A Position Statement issued by the Association of University Radiation Protection Officers (AURPO)

Introduction

1) The majority of uses of ionising radiations in UK institutes of Further and Higher education and research are regulated by the Ionising Radiations Regulations, 2017 (IRR17), the Environmental Permitting (England and Wales) Regulations 2016 (EPR16) and the Radioactive Substances Act, 1993 (RSA93)(for Northern Ireland), The Radioactive Substances (Modification of Enactments) Regulations (Northern Ireland) 2018 and Environmental Authorisations (Scotland) Regulations 2018 (effective from 1st September 2018). The IRR17 are concerned with protection of staff and the public from work with ionising radiations, and the latter is aimed at the protection of the environment. EPR16, and RSA93 and Environmental Authorisations (Scotland) Regulations 2018 are implemented through the granting of permits by the appropriate environment agencies, permitting the use and disposal of radioactive substances under certain conditions and limitations or through the use of certain exemptions.

2) Both IRR17 and the environmental permits require management and procedural systems to restrict radiation exposure, and refer to specific duty holders with defined responsibilities. These include the employer (or user / undertaking), radiation protection adviser (RPA), radioactive waste adviser (RWA), and radiation protection supervisor (RPS). The AURPO recommend that, in order to ensure compliance with legislation regarding radiation safety, universities, colleges and research institutes need to give specific duties and responsibilities to one or more of their employees. These duties and responsibilities, which are described in this position statement, do not fall within the definitions of an RPA, RWA or an RPS. They are appropriate for the role of Radiation Protection Officer (RPO), a title familiar to all educational and research establishments and still used by many. This position statement aims to define the role of the RPO in the context of current legislation and thus help universities and other institutes establish a management system which demonstrably complies with that legislation.

Defined Radiation Protection Roles

3) IRR17 and environmental permits make reference to roles with specific responsibilities. These are summarised below:

i. The Employer

4) IRR17 refers to the employer (more specifically the radiation employer) as having ultimate responsibility for radiation safety within an organisation. It is the employer who appoints an RPA and RPSs, designates areas and classifies workers. The employer is responsible for providing local rules, training, radiation monitors and personal protective equipment.

5) Environmental permits places similar responsibilities on the user, which in this context is the employer (undertaking) rather than the individual who uses radiation directly. The permits contain conditions which the user must comply with including specific requirements for management systems and for the application of Best Available Techniques (BAT) in the management of waste.

ii. Radiation Protection Adviser (RPA)

6) Council Directive 2013/59/Euratom lays down the basic safety standards for protection against the dangers arising from exposure to ionising radiation and repeals Directives 89/618/Euratom, 90/641/Euratom, 96/29/Euratom, 97/43/Euratom and 2003/122/Euratom (OJ L 13, 17.1.2014, p.1) ("the BSSD"). The BSSD defines a "radiation protection expert" as an individual having the knowledge, training and experience needed to give radiation protection advice in order to ensure the effective protection of individuals, and whose competence in this respect is recognised by the competent authority. In IRR17 the Health and Safety Executive (HSE) have interpreted this role as that of an RPA who must demonstrate competence in several key areas before being recognised to practice and hold a certificate of competence from an assessing body such as RPA 2000. Information supplied to AURPO in the past indicated that a proportional of all UK universities, colleges and research institutes using ionising radiation employed their own RPA; the remaining had contracts with external RPAs. IRR17 requires the employer to consult an RPA on a limited range of matters, namely on the implementation of requirements for designated areas, examination of plans for new or modified installations to restrict radiation exposure, the calibration of monitoring equipment and the periodic testing of systems designed to restrict exposure. The Approved Code of Practice to IRR17 adds that the RPA advises the employer on compliance with the regulations, including advice on risk assessment, designation of areas, conduct of investigations, preparation of contingency plans, dose assessments and quality assurance of medical equipment. A contract with an external RPA should cover these aspects as a minimum. Communication with the external RPA will be best achieved if there is an individual on site who has sufficient knowledge of the work with ionising radiation in all departments to know when the advice of the RPA is needed and to oversee the practical implementation of the advice once received. This we consider to be a task for the RPO.

iii. Radioactive Waste Adviser (RWA)

7) Where appropriate, the environmental permit issued requires the user / undertaking to consult with a suitable certificated RWA for advice on compliance with the limitations and conditions. This could usefully be included in the contract with a suitable external RWA. The employer will need to appoint an in-house technical expert who can identify problems that require RWA advice and act as a contact point for the organisation. Which again we consider to be a task for the RPO.

iv. Radiation Protection Supervisor (RPS)

8) The RPS is unique to IRR17 and has a crucial role in helping to ensure compliance with the arrangements made by the employer under the regulations and, in particular, in supervising the arrangements set out in the local rules. HSE guidance indicates that the RPS will normally be an employee in a line management position, closely involved in the work with radiation and who has sufficient authority to ensure compliance. Whilst it is not necessary for the RPS to be formally recognised by the HSE, the HSE has given guidance on a core competence training for RPSs. Courses are run by several universities and other organisations to ensure that RPSs are adequately trained.

