Environment Protection Authority

Radiation Guideline 5

Recommendations for Radiation Safety Officers and Radiation Safety Committees

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Introduction

The role of radiation safety officer (RSO) is very important within an organisation that deals with regulated material, whether it is radioactive substances and/or ionising radiation apparatus. Small businesses – such as a veterinary practice or industrial radiography company – to large institutions – such as a university or local health district – benefit from having a designated person looking after the use and possession of regulated material.

Clause 43 of the Protection from Harmful Radiation Regulation 2013 (the Regulation) provides for the appointment of radiation safety officers and radiation safety committees in workplaces where regulated materials are used.

The Environment Protection Authority (EPA) may direct the appointment of a radiation safety officer or a radiation safety committee in a workplace, determine the qualifications of radiation safety officers (RSO), and direct what functions are to be exercised by RSOs and radiation safety committees (RSC).

This Guideline can be used by employers to appoint an RSO and provide guidance to the RSO of their function regarding situations were radiation apparatus or radioactive substances are possessed or used. The level of involvement and the time an employee may undertake the duties of a radiation RSO will depend on the type of industry and how involved it is in the use of regulated material.

RSCs are generally only of benefit in larger institutions, such as hospitals, universities and research facilities, where a co-ordinated approach to radiation safety is required over different departments. Most smaller facilities or places where the use of radiation only plays a limited part of the day-to-day activities of an organisation will not require an RSC.

The recommendations of this Guideline are not mandatory.

The Guideline and recommendations were developed by the EPA, in consultation with the Radiation Advisory Council, to assist employers to meet their radiation safety responsibilities.

1. Responsibilities

These recommendations have been developed to assist employers to fulfil their responsibilities under the *Protection from Harmful Radiation Act 1990* (the Act) and the Regulation.

1.1. Advice to person responsible

1.1.1 The Act and Regulation assign certain responsibilities to employers to protect employees, members of the public and the environment from unnecessary exposure to radiation arising from their operations which use radiation apparatus and radioactive substances.

1.1.2 An RSO may assist the person responsible or employer to meet their obligations under the Act by being delegated to conduct some or all of the duties assigned to the person responsible, or the employer, under the Act and the Regulation. This delegation does not, however, relieve the responsible person or employer of their responsibilities.

1.1.3 Further guidance may be found in *RPS C-1 Code for Radiation Protection in Planned Exposure Situations (Rev.1) (2020)* by the Australian Radiation Protection and Nuclear Safety Agency (ARPANSA).

1.1.4 Specifications for radiation shielding of protective barriers and the design details of rooms used for ionising radiation apparatus should be determined in accordance with *Radiation Guideline 7: Radiation shielding design, assessment and verification requirements as amended from time to time,* and documented by an appropriately qualified person before building works start.

1.2. Appointment of a radiation safety officer

1.2.1 Under the existing Regulation an employer is only required to appoint an RSO when the EPA directs the employer to do so. The EPA has rarely exercised this regulatory power. However, many organisations – especially larger employers that use ionising radiation (like hospitals and universities) – choose to appoint an RSO.

1.2.2 The Regulation provides for the appointment of an RSO to advise and assist an employer in fulfilling their responsibilities for radiation safety.

1.2.3 An organisation which is required or chooses to appoint an RSO may employ a person to specifically fulfil the role, appoint an existing employee, or engage an external consultant. The resources required to reasonably fulfil the responsibilities of an RSO will vary depending on the size and activities of the organisation. An RSO may not need to be a full-time position within an organisation but one of the roles given to an existing employee. This would be true especially for smaller organisations.

1.2.4 Most employers that are affected by the Regulation should find that normally only one person is needed as the RSO for an organisation. However, large employers or those that use ionising radiation or radioactive substances over a geographically widespread area may need to appoint an RSO in each of their premises. Employers need to ensure and satisfy themselves that an appropriately qualified person is appointed in their workplace. The employer needs to be satisfied that the RSO is capable of carrying out their functions even though some of these functions may be delegated – it is up to the employer to ensure compliance.

1.3. Authority of a radiation safety officer

1.3.1 There may be occasions when an activity using ionising radiation or radioactive substances presents an unacceptable risk. This could occur if:

- the operator lacks proper appreciation of the result of proposed actions, or
- operator oversight causes a dangerous situation.

