntary aided schools).
- HSE website <http://www.hse.gov.uk/radiation/index.htm>

## 8.0 Appendices

### Appendix A - Local Rules

\_\_\_\_\_academy

**Insert specific information/instructions about the use/storage of IRR materials e.g**

- List of academy staff allowed to handle IRR sources
- Teaching spaces that are to be used for IRR substances
- Locations to be nominated for storage
- Specific experiments that will be carried out and information to include year groups
- Nominated member of staff acting as RPS and training carried out
- Review date of Local Rules