9) It is common practice for RPSs to be appointed at a departmental level or at a sub-departmental level if the department is large and has a varied use of radiation. As such, the RPS does not have a corporate role, nor do they supervise in departments where they have no line management capacity or knowledge of the work being undertaken. It is not the duty of an RPS to manage corporate facilities such as radioactive waste stores, to collate records or to run a centralised ordering system for radioactive materials. These tasks should fall to the RPO within the organisation who will liaise with the RPSs.

The Role of the Radiation Protection Officer

10) The internal RPA / RWA will, almost universally, carry out radiation protection tasks far beyond the minimum required in the legislation. Some of those tasks would be very difficult for an external radiation protection expert or RPA / RWA to perform because they require local knowledge and responsibility and regular, routine and extensive presence on site. Other tasks might be contracted out but could incur significant additional expense to the university or institute. Similarly, an RPS might be allocated radiation safety tasks which go beyond the supervision of the work in their own department. These might require knowledge and experience beyond that expected of an RPS and would, in the eyes of the HSE, not be RPS duties.

11) In order to clarify the management of radiation within the university / institute setting we have defined an RPO role as a position of responsibility within the organisation requiring coordination of work of the RPSs, liaison with the RPA / RWA and the employer, management of corporate facilities and audits of certain practices. It is most likely that the RPO will work in the university health and safety department where the RPO duties may only form a part of their job. If the university or institute employs its own RPA / RWA, the RPA / RWA will most likely take on the RPO role as well. It is possible that an RPS can take on the RPO role with additional training, but the AURPO recommend that the duties are defined separately within their job description under an RPO heading. This way the organisation can demonstrate to the HSE that the RPS duties of an individual are clearly defined and do not go beyond that expected by the regulators.

12) A significant task of the RPO will be to manage communication with the RPA / RWA in organisations where the RPA / RWA is not an employee. The employer in a university will have little or no knowledge of radiation and yet retains responsibility for radiation safety. They will not know when to consult their external RPA / RWA and are unlikely to understand either the question they must ask or the answer they receive. Without delegating their legal responsibilities, the employer should empower their RPO to act as the point of contact with the RPA / RWA. The RPO can judge when it is necessary to ask the RPA / RWA for advice, provide local information to help the RPA / RWA give appropriate advice and agree with the RPA how best to implement the advice whilst ensuring compatibility with the organisation's radiation and general health and safety policies. The RPO will also be best placed to specify and manage the contract with the external RPA / RWA.

13) The appointment of an RPO with specific duties linked to the management arrangements in EPR permits / RSA certificates will clearly help in demonstrating compliance. The duties are corporate, i.e., related to central facilities rather than department specific. These may include specification of new facilities to standards recommended by the RWA (and RPA), managing the decommissioning of redundant facilities, operating a centralised system for the ordering of radioactive materials, collating records (for example of radionuclide usage and disposal, staff dosimetry and training, and environmental monitoring), making pollution inventory returns, applying for permits / certificates and liaising with regulators.

14) In summary, the role of the RPO is to be responsible for the routine management of the organisation's radiation protection system, and to manage directly the centralised radiation protection facilities.

RPO Duties

15) The duties of an RPO will vary according to the requirements of the organisation – there is not a universal list which will suit all. The following duties are intended as a guide to universities in developing their RPO role.

16) Possible duties include, but are not limited to:
- Management of centralised ordering systems for radioactive materials;
- Managing waste accumulation in central waste stores;
- Management of the Very Low Level Waste / Exempted waste route;
- Monitoring of site activity against environmental permit limits;
- Collation of holdings and usage records;
- Collation of waste records;
- Making Pollution Inventory (PIEDC) returns on behalf of the organisation;
- Managing a system for the provision of appropriate personal dosimetry and associated record-keeping;

- Managing a system for the periodic calibration of radiation and contamination monitors and associated record-keeping;
- Management of the sharing of radioactive material and / or radiation facilities;
- Environmental permit arrangements on sites with multi-user occupancy;
- Presenting periodic reports on radiation safety to the organisation's Radiation Protection Committee and / or Health and Safety Committee;
- Contribute to the revision of local rules and organisation radiation safety policy;
- Perform measurements of radiation doses, dose rates and activity;
- Management of an inventory of radiation equipment;
- Advice on selection of appropriate monitoring equipment;
- Maintenance of a Best Available Techniques (BAT) culture in management and operations;
- Inspection and maintenance of central storage / disposal facilities (e.g., stores, fume cupboards, etc.);
- Assessments of how best to apply BAT;
- Provision of site specific information to the RWA (for BAT, risk assessments; etc.);
- Acting as the point of contact within the organisation for regulators;
- Arranging for disposal of radioactive waste to authorised contractors;
- Provision of local guidance on design standards for laboratories;
- Making applications for new environmental permits;
- Requesting environmental permit variations;
- Management of the application and use of radioactive substances exemptions;
- Provision of data for a decommissioning plan (historical research, sampling, monitoring);
- Management of facility or site decommissioning where radioactive substances have been used;
- Make arrangements for staff training in radiation safety and deliver such training;
- Collation of training records for radiation workers;
- Co-ordinating response to radiation incidents;
- Reporting incidents to the relevant regulatory authority when appropriate;
- Authorising consignments for transport of radioactive material;
- Perform waste sampling when required by the regulator;
- Demonstrate BAT is being applied via auditable self-assessment;
- Support for RPSs in performing local risk assessments or BAT assessments;
- Liaise with, and co-ordinate the work of, the RPSs;
- Implement security measures for radioactive sources according to current national guidance for High-activity Sealed Radioactive Sources (HASS) if applicable, and carry out periodic security audits;