1.3.2 It is recommended that the RSO has the authority to:

- stop any unsafe operations or proposed actions that come to their attention, and
- implement any necessary urgent actions following the occurrence of an accident.

1.4. Absence of a radiation safety officer

1.4.1 On occasions when an RSO is absent from duty or unavailable, the employer should appoint another suitably trained employee or consultant as an interim RSO to ensure that the functions of the RSO are maintained. Employers need to satisfy themselves that an interim RSO is capable of carrying out the functions of an RSO.

1.5. Organisations requiring a radiation safety committee

1.5.1 An organisation whose size and scope of activities warrants it may be directed by the EPA to appoint a radiation safety committee (RSC).

1.5.2 An RSC has the following objectives:

- to act as an administrative and consultative body that reviews the radiation safety of all uses of ionising radiation and radioactive substances within the organisation
- to recommend the implementation of radiation safety policies within the organisation.

1.6. Radiation licensing of radiation safety officers.

1.6.1 The person who has been appointed as a RSO may not need to hold a radiation licence. Other appropriately licensed employees can undertake activities that may require a radiation licence. In this case the RSO acts in an administrative and support role providing advice, maintaining records and liaising with the EPA if required.

1.6.2 The radiation licence that the RSO holds for their day-to-day work may be sufficient to perform the duties of the RSO. An additional RSO radiation licence is not required if the duties required of the RSO do not fall outside the normal scope of work practices that their existing licence covers.

1.6.3 There are specific radiation licence conditions that can be held by the RSO. These licences are only required if the type of apparatus or radioactive substances are many and varied and the radiation licence they hold does not cover their use.

1.6.4 A specific RSO radiation licence is generally only required to be issued to RSOs working in large hospitals or universities where there is a large variety of apparatus and radioactive substances that they may need to use or handle .

2. Qualifications

2.1. Knowledge and skills of a radiation safety officer

The role of RSO requires a mix of scientific and technical expertise with appropriate personal qualities. The necessary qualifications and experience of an RSO will depend on the type of organisation where the appointment is to be made. The recommended minimum qualifications and experience that may be needed by an RSO are outlined below.

2.1.1 An RSO should have attained an appropriate qualification in a discipline appropriate to the activity that they are required to undertake by their employer, for example:

- an RSO in a large teaching hospital using many modalities of radiation may need to be qualified as a medical physicist or equivalent
- an RSO in an industrial setting may need to be licensed in industrial radiography, or
- an RSO employed in a radiological practice may need to be a radiographer.

2.1.2 Satisfactorily completed an appropriate training course in radiation protection.

2.1.3 Knowledge of NSW radiation protection legislation and of relevant codes of safe practice, including:

- the Act and Regulation
- relevant EPA radiation protection guidelines and standards
- relevant documents in the ARPANSA Radiation Protection Series
- relevant codes of practice
- relevant Australian Standards
- other guidance material and information relevant to the duties of an RSO.

2.1.4 It is desirable that an RSO has a minimum two years' full-time-equivalent experience in operational radiation protection in one or more of the areas that require mandatory personal monitoring under the Regulation, with experience appropriate to their type of employment.

2.1.5 That they can demonstrate an ability to research and resolve a wide range of diverse technical issues.

2.1.6 demonstrated high-quality communication and interpersonal skills across a variety of client groups, and be able to:

- liaise effectively with all levels of staff employed in the organisation
- present radiation safety information in a clear manner
- compile comprehensive reports on radiation safety matters encountered in the organisation.

2.2. Membership of a radiation safety committee

The size and membership of an RSC will depend on the type and size of the organisation. For example, a major hospital or teaching institution probably needs a larger RSC than an industrial radiography firm. A model for membership of an RSC could be as follows:

2.2.1 Chairperson – a senior manager in the organisation

2.2.2 Secretary or executive officer – a person with a knowledge of radiation safety principles and practices.

2.2.3 Members:

- the RSO
- a representative from each department in the organisation using regulated material
- the occupational physician (if one is employed by the organisation)
- a representative of the nursing staff (in the case of a hospital)
- a representative of the occupational health and safety committee (where one exists)
- member of staff that is a user of regulated material.

3. Functions

The function of an RSO is to advise and assist the employer and person responsible to fulfil their responsibilities under the Act and the Regulation.[1] The specific functions of an RSO are at the discretion of the individual employer. An example of how an RSO can assist the employer is by developing, implementing and monitoring the effectiveness of a radiation protection program.

3.1. Functions of a radiation safety officer

3.1.1 Ascertain the radiological hazards associated with the organisation and advise the employer about suitable radiation protection arrangements that should be implemented so that radiation exposures are as low as reasonably achievable:

- for occupationally exposed employees in controlled areas[2]
- for employees in supervised areas[3]
- for members of the public, including those who have access to areas in, or adjacent to, the premises.

3.1.2 Arrange for the inspection of all monitoring devices in the organisation if owned, to determine whether they are in good working order and that they are appropriately calibrated.

3.1.3 Inspect and advise the employer on the adequacy of facilities and protocols for employees working with radioactive substances, including radiation monitoring and protective clothing.

3.1.4 Recommend the adoption, if required, of systems or procedures that ensure suitable external radiation monitors are worn and returned to the issuing organisation at appropriate intervals.

3.1.5 Advise the employer when personal monitoring of exposed persons for internal radiation exposure needs to be carried out.

3.1.6 Investigate any abnormally high external or internal radiation exposures of persons and report the results to the employer.

3.1.7 Recommend implementation of appropriate procedures to control the exposure of pregnant women in accordance with clause 3.2.12 of the *RPS C-1 Code for Radiation Protection in Planned Exposure Situations (Rev.1) (2020)*.

3.1.8 Arrange for appropriate periodic monitoring of areas, equipment and operations associated with the use of ionising radiation and radioactive substances.

3.1.9 Arrange for all employees who work with ionising radiation or radioactive substances to be provided with appropriate induction and continuing radiation safety training and maintain records of this training.

3.1.10 Recommend the adoption of systems or procedures that ensure all appropriate employees in the organisation are licensed as required by the radiation control legislation.

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[1] Not all of these functions are necessarily to be carried out personally by the RSO. These functions may be delegated to other employees.

2 Controlled area: an area to which access is controlled and in which employees are required to follow specific procedures aimed at controlling exposure to radiation.

3 Supervised area: an area in which working conditions are kept under review but in which special procedures to control exposure to radiation are not normally operating.

3.1.11 Recommend systems or procedures that ensure holding of a radiation management licence, meeting its conditions and all other pertinent requirements of the radiation control legislation are met.

3.1.12 Liaise with all employees in the organisation who may be exposed to ionising radiation during the course of their work, and their supervisors, to ensure that radiation doses are as low as reasonably achievable.

3.1.13 Advise on the provision of engineering controls and maintenance schedules for equipment.

3.1.14 Prepare and review radiation management plans as may be required by clause 26 of the Regulation. The plan should have systems or procedures to ensure safe work practices with regulated material are in place. The plan is to be available to appropriate employees. The plan should be prepared using *Radiation Guideline 2: Preparation of radiation management plans* as a reference.

3.1.15 Advise on arrangements for the proper identification and indication of all controlled and supervised areas.

3.1.16 Arrange for assess by authorised persons to controlled areas.

3.1.17 Inspect all areas where ionising radiation or radioactive substances are used, or are proposed to be used, and make reports and recommendations to the employer on radiation safety.

3.1.18 Arrange for the display of radiation warning signs – as required by the radiation control legislation – and for their removal when no longer needed.

3.1.19 Investigate, record and report to the employer and the EPA, as appropriate, any accidents or unsafe practices that affect radiation safety.

3.1.20 Advise on the safe storage of radioactive materials in accordance with the requirements of the EPA.

3.1.21 Advise on the disposal of radioactive wastes in accordance with the requirements of the EPA.

3.1.22 Arrange for records of effective doses of ionising radiation received by individual workers to be maintained for the period required by the EPA.

3.1.23 Arrange for any necessary medical services to be provided. Arrange for medical records to be maintained in accordance with any existing legislative requirements.

3.1.24 Devise and establish a protocol for the independent safety assessment of:

- members of the public, including those who have access to areas in, or adjacent to, the premises
- modifications that may affect radiation safety to existing plant, premises or operations in which ionising radiation or radioactive substances are used.

3.1.25 Arrange for radioactive substances to be transported in accordance with the requirements of the radiation control legislation. Prepare, and have endorsed by a consulting radiation expert (CRE), a transport security plan for security enhanced sources.

3.1.26 Arrange for station officers of the local fire brigade to be notified of the location of radioactive substances on the premises.

3.1.27 Arrange for the preparation and execution of contingency plans for any foreseeable radiological accidents or emergencies in the organisation.

3.1.28 Prepare and have a CRE endorse a security-enhanced source plan if required.

3.1.30 Perform any other tasks necessary to maintain a high standard of radiation safety.

3.2. Functions of a radiation safety committee

3.2.1 Develop, document and implement, if required, a radiation management plan commensurate with the scope of licensed activities.

3.2.2 Ensure that procedures and engineering are in place so that doses to employees and members of the public are as low as reasonably achievable.

3.2.3 Ensure that each proposed new operation in the organisation that involves the use of ionising radiation or radioactive substances:

- is subjected to an independent safety assessment to ensure its radiation safety
- meets all other safety aspects
- fulfils all regulatory requirements and is subjected to any necessary pre-operational tests before its commencement.

3.2.4 Review and endorse safe working rules for each workplace in the organisation.

3.2.5 Consider the requirements of radiation legislation, relevant standards and codes of practice, and monitor their compliance within the organisation.

3.2.6 Review and recommend appropriate radiation safety training for all employees who use ionising radiation or radioactive substances.

3.2.7 Review the results of the personal monitoring program if required.

3.2.8 Review and endorse radiation emergency guidelines for each workplace in the organisation.

3.2.9 Review all investigations of radiation incidents and accidents.

3.2.10 Receive and consider reports from the RSO on:

- personal radiation doses
- area radiation surveys
- incidents and accidents involving ionising radiation or radioactive substances
- inspections of areas where ionising radiation or radioactive substances are used
- licensing of users of ionising radiation or radioactive substances, and
- any other relevant matters concerning the uses of ionising radiation or radioactive substances and related facilities.

3.2.11 Inform the employer immediately of any unsafe working practice or deficiency in equipment or apparatus brought to its notice that affects radiation safety and recommend immediate remedial action.

3.2.12 Review discharges and disposal of radioactive substances from the organisation and ensure compliance with legislative requirements.

3.2.13 Provide the employer with a radiation safety report, at least annually, which reviews the current radiation safety status of the organisation.

3.3. Radiation safety committee administrative arrangements

3.3.1 The RSC should meet regularly (for example, quarterly). A special meeting may be called at any time it is required.

3.3.2 Arrangements should be made for persons to deputise for the Chairperson, the Secretary or Executive Officer and the RSO if any of them are unable to attend a meeting.

3.3.3 A quorum of members should consist of at least half of the committee membership, including the Chairperson (or deputy) and the RSO (or deputy).

3.3.4 At each meeting of the RSC, the RSO should present a report on the state of radiation safety in the organisation.

3.3.5 Any subcommittee of the RSC should report its activities to the RSC.

3.3.6 A copy of the minutes of the RSC meetings should be issued to all members of the RSC. Any member of staff should be able to see a copy of the RSC minutes on request.

3.3.7 The RSC should report to the senior management of the organisation.

3.3.8 A channel of communication with the organisation's work health and safety (WH&S) committee (if one exists) should be maintained. The WH&S officer may be a member of the RSC, but the two are distinguished by the fact that, among other things, WH&S committees are not designed to deal specifically and exclusively with radiation safety issues.

References and further reading

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Definitions

In this Guideline:

ARPANSA means Australian Radiation Protection and Nuclear Safety Agency.

Act means the *Protection from Harmful Radiation Act 1990*.

Authority means the NSW Environment Protection Authority.

CRE means consulting radiation expert.

EPA means the Environment Protection Authority.

RSC means radiation saftey committee.

RSO means radiation safety officer.

Person responsible has the same meaning as in section 6 of the Act.

Regulated material has the same meaning as in section 4 of the Act.

Regulation means the Protection from Harmful Radiation Regulation 2013.

WH&S means work health and safety.

Unless otherwise defined, all words in this Guideline have the same meaning as in the Act and the Regulation.