- Acting as the point of contact within the organisation for the external RPA / RWA;
- Where not appointed as RPA and or RWA, assist in the specification of a contract with an external RPA / RWA;
- Where not appointed as RPA and or RWA, RPA / RWA contract monitoring and management;
- Euratom Safeguards reporting; and
- Assessment on the applicability of the Radiation (Emergency Preparedness and Public Information) Regulations.

17) It should be noted that it is not essential for one person, or even the RPO, to perform all of these duties. However, if these duties, required by regulations, are carried out by more than one person, it is important that there should be somebody in place, appointed as an RPO, to ensure that they are performed.

RPO Training

18) The level of training required in order to be effective as an RPO will be at a level above that required to be an RPS. The HSE has issued an information sheet on RPSs which includes a series of training modules to comprise a core of competence for an RPS. These are also relevant modules for inclusion in RPO training and are reproduced below.

19) Core of Competence for RPS modules:

1. The nature of ionising radiation and its interaction with tissue - confined to those types of ionising radiation which may be encountered, but including:
   - the nature of any harmful effects;
   - the principle of restricting exposure to ionising radiation so far as reasonably practicable; and
   - the concepts of internal and external radiation exposure.

2. The quantities used for:
   - measuring ionising radiation, including the units of measurement;
   - activity of radioactive substances; and
   - contamination;

   as appropriate to the circumstances.

   N.B. A detailed understanding of all dose quantities may not be needed, provided there is an understanding of what is meant by the general term `dose of ionising radiation'.

3. Relevant measurement techniques (i.e. those that will be met in the course of normal work), for example:
   - film badge;
   - thermo-luminescent dosemeter (TLD);
   - electronic dosemeter;
   - other personal dosemeter;
   - bioassay;
   - air sampling; and
   - workplace portable monitors for radiation and contamination.

4. Basic legal requirements:
   - the Ionising Radiations Regulations and Approved Code of Practice (L121);
   - local rules, their purpose and how to use them to secure compliance with the Regulations;
   - risk assessments;
   - provisions specific to women and young people;
   - designation of people and areas; and
   - appreciation of relevant general health and safety legislation, such as the Management of Health and Safety at Work Regulations 1999.

5. The basic principles of practical radiation protection:
   - time;
   - distance;
   - shielding;
   - containment; and
   - good housekeeping;

   and how those principles are carried through in the particular work situation.

6. In-house knowledge, as appropriate:
   - the radiation employer's safety policy and organisation;
   - the specific functions the RPS would be expected to undertake;
   - relevant dose limits;
   - operational levels set by the employer for the particular workplace;
   - content of the local rules established by the radiation employer;
   - contingency plans; and
   - where help and advice can be obtained.

7. Practical procedures to be followed in the event of an accident, incident, emergency or other unwanted occurrence, including procedures for reporting adverse incidents.

20) The additional modules which would be required for an RPO are:

- Basic Legal Requirements - Part 2:
- depending on location, the relevant environmental permitting legislation and associated guidance;
- exemptions to the above and their application;
- BAT and its implementation in research / teaching;
- environmental impact assessments;
- national guidance on security of radioactive materials;
- fundamentals of radioactive material transport; and
- basics of REPPIR.

9. Practical elements:
   - application of BAT to new buildings and laboratories;
   - principles of good laboratory design, including laboratory layout and selection of fixtures and finishes;
   - principles of clearance and decommissioning; and
   - radioactive waste management.

21) AURPO has designed a course for training to meet the HSE 'core of competence' in relation to the certification of RPAs under the Ionising Radiations Regulations. In addition environmental aspects are covered for potential RWAs. The Certificate of Professional Development in Radiation Protection is a web-based course successfully run by the University of Strathclyde.

22) Universities, colleges and research institutes should be encouraged to identify RPO role(s) within their organisation and to ensure individuals fulfilling those roles are adequately trained.

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Amended to take into account the change from The Ionising Radiations Regulations 1999 to The Ionising Radiations Regulations 2